

GOVERNMENT OF MAHARASHTRA
REVENUE AND FORESTS DEPARTMENT



REPORT
OF THE
ANNEWARI COMMITTEE
FOR THE
Determination of Standard Yields



Printed in India by the Manager, Government Press and Book Depot,
Nagpur, and Published by the Director, Government Printing and
Stationery, Maharashtra State, Bombay-4.

1966

[Price—Rs. 3.95 or 3 s. 07 d.]

GOVERNMENT OF MAHARASHTRA
REVENUE AND FORESTS DEPARTMENT



REPORT
OF THE
ANNEWARI COMMITTEE
FOR THE
Determination of Standard Yields

*

NAGPUR
GOVERNMENT PRESS

1966

A-10-1-B.

CONTENTS

PART	SUBJECT	PAGE
I	Introductory	A-1 1
II	Scale for Suspension and Remission of Land Revenue.	14
III	12-anna and 16-anna Crops as understood by Revenue Officers.	23
IV	Previous Standard Yield Tables and Annewari Formula.	38
V	Formula for Standard Yields	52
VI	Miscellaneous Points	68
VII	Relationship between the Yield and Soil Classification Value.	74
VIII	Recommendations	90

APPENDICES

APPENDIX	PAGE
I-A D.O. No. 532-REV-8851, dated 31st October 1961 from Shri V. M. Joshi, Commissioner, Bombay Division to Shri Ghatge, Director of Agriculture, Poona.	95
I-B D.O. No. Stat-I-S-120-5560 of 1961, dated 29th November 1961 from Dr. M. D. Ghatge, Director of Agriculture, Poona to Shri V. M. Joshi, Commissioner, Bombay Division.	97
I-C D.O. No. 532-REV-9391, dated 11th January 1962 from Shri V. M. Joshi, Commissioner, Bombay Division to Shri G. V. Bedekar, Secretary to Government, A. and F. D., Bombay.	102
I-D No. S. A.-62-Stat, dated 10th April 1962 from Dr. V. G. Panse, Statistical Advisor, Institute of Agricultural Research Statistics, to Shri D. S. Ranga Rao, Statistician, Agriculture Department, Poona.	121
I-E D.O. No. Mis-I. OSD., dated 12th June 1962 from Shri V. M. Joshi, Officer on Special Duty to Shri J. B. D'Sousa, Commissioner, Bombay Division, Bombay.	123
I-F Proceedings of the meeting held in Secretary, A. and F.D.'s Chamber on 10th September 1962 at 12 noon to consider the definition of Standard normal yield for purposes of annewari.	124
II-A G.R.R.D. No. 397, dated 16th January 1884 ..	127
II-B G.R.R.D. No. 725, dated 1st February 1898 ..	132
II-C Bombay Government's letter No. 2346, dated 17th November 1902.	136
II-D G.R.R.D. No. 3872, dated 16th June 1903 ..	156
II-E G.R.R.D. No. 6985, dated 13th September 1904 ..	158

CONTENTS

iii

APPENDIX	PAGE
II-F Government of India Resolution No. 3-99-2, dated 25th March 1905.	162
II-G G.R.R.D. No. 650, dated 22nd January 1907 ..	180
II-H Letter No. 7407, dated 30th July 1909	185
II-I G.R.R.D. No. 7392, dated 3rd August 1911 ..	186
II-J G.R.R.D. No. 7773-Confl., dated 14th May 1923 ..	202
II-K G.R.R.D. No. 7773-B, dated 23rd June 1927 ..	211
II-L G.R.R.D. No. 4966-24, dated 27th March 1928 ..	228
II-M G.R.R.D. No. 7773, dated 17th September 1935 ..	231
II-N G.R.R.D. No. 2181-28, dated 13th October 1937 ..	233
II-N(1) Letter No. 84, dated 4th October 1940 of Director of Agriculture.	236
II-O G.R.R.D. No. 7773-III, dated 10th July 1941 ..	242
II-P G.R.R.D. No. 7289-39, dated 28th September 1944	249
II-Q G.C., R.D., No. ANI 1054, dated 24th July 1954 ..	258
II-R G.R.R.D. No. ANI-1054-II-C, dated 17th December 1957.	260
II-S Government Resolution, Agriculture and Forests Department, No. SNY 1053-A, dated 18th November 1959.	261
II-T Extract of the Berar Revenue Manual, Volume II, containing Revenue Book Circulars from Government of Madhya Pradesh, of Section I, Serial No. 11.	264
II-U Extract from General Note on Provisional Figures for Standard Outturns of Crops in the Dominions by Dr. Harold H. Mann, D.Sc., Second Edition of H.E.H. the Nizam's Government, Statistics, Department.	265

APPENDIX	PAGE
III-A Tables of Standard Yields compiled in 1884 ..	268
III-B Tables of Standard Yields compiled in 1889 ..	276
III-C Tables of Standard Yields compiled in 1898 ..	282
III-D Tables of Standard Yields compiled in 1927 ..	300
III-E Tables of Standard Yields compiled in 1944 ..	304
IV Letter No. 358, dated 2nd January 1963 addressed to all the State Governments, Revenue Department, regarding making of Crop annewari for regulating grant of suspensions and remissions of land revenue.	307
Reply from Government of Madras	309
Reply from Government of Mysore	311
Reply from Government of Assam	312
Reply from Government of Bihar	320
Reply from Government of Rajasthan	342
Reply from Government of Jammu and Kashmir ..	344
Reply from Government of Kerala	345
Reply from Government of Uttar Pradesh ..	346
Reply from Government of Punjab	348
Reply from Government of Madhya Pradesh ..	351
Reply from Government of Orissa	356
Reply from Government of Gujarat	384
Reply from Government of West Bengal	390
Reply from Government of Andhra Pradesh ..	538

REPORT OF THE ANNEWARI COMMITTEE FOR THE DETERMINATION OF STANDARD YIELDS

CHAPTER I

INTRODUCTORY

1. The main problem dealt with in this report is that of fixation of 'standard yields' of the different crops for each District in the State, which are used as a standard of comparison for fixing the annewari of the crops in individual villages, the standard yield itself representing the yield of a 12-anna crops. The village annewari of the crops regulates the recovery of land revenue, it being suspended in bad years in half or full according to a prescribed scale, when the average annewari of the crops in the village (weighed in proportion to the areas sown under the different crops in the village) falls below certain limits and in good years the suspended land revenue being recovered as an additional instalment of one-half or the whole of the normal assessment when the average annewari exceeds certain limits. Standard yields.

2. The annewari formula currently in use in the Districts of Western Maharashtra is as follows: Government Circular Memorandum, Revenue Department, No. ANI. 1054, dated 24-7-1954 (Appendix II-Q) of this report, and (2) Government Resolution, Revenue Department, No. ANI 1054-II-C, dated 17th December 1957 (Appendix II R)— The Annewari formula.

$$\text{Annewari} = 12 \times \frac{\text{Observed yield}}{\text{Standard yield}} \times \frac{\text{Standard soil annas}}{\text{Soil annas of the field}}$$

In this formula, the 'observed yield' means, the yield per acre of the crop in a given field which may be determined either by a crop-cutting experiment by reaping the crop from a measured area such as one guntha or by an eye estimate. When the yield is determined by a crop experiment, the weight is to be multiplied by a correction factor called "driage factor" (supplied by the Agriculture Department) to allow for the reduction in weight resulting when the grain

becomes dry. Hence, the "observed yield" represents the yield per acre of dried grain.

3. 'Soil annas' of the field means the classification value expressed in annas of the soil of the field which is related to its rate of assessment of land revenue as follows:—

$$\text{Rate of assessment per acre} = \frac{\text{Soil annas of the field}}{12} \times \text{Maximum rate of assessment for the Settlement Group.}$$

4. 'Standard Soil Annas' means the average classification value of the lands in which the particular crop is commonly grown in that District. Thus, the standard yield gives the average yield per acre of the crop which is realised in the District when the average annewari of the crop for the District as a whole is equal to 12. The formula involves the assumption that in any particular year the yields of any crop in different fields, are directly proportional to their soil classification values.

5. The above formula has also been made applicable to the Districts in the Marathwada region.

6. In the Vidarbha region, a different formula is used, viz.—

$$\text{Annewari} = 13\frac{1}{3} \times \frac{\text{Observed yield}}{\text{Standard yield}}$$

In the Vidarbha formula 'standard yields' corresponds to the annewari of $13\frac{1}{3}$ annas instead of 12 annas and further that formula makes no allowance for the differences in the soil classification values of the fields.

**Nomen-
clature.**

7. The nomenclature 'standard yield' is not fixed and the terms used are often 'standard normal yield' or simply 'normal yield'. Throughout this report, however, we shall restrict ourselves to the term 'standard yield', firstly, because it emphasises that the 'standard yield' is primarily a standard of comparison for the valuation of the crops, i.e., for judging the degree of their failure or success in bad and good years; secondly, because it is necessary to distinguish this term from the term 'normal yield' which is now used by the Agricultural Statisticians with a specific meaning: 'the average yield

per acre obtained in a given area over a stated period of years is called 'the normal yield of that area'. This usage has become well-established and we recommend that in future, the term 'normal yield' should be used only in the above sense of average yield and so far as the yields required for the Revenue Department's annawaris which regulate the suspension and remission of land revenue are concerned, only the term "standard yield" should be used. The terms 'standard normal yield' should not be used for any purpose as it would lead to confusion.

8. It may also be remarked here that throughout this 'report' we have often used simply the term 'yield' in place of the more accurate expression 'yield per acre' in order to avoid what would have been otherwise a tedious repetition. For indicating the crop produced in a region the term 'produce' has been generally used.

9. The remarks made in the above paragraph brings us to the root of the discussion which led to the appointment of this Committee, viz., whether the 'average yield' over a period of years should not itself be taken as the 'standard yield' for judging the degree of failure or success in bad or good years. In fact, the State Government has already adopted this basis under Government Resolution, Agriculture and Forests Department, No. SNY 1053-A, dated 18-11-1959 (Appendix II-S) in which it is laid down that (the 'standard yields' should be fixed on the basis of a moving average of the yields per acre obtained in the preceding ten years and they were accordingly fixed for the crops paddy, rabi-jowar and wheat for which ten years' crop-cutting data was available.)

10. Tables of standard yields had been compiled previously in 1884, 1927 and 1944. The standard yields given in these statements are much higher than the average yields tabulated under the above mentioned Government Resolution of 1959. Definitions of 'standard yield' were also given first under Government Resolution, Revenue Department, No. 725 of 1-2-1898 (Appendix II-B) and then under Government Resolution, Revenue Department, No. 7392, dated 3-8-1911 (Appendix II-I). In none of these tables or

Point at issue.

Previous definition of 'standard yield'.

definitions, however was the standard yield equated with the 'average yield obtained over a period of years', but the definitions on the contrary imply that the standard yield had to be different and would be substantially higher than the average yield.

11. The first definition, contained in the Government Resolution of 1898 relates to a period before the scale of remission and suspension was formulated. This definition is not thus related to the scales of suspension and remission, and is not therefore so relevant for our purpose. That definition seems to have been framed by the Government of India more with the object of aiding in making estimates of the produce of agricultural crops which the Government of India then required. Nevertheless, in this Government Resolution, it has been stressed that the standard yield—which in this Government Resolution is described as a normal yield—would be substantially above the average. The relevant extracts from the Government of India letter, dated 23-10-1897 which is quoted in the preamble of the Government Resolution is as follows:—

"It will be noticed that in the above instructions, the word 'normal' has been substituted for 'average'. The normal crop has been defined as that crop which past experience has shown to be the most generally recurring crop in a series of years—the typical crop of the local area; the crop which the cultivator has a right (as it were) to expect and with which he is (or should be) content, while if he gets more, he has reason to rejoice and if less he has reason to complain. This will not necessarily correspond with the average crop of a series of years which is indeed an arithmetical abstraction and may possibly never occur. For it is obvious that in a tract in which the agricultural standard is low and the harvest precarious 'the yield of the year' will fall below the normal as above defined more often and more largely than will be the case in a highly cultivated and well-irrigated tracts and that in the former case the average will probably be considerably below the normal while in the latter it will probably approximate closely to it."

12. In the above definition, the normal yield has been taken as corresponding to the 'model yield'. As stated above, the definition seems to have been framed more as an aid in framing estimates of crop yields. For our purpose, the more relevant definition is that laid down by the Bombay Government under Government Resolution, Revenue Department, dated 3-8-1911. In this, the standard yield is defined as "the crop which the cultivator may reasonably expect from his field in a year of rainfall fairly favourable in quantity and distribution and with proper cultivation."

13. In the Land Revenue Rules themselves (Administrative Order XXX), standard yield is defined as "the average yield of satisfactory season". In his commentary of the Land Revenue Rules, Mr. Anderson (who had considerable experience of Land Revenue Administration of the Bombay State, having held for a long period the post of Director of Land Revenue and Commissioner of Settlement) has described standard yield as "the yield in a pretty good year".

14. In fact the suggestion that the average yield should be taken as the standard yield had been specifically raised previously and was rejected by Government in 1923. The proposal was made by Mr. Mountford who was then the Commissioner, Southern Division (vide his letter No. REV 68, dated 20-3-1923, quoted in the preamble of Government Resolution No. 7773, dated 14-5-1923, Appendix II-J). He argued that a 'satisfactory' season was one which seldom occurs in practice and that taking the yield of the latter as standard for comparison resulted in heavy and unnecessary sacrifices of revenue to Government. The matter was then considered by the Commissioners and the Director of Agriculture in Conference. The latter did not agree with Mr. Mountford's view that the existing definition resulted in unnecessary sacrifices of revenue to Government and opined that there was no reason for departing from 1911 definition, namely, that a normal crop is the crop to be expected in a year of rainfall fairly favourable in quantity and distribution. The Commissioners' view was upheld by Government (Government Resolution, Revenue Department, No. 7773-B, dated 23rd June 1927 Appendix II-K). At about this time,

a Committee was also appointed by Government, called the Annewari Committee, consisting of senior Revenue officials and members of the Legislature. This Committee also did not make any recommendations for departing from the 1911 definition.

15. The matter was next considered in 1941 (Government Resolution, Revenue Department No. 7773-III, dated 10-7-1941 (Appendix II-O). In the preamble of the Government Resolution is quoted the letter of the Commissioner No. 205 dated 11th January 1941, in paragraph 4 of which the Commissioners state that the present standard of valuation is the 12, anna crop which means the yield in a season of rainfall fairly favourable in quantity and distribution and with proper cultivation of land of known classification quality.

16. Further on it is stated in the letter that the Director of Agriculture did not agree with the above definition but proposed instead another definition, namely, that the normal yield is the crop which the cultivator will not be disappointed to realise. It will be noted that the definition proposed by the Director is on the lines of the definition given by the Government of India in 1898.

17. This brings us to a slight divergence between the point of view of the Revenue and Agriculture Departments. The latter Department is mainly concerned with making estimates of the yields from year to year and the definitions of standard yields proposed by it are with this aim in view. On the other hand, the Revenue Department is mainly concerned with suspension and remission of land revenue and definitions of standard yield proposed by it are more related to that end.

18. In this letter, the Commissioners have remarked that the definition proposed by the Director was preferable as it was more definite. It is however difficult to understand the reasoning underlying this view. (The degree of mental satisfaction of an (average) agriculturist seems to be as much if not more difficult to determine than the satisfactory nature of an agricultural season.) In any case, even in the 1941 Government Resolution, Government did not make any change in the 1911 definition of 'standard yield'. Apart from

this, even according to the definition proposed by the Director of Agriculture the standard yield would be higher than the average yield.

19. The above view that the standard yield should be above the average yield is also confirmed by the previous tables of standard yield of 1884, 1927 and 1944, the yields in which are much higher than the average yields tabulated under the 1959 Government Resolution. This will be seen from the table below which compares the yields fixed under the 1959 Government Resolution, with those fixed under the previous Government Resolution of 1944 (Government Resolution, Revenue Department, No. 7289/39, dated 28-9-1944—Appendix-II-P):—

TABLE No. I

Table showing standard yield for 1959, 1944 and percentage of 1959 standard yield to 1944 standard yield

District	Crop								
	Rice			Wheat			Rabi	Jowar	
	SY(I) (1959)	SY(II) (1944)	I/II per cent	SY(I) (1959)	SY(II) (1944)	I/II per cent	SY(I) (1959)	SY(II) (1944)	I/II per cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Ahmedabad ..	529	1,440	37	272	500	54	374	600	62
2. Kaira	540	1,320	41	405	600	67	374	..	..
3. Broach	348	900	39	249	600	41	385	820	47
4. Panch Mahals ..	396	1,200	33	405	700	58	374	820	49
5. Surat	821	1,560	53	257	560	46	374	600	62
6. West Khandesh	273	1,080	25	294	600	49	385	575	67
7. East Khandesh ..	•	..	..	320	600	53	385	575	67
8. Nasik	698	1,080	65	241	460	52	194	520	37
9. Ahmednagar ..	671	1,040	64	196	460	43	198	..	..
10. Poona	764	1,120	68	198	350	57	143	400	36
11. Sholapur ..	•	..	..	198	400	49	209	350	60

TABLE No. I—cont.

District	Crop								
	Rice			Wheat			Rabi	Jowar	
	SY(I) (1959)	SY(II) (1944)	I/II per cent	SY(I) (1959)	SY(II) (1944)	I/II per cent	SY(I) (1959)	SY(II) (1944)	I/II per cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
12. Satara	660	1,120	59	..	..	..	325	500	65
13. Belgaum	906	1,140	79	142	560	25	206	800	26
14. Thana	1,130	1,200	94	..	..	..	..	..	..
15. Kolaba	1,128	1,250	90	..	..	..	..	..	..
16. Ratnagiri	870	950	92	..	..	..	..	..	..

*NOTE.—Standard yield was not revised in 1959 as the 1959 Survey data was not adequate to give well-determined normal yields.

20. Thus, the 1911 definition had been in force for a period of over 40 years. The subsequent equation of the standard yield to the average yield came about in the following circumstances.

**Recom-
mendation
of Technical
Committee
appointed
by Govern-
ment of
India in
1949.**

21. The Government of India had appointed in 1949 a Technical Committee for co-ordination of agricultural statistics in different States in India. The Committee was mainly concerned with improving the methods of estimation of agricultural production and laying down a uniform system in connection therewith. One of the statistics was required to express the effect of the season on the crop yield. The Committee recommended that the seasonal condition factor should be expressed by defining the 'normal yield' as a moving average of the yields per acre of the crop obtained during the preceding period of ten years, the ratio of the estimated yield per acre of the crop during a particular year to the normal yield expressed as a percentage being shown as the seasonal condition factor for that year.

22. As stated above, the Committee was mainly concerned with laying down a uniform system on an All India basis in connection with the estimates of agricultural

production. The question as to what standards should be used for deciding suspensions and remissions of land revenue was not included in the Committee's terms of reference and perhaps such a point could hardly be considered by an All India Committee as the land revenue systems prevailing in different States may be widely different. The Committee had also not made any recommendation on this point. It appears, however, that it had discussed in an informal manner with the State representatives of the Revenue and Agricultural Departments whether the normal yield as defined by it for the purpose of the seasonal condition factor could not also be used for making the allowances required for granting suspensions and remissions of land revenue. The State representatives appeared to have agreed with this view. The Director of Agriculture had accordingly in his letter No. RES 493/601, dated 14th January 1948 recommended that the Statistical Committee's recommendations may be accepted and the standard yields fixed accordingly on the basis of moving average per acre obtained in the past ten years. Government had then obtained views of the Collectors on this proposal. The relevant file could not be traced, but it appears that no objection was raised and consequently the above-mentioned orders in the Government Resolution, Agriculture and Forests Department, of 18-11-1959 were passed.

23. The question regarding the validity of the above method of fixing the 'standard yields' was raised in 1961 by Shri V. M. Joshi who was then the Commissioner, Bombay Division (and who is also the Chairman of the present Committee). In 1961, parts of the Nasik District were affected by scarcity conditions. A major crop of this District is Bajri, the 'standard yield' of which as fixed in 1944 was 360 lbs. The yield was not revised under the 1959 Government Resolution, as ten years' data for Bajri crop for the District was not then available. However, ten years' data had become available in the meanwhile and on a reference from the Collector of Nasik, the Statistician of the Department of Agriculture replied that the average yield per acre for the period of ten years from 1950-51 to 1960-61 came to 235.4 lbs. and suggested that this average may be used as

'standard yield' for making the annewari. It was found that with the latter as the 'standard yield', many villages which were previously classed as affected by scarcity conditions, i.e., as having an annewari below 6 annas and which were therefore entitled to half suspension of land revenue and other relief measures, such as, starting of scarcity measures, etc., would have to be classed as non-scarcity villages. In fact, in many villages, the annewari went up above 8 annas so that instead of being eligible for half suspension, the villages became due for recovery of $1\frac{1}{2}$ times the normal land revenue. These anomalies were pointed out by Shri Joshi, who argued out that the adoption of the average yield as the standard yield was at variance with the practice followed in the past 50 years and would frustrate Government's scarcity relief policies as the standard yields would be fixed at too low a level.

24. The correspondence which ensued consisting of—

- (1) Shri Joshi's D. O. letter No. 532/REV 8851, dated 31-10-1961 addressed to the Director of Agriculture,
- (2) The latter's D. O. reply No. ST AT/I.S. 125/5560 of 1961, dated 29-11-1961, (3) D. O. letter, No. 532-REV 9391 dated 11-1-1962 addressed by Shri Joshi to the Secretaries to Government of the Revenue Department and the Agriculture and Forests Department, (4) the remarks of Dr. Panse, Statistical Advisor, Institute of Agricultural Research Statistics, whose advice was sought in the matter, and (5) Shri Joshi's comments on (4), are given in Appendix I, sub-appendices A, B, C, D and E, respectively.

25. The matter was thereafter discussed in a meeting of Officers of the Revenue, Land Records and Agriculture Departments held in the Chamber of the Secretary, Agriculture and Forests Department (vide proceedings of the meeting—Appendix I-F). It was decided therein that the whole question should be referred to a Technical Committee and the present Committee was appointed by Government as a result.

26. As stated in paragraph 2, the annewari formula in use in Western Maharashtra and Marathwada Districts is based on the assumption that the yield per acre of any crop

in a given year is directly proportionate to the soil classification value of the field.) The validity of this assumption had frequently been questioned in the past, but in spite of much discussion, the formula was allowed to stand mainly due to the absence of any better alternative. The Vidarbha formula, on the other hand, did not make an allowance for differences in the soil fertility. It was therefore decided that in addition to the fixation of 'standard yields', the questions regarding the validity of this assumption and the connected one of introducing uniformity in annewari formula in use in Vidarbha and remaining parts of the State, should also be referred to the Committee. Accordingly the following terms of reference of the Committee were laid down in the Government Resolution:—

- (1) To examine the fixation of standard yields and suggest suitable standard yields for each major crop in each District of the State in the light of the available results of crop-cutting experiments made in the past several years;
- (2) To examine the suitability of the annewari formula and in particular the manner in which the allowance is made in the formula for variations in the fertility of the soil and suggest necessary modifications, if any, in it; and
- (3) To introduce uniformity in the annewari formula used in Vidarbha region and the rest of the State.

27. As the primary purpose of the 'standard yield' is to regulate the grant of suspensions and remissions of land revenue in bad years and recoveries of suspended arrears in good years, it is necessary to examine the basis underlying the scale relating to the grant of suspensions and remissions. This is done in Chapter II.

Outline
of the
Report.

28. Chapter III contains extracts taken over a period of about 40 years from 1900 to 1940 from the reports of Revenue Officer, such as Collectors, Commissioners and the notings in the Secretariat files, which show how the concept of 12-anna yield was interpreted in practice by experienced

Revenue Officers. It is concluded that in practice an annewari exceeding 12 annas was taken as indicating a bumper crop which may be expected only once or twice in a period of ten years, while any annewari above 16 annas was treated as either impossible or at least as one which can occur very rarely.

29. Chapter IV contains a discussion regarding the tables of 'standard yields' prepared in 1884, 1927 and 1944, as also a table of estimated average yields per acre prepared in 1898.

30. Chapter V contains the discussion relating to the formula for fixing standard yields. In the light of the considerations set up in the previous Chapters, and particularly in Chapter II, it is recommended therein that the 12 annas crop should be fixed at such a level that a yield exceeding it would ordinarily be described by agriculturists or Revenue officers as a 'bumper crop', and further that a bumper crop may be defined by convention as one expected to occur only once or twice in a period of ten years so that the probability of its occurrence is 15 %. After discussing the merits and demerits of various alternatives, it is finally recommended that the 12-anna crop may be fixed by taking the mean of the three highest yields per acre realised in a period of ten years.

31. For some Districts data for the full ten years' period is not available. For such districts, it is recommended that the standard yield may be fixed provisionally by taking the mean of the best three years' yields if the data available is for eight years or more and the mean of the best two yields when the data is available for 5 to 7 years, these provisional yields being revised when the data for full ten years becomes available.

32. Chapter VI deals with certain miscellaneous points; viz., improvement of the accuracy of the preliminary estimates of crop yields, fixation of 'standard yields' for certain crops (e.g., irrigated crops) for which sufficient crop-cutting data is not available and one more point which has been specifically referred to the Committee by the Revenue Department, viz., annewari of fields in which grass is grown as a crop.

33. Chapter VII contains a discussion of the assumed relationship between the classification value of the soil and the yield. The matter is a highly complex one requiring further extensive analysis of the data. This Chapter is, therefore, of an interim character and a further report regarding this part which is related to points Nos. 2 and 3 in the terms of reference shall be submitted by us later.

34. Chapter VIII gives a summary of the recommendations in the report. Appendix I (Sub-Appendices A to F) gives as stated before the previous correspondence starting with Shri Joshi's letter to the Director of Agriculture in 1961 which preceded the appointment of this Committee. Appendix II (Sub-Appendices A to U) gives the various Resolutions of the Bombay Government relating to Annewari. Appendix III (Sub-Appendices A, B, C, D and E) gives tables of standard yields compiled in 1884, 1889, 1898 (table of average yields), 1927 and 1944. Appendix IV contains replies received from the various State Governments to whom a reference had been made by us regarding the method followed by them in fixing standard yields. These replies, however, do not throw any light on the point at issue.

CHAPTER II
SCALE FOR SUSPENSION AND REMISSION OF
LAND REVENUE

1. The scale currently in force in the districts of Western Maharashtra for regulating suspensions and remissions of land revenue and for the recovery of the suspended arrears in good years is as follows:—

TABLE No. 2

Anna classification of crops	Proportion of assessment to be collected
(1)	(2)
11 anna and over	2
Over 8 annas and under 11 annas	1½
Over 6 annas and 8 annas	1
Over 4 annas and under 6 annas	½
4 annas and under	Nil

NOTE.—The instalment of one-half on the whole in addition to the normal land revenue is to be recovered only if there are suspended arrears of land revenue of previous years.

2. The rules regarding the remission of land revenue are as follows:—

In Gujarat and Konkan the suspended arrears are remitted if they are in excess of one year's revenue and in the Deccan districts if they are in excess of two years' revenue. The suspended arrears are also remitted when they are more than three years old, except in certain scarcity districts, like Sholapur, Bijapur, etc., in which they are remitted when they are more than four years old.

3. Two features of this scale are noteworthy, namely, that a village qualifies for suspension of land revenue when the crop annewari falls below 6 annas and secondly, the first slab starts with 11 annas, but there is no higher slab starting with

say 16 annas. It is necessary to examine how these limits came to be fixed as they have a bearing on the concept of the 12 annas yield and the connected one of 16 annas yield.

4. A uniform scale for regulating the grant of suspensions and remissions was prescribed in the Bombay Province in 1905. The matter started with the report published in 1901 of the Famine Commission which was appointed by the Government of India. In paragraph 175 of its report, the Commission has observed that "In Bombay there is at present no system of suspensions or remission in ordinary years, but the terms of the Famine Code give Collectors ample powers of suspensions in the case of an abnormal failure of the harvest causing total or almost total destruction of the crops over a considerable areas and direct that such suspension should be eventually followed by an enquiry into each case as to the desirability of collection or remission" and the Commission further observed that "the executive orders of the Bombay Government have taken away the discretion allowed to Collectors by the terms of the Code".

5. In paragraphs 277 to 280, the Commission examined the systems of suspensions and remissions prevailing in Madras, Punjab, etc., and then in paragraph 281 it made a general recommendation as follows:—

"It is desirable to fix the relief point low in order to secure that enquiry is made in all cases of extensive crop failure; but ordinarily we think, relief will not be required when there is half a normal crop."

6. This recommendation implied that relief by way of suspensions or remissions would be necessary when the crops fell below half the normal. This recommendation was generally considered reasonable and accepted. In Bombay Province, the normal crop was taken as 12 annas and that is how the limit of 6 annas for the grant of suspension came to be fixed. On the publication of the Famine Commission's Report, the Government of India entered into correspondence with various Provincial Governments on the question of prescribing a uniform scale for the grant of suspensions and remissions. The Bombay Government communicated its

view in its letter No. 2346, dated 17-11-1902 (Appendix II-C). In this letter, the Bombay Government took the (view that it would not be possible to fix the annewari accurately.) In para 8 of the letter, it observed that "the most competent expert could not regularly estimate the outturn even of an individual field within one-eighth of the actual and where the yield of any class of crop, not to speak of the crops of all classes within large or small tracts has to be gauged, it would be futile to attempt such close estimates". The Bombay Government, therefore, considered that instead of fixing the annewari of the crop it would be better to classify the crop as 'bad', 'poor', 'fair', etc., and in para 11 of the letter it recommended the following as the suitable scale for regulating the recovery:—

TABLE No. 3

Classification of crops	Proportions of assessment the collection of which would be justified in	
	Gujarat and Konkan	Deccan
(1)	(2)	(3)
Good or bumper	2	2
Normal ..	1½	2
Fair	1	1½
Poor	½*	1
	(except on holdings for which not more than Rs. 10 is due, when none should be levied).	
Bad	0	½*
	(except on holdings for which not more than Rs. 10 is due, when none should be levied).	
None	0	0

* i.e., one instalment.

7. (For Deccan a higher scale of recoveries has been fixed than for the Konkan and Gujarat districts.) The reason given for this differentiation was that in the Gujrat and Konkan in fixing the assessment account had not been taken of the probability of practical failure of the crops in some areas, whereas in the Deccan, including Khandesh and Southern Maratha country full allowance had been made for the precarious nature of the climate (paragraph 7 of the Bombay Government's letter No. 2346 dated 17-11-1902 Appendix II-C). In other words in the Deccan areas, the pitch of assessment had already been fixed somewhat low to allow for the greater liability to failure of crops.

8. Orders embodying this scale were also issued under Government Resolution, Revenue Department, No. 6985 dated 13-9-1904 (Appendix II-E). The following explanatory note was inserted below the scale:—

“When crops have totally failed or are not worth reaping they should be classed as “none”; where they are considerably below half the normal, but still worth reaping, they should be classed as “bad”; if they are about half the normal, they should be classed “poor”.

9. Consistently with the above instructions were issued to all Collectors under Government Resolution, Revenue Department, No. 3872, dated 16-6-1903 (Appendix II-D), that (in estimating the crops, arithmetical standards which it has not been found possible to get applied uniformly may be discarded.)

10. The Government of India however considered that it would be preferable to express the scale in terms of Anne-wari. In its letter No. 462-1909-4, dated 25-3-1905, it observed as follows:—

It may be admitted that the notation of crop in anne-wari is somewhat uncertain, but it is far less so than a mere description as “bad”, “poor”, or “fair”. The Government of India also under its Government Resolution No. 3-99-2, dated 25-3-1905 (Appendix II-F), set out the general principles which in its opinion should regulate the grant of suspensions

and remissions. In paragraph 10 of this Government Resolution, the Government of India have observed that "the Government of India are fully aware that in dealing with the scale of relief to be given when the crops do not reach half the normal standard it would be fallacious to suppose that the various degrees of crop failure can be accurately dealt with by slavishly following any arithmetical formula. At the same time, they are convinced that without the guidance of some arithmetical standard, it is impossible to ensure any kind of uniformity in the grant of relief and accordingly, while deprecating anything in the shape of servile adherence to formula they are strictly of opinion that a higher scale of relief on an arithmetical basis should be prescribed for general guidance". The Government of India further explained that as a minimum amount had to be left with the cultivator for the subsistence the degree of relief should increase as the yield decreased more rapidly than the degree of failure. That Government accordingly recommended the following as a suitable scale:—

TABLE No. 4

Crop (16 annas normal)	Degree of relief
(1)	(2)
	Per cent
6 annas and less than 8 annas	25
4 annas and less than 6 annas	50
Less than 4 annas	100

11. The Government of India has here taken the normal crop as 16 annas; it appears that in the U. P. and some other provinces the normal crop is taken as 16 annas.

12. On the basis of the Government of India's letter, the Bombay Government prepared draft rules for regulating suspensions and remissions with suitable modifications. In

the Bombay Province, the normal crop was reckoned as 12 annas and this is apparently prescribed in Government Resolution No. 725 dated 1-2-1898 (Appendix II-B). The modified scale proposed by the Bombay Government was as follows (vide Government Resolution, Revenue Department, No. 3872, dated 11-5-1905).

TABLE No. 5

Anna classification of crops	Proportions of assessment the collection of which would be justified in	
	Gujrat and Konkan	Deccan
(1)	(2)	(3)
Over 12	2	3
8 to 12	1½	2
6 and over, under 8 ..	1	1½
Over 4 under 6 (except on holdings on which not more than Rs. 10 is due when none should be levied).	½	1
4	0	½ (except on holdings on which not more than Rs. 10 is due when none should be levied).
Under 4	0	0

13. These draft rules were then circulated to the Collectors and Commissioners for their remarks. All the Collectors in the Deccan unanimously opposed the prescription of the higher scale for the Deccan and urged that when the crop was over 12 annas, it would not be possible for the cultivator to pay three times the assessment as was proposed in the draft. Ultimately, therefore, the proposal to apply higher scale for Deccan districts was abandoned and in the rules which were finally sanctioned under Government Resolution, Revenue Department, No. 2702, dated 22-1-1907, the scale

prescribed for Gujarat and Konkan was also made applicable to the Deccan. The scale finally sanctioned was—

TABLE No. 6

Anna classification of crops	Proportion of assessment the collection of which would be justified
(1)	(2)
Over 12	2
8 to 12	1½
6 and over, under 8	1
Over 4, under 6	½
4 and under	0

14. Subsequently, the first slab was changed from over 12 annas to 11 annas and above. This change was made in 1928 (Government Resolution, Revenue Department, No. 4966/24, dated 27-3-1938, Appendix II-L). An investigation was then made regarding the cost involved in the grant of suspension and remission of land revenue. It was felt that the cost was too large and some steps were necessary to reduce it, and hence the abovementioned change was made. For the same reasons, under the same Government Resolution, the limit of three years for remitting suspended arrears was increased to four years in the case of scarcity Districts, like Sholapur, Ahmednagar, etc. The changes were thus made on an *ad hoc* basis and have no particular significance for our purpose.

15. We may now examine why the scale does not go beyond the annewari of 16 annas. So far as the Gujarat and Konkan tracts are concerned, the following explanation will apply.

16. The Government of India had recommended (and this was accepted by the Government of Bombay) that in a fully assessed tract, i.e., where the pitch of assessment had not allowed for the failure of crop, the suspended arrears should be remitted as soon as they exceed one year's assessment.

This rule was applied to the Gujarat and Konkan. Consequently, the question of recovery of more than two assessments in any year never arose in their case. Therefore, there was no reason for providing any higher slab in the scale for these districts.

17. In the Deccan area, on the other hand, the rule applied was (and this is still in force) that suspended arrears should be remitted if they exceed two years' assessment. Therefore, the question of recovery of three years' assessment in the Deccan districts arose. In the Deccan area, it was in fact first proposed to recover three assessments whenever the crop exceeded 12 annas, and the proposal had to be abandoned only because the Collectors unanimously urged that for the 13 annas crop or above the cultivator would find it impossible to pay three times the assessment. Now, if an annewari above 6 annas had been considered possible, the response of Government obviously would be that if it is harsh to recover three assessments for a 12 annas crop they would at least be recovered when the annewari is still higher, i.e., when it exceeded 16 or 18 annas. The fact that such a suggestion was not even thought of by anybody leads strongly to the inference that 16 annas was considered to be the maximum possible annewari.

18. In Vidarbha districts, there are two scales governing suspension, namely:—

TABLE No. 7

Scales of suspension prevailing in Vidarbha (M. P. Land Revenue Rules).

	Degree of relief
A Scale	
6 annas or over	Nil.
4 annas and less than 6 annas	Half.
Less than 4 annas	Full.
B Scale	
8 annas or over	Nil.
Less than 8 annas and not less than 6 annas	Half.
Less than 6 annas	Full.

19. The A scale is applied to villages whose conditions is normal and the B scale to those which had suffered from recent crop failure or deterioration. The sanction of the State Government is required to be obtained to the application of B scale, except in villages in which there has been general suspension of land revenue in the previous successive two years or in which the outturn of the crop in either of the previous two years has been less than 4 annas.

20. As regards remissions the suspended arrears were ordinarily remitted when they were more than three years old and in certain specific tracts when the amount of suspended arrears exceeded the annual revenue demand the excess was remitted.

21. As regards the recovery of the suspended revenue, no precise scale was laid down in the M. P. as in the Bombay State and the matter seems to have been left to the discretion of revenue officers.

CHAPTER III

TWELVE-ANNA AND SIXTEEN-ANNA CROPS AS UNDERSTOOD BY REVENUE OFFICERS

1. This Chapter contains a series of extracts taken from Secretariat files which throw light on how the concepts of 12- and 16-anna crops were in practice interpreted by senior Revenue officers such as Collectors and Commissioners.

2. **Serial No. 1.**—The following extract is taken from the proceedings of the All-India Statistical Conference, held in 1883:—

“The question whether any method of ascertaining estimate of yields of crops is possible, was next discussed. It was resolved that ‘the only safe method of ascertaining the produce of any year is by means of standards of outturn to be drawn up for each tract in each Province’. That no satisfactory results can be expected from any system under which actual outturns are annually returned by Village Officers in definite quantities per acre. That in every standard of the nature above referred to, the average good crop be taken as three-fourths of a bumper crop”.

3. It seems that it was in pursuance of this resolution that the tables of standard yields were prepared by the Bombay Government in 1884. We note also that the standard yield here referred to as “an average good crop” would mean the average of good crops only and not the average over a period of years. This resolution also gives an indication of how the standard yield may have been equated to 12 annas in the rupee scale. The bumper crop having been taken as a 16-anna crop, all crops up to one half of the bumper crop, i.e., above 8 annas, may have been treated as good crops, so that the annewari of the average yield crop would be 12. In the Vidarbha area, the average may have been taken for crops ranging between the bumper crop and up to two-thirds of the bumper crop, thus giving $13\frac{1}{3}$ as the annewari of the standard yield.

4. **Serial No. 2.**—The orders that the normal yield should be taken as a 12-anna crop instead of a 16-anna crop

were issued under Government Resolution, Revenue Department, No. 725 of 1-2-1898 (Appendix II-B). In the notes underlying this Government Resolution, the following minutes were received by two Executive Councillors:—

“It has always seemed to be absurd and unnatural to take 16 annas as merely a normal or average crop. I take it that to the ordinary cultivator 16 annas is the highest conceivable standard and he regards 20 annas as an absurdity”.

26-1-1898.

“I agree 16 being the full number of annas in a rupee the greatest number you can cram into or get out of it—on this analogy 16 annas would represent the best and largest crop you could raise on land—a bumper crop, whilst 12 annas would be the normal and fair”.

27-1-1898.

5. Serial No. 3.—(Page 36 of R. D. File Vol. 148 of 1907). As stated in Chapter II under the draft suspension and remission rules originally proposed by the Bombay Government, it was proposed to recover three assessments in the Deccan when the crops were above 12 annas. With reference to this proposal the following question was put in Legislative Council by a Member, Dr. Bhandarkar—“I beg Your Excellency’s permission to suggest that the suspended revenue should not be wholly collected the very next year after famine or scarcity, for the payment of twice the assessment puts the cultivator almost in the same condition in which he was in the famine year”. The following reply was given by the Member of the Council—“As regards the proportion or multiples of assessment which it would be justifiable to collect in good years the Hon. Member objects to the collection of three times the assessment from a Deccan cultivator when the crop is 12 annas or more. This he represents as collecting three times the annual assessment out of an average crop. But the rule is that this high multiple of assessment shall be collected only when the crop is over 12 annas. That means really something like a ‘bumper’ crop. The information of Government is that that multiple (3) of the assessment will represent no more than half the net profits from a bumper crop”.

6. Serial No. 4.—The following is the reply by Mr. A. W. W. Mackie, Superintendent of Land Records, in 1907, to the Commissioner, S. D., in which he upheld the proposed recovery of three assessments.*

“In the worst case, a ryot who had had no crops at all for two years and a 12-anna crop for the third year would be called on to pay three times the assessment in the third year. I do not think the man who had had no crop for two years and then a 12-anna crop in the third year can be expected to pay thrice the assessment in the third year. But that is a worst possible case. In the most favourable case, a man who had a succession of two 3-anna crops and then a 16-anna crop would be called on to pay thrice the assessment”.

(Note here that for the range above 12 annas, 16 annas is treated as the most favourable case suggesting that an annewari above 16 was not considered possible.)

7. Serial No. 5.—(Page 139 of R. D. File Vol. 147 of 1907).—The following remarks occur in the note prepared by the Collector, Ahmednagar, in which he had proposed an alternative scale for regulating recovery of suspended arrears. In proposing the scale the Collector's object was to limit the Government demand to a maximum of half of the crop, to leave small holders a minimum of 4 annas out of the normal 12-anna crop and others a minimum of 3 annas. On a rough average the assessment was taken as equivalent to 2 annas out of the normal 12-anna crop. The Collector accordingly proposed the following table:—

TABLE No. 8

Anna Valuation (1)	Government share (2)	Ryot's share (3)
16 6	.. .. 10	
15 6	.. .. 9	
14 6	.. .. 8	
13 6	.. .. 7	
12 6	.. .. 6	

*Vide Chapter II, paragraph 5.

TABLE No. 8—cont.

Anna Valuation (1)	Government share (2)	Royt's share (3)
11 5		.. 6
10 5		.. 5
9 4		.. 5
8 4		.. 4
7 3		.. 4
6 3 but small holdings	2	.. 3 but small holdings 4.
5 2 but small holding	1	.. 3 but small holdings 4.
4 1 but small holdings	0	.. 3 but small holdings 4.

It is seen that the table starts with the anna valuation of 16, indicating that that was considered to be the maximum possible annewari.

8. Serial No. 6.—(Page 83 of R. D. File Vol. 147 of 1907).—Here there is a report to Government from the Commissioner, S. D., in which there is a reference to the occurrence of an annewari of 14 annas for a particular year in Bijapur District.

9. Serial No. 7.—(Page 97 of R. D. File Vol. 201 of 1908).—The following is an extract from a Secretariat note put up to the Minister:—

“Attention is invited to the remarks at the foot at page XXII of the Rainfall Statistics appended to the Season and Crop Report for the year 1905-06 from which it will be seen that during that year the season in Ahmedabad District was fairly good, the yield of kharif jowar and bajri being 6 to 12 annas and of rice 2 to 7 annas, wheat yielded 8 to 12 annas and the outturn of cotton was almost the same except in Modasa where it was only 2 annas”.

(It should be noted that the year having the above annewaris is described as a fairly good year).

10. Serial No. 8.—(Page 99 of R. D. File Vol. 201 of 1908).—The following observation occurs in a note of the Executive Council:—

“The orders are considered decidedly liberal for in Gujarat a good year signifies a crop from which it would be easy to pay three years’ assessment, yet for a bumper crop, i.e., crop exceeding 12 annas we take current and suspended revenue only up to twice the assessment and for the good average year when it would be possible to pay twice the assessment, we take current and suspended revenue up to 1½ times only”.

(Here an annewari between 8 and 12 annas is taken as indicating a “good average year” in which the cultivator can well pay 2 assessments).

11. Serial No. 9.—(Page 91 of R. D. File 342 of 1919).—The following remarks relate to the famous Bardoli Agitation against the revised settlement of Kaira District. The observations occurred in the note which was proposed by the Executive Councillors in reply to certain criticisms levelled by Sir Shankaran Nair:—

“A normal crop is always taken to be 12 annas, i.e., a crop which will be expected from a particular holding under normal conditions of rainfall and cultivation. Under abnormally favourable conditions, a bumper crop might be secured which might be estimated at 14 or 16 annas”.

(It will be seen that even a crop of 14 annas was treated as one which would occur only in abnormal circumstances.)

12. Serial No. 10.—(Page 203 of R. D. File No. 4966/24).—According to subsequent modification of the remission rules made in 1928, it was directed that in certain famine tracts such as Sholapur and Bijapur Districts, the suspended arrears should not be remitted unless they become 4-year old which the time limit in other tracts remained as only three years. A question was raised by the Executive Council whether this

A-10—3-A.

was justified. The following observation occurs in the reply of the Commissioner:—

“This does not involve any greater severity for the precarious tracts. If they get one good year after 4 poor or mediocre ones, it is quite a normal thing for them. On the other hand, such an occurrence in a non-precarious tract would be abnormally bad. By poor or mediocre years, I mean years in which not more than one assessment can be collected”.

(This means that according to the Commissioner's expectation in precarious areas on the average only once in 5 years the annewari would be above 8 and in the remaining years it will be below 8).

13. Serial No. 11.—(Page 135 of R. D. File No. 4966/24 Part I).—The following observation occurs in a joint letter from the Commissioners which is quoted in the preamble of G. R., R. D., No. 4966/24 dated 27-3-1928):—

“It is a well-known fact based upon the experience of past years that this Presidency has rarely enjoyed two good years in succession. The survey settlement rates of a typical Deccan taluka, Indapur, admittedly contemplate only one good year in three and allow for a bad one in the same period and land revenue rates were *ex hypothesi* fixed low. The experience of the last two decades has been that the Deccan barely enjoys one good year in five. If we take the six years ending 1923-24 we find that the seasons were as follows:—

1918-19	A very bad year.
1919-20	A good year.
1920-21	A very bad year.
1921-22	} Below average.
1922-23	
1923-24	

With reference to the last three years, Mr. Mackie points out that a year which is only a little below the average on the whole means almost invariably that the crops were bad in parts of the Presidency and that suspensions were necessary”.

14. Serial No. 12.—(Page 142-148 of R. D. File No. 4966/24 Part I).—These pages contain reports regarding actual annewaris made in some taluka of Poona District in the year 1928. The annewaris were as follows:—

Bhimthadi taluka.—In 60 villages the annewari was over 12 annas and in 20 villages it was 8 to 12.

Indapur taluka.—In 49 villages annewari was 13, in 35 villages it was 9 to 12 and in 2 the annewari is 7.

Shirpur taluka.—In two villages the annewari was 13, in 23 it was 8 to 12 and in 5 villages it was 6 or 7.

15. Serial No. 13.—(Page 80 of file No. 4966/24 Part I).—The following is a hypothetical example which occurs in a report from Mr. Mackie the then Commissioner:—

"It occurs to me that the following test might give useful results. Write down the annewari of a village in a precarious tract for as many years back as figures are available for. Suppose they are—

6.0, 7.6, 5.7, 9.2, 12.0, 5.9, 7.3, 5.8,
7.7, 4.0, 14, 2.9, 10.0, 5.4, 5.0".

(The example is useful as indicating what run of figures of annewari of successive years was considered as reasonable.)

16. Serial No. 14.—(Page 139 of R. D. File Vol. 147 of 1907).—The following is an extract from the report of the Collector of Belgaum relating to the annewari of crops in the village Sampagaon of Belgaum district for the year 1937-38.

TABLE No. 9

Name of the crop	Mamlatdar's annewari	Remarks
(1)	(2)	(3)
	Rs. a. p.	
Grass	0 6 0	The crops here were just like those of Mugut Khan-Hubli. They fared well.
Paddy	0 8 0	
Paddy (Med)	0 6 0	I have noted my estimates of the annewari.
Jowari	0 8 0	
Bajri	0 6 0	

TABLE No. 9—cont.

Name of the crop	Mamlatdar's annewari	Remarks
(1)	(2)	(3)
	Rs. a. p.	
Bagi	0 6 0	
Italian Millet	0 6 0	(Sd.) G. A. Bellubi,
Seva	0 7 0	Mamlatdar, Sampgaon,
Green gram	0 6 0	20-12-37.
Harecgram	0 6 0	
Groundnut	0 6 0	(Note.—The general annewari of
Cotton	0 8 0	Mugat Khan-Hubli is 0-7-3).
Others	0 6 0	

(Sd.)
Collector of Belgaum,
1-4-38.

(It may be noted that crops whose annewaris range from 4 annas to 8 annas have been described by the Mamlatdar as having fared well.)

17. Serial No. 15.—The following three extracts are taken from the book "Facts and Fallacies" about the Bombay Land Revenue system, which was published by Mr. Anderson in 1929 :—

"We then come back to the first difficulty. What is a 16-anna crop? My answer is "I do not know". It is very sad that a Settlement Officer of many years' experience should not know. But it is a fact. Moreover if my readers say that they know, I will contradict them and say that *they do not*. And I know also that the last three Directors of Agriculture have assured me that they did not know. At the best we can only make a guess. Obviously if the whole rupee, that is the conception of a 16-anna crop, is wrong, all valuation based on it is wrong; and that is what we usually find. A class of Assistant and Deputy Collectors called for training in anna valuation being shown the same field of corn on the same day all valued it according to their own ideas and what they had been given to understand in the districts they came from, and they all valued it differently; and the

Director of Agriculture said he could not say which of them was right and which wrong, because he did not know what the value was himself".

NOTE.—This extract is given to show how much uncertainty about the meaning of *annewari* prevailed even amongst higher officers.

18. Serial No. 16.—“If we can weigh the output of the crop and then put that weight as the numerator of a fraction of which the denominator was the highest output of *jowari* we had ever seen, ordinarily speaking, on the best land, then we should have a true value: at least it will be getting near it. It is probable that the highest output ordinarily seen (by that I mean seen once or twice perhaps in 20 years on the best soil) would be within 100 or 200 lbs. of a true value for the 16-anna crop, and a few lbs. more or less would not very gravely affect the smaller fractions and would not at all affect their relative value one with another. But until we have got these ‘16-anna’ values determined, this discussion about anna valuation is like arguing about unicorns. We do not really know what we are talking about. However, every Kulkarni and Circle Inspector is quite convinced that he can make a perfectly accurate anna valuation of any crop at any time”.

NOTE.—Here Mr. Anderson has estimated the 16-anna yield as one to be expected once or at the most twice in 20 years.

19. Serial No. 17.—“So far as it is possible to define the undefinable, I would draw up the following table:—

24-anna crop—A phenomenal yield seen about once in a life-time.

20-anna crop—A crop good beyond all expectation; such as they had in 1928 in much of Bombay Presidency.

16-anna crop—A bumper or full crop, such as is got perhaps once in 8 or 10 years.

12-anna crop—What a competent cultivator has a reasonable right to expect 2 or 3 years out of 10.

10-anna crop—Average crop of the best climatic tracts where failures are very rare, such as Bhivandi, Murbad, etc.

3-anna crop—About the average of an ordinary tract, such as a Settlement Officer would take as his general standard for a district not exceptionally fickle or exceptionally steady.

6-anna crop—A disappointing crop, near to the minimum output upon which rayats can live and pay land revenue; with a very small, if any, margin. In fickle and precarious tracts perhaps 6 annas, or even less is the average crop.

4-anna crop—Tenant can just scrape through with a living but can pay neither rent nor land revenue, and will probably have to tide over by some borrowing or migrating, to supplement his income by other work.

2-anna crop—Means famine; and aggravation of the condition of 4 annas.

Then of course the Zero crop is Zero. This is the only certain figure in the whole table".

NOTE.—Here the average crop has been equated to 8 annas in ordinary tracts and to 10 annas only in the best tracts. The 12-anna crop is stated as one which only a competent cultivator may expect twice or thrice in ten years, while 16-anna crop is shown as one which may be expected once in ten years.

**Summary
of obser-
vations.**

20. We may now summarise these observations which extend over a period of nearly 55 years from 1883 till 1938. We note that crops with annawaris ranging from 8 annas to 12 annas are generally described as fair or good and crops with annawaris above 12 annas as bumper crops. Now, clearly, neither of these usages would have been possible if the 12-anna crops corresponded to the arithmetical average crop realized over a period of years. One would hardly describe a crop equal to two-thirds of the average crop as a good crop, nor would a crop which exceeds the average—which is expected to happen every alternate year—would be described as a bumper crop. Thus, these usages clearly imply that the 12-anna yield must be substantially above the arithmetical average.

**16-anna
Crop.**

21. Now turning to the concept of 16-anna yield, we have to consider whether as suggested in Chapter II, 16 annas represented the maximum possible annewari. If the best

possible yield was taken as a 16-anna yield, then there could clearly be no annewari higher than 16 annas. It is seen that during the period of 40 years from 1898, we do not find a single instance in which a Collector has reported the annewari of the crops of his district as having been above 16 annas. The maximum annewari which is reported as having actually occurred is of 14 annas in Bijapur district (Serial No. 6). We further see that with the solitary exception of Mr. Anderson (Serial No. 17), nobody has referred to the possibility of an annewari exceeding 16 annas, even in hypothetical examples. In all such examples, the maximum annewari has been taken as 16 annas.

22. A similar conclusion is also drawn from the records of the crop experiments which were made during the period from 1884 to 1909. After the construction of the tables of standard yields in 1884, Government had directed that every year, the Sub-Divisional Officer, i.e., Deputy and Assistant Collector, should make a certain number of crop experiments—the object being firstly to test the 1884 yields and secondly to test the incidence of the assessment. The 1884 formulæ were tested by first making an eye estimate of the annewari of the crop in the field and then checking the yield found in the experiment with that recorded for that annewari in the 1884 tables. We have gone through the records of these experiments for the years 1905-06, 1906-07 and 1907-08. Now, what we have been discussing is primarily the annewari of the crop for the district as a whole. This would be a weighted average of the annewari for the individual talukas. Thus, the probability of an annewari exceeding 16 annas must be greater for a taluka than for the district. The taluka annewari is in turn the weighted average of the village annewaris and the village annewari is a weighted average of the annewari in individual fields. Therefore, if annewaris above 16 annas were at all possible, we should expect to find them at least in the figures of the annewaris of individual fields. But in the records of crop experiments for the years 1905-06, 1906-07 and 1907-08, there is not a single case in which the annewari for a field is shown as above 16. The maximum annewari shown for a field is 16 and this is shown for 2 out of 43 plots in 1905-06. 8 out of 95 plots in

1906-07; and 1 out of 71 plots in 1907-08. It is true that in the abstract of experiments for the year 1890-91, annewaris exceeding 16, namely, 18, 19 and 20 annas have been shown, but this abstract relates to a period when the normal crop was equated with 16 annas. After 1898 when the normal was equated to 12 annas, we do not find a single instance in which the annewari even of an individual plot was shown as above 16. All this strongly supports the inference—which was also drawn in Chapter II from the suspension and remission scale—that 16 annas was treated as the maximum possible annewari.

Mr. Anderson's remarks.

23. As stated above, the only solitary exception to this conclusion is contained in the remarks contained in Mr. Anderson's book (Serial Nos. 16 and 17). In Serial No. 17, Mr. Anderson has referred to 24-anna and 20-anna crops as phenomenal yields, but even according to Mr. Anderson's scale, the 16-anna crop would be a rare event which would occur once in ten years (Serial No. 17) or once in 20 years (Serial No. 16).

Criteria for laying down standards.

24. In the light of the above discussion, it seems clear that any standard yields to be fixed now will have to satisfy the following two criteria if they are to agree with the level of annewaris made in the past, namely—

- (1) The 12-anna yield should be fixed at such a level that a yield exceeding it would be commonly accepted by agriculturists as a bumper crop. (Obviously, a crop which is expected every alternate year would not be called a bumper crop).
- (2) Annawaris exceeding 16 annas should occur rarely, if ever.

Annawari procedure in Vidarbha.

25. The procedure followed in the Vidarbha districts is laid down in the Berar Revenue Manual, Vol. II, Section I, Serial No. 11. An extract of paragraph 4 of this circular is given in Appendix II-T. It is observed therein "The normal yield of a crop in any particular area should not be confused with the standard outturn for the crop in question which is the yield in pounds per acre in an average year on the

average of the class of soil upon which the crop is grown in the district, but it represents the actual yield obtained as a matter of experience on the area in question, which will differ from the standard outturn according as the soil is above or below the average of the soil on which the crop is ordinarily grown". Thus the figures of standard yields were not used for making the annewari but the revenue officers made their own estimates on the basis of local enquiries of the normal yield of the crop and this estimate might differ from village to village and also from year to year. No record has also been kept regarding the yields used by the revenue officers as normal yield for each village, since only the annewari of the crop is required to be reported to Government. It is thus seen that in the Vidarbha region the annewari has been mainly a matter of subjective judgment of the revenue officers.

26. The standard yields for all districts of the old Hyderabad State in which the Marathwada districts were then included was done by Dr. Mann, who then held the post of the Agriculture Adviser to the Hyderabad Government. Dr. Mann's note called "General note on Provisional figures for Standard Outturns of Crops in the Dominions", which has been printed explains the basis on which the standard outturns were fixed by him. In his introductory remarks he states that:—"In attempting to fix the provisional figures for the standard normal yield in these Dominions. *I have proceeded on the assumption that the first definition of the normal yield in the Government of India's Manual on the preparation of crop forecast is the correct one, namely that it is 'the crop' which the cultivator has a right (as it were) to expect and with which he is (or should be) content, while if he gets more he has reason to rejoice and, if less, he has reason to complain". It will be seen that this definition is the same as that contained in the Government of India's letter dated 23-10-1897 referred to in chapter I†. As remarked therein the definition seems to correspond to the "model yield" which would be somewhat higher than the arithmetical average yield.

**Fixation
of stand-
ard yields
in Marath-
wada
Districts.**

*This means the districts of the Hyderabad State.

†Vide paragraphs 10 and 11 of Chapter I.

27. Dr. Mann has also indicated the materials on which his tables for standard outturns were based as: (1) Figures obtained through the regional settlement operations, (2) Crop-cutting experiments done in some districts for a few crops, (3) Yields from Government Farms when these are continued for some years, (4) Tests made in connection with demonstrations in the cultivator's fields, (5) the average return per acre for five years, as reported from the district (it is remarked that these are usually of little use or almost worthless), (6) The normal yields in the adjoining British districts (it is remarked that these are very valuable if one can be sure that the conditions do not vary too far), (7) In a few cases independent estimates of yield by business firms such as Rally Brothers.

28. The remark against item (6) goes to indicate that the basis adopted for fixation of standard yields was similar to that adopted in the old Bombay State where Dr. Mann had previously worked as Director of Agriculture.

29. Dr. Mann has also remarked in his note that the basis of the arithmetical average must be abandoned because "we have no figures from which to obtain the average" and hence the elaborate treatment of the yield figures introduced by Mr. Stewards in Madras to get the normal outturn is impossible here. He has added that so far as he was aware the Madras treatment (that is apparently taking the arithmetical average as the basis for fixation of yields) has not been adopted by any other province in British India.

30. As regards the relationship between the yield and the classification value of the soil, Dr. Mann has remarked that the normal yield must be treated as the yield on the kind of land on which the crop in question is most usually grown. Thus Dr. Mann did not commit the error which was made in the Bombay State of assuming that the standard yields related to soils of 12-anna classification value.

31. From the preface to the "General Note prepared by Shri Mazhar Husain, the Director of Statistics, Hyderabad State, it is seen that Dr. Mann's standard yields were

originally intended to represent 16-anna crops but as they were found to be low they were later on treated as 12-anna crops as in the Bombay State.

32. The relevant extracts from Dr. Mann's General Note and Shri Mazhar Husain's preface to it are given in Appendix II-U.

CHAPTER IV

PREVIOUS STANDARD YIELD TABLES AND ANNEWARI FORMULAE

1. Tables of standard yields had been prepared previously in 1884, 1927 and 1944 out of which in the first two the yields were tabulated for each taluka, while in the last they were tabulated only for the district as a whole. The annewari formulae has been revised thrice as follows:—

Before 1920	..	Annewari	=	12	×	$\frac{\text{Observed yield per acre}}{\text{Standard Yield.}}$	(A)
1920	..	Annewari	=	192	×	$\frac{\text{Observed yield per acre}}{\text{Standard yield} \times \text{Soil annas of field.}}$	(B)
1927	..	Annewari	=	144	×	$\frac{\text{Observed yield per acre}}{\text{Standard yield} \times \text{Soil annas of field.}}$	(C)
1944	..	Annewari	=	12	×	$\frac{\text{Observed yield per acre} \times \text{Standard Soil annas}}{\text{Standard yield} \times \text{Soil annas of field.}}$	(D)

2. The successive revisions of the formula were due to changes in the assumption regarding the soil classification value to which the standard yield related, the successive assumptions being that they were based on the average type of soils on which crop was grown, 16 anna soils, 12 anna soils, and finally again the average type of soil on which the crop is grown. In discussing the Tables it will be considered which of these assumptions was justified. The discussion will incidentally reveal some curious contradictions which had prevailed for long between the formula for making crop annewari on the one hand and that for estimating the crop produce on the other.

1884
Tables.

3. As mentioned in Chapter III, these tables were prepared for the purpose of estimating the annual crop yields, by a committee appointed for the purpose in pursuance of the recommendation made by the All India Statistical Conference. The original Tables—formulae as they were then called—are not now available but the basis on which they were prepared, can be ascertained from the Government Resolution, Revenue Department, 397, dated 16-1-1884

(Appendix II-A) and consisted of the results of the crop experiments made during the period from 1872-73 to 1882-83 and the other data indicated in paragraph 2 of the committee's report, which is reproduced in the preamble of the Government Resolution. The yields were tabulated separately for each taluka but the curious feature of these tables was that the yield was tabulated not for only one specific annewari such as 12 annas but for each annewari ranging from the maximum of 16 to the lowest of one anna. In the Gujarat talukas the yields for different annewaris were proportionate to them but this was not so in the Deccan talukas, the yields from 9 annas to 16 annas being graduated upwards and those from 1 anna to 8 annas being graduated downwards in order, as stated in paragraph 4 of the committee's report, to correct for the bias of the native estimators to underestimate higher and over-estimate lower yields.

4. The 12 anna yields fixed under these tables for the district as a whole can be obtained from the quinquennial return of average yields submitted to the Government of India in 1892, as the 12 anna yields were shown as the average yields in that returns (these were probably obtained by taking the arithmetical or weighted average of the 12 anna yields fixed for the talukas).

5. It is seen that in these tables the annewari was first to be estimated by the village and other local officers and the tables gave the yield corresponding to such annewari. The same procedure was followed in the series of crop experiments which were made by Assistant and Deputy Collectors in accordance with the Government directions* during the period from 1884-1909 for testing the 1884 tables. The experimenter was required first to set down his estimate of the annewari of the crop in the field, which is referred to in the Abstract of the experiments as 'Local Estimate' and then the tabulated yield for such annewari was checked with that found in the experiment. Thus, the 12 anna yield tabulated in the table would represent the yield expected in a year

*Vide paragraph 24, Chapter III.

which would be classed as a 12 anna season by the Local Officers and the latter's judgment in turn was likely to correspond to that of the local agriculturists and as seen from the discussion in Chapter III a crop would be classed by the latter, as a 12 anna crop only in a year of good or bumper crops. Thus, the 12 anna yield in these tables could not be the arithmetical average of the yields per acre obtained over a period of years but would give the yields of a good year. This conclusion is further supported by the remarks made by the Director of Agriculture in his Memorandum accompanying the Quinquennial return of average yield submitted in 1898 (Appendix III-B). It is seen that even at that early date it was already thought that the 1884 yields were too high to represent the average yields. As remarked by the Director "In the case of dry crops the 16 annas yield of the formula probably represented well what was then the ordinary conception of that yield, viz., a good crop in a good soil and a good year".

1892
Quin-
quennial
Return of
average
yields
per acre.

6. This return is given in Appendix III. It is seen from the note I below this return that as stated above in paragraph 4 the average outturns given in this return are the 12 anna yields as shown in the 1884 Tables. This seems to have been done on the basis of the definition of 'normal yield' given in the Government Resolution of 1898, (Appendix II-B) according to which the normal yield was to be taken as the 12 annas yield. However, what the Government of India required were not the yields fixed as normal yields but the actual average yields per acre realised during the preceding quinquennium. The distinction between the normal yield, as defined in the 1898 definition and the quinquennial arithmetical average of yields seems to have been lost sight of. Along with the 1892 statement was submitted a statement showing outturns of crop as obtained in crop experiments made from 1883-84 to 1889-90, which is interesting as showing how small was the number of experiments which were relied upon. Thus, in the Ahmedabad district, during the period of seven years, there was only one experiment for unirrigated Jowar and only two for Bajri. Apparently the scope for fluctuations due to chance in the results of the crop experiments was little realised.

7. This return together with the accompanying memorandum of the Director of Agriculture is given in Appendix III-C. It is claimed by the Director of Agriculture in the Memorandum that yields shown in the 1892 returns were too high and that the yields furnished in the Memorandum represent what the Government of India had asked for viz. 'the average crop in a average soil in an average year'. Though the intention was thus to estimate the arithmetical average yield it is seen that Mr. Morrison, the Deputy Director of Agriculture who worked out the yields had relied on, besides crop experiments, on personal observations, and the yields given in the 1884 tables (vide para. 4 of the memorandum). Since the 1884 yields were too high this feature seems to have persisted also in 1897 quinquennial return the yield shown in this returns being consequently higher than the arithmetical average of the yields.

The
Quin-
quennial
Return
for 1897.

8. One of the objects of these experiments made during the period of 1884—1909 was to check the accuracy of the standard yields of the 1884 tables. The experiments however did not serve this purpose; for if the result of the experiments, agreed with the tabulated yields the experiment was taken as confirming the tables; in case, of disagreement, however the local estimate of the annewari was itself supposed to be wrong, it being assumed that the formulae of 1884 which were prepared by experts could not be wrong. Thus, by this procedure the 1884 formulae could never be checked by the experiments and hence the latter were finally abandoned in 1908 (the correspondence ending with Revenue Department letter to the Government of India No. 7407 dated 30-7-1909, Appendix II-H).

Crop
experi-
ments for
testing
1884
tables.

9. The question was raised again in 1923 or so on Mr. Montford's proposal* that the average yield should be taken as the standard yield. His proposal was negatived and it was decided that annewaris should be made by the formula C above by using the 1884 Standard tables. The Director of Agriculture had then reported that in the light of subsequent crop experiments and other data some revision of the 1884 tables was necessary and had accordingly prepared the 1927

1927 and
1944
tables.

*Vide paragraph 13, Chapter I.

tables. In these the yields are given for each taluka and it is seen that in most cases the figures agreed with the average yields shown in the quinquennial return submitted in the year 1897. When the annewari formula was again revised in 1944, the tables of standard yields was again revised and the standard yields tabulated only for each district as a whole. But apart from this feature, the 1944 yields also show little change from the average district yields shown in the previous figures, as will be seen from the following comparative tables:—

NOTE.—The figures in Col. (3) give the average yields of crop experiment shown in the statement which was submitted along with 1862 quinquennial return of average yields.

TABLE No. 10

Crop	1884	1892	1897	1927	1944
(1)	(2)	(3)	(4)	(5)	(6)
District Nasik					
Rice clean unirrigated .. ..	..	..	1,080	1,080	1,080
			(husked).		
Wheat .. Irrigated ..	1,080	778	1,320	1,320	1,320
Unirrigated ..	673	535	460	460	460
Spelt Irrigated .. ..	..	..	1,500	1,500	1,500
Jowar .. Rabi unirrigated	924	..	520	1,400	520
Irrigated .. ..	..	..	1,400	..	..
Kharip unirrigated	720	..	..	520	520
Bajri .. Unirrigated ..	582	698	360	360	360
Ragi .. Irrigated ..	880	..	1,400	1,400	1,400
Gram .. Irrigated ..	..	..	1,200	..	1,200
Unirrigated ..	487	1,018	350	350	350
District Ratnagiri					
Rice clean unirrigated .. ..	..	..	1,020	1,020	950
			(husked).		
Ragi .. Kharip	693	Early	680	680	600
Rabi	1,387	Late	1,360	..	..
Unirrigated	..	..	320	320	20
Gram	..	..	320	320	20

Crop	1884-A	1892-B	1897	1927	1944
(1)	(2)	(3)	(4)	(5)	(6)
District Thana					
Rice clean unirrigated	1,200 (husked).	1,200	1,200
Ragi .. Unirrigated	Early	770	770	770
Kharip	Late	1,540	..	..
Tur .. Dry	373	..	..	370
Gram .. Unirrigated	391	400	..	400
District Satara					
Rice clean unirrigated	1,120 (husked).	1,120	1,120
Wheat .. Irrigated	1,040	1,466	1,350	1,350
Unirrigated	771	475	480	480
Spelt irrigated	1,500	1,500
Jowar .. Irrigated (Rabi)	1,500	1,200
Do. (Kharip)	1,500
Bajri .. Unirrigated	611	486	360	360
Ragi .. Dry	1,047	..	900	900
Tur .. Dry	625	333	..	960
Gram .. Unirrigated	545	315	380	380
District Poona					
Rice clean unirrigated	1,120	1,120	1,120
Wheat .. Irrigated	1,080	988	1,080	1,080
Unirrigated	700	578	350	350
Spelt irrigated	1,500	1,500
Bajri .. Unirrigated	600	..	340	340
Ragi .. Dry	1,168	..	900	900
Gram .. Irrigated	985	1,200	1,200
Unirrigated	495	891	320	320

10. It is thus seen that the standard outturns which had been prepared in 1897 or so had remained practically unchanged for about 60 years which is perhaps an unhappy commentary on the attention given in the past to agricultural statistics.

Relation-
ship
of the
standard
yield to
soil classi-
fication
value.

11. In the quinquennial return, the Government of India had also asked for information relating to the relationship between yields and soil classification of the fields. Note 2 below the quinquennial return for 1892 states that "no statistics of yields according to the quality of soil are at present available", from which it is clear that the 1884 yields were not related to any particular classification value but gave the yield for the average type of soil in the taluka on which a particular crop was grown. This is also evident from the manner in which the produce was estimated viz., by simply multiplying the acreage under that crop by the yield per acre as shown in the table, so that the tabulated yield per acre must represent the yield for the average type of soil. Some light on this point is also thrown by the note relating to crop experiments of Mr. Anderson which is attached as accompaniment to Government Resolution, Revenue Department, No. 7773-B, dated 23-6-1927 (Appendix II-K). It is seen from the 1884 Government Resolution that one of the items on which the 1884 tables were based consisted of the items on which the 1884 tables were based consisted of the results of crop experiments made during the period 1873-74 to 1883-64. Anderson's note shows that these experiments were made according to the scheme formulated and financed by the Government of India. The latter's instructions were that the experiments must be carefully conducted, must be numerous and must extend over every description of soil and season and include every mode of culture. As stated in the note the scheme was however vitiated by the Bombay Government's subsequent direction that the fields to be selected should be of good middling quality (i.e., excluding the lower ones) with reference to the classification. It therefore appears likely that the crop experiments whose results were taken into consideration in formulating the 1884 tables may have been restricted to more fertile soils. This would however be far from saying that the yield related to the soils

of 16 or 12 anna classification, because in a crop like bajri, for illustration, average classification value of the best soils in which the crop is most commonly grown may be only 6 or 7 annas.

12. Thus while it is true that the 1884 yields may have corresponded to a somewhat better type of soil than the average type of taluka the assumption that they represent the yield of 12 or 16 annas soil seems to be baseless. Thus the formulae B and C in para 1 above were based on wrong assumptions.

13. The formula B above was first given by Anderson in his annotated edition of the Land Revenue Rules which was published in about 1920. The formula involves two assumptions viz., (i) that the standard yield represents a yield of 16 annas soil, and (ii) that the yields for different soils are proportionate to their classification values. It appears that there was no discussion at Government level when these assumptions were made. A Secretariat note recorded when the formula was revised under Government Resolution, Revenue Department, No. 7773, dated 17-9-35 (Appendix II-M) states that "it may be noted that these notes were prepared by Mr. Anderson but Government did not endorse them". Thus, the formula which was included in the notes seems to have been given by Mr. Anderson on his own authority. Anderson's formula.

14. Out of these two assumptions, the first was negated shortly afterwards in 1923 when the Director of Agriculture reported that the standard yields represented the yield of 12 annas soil. As regards the second assumption Anderson has himself questioned its validity in his note which is attached to the Government Resolution, Revenue Department, No. 7773-B, dated 23-6-1927 (Appendix II-K). As stated therein according to the Land Revenue theory, the assessment is in proportion to the net income of the land and hence the gross yield could not be proportional to the soil classification value. In his Appendix to the note Anderson states that the object of the crop experiments (made during the period 1884-1889) was that "we wanted to know whether the Agriculture Department's theory as to gross produce was correct". We are however unable to trace any reference where such a theory

that the gross produce varied proportionately with the soil classification value was put forward by any Director of Agriculture. It appears that this assumption also was his own.

1927
Revised
formula.

15. The question of annewaris was next raised on the reference referred to in Chapter I by Mr. Montford, Commissioner, S. D. in 1923 (Appendix II-J) in which he proposed that the average yield should be taken as the standard yield. This proposal was considered in a joint conference of the Commissioners and the Director of Agriculture. Mr. Montford's proposal was negatived by the Conference which also recommended that besides the eye estimate of the annewari, a numerical standard for making it was necessary for which purpose the 1884 tables should be used. The recommendations of the Conference included the following note:—

“The tables are made for 12 anna soil. Therefore if the average classification is 6 annas and the table shown 1500 lbs. as the normal 12 anna crop then the normal crop for the soil in that village would be 750 lbs.”

The recommendations of the Conference were accepted by Government (Government Resolution, Revenue Department, No. 7773-B, dated 23-6-1927, Appendix II-K).

16. We note here that the Director of Agriculture who was a member of the conference had specifically agreed that the 1884 tables represented yield of 12 anna soil. On the basis of 1927 Government Resolution the annewari formula should have been immediately revised. This was however not done till 1935 when the formula was revised under Government Resolution, Revenue Department No. 7773, dated 17-9-1935 (Appendix II-M), under which the figure 192 was changed to 144, as given in the formula C.* In the joint letter from the Commissioners quoted in the preamble of this Government Resolution it is stated in paragraph 2 that “the Director of Agriculture has informed the Commissioner C. D. in his reference No. 84/13559, dated 23-11-1934, that the figures of standard yields supplied by him represented a 12 anna crop in a soil of 12 annas classification.”

*Vide paragraph I of this Chapter.

17. The question was raised again in 1943, which was the war period, of food shortages and rationing when Government had undertaken procurement and distribution of food-grains for the whole State. Estimates of grain production for the districts then assumed importance because they determined the quantity of grain required to be sent to and exported from deficit and surplus districts respectively. It was then found that the Agricultural Department had all along been estimating the crop production by the formula:—

1944
revised
formula.

$$\text{Produce} = \frac{\text{Annewari}}{12} \times \text{Standard yield} \times \text{Total acreage under the crop.}$$

The contradiction between this formula and the formula (C) which was then in use for making the crop annewari is obvious. The profound difference made by this mistake may be seen by considering the case of a crop like bajri which is grown in lighter soils. The standard yield of bajri for Nasik district as fixed in the 1944 tables is 360 lbs. and the average classification value of the soil in which it is grown may be about 5 annas. Then, when it came to the question of suspension of revenue, the 12 annas crop of bajri, was taken as 5/12th of 360 lbs. i.e. 150 lbs., so that the agriculturists were not to be granted suspension unless the yield per acre fell below 75 lbs. per acre. On the other hand, for judging the quantity of available grain in the district, the produce of the same 6 annas crop of bajri would be taken as 180 lbs. per acre. This contradiction was pointed out by the then Collector of Dharwar who pointed out that one of the two formulae must be wrong and also gave the correction required to the other formula according to whichever was accepted as the correct one.*

18. The matter was then discussed in a joint Conference by the Commissioners, the Director of Agriculture and the Director of Land Records who accepted the Collector's argument. The conference held that the formula (E) was the correct one i.e. the standard yield represented the yield of the average type of soil in which the crop was grown. This

*The relevant file containing this correspondence is not traced but these acts have been reported to the committee by the Chairman who himself was the then Collector of Dharwar.

recommendation was endorsed by Government in the Government Resolution 7289/39, dated 28-9-1944 (Appendix II-P). Though the Collector of Dharwar had already in his report given the correction consequentially required in the annewari formula of the land revenue rules the Government Resolution only directed that the necessary correction should be carried out by the Revenue Department in due course. However 10 more years had to pass before the necessary correction was carried out under Government Memorandum, Revenue Department, No. ANI 1054, dated 24-7-1954 (Appendix II-Q).

19. When the question was raised in 1944, the Director of Agriculture had affirmed that the standard yield represented the yield of the average type of soil in which the crop was grown. On the other hand, when the question was discussed during the period 1927—1934, the Director of Agriculture had expressly affirmed that the standard yields were the yields of 12 annas soils. From our discussion regarding the construction of the tables, we have seen that the former view was nearer the truth.* How then was the Director of Agriculture misled into reporting that the yield corresponded to 12 annas soils? A possible explanation of this error seems to be that there was confusion in the Director's mind regarding "the anna classification of the crop" and the "anna classification of soil". Towards the end of the last century there was a discussion as to whether the normal crop should be equated to 12 annas or 16 annas, it being finally decided under the Government Resolution of 1898 (Appendix II-B) that the normal crop should be taken as 12 annas while the best possible crop should be treated as 16 annas. Possibly on analogy of this the then Director of Agriculture may have considered that the best possible soils in which a crop was grown may be described as 16 annas soil and the soils in which the crop was normally grown may be referred to as 12 annas soil. The fact that the soil classification values had already been fixed according to another scale seems to have

*The issue is clinched by the fact that Dr. Mann who was the Director of Agriculture, Bombay State, during the period involved up to 1930 had himself subsequently in his note relating to the fixation of standard yields in Hyderabad State stated that the normal yields must be taken as referring to the average type of soil on which the crop is normally grown, *vide* paragraph 30 of this Chapter.

escaped his attention. This seems to be the only possible explanation of his error.

20. Support for the inference that there was this type of confusion in the mind of the then Director of Agriculture is also obtained from the wording of a letter (D. O. No. B/2037 dated 12-12-1923 page 27 of Revenue Department File 7773/I) which he addressed to the Commissioner N. D. relating to the joint report of the Commissioners in Conference of 1923. A doubt was then raised by Mr. Anderson regarding the validity of this assumption that the crop yields were proportionate to the soil classification value. As regards this point the Director of Agriculture states in this letter as follows:—

“I am very doubtful whether the crop yield is proportionate to the anna valuation and the taluka tables of 1884 do *not* take this to be the case and I think the mistake was made later when it is supposed that this was the case”.

21. Now the point under discussion then was regarding the variation of the yield with the anna classification value of the soil and not with the annewari of the crop. The Director of Agriculture does not however at all refer to classification of the soil but refers to the variation of the annewari. So far as the latter was concerned the yield had to be proportionate to the annewari, provided the annewari was a true one (and not a biased one). It may be wondered whether the same explanation would not apply to the mistake on Mr. Anderson's part i.e., to say whether he may also have meant by 16 annas soil referred to in his formula (B) the best type of soil in which a crop was grown. Mr. Anderson was however himself the Director of Land Records and it is not possible to imagine that such an error could be committed by an officer of his experience. Therefore the source of the misunderstanding on his part must remain unexplained.

22. As stated above, the Collector of Dharwar in his very first report had given the correction required in the annewari formula. It however took 12 years before orders giving the

correct formula were issued (G. C. M. ANI 1054 dated 24-7-1954. This circular again has been badly drafted. Thus it is stated that the figure 144 (in formula 'C') should be replaced by the figure 12×16 and the figure 16 then again replaced by the soil classification value of the soils in which a crop was normally grown in the district. Obviously there was no point in introducing the intermediate figure of 16 when it was again to be replaced by the average soil classification value. This bad drafting must have confused the subordinate revenue officers. The Chairman of the committee reports from his personal experience that in 1958, as the Commissioner of Poona Division, he found in Jath taluka of Sangli district, which was affected by scarcity in that year, that annewaris had been made by applying the incorrect formula 'C', so that no villages qualified for suspension and that after applying the correct formula most of the villages became eligible for half or full suspension and scarcity was also declared by Government. Similarly he found that a Mamlatdar in the Kolhapur district gave for the annewari of crop in a village the impossible figure of 36 annas. The error was due to the Mamlatdar erroneously using the formula B in para 2 above.

Extent to which the standard yields were actually used.

23. With the discontinuance of the crop experiments in 1909, the 1884 tables had practically gone out of use. In 1927 when the question was considered it was found that only one copy of the tables was available with the Director of Agriculture. Thereafter the Director of Agriculture appears to have circulated to the Collectors copies of the revised standard yield tables prepared in 1927. These tables were used up to 1944 in conjunction with the annewari formula 'C'. This meant that the effective yield used as standard of comparison for the annewari was much lower than the tabulated standard yields. Thus for bajri in Nasik District the 12 annas crop would be 150 lbs. as against the tabulated standard yields of 360 lbs.

24. After the issue of 1944 Government Resolution it should have been clear that the formula 'C' had to be abandoned and formula 'D' used instead. The orders embodying the formula 'D' were not however issued till 1954. In the

meanwhile, some Collectors seem to have continued using the formula 'C' which was included in the printed land revenue rules. Thus we find that the Collector of Nasik stated as late as in 1956 (Collector's letter addressed to the Assistant Secretary to Government Revenue Department No. LND-GR 408/56 dated 13-6-56, page 157 of Revenue Department File No. ANI 1054/7290/160085) that: "the practice so far followed in the calculation of annewari is that the standard soil is taken as 12 annas". As stated in paragraph 18 above, even after the issue of 1954 circular, many Mamlatdars were still using the incorrect formula 'C', probably because that was the formula given in the printed copy of the land revenue rules available with them. It thus appears that for the most part the 1944 table of yields may have been used in conjunction with the formula 'C'.

25. The relevance of this observation is because the standard yields fixed according to the formula which we are proposing in this report though higher than the 1959 average yields are in many cases, lower than the 1944 standard yields. This would not necessarily mean the adoption of a more stringent standard of comparison since the 1944 yields were often used in conjunction with the formula 'C' so that the effective yield used as the standard of comparison were considerably lower.

26. Thus the discussion in this Chapter of the previous standard yield tables as also the examination in Chapter II of the suspensions and remissions scale support the conclusion drawn in Chapter III that if the level of the annewaris is to agree with the previous experience then the standard yield has to be fixed considerably higher than the arithmetical average yield.

CHAPTER V

FORMULA FOR STANDARD YIELDS

We shall now turn to the question of prescribing a formula in the light of the conclusions reached in the previous chapters for determining standard yields for the several crops in each district. The requirements of such a formula would be as follows:—

**Require-
ments.**

2. (i) Formerly the standard yields were fixed by subjective judgment; they were the estimates of the Deputy Directors of Agriculture and other officers of the yield expected in a good or satisfactory year. Now that data relating to the results of crop experiments conducted on statistical basis is available since the year 1951-52 for most of the crops in each district, our formula should be such that the standard yields are obtained by applying it to the results of the crop experiments;

(ii) Secondly, as far as possible, there should be a common formula for all crops and all districts so as to ensure uniformity of treatment; and

(iii) Lastly, the resulting level of annewaris should agree at least roughly with the annewaris experienced in the past.

**Frequency
definition
for a
bumper
crop.**

3. The last of the above-mentioned requirements implies that the standard yield should satisfy the two criteria stated at the conclusion of Chapter III, the first of which requires that the level of standard yield should be such that a yield exceeding it would ordinarily be classified by agriculturists and others as a 'bumper crop'. The concept of a bumper crop is, however, subjective because different people may have different ideas as to what yield should be called a bumper crop. The concept can be made more precise by giving a frequency definition, the definition, in turn, amounting to a convention. Thus for illustration a bumper crop may be defined as one which may be expected to occur once in four years. For reasons given later on in this chapter, we propose that a bumper crop may be defined by convention to be such that for the district as a whole for any individual crop a bumper crop may be expected once or twice in a period of 10 years, *i.e.*, to say that the probability of its occurrence (in the strictly mathematical sense) should be 15 per cent.

4. After the probability level is fixed, a method has to be devised for estimating the level of the corresponding crop yield. (In statistical terminology we have to find an estimator for the 85 per cent point in the cumulative frequency distribution of the mean yield per acre of the crop realised in a year in the district, the mean yield being treated as the random variable.) For reasons given in paragraph 19 below we shall take into consideration the data for a period of 10 years, the mean yield of the crop for each year representing the mean yield per acre of that crop which is actually realised in that district during that year.

5. For estimating the standard yield we have considered the following five methods of estimation:—

(1) To take a constant multiple of the arithmetical mean of the 10 mean yields (or equivalently to take the arithmetical mean as the standard yield but to raise the scale regulating suspensions and remissions).

(2) To take the average of the top mean yield, and all other mean yield realised during the period of 10 years which exceed a percentage (say 75 per cent of the top mean yield, the percentage being suitably adjusted so as to give the required probability level yields in the above range being classified by convention as yields of satisfactory years.

(3) To assume that the mean yield of the 10 years are distributed normally and to apply the formula $M + K \cdot \sigma$ where M is the arithmetical mean of the mean yield of the 10 years and σ their standard deviation, the constant K being adjusted to give the required probability level.

(4) To take the results of the individual crop experiments made in the 10 years period, arranged in order of magnitude and take the mean of a suitable proportion (say 30 per cent of the crop yields, the proportion being fixed so as to give the required probability level.

(5) To take the mean of the top 3 or 4 mean yields depending on the required probability level.

6. Method (1).—The arithmetical mean is a measure of the average production of the crop over a period of years. It would therefore have been very desirable and would have

avoided all scope for confusion between the two different measures if the arithmetical mean itself could have been used for regulating suspensions and remissions of land revenue. Secondary and this is of greater importance, from the point of view of simplicity the arithmetical mean yield would be the simplest convention to adopt being both easy to calculate and easy to understand. For these reasons we have very carefully considered whether the standard yields cannot be related in some simple manner to the arithmetical average yields. That, however, has not proved feasible. Firstly, that arithmetical mean itself cannot be equated to standard yield because as would be readily seen from the figures given in the Table on paragraph 19, Chapter I, that would amount to a very great deliberalisation of the existing standards regulating grant of suspensions and remissions and scarcity relief and it cannot be believed that the relief granted by revenue officers in the past has been excessive or extravagant to this extent. Therefore, some multiple of the arithmetical mean will have to be fixed as the standard yield. But then the difficulty arises that there is no objective method available for fixing this multiple. The only method would be to compare the arithmetical average yields with the standard yields fixed in 1944 and raise the former suitably. For example on the basis of 1944 standard yields one can calculate the arithmetical average of the annewari of each crop for each district for a period of 10 years and then take the weighted average of these annewaris for all crops and all districts. Suppose this average comes to say, 7 annas then the required multiple can be taken as $\frac{12}{7}$, i.e., 171 per cent. The objection against this method is that we are then only perpetuating the general level of the standard yields as fixed in 1944 which were admittedly fixed on subjective basis. Thus our method ceases to be objective as we have no means of checking on the 1944 general level of standard yields.

7. The second objection is that the adoption of a common multiple would be contrary to our previous experience which is that the average annewari is low for districts liable to scarcity and famine and high for districts of the settled rainfall.

8. Method (2).—Under this method the result depends too much upon the top figure of the 10 mean yields which itself may be too high or too low because of abnormal conditions in that year. Depending on the relative magnitude of the top yield and the other yields the number of yields over which the average is taken varies from crop to crop and district to district, varying from as much as 6 in some cases to a single one where the top yield is abnormally high as happens in the following cases:—

TABLE No. 11.

Year (1)	District Jalgaon (Wheat) (2)	District Nasik (Groundnut) (3)
1951-52	253.0	286.5
1952-53	86.0	235.7
1953-54	332.4	924.0
1954-55	335.5	576.3
1955-56	451.6	543.8
1956-57	417.5	480.3
1957-58	233.3	490.8
1958-59	714.6	462.4
1959-60	385.4	485.1
1960-61	407.3	512.8

The inspection of these figures would show that the fixing of the standard yield equal to the top yield in these cases would result in the fixation of too high a standard yield.

9. Method (3).—In this method the 10 mean yields are assumed to form a sample from normal population and hence the standard yield is equated to $*M+k\sigma$. k being adjusted to

*Will not strictly be equal to S the standard deviation of the 10 mean yields as determined from the crop experiments because the mean yield for a year as determined from the crop experiments being itself liable to chance fluctuations about the "true mean yield" for the year the part of the variance arising from this source has to be removed as σ^2 represents the variance of the "true yearly mean yields". Further s^2 is a biased estimate, its mean value being $9/10$ th of the total variance. It can be verified that the relationship between S^2 and σ^2 is the following:—

$$\sigma^2 = \frac{10S^2 - s^2}{9}$$

$$\text{where } \sigma^2 = \frac{1}{10} [\sigma_1^2 + \sigma_2^2 + \dots + \sigma_{10}^2], \sigma_1, \sigma_2, \dots, \sigma_{10}$$

being the estimated variances of the observed "mean yields, in the 1st, 2nd, . . . 10th year.

give the required probability level. Thus if we take the probability level to be 16 per cent, *i.e.*, the frequency of a bumper crop to be about once in six years then k would be 1. It may appear at first sight that an advantage of this method would be that the resulting figure would be more stable, *i.e.*, less liable to fluctuations due to chance than the results obtained by other methods. This is, however, not necessarily so since the susceptibility to fluctuations due to chance (in statistical terms the standard deviation) of the result will depend on the frequency distribution of the yearly mean yields; for some types of distribution some of the other estimates would be more stable. In fact, the theoretical standard error of the mean of the top three is $0.4219 \sigma^*$ as against 0.3847σ which is the theoretical standard error of the estimate (sample mean + sample standard deviation) σ being the standard deviation of the normal population. As M is generally of the order of $3S$ the percentage errors of the standard yields by the above two methods, respectively, come to 10.5 per cent and 9.6 per cent so that there is reduction of only 1 per cent by using the latter method. Thus from the point of view of stability, there is not much ground to prefer this method to method 5. It may be added that the theoretical expected value of the mean of the best three from the sample of 10 comes to $M + 1.07 \sigma^*$ as against $M + 0.92 \sigma$ of the latter estimate. The former is the 86 per cent and the latter 82 per cent point of the normal distribution.

10. The objections against the methods are as follows. Firstly, it is not clear why when what we want is the yield obtained in a 'good' year the figure should be influenced by the low yield realised in years when the crop had decidedly failed. Again the assumption that the mean yields are normally distributed may not be justifiable. Examination of the observed figures of the mean yields suggests on the contrary that an unsymmetrical distribution with a longer tail towards the low yields and a shorter one towards the high ones is likely to give a better fit, particularly in the case of districts which are liable to failure of rainfall. To take a

*These values have been calculated by making use of tables 10-B-1 and 10-B-3 of expected values, variances and co-variances of order statistics in sample of sizes up to 20 from a normal population given on pages 193 and 200 of Contributions to order statistics, edited by Ahmed E. Sarhan and Bernard G. Greenberg, John Wiley and Sons, Inc. New York, London.

hypothetical example, suppose in a certain district the mean yield of a crop lies between 200 lbs. and 500 lbs. with a probability of 25 per cent and from 500 lbs. to 600 lbs. with a probability of 75 per cent the probability being roughly distributed uniformly in each of the two ranges. Then in this case $M + \sigma = 600$ lbs. so that the probability of its being exceeded is 0 per cent as against the required level of 16 per cent.

11. To put the objection in another form, suppose that out of the two districts A and B, A has a settled rainfall and gets the mean yield of about 400 lbs. each year while B also gets about the same mean yield in good years but is liable to experience during a period of 10 years two or three crop failures when the yield is say only about 50 lbs. Now according to the general concept of the standard yield as the yield in a good year, the same standard yield should be fixed for the two districts. However, the formula $M + \sigma$ results in fixing a higher standard yield for district B. Thus a higher standard is fixed for the district because it is more liable to crop failure.

12. That this actually occurs in practice may be seen from the following illustrations:—

TABLE No. 12

Year	District Dhulia (Wheat)	District Jalgaon (Wheat)
(1)	(2)	(3)
1951-52	100.6	253.0
1952-53	115.5	86.8
1953-54	351.9	332.4
1954-55	318.9	355.5
1955-56	476.7	451.6
1956-57	399.9	417.5
1957-58	296.8	233.3
1958-59	480.7	714.9
1959-60	417.5	385.4
1960-61	535.8	470.3

District	Average of 10 years = M	Standard deviation = S	M + S
(1)	(2)	(3)	(4)
Dhulia	349.2	167.4	516.6
Jalgaon	370.1	75.4	445.5

NOTE.—We see here that Jalgaon has a higher arithmetical mean and the top yield is also much higher than the top figure for Dhulia. Yet the formula results in fixing the standard yield for Dhulia higher by about 80 lbs.

13. The following is another illustration:—

TABLE No. 13

Year	District Nasik (Wheat)	District Ahmednagar (Wheat)
(1)	(2)	(3)
1951-52	309.6	234.1
1952-53	149.5	60.7
1953-54	306.1	229.8
1954-55	312.5	240.0
1955-56	299.2	294.3
1956-57	157.1	172.8
1957-58	257.4	309.4
1958-59	365.1	348.3
1959-60	310.6	296.8
1960-61	182.2	253.0

District	Average of 10 yrs. = M	Standard deviation = S	M + S
(1)	(2)	(3)	(4)
Nasik	264.9	147.4	412.3
Ahmednagar	253.9	86.8	340.7

NOTE.—The top yields for the top districts are close together but because of the larger standard deviation of the figures for Nasik the standard yield is fixed for it higher by 70 lbs.

14. Method (4).—The objection against this method is that fertility of the soil and other conditions vary widely over the district. Therefore the top figures may be restricted to a particular taluka or a group of talukas so that the figures based on them would not be suitable as a standard of comparison for the district as a whole.

15. Method (5).—For the above reasons we consider that the method of taking the mean of a certain number of top yields to be the most suitable. It has the merits of simplicity and of being easy to compute. It also appears natural and easy to understand that when what we require is a standard for judging the degree of failure of the crop in bad years, it should be obtained by taking the average of the best yields realised during the period.

16. A crop which is expected once every alternate year would hardly be called a bumper crop. Thus the maximum frequency which may be assigned to a bumper crop would be once in three years. Thus we have to consider the alternatives of once in 3 years, once in 4 years, once in 5 years, once in 6 years, etc., the corresponding estimate of the standard yield being obtained by taking the mean of the top 6 top 5 top 4 or top 3 mean yields. Out of these the first two frequencies of once in 3 years or once in 4 years are seen to be too high in the light of previous experience of annewaris as discussed in Chapter III. We have discussed the matter again with the Commissioners and they also agreed that for the average annewari of the crop of the district as a whole, the highest frequency which can be reasonably assumed is that of once in five years.

Frequency
level of a
bumper
crop.

17. The alternatives of once in three and once in four years can be ruled out from another standpoint also *viz.*, they would result in too high a proportion of annewaris exceeding 16 annas. If the standard yield is fixed equal to the mean of the best five or best six yields then for many of the districts the top yield realised during the 10 years will correspond to an annewari exceeding 14 annas. Now the district annewari is a weighted average of the taluka annewaris and though the latter would be correlated there would be some deviation from

the district mean. Consequently some of the talukas will have annewaris above 16. Since the taluka annewari is in its turn a weighted average of the village annewaris, the proportion of annewaris exceeding 16 annas in the latter would be higher still. Thus the second criterion stated at the end of Chapter III would be contravened.

18. We are thus left with the alternatives of taking the mean of the best three or best four yields. It was found that in practice it does not make much difference which of the two is adopted. Both the methods—after applying the rounding-off rule proposed in paragraphs 21 and 22 below, result in the same final figure in many cases while in the remaining cases the mean of the best four results only in the next lower rounded-off figure, the reduction being only about 5 per cent to 6 per cent. However, for choosing between these two alternatives we may rely on the principle that in fixing standard yields it is better to err if at all on the side of over-estimation. The principle is the same as that laid down in G. R. No. 650, dt. 22-1-1907 (Appendix II-G), the relevant portion of which states: "The principles which should govern grant of suspensions is that they should be liberal, i.e., that no one should be without them who is really in need of them. The rules, therefore, ought to aim at simplicity and to err, if at all, on the side of liberality". This is a sound principle which was laid down by the British administration as far back as 1905 and there is no doubt that it should continue to be followed. Having regard to this principle and the fact that the standard yields fixed by taking the mean of the best three are lower in many cases than those fixed in 1944 we consider that the basis of taking the mean of the best three should be adopted. The standard yield should accordingly be defined as the mean of the best three yields observed during the period of 10 years.

**Duration
of the
period.**

19. Since the results of crop experiments are available since 1951-52, it has to be considered also why the data for the whole period of 12 years, i.e., till 1962-63 should not be taken into consideration. However, the pattern of the crop yields is not stationary and due to the adoption of improved methods of agriculture and other reasons the whole pattern

may be a changing one. It is, therefore, necessary to restrict ourselves by convention to some specific duration which should not be too long. Since for the fixing of 'normal yields' in agricultural statistics the 10-year basis has been adopted (vide paragraph 7 of Chapter I), it would be convenient to adopt the same basis for fixing standard yields. The standard yield may now, therefore, be fixed on the data for the latest 10 years available, i.e., for the years 1952-53 to 1961-62. The resulting standard yields are not however to be revised every year but should be kept fixed till a fresh period of 10 years is completed.

20. For some districts and some crops the data for the full period of 10 years from 1952-53 to 1961-62 is not available. For such cases we propose that the standard yields may be fixed provisionally as follows: If the data is available for 8 or 9 years then the standard yield may be fixed provisionally by taking the mean of the best three of these yields and the figure may be reviewed again when the full 10 years' figures become available. If the data is available for a lesser number of years, i.e., for 7, 6 or 5 years then the standard yield may be fixed as the mean of the two best yields; this figure should be revised by taking the mean of the best three after the data for 8 years becomes available, the figure being revised again after the data becomes available for 10 years.

Provi-
sional
standard
yields.

21. As the standard yields fixed by the above method can only be considered as approximate figures, it is desirable to round them off suitably which will incidentally ensure that districts whose top yields are near together have a common standard fixed for them. We accordingly propose the following rounding-off rule. "Yields from 0 to 200 lbs. to the nearest multiple of 10; from 200 to 500 lbs. to the nearest multiple of 25; from 500 to 1,000 lbs. to the nearest multiple of 50 and above 1,000 to the nearest multiple of 100".

Rounding
of yields.

22. Under the above rules certain ranges of yields will be overlapping. For example, yields between $187\frac{1}{2}$ lbs. to 195 lbs. can be rounded off either to 190 lbs. or 200 lbs. It is, therefore, necessary to split up this range equally between the adjacent ranges, so that the yields from 185 lbs. to 191.25 lbs.

are rounded off to 190 lbs. and those from 191.25 lbs. to 212.5 lbs. to 200 lbs. In a similar manner rounding off of yields is to be decided at the points 500 lbs. and 1,000 lbs., respectively. Should a yield fall exactly on the dividing points of two adjacent ranges it should be rounded off to the next higher figure.

23. The standard yields calculated by the above methods for the different districts are given on the opposite page and for the sake of ready comparison, yields fixed in 1944 table are given on the following page:—

TABLE No. 14
Revised Standard yields

District	(figures in lbs.)								
	Rice	Wheat	Kharif Jowar	Rabi Jowar	Gram	Bajri	Cotton Ground- nut	Lint	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Thana	1,500	..	..	..	..	..	..	..	..
Kolaba	1,400	..	..	..	..	..	..	..	..
Ratnagiri	1,000	..	..	..	..	..	..	..	..
Nasik	900	350	375	325	325	300	700	110	
Dhulia	450	550	500	600	375	475	700	120	
Jalgaon	550	550	1,100	650	425	300	750	120	
Ahmednagar	900	325	..	375	325	225	600	100	
Poona	1,000	275	..	325	275	300	800	..	
Satara	850	..	600	550	350	325	1,000	..	
Sangli	1,000	400	1,000	300	425	200	750	..	
Sholapur .. ..	..	325	..	400	350	100	700	90	
Kolhapur	1,200	..	1,100	..	425	275	900	..	
Aurangabad .. ..	..	350	700	550	225	225	400	90	

District	Rice	Wheat	Kharif Jowar	Rabi Jowar	Gram	Bajri	Cotton Lint	Ground- nut	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Parbhani	700	500	750	700	325	..	600	80	
Bhir .. ..	..	350	650	700	300	225	700	110	
Nanded	600	450	750	600	350	..	700	90	
Osmanabad	550	425	700	700	325	275	700	100	
Buldhana .. ..	..	425	750	..	350	275	500	100	
Akola .. ..	..	450	700	..	325	..	500	100	
Amravati .. ..	..	500	700	..	325	375	600	90	
Yeotmal .. ..	..	425	750	..	350	700	650	80	
Wardha .. ..	..	375	650	..	275	..	..	70	
Nagpur .. ..	..	450	600	425	425	..	750	80	
Bhandara	900	400	..	600	325	..	..	..
Chanda	750	400	..	475	275	..	..	60	

NOTE.—(1) The figures in this table are the averages of best three yields in the districts of Bombay and Poona divisions. In the case of the districts of Aurangabad and Nagpur divisions they are the averages of two-best yields except for bajri in districts of Aurangabad division and kharif-jowar, cotton and rice in the districts of Nagpur division where they are the averages of best three yields. These averages have been rounded off as per paragraph 22 of Chapter V.

Foot Note 2.—

I. For all crops except in II below data over a continuous series of years ending with 1961-62 (inclusive) have been used :—

1. In the case of Bombay and Poona divisions 10 year data have been used for all crops.

2. In the case of Aurangabad division 10 year data for bajri ; 6 year data for rice ; kharif-jowar, wheat and rabi-jowar ; and 5 year data for gram, groundnut and cotton have been used.

3. In the case of Nagpur division 10 year data for cotton ; 6 year data for wheat, rabi-jowar and gram ; 5 year data for bajri and groundnut have been used. In the case of District Wardha, however, 5 year data for gram have been used.

II. In Nagpur division for rice and rabi-jowar 9 year data for the period 1952-53 to 1961-62 (except the year 1955-56) have been used.

TABLE No. 15

(Accompaniment to Government Resolution, Revenue Department, No. 7289/39, dated 28th September 1944.)

Statement showing standard normal yield of Crops (In lbs. per acre)

Serial No.	District	Rice (husked) i.e., clean Dry	Wheat			Jowar	
			Irrigated	Dry	Salt irrigated	Kharif Dry	Rabi Dry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmednabad	1,440	1,300	500	..	600 (grain jowar) 200 (fodder jowar)	600 (grain jowar) 200 (fodder jowar)
2	Kaira	1,320	1,300	600	..	600	600
3	Broach	900	..	600	..	..	820
3-A	Panchmahals	1,200	1,300	700	..	1,190	820
4	Surat	1,560	..	550	..	760	600
5	West Khandesh	1,080	1,280	600	1,500	720	575
6	East Khandesh	1,080	1,280	600	1,500	720	575
7	Nasik	1,080	1,320	460	1,500	520 (grain jowar) 150 (fodder jowar)	520 (grain jowar) 150 (fodder jowar)
8	Ahmednagar	1,040	1,180	460	1,500	..	300

9	Poona	..	..	..	..	1,120	1,080	350	1,500	400 (grain jowar) 500	1,200* 400 (grain jowar) 150 (fodder jowar) 1,500* 350
10	Sholapur	..	..	..	..	900	1,080	400	1,500	..	1,200*
11	Satara	..	..	..	..	1,120	1,350	480	1,500	700 1,500*	500 1,200*
12	Belgaum	..	..	..	..	1,140	1,200	560	1,500	800	800
13	Bijapur	..	..	..	..	800	1,080	400	1,500	540	540
14	Dharwar	..	..	..	..	1,140	..	500	1,500	1,000	600
15	Thana	..	..	..	..	1,200	..	..	..	..	..
16	Kolaba	..	..	..	..	1,250	..	..	..	..	..
17	Ratnagiri	..	..	..	..	950	..	..	..	..	..
18	Kanara	..	..	..	..	1,160	..	..	..	..	..

Serial No.	District	Bejari Dry	Ragi Dry	Maize Dry	Kodra Dry	Tur Dry	Gram Irrigated	Gram Dry
(1)	(2)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmedabad	750	1,440	1,080	1,000	560	..	500
2	Kaira	870	1,440	1,050	1,275	690	..	500
3	Broach	700	1,500	..	1,050	650	..	500
3-A	Panchmahals	820	1,200	100	1,130	800	..	600
4	Surat	1,200	1,160	1,120	680	680	..	500
5	West Khandesh	500	900	720	900	960	1,200	500
6	East Khandesh	380	900	900	900	960	1,200	500
7	Nasik	360	1,400	850	900	960	1,200	350
8	Ahmednagar	340	900	900	900	960	1,100	380
9	Poona	340	1,400	900	900	800	1,200	320
10	Sholapur	320	..	800	900	960	1,200	360
11	Satara	360	900	720	900	960	1,200	360
12	Belgaum	400	900	800	900	960	..	400
13	Bijapur	320	900	900	900	960	..	240
14	Dharwar	450	1,200	1,200	900	1,200	..	500
15	Thana .. .. .	..	770	500	540	370	..	400
16	Kolaba .. .. .	..	800	..	800	410	..	380
17	Ratnagiri .. .. .	..	600	..	670	430	..	320
18	Kanara .. .. .	..	1,100	900	..	480	..	480

•Irrigated.

**Standard (normal) Yield in pounds per acre of the Principal Crops
in each district (*)**

Districts	Jowar	Rice	Wheat	Bajra	Cotton	Ground- nut
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Aurangabad	500	1,000	460	350	100	1,000
Bir	500	1,000	460	340	80	1,000
Parbhani	500	700	400	350	80	1,000
Nanded	500	1,000	400	350	75	1,000
Osmanabad	500	800	400	320	80	1,000

(*) Extracted from Second Edition H. E. H. the Nizam's Government Statistics Department, "General Note on Provisional Figures for Standard Outturns of Crops in the Dominions" by Dr. Harold H. Mann.

CHAPTER VI

MISCELLANEOUS POINTS

Driage factor.

The driage factor was introduced for the first time in the annewari formula under G.R., R.D., No. ANI. 1054-II-C, dated 17-12-1957 (Appendix II-R). Because this is an elaborate G.R. the point regarding the application of this factor may have, in practice, often been overlooked. The Collectors who apply the factor obtain it from the Agriculture Department. The latter on the basis of crop experiments computes its value each year for each crop in every district and it is this value which is used by the Collectors for the annewari of the next year. The value of the factor varies from year to year due to differences in seasonal conditions. Theoretically the value which should be applied in a given year would be the value, as estimated from the experiments during that year. This however is not feasible since the value for the year would be known long afterwards. Hence instead of the present procedure of using the previous year's value, it would be more correct to use the mean value of the factor, as determined over a period of years as the latter will give a more stable estimate of the value of the factor for any year. For convenience this mean may be calculated for the same decennial period as that on which the standard yields are based. We accordingly recommend that the mean driage factor should be calculated for the decennial period and tabulated together with the standard yields, the factors thus tabulated remaining unchanged for the next period of 10 years. This will incidentally ensure that the point regarding application of the factor is not lost sight of when applying the annewari formula. The weight of the dried grain is given by the formula:

Observed yield is per acre = Yield per acre of wet grain \times Driage factor.

1.A. If the observed yield is obtained by eye estimation, which is in terms of the expected final produce, it is not necessary to apply driage correction factor to this yield.

2. Sufficient volume of data of crop-cutting experiments is not available for certain crops such as irrigated ones. For such crops the standard yield may be fixed by the Agricultural Department in the light of the principles set out in Chapter V and in particular the conventional definition given in paragraph 3 of that chapter.

Fixation of standard yields for crops for which adequate data of experiment is not available.

3. The preliminary forecasts of crop yields are based on the annewari of the crop, as reported by the Collectors. The final forecast is based directly on the mean yield per acre as found in the crop experiment and is therefore independent of the annewari reported. Large divergences are often found between the preliminary and final forecasts which may perhaps be because at present many Collectors report the preliminary annewaris without adopting the numerical standard. The reliability of the preliminary forecast will increase if a conscious effort is made to estimate the expected yield of the crop in that year and then fix the annewari by comparing it with the standard yield of that crop. Thus, instead of first estimating the annewari as at present, the Collector should first estimate what yield per acre he expects during the year, and report the same in the forecast returns. Suppose this is 300 lbs. and standard yield is 500 lbs. then he should report the annewari as $\frac{300}{500} \times 12-7$ annas. The

Accuracy of preliminary.

estimate of the expected yield per acre for the year can perhaps be most easily made by comparing the crop with the previous year's crop as the state of this crop will be most fresh in the Collector's mind. The yield per acre realised during the last year will be known from the Agriculture Department and by estimating the proportion to the last year's yield the current year's yield is estimated. Since the Collector's estimate will, in turn, be based on the taluka estimates of the Mamlatdars, the latter should also be asked to give their estimates of yield per acre from their talukas from which the district estimate will be obtained by taking the weighted average, in proportion to the areas under the crop. It is desirable that in addition to the annewari worked

out as above the Collector should also report in his crop forecast the estimated yield per acre on which his annewari figure is based. For crops for which standard yields have not been fixed the annewari of the crop should not be reported but instead only the estimated yield per acre only should be reported. The Agriculture Department should modify its crop forecast pro-forma accordingly.

Revision of standard yields.

4. Standard yields should not be changed frequently but may be kept fixed as long as possible because the revenue officers making annewaris get accustomed to a particular numerical standard and the value of their experience is lost when the standard is changed. The standard yields now proposed may remain fixed for at least 10 years. Even at the end of that period they need not be automatically revised, unless the data for the next 10-year period shows a significant change. A convention may therefore be adopted that, unless the application of the formula to the next 10-year data results in a figure differing by more than 10 per cent from the previous standard yield, the latter should continue unchanged.

Annewari of grass.

5. This is a minor point which however has been specifically referred to the committee by the Revenue Department. According to the existing orders (Government Resolution, Revenue Department, No. 2181/28, dated 13-10-1937, Appendix II-N) grass is to be considered for the purpose of annewari only in those villages in which it is grown as a valuable crop, a list of such villages being fixed by the Collector; in the remaining villages, grass is excluded from the annewari the area under it being treated as fallow. A point was raised that in the former villages, particularly in cases where grass is grown on more than 25 per cent of the cropped area of the village, the inclusion of the grass in the annewari may affect the villages adversely, as in a scarcity year though the other crops may have failed grass may thrive, thus giving a misleadingly high value of the weighted average annewari for the village. From the replies of the Commissioners in the relevant file (Revenue Department File No. ANI 1058/⁷⁶³⁹⁶/₂₀₈₀₃₀) we find that this problem existed mainly in the Gujarat districts such as Broach, Surat,

where grass was extensively grown as a valuable crop. There seem to be few such villages in the Poona, Bombay, Aurangabad and Nagpur Divisions and the Commissioners of these Divisions have represented that the existing orders are suitable and require no change. Having regard to the various changes, in the system of annewari we are proposing, we do not consider that any change should be made at present in the orders regarding the grass annewari.

6. The annewari of a village may be made either on the basis of an eye estimate of the average yield per acre of the village or on the basis of crop experiments. Whenever the latter course is adopted it is necessary that the experiments should be made on a sufficient number of plots. We recommend that five should be treated as the minimum number of experiments but whenever possible a larger number up to 10 may be made. The plots should be selected on a representative basis from fields having good, medium and bad crops, roughly in proportion to the areas in the village under good, medium and bad crops, respectively.

**Number of
crop
experi-
ments.**

7. As regards suspensions in the Vidarbha there were two scales out of which the less liberal scale A applied in ordinary years while scale B applied only if there were half suspensions in both the preceding years or full suspensions in one of two preceding years. The Vidarbha scales are based on the normal yield being equated to 13½ annas. Converting this to the 12-anna basis the scales become as follows :—

**Scale for
suspension
of land
revenue in
Vidarbha.**

	Scale A	Scale B
Half Suspension	.. Below 5·4 annas	.. Below 7·2 annas.
Full Suspension	.. Below 3·6 annas	.. Below 5·4 annas.

Thus, the scale A which applies in the major proportion of cases is less liberal than the western Maharashtra scale and there would be no objection to extending the latter to Vidarbha also. The question would still remain whether a more liberal scale should be provided in addition on the analogy of the scale B of Vidarbha.

8. There is obviously logical justification for providing that the relief should be on a more liberal scale when there has been a succession of bad years. In the Western

Maharashtra districts though there is no express second scale the same effect may have often been secured in practice by the Mamlatdars making the annewari (which was a matter of subjective judgment) on a more liberal scale when there was a succession of bad years in the district. The arguments against having a second scale are however as follows: If occurrence of bad year in the previous two years is to be taken into account then logically we should also take into account the occurrence of an exceptionally good year. Thus if there was a bumper crop in either of the two previous years then in the third year the relief should be according to a scale even more stringent than "A". This will obviously amount to an unnecessary complication. Secondly, there may have been need in the past for having a more liberal scale of relief when there was a run of bad years. The situation has now changed however because of the liberal policy of Government in respect of scarcity relief. Relief is provided by Government promptly and effectively, so that the agriculturist in the next year is practically in the same position as if his crop had not failed previously. The need of relief for a particular year therefore should be decided by the state of crop in that year only and the history of previous years need not be taken into consideration. Thirdly, having a second scale of suspensions means an additional complication and as such it should not be introduced unless the case for it is clearly established. For all these reasons, it does not seem necessary to have a second scale for regulating suspensions at least for the present. We accordingly recommend that the scale of suspensions currently in Western Maharashtra and Marathwada should be extended to Vidarbha districts also.

9. If, however, for any reasons it is decided to continue the two Vidarbha scales, then for Vidarbha the standard yields as fixed by our formula should be taken as $13\frac{1}{3}$ annas instead of 12 annas.

**Remission
of land
Revenue
and
recovery of
suspended
land
revenue.**

10. As stated previously in Chapter II, paragraph 24, no exact scale was laid down in the Vidarbha region for regulating the recovery of the arrears of suspended land revenue and the matter was left entirely to the discretion of the revenue officers. As regards the grant of remissions also, the matter was left partly to discretion. The relevant rule (rule 9 of the

Madhya Pradesh Suspension and Remissions Rules) provided that remissions may be granted by the Government in whole or in part when (a) the suspended arrears are more than three years old, (b) in certain specified tracts when the suspended arrears exceed one year's land revenue demand, the excess being remitted, and (c) when it is clear from the conditions of the tract that it would be inadvisable to collect the suspended revenue or part.

11. The limit of three years laid down in condition (a) is the same as that applied in the Western Maharashtra. The limit of one year's demand contained in condition (b) is the same as that applied to the Konkan districts. However, for districts other than the specified tracts no limit has been laid down in Vidarbha similar to the limit of two years for districts other than Konkan districts in the Western Maharashtra. Further, even when conditions (a) and (b) are satisfied, it is left to the discretion of Government whether to grant the remission in whole or in part. Condition (c) is wholly discretionary. We consider that instead of the matter being thus left to be dealt with by discretionary ad hoc orders, it is preferable to have a regular scale for regulating recoveries of suspended revenue and the grant of remissions. We therefore recommend that the scales prevalent in Western Maharashtra and Marathwada in respect of both these points which have proved to be suitable in practice may be made applicable to the Vidarbha districts also, the limit of one year's revenue demand being applicable to the specified tracts and limit of two years' revenue demand being applied to the remaining districts of Vidarbha.

CHAPTER VII

RELATIONSHIP BETWEEN THE YIELD AND SOIL CLASSIFICATION VALUE

Linear Assumption.

It has already been seen how the assumption that the yield varies proportionately with the soil classification value of the land, as expressed by its rate of assessment, has crept into the annewari formula, so to say through the back door. The assumption was introduced for the first time by Mr. Anderson in his notes to the land revenue rules published in about 1920. As these were written by him in his personal capacity they did not have the authority of Government and consequently there is no discussion in Government records regarding the legitimacy of this assumption. Shortly after making the assumption Mr. Anderson himself expressed doubts about its validity as it conflicted with the theory underlying the land revenue assessment according to which the assessment should be proportional to the net income from land and not the gross income, i.e., the gross yield (*vide* his note annexed to Government Resolution No. 7773-B, dated 23rd June 1927 Appendix II-K). In his note Mr. Anderson has referred to the assumption as the 'theory' of the Agricultural Department but we do not find that the Director of Agriculture or the Agriculture Department had at any time proposed such a theory.

2. It is likely that in making the assumption Mr. Anderson may have been influenced by another assumption of his, which also later turned out to be mistaken, namely that the standard yield represented the yield of one extremity in the scale of soil classification values, i.e., of 16 anna land. At the other end of the scale for land of 0 anna classification value i.e., barren land—the yield is *ipso facto* nil. This thus became a case of interpolation and it may have appeared reasonable as a first approximation and in the absence of any other data to take the yields for intermediate soil classification values on proportionate basis. The case would have however been different had it been realised that the standard yield represented the yield for land of the average soil classification value which might be as low as 6 or 8 anna because it then

become a question of extrapolation which is always more hazardous than interpolation. In extrapolation the affect of any departure from the assumed linear relationship becomes inflated and there is also the possibility that the manner of variation of the yield with the classification value might change on passing outside the range between which the yields are observed.

3. The Commissioners' conference which considered the question in 1923 and decided to retain the assumption of linear variation had assumed that the standard yields represented the yields of land of 12 anna classification value, but on that assumption also the question remained mainly one of interpolation. The annewari committee of officials and non-officials which was appointed in 1926 accepted the Commissioners' recommendation on this point without any detailed discussion and seems to have failed to realise its importance.

4. Thus this assumption which rested on such weak foundations has held sway in the land revenue administration for nearly 40 years. The question about its validity was raised by the Commissioner N. D. in 1940 who argued that there was no logical basis to support the assumption and proposed therefore that the annewaris should be made by comparing the yields of land of 12 anna classification values only. The Commissioner C. D. agreed with him but the Commissioner S. D. opposed on the ground that in some villages there might be no land of 12 anna classification and secondly that the annewaris of different types of land may not necessarily be the same as in some poor years inferior land may yield better crops and hence that annewari based on the yields of 12 anna lands only would be misleading since what was required was the average annewari for all types of lands in the village taken together.

5. The Director of Agriculture, submitted his views in the matter under his report No. 84, dated 4th October 1940 after obtaining the advice of Prof. P. C. Mahalnobis [his report is given in Appendix II-N(4)]. The Director had proposed *inter alia* that crop experiments should be made on different grades of lands having poor, medium and superior soils.

6. The matter was thereafter discussed in the Commissioners' conference and it was finally decided (Government Resolution, Revenue Department No. 7773/III, dt. 10-7-41 Appendix II-0) that lands should be classified according to the soil classification value into four groups,—poor (0-4 annas), fair (4—8 annas), medium (8 or 12 annas) and good (above 12 annas)—and standard yields fixed separately for each group, the yields being fixed not for each district but for homogenous tracts. It was further decided that a series of crop experiments should be made for determining the yields on the above basis. The scheme of crop experiments was however never carried out in practice.

Points which have to be investigated.

7. Thus so far there has been no statistical investigation by Government agency of the relationship between the crop yields and the fertility of the soil and as far as we could find by any other agency either. The question is a complicated one and requires exhaustive analysis of the available data contained in the series of crop experiments made by the Agriculture Department for estimating yields of the several crops for each district. The following are some of the points to be investigated.

Existence of critical soil values.

8. On intuitive grounds it may appear that though the assumed linear relationship between the yield and the soil classification value may not be strictly true the yields will at least increase with the soil classification value since more fertile soils would give higher yields. But even this assertion is not free from doubt as it may not hold good over the whole range of classification values. For each crop the roots go only up to a particular depth, and it has been suggested that the yield may increase till this critical depth and the corresponding soil classification value is reached but any further increase in the soil classification value may not have any significant effect of increasing the yield of the crop. Thus according to this suggestion the relationship between the yield and the soil classification value would be as in figure 2 below, while figure 1 shows the relationship according to the present assumption of proportional variation:—

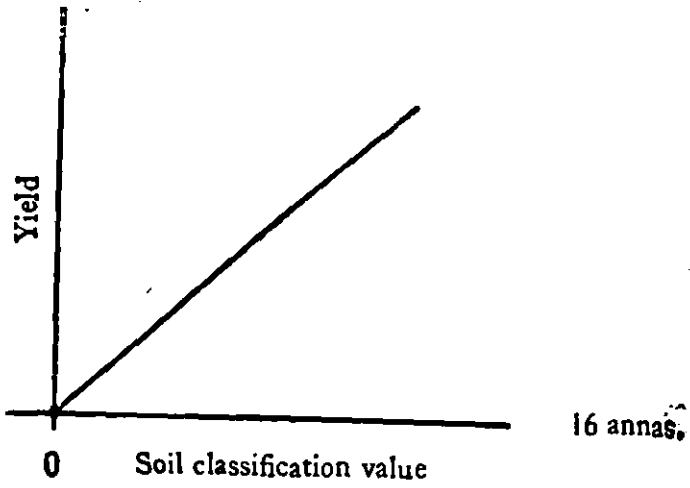


Figure 1.

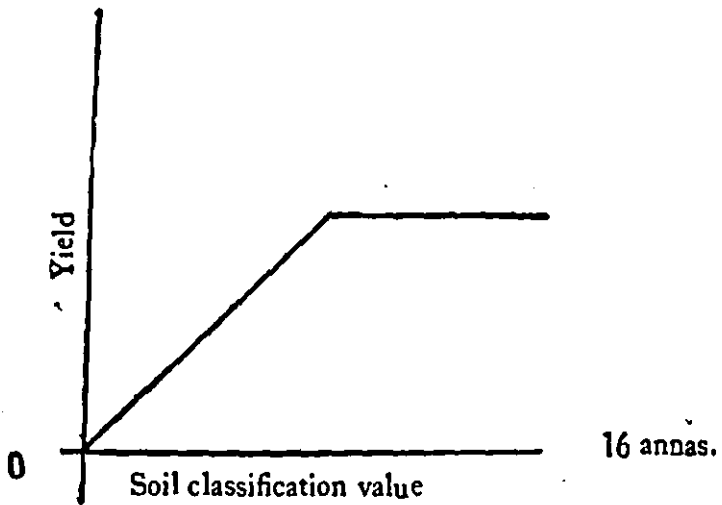


Figure 2.

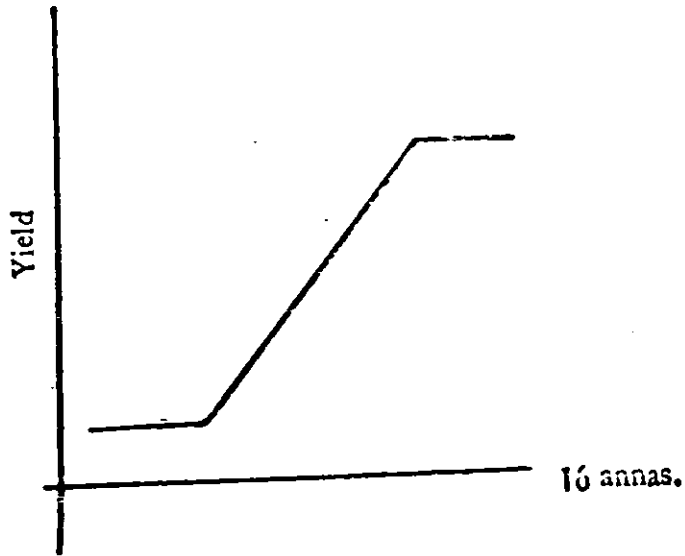


Figure 3.

9. Shri Rangrao, one of our members who is holding the post of Statistician of the Agriculture Department has suggested from his experience that at least for some crops there may be not only one critical point but two as shown in figure 3, the yield being nearly stationary up to the first point, then raising rapidly till the second point is reached and then again becoming stationary. It may be added here that the figures of yield of rabi jowar for Sholapur and Ahmednagar districts given later in paragraph 18 roughly follow this pattern.

10. The critical classification value or values will depend on the depth of the soil required for each particular crop and hence will vary from crop to crop. It will have to be examined whether the same critical points hold good for different districts or whether there are significant differences between the critical points for different districts.

11. The relationship between the yield and the soil classification may not be a fixed one but may vary according to the nature of the season, since it has been remarked that

Variation
with
season.

for a few crops in years of heavy rainfall for certain crops the inferior soils may produce a better yield than superior soils. This would, in effect, mean that the year in which inferior soils yield a 12 anna crop may not be the same as that in which the superior soils have a 12 anna crop.

12. The examination of the results of crop experiments reveals that there are large differences between the average yields per acre of a crop between different talukas in the same district for the same season, the ratio between the highest and the lowest being often as high as 2:1. It will have to be examined whether these large divergences can be accounted for wholly by differences in the fertility of the soil of the different talukas or whether other factors are responsible and in the latter case whether it is necessary to fix the standard yields separately for each taluka as was the practice before 1944.

Fixation of standard yields for Taluka-wise.

13. It has also been suggested that even a taluka is too large an area so that the agricultural conditions are not homogeneous over it and hence that for fixing standard yield the proper unit of area is the Settlement Group as the Groups are formed of areas in which agricultural and economic conditions are nearly uniform. It is true that the data available at present is quite insufficient for fixing standard yield separately for each Settlement Group. About 100 to 120 experiments are made for each major crop in a district in a year and as a district contains 12 to 13 talukas with about 4 Settlement Groups in each taluka, the number of experiments within the Settlement Group per year would be only 1 or 2. It will however have to be examined whether it is necessary to undertake experiments on a more extensive scale in future so as to produce sufficient data for enabling the fixation of the standard yields separately for each Settlement Group.

Fixation of standard yields for Settlement Groups.

14. Another point relates to the additions, called 'chadhs' which are made to the original soil classification value of a piece of land when it enjoys certain facilities such as nearness to the village site, so that in such cases there is a difference between the fertility of the soil which depends on its depth, structure, texture of the soil, its nutrition, status and colour,

Addition to rate of assessments "chadhs".

and the final soil classification value on which the rate of assessment depends. The question therefore arises whether such of these additions as are not related to the fertility of the soil are not required to be included before investigating the relationship between the yield and the soil fertility. The grounds against such exclusion are the following:—

15. Firstly, taking for illustration the addition on account of nearness to the village site. This addition is made because the nearness facilitates better cultivation of land; such better cultivation will in turn lead to higher yield from the land, so that the facility has the same effect on the yield as the increase in the fertility of the soil. Hence it would not be correct to exclude this addition.

16. Secondly, there are several other factors which have a pronounced effect on the yield such as the standard of cultivation, crop rotation, manuring, etc. The original soil classification which may have been made more than 60 years ago in some cases may now have become out-dated and may not correctly represent the soil classification value of the soil at present. It would not be practicable to make an allowance for each of these factors individually. The course adopted in practice therefore is to treat these as 'unknown factors' which affect the yield, the deviations in the yield resulting from their operation being treated as random deviations which cancel out on averaging. In comparison with these other factors the effect of the supposed discrepancy between the fertility and the rate of assessment are likely to be small in magnitude. It can therefore simply be treated as an additional 'unknown factor' whose effects even out on averaging, so that no separate allowance in the annewari formula is necessary on account of this factor.

17. A third practical consideration is that the original soil classification value is not available in the village records. Hence if this value is involved in the annewari formula, it will not be possible to complete the calculation of the annewari at the village itself but a reference will have to be made to the D. I. L. R.'s Office at the district headquarters, thus resulting both in delay and additional work. Moreover, since a large number of crop experiments have to be made within a short period in several villages when an area is

threatened with crop failure, it may in practice not be feasible to make a reference in each and every case to the D. L. L. R.'s Office. For all these reasons, it would be desirable to work out relationship, as far as possible, between the yield and the soil classification value, as expressed in the rate of assessment, any difference between the latter and the fertility of the soil being ignored as one of the "unknown factors" which cancel out on averaging.

18. The tables at the end of the chapter show the results of preliminary analysis of the crop experiments for the rabi jowar (wet) crop in Ahmednagar and Sholapur districts. It is seen from the tables that the yields show a general tendency to increase with the soil classification value but the rate of increase is markedly lower than that implied in the assumption of proportionality. Preliminary analysis.

19. The existence of linear relationship between the variables is usually tested by calculating the correlation coefficient ('r') between them. The following table shows the calculation of "r" for each year made from the data of the crop experiments on rabi jowar in Barner Taluka of the Ahmednagar district:— Correlation coefficients.

TABLE No. 16

Year	"r"
1951-52 ..	0.3,494
1954-55 ..	0.0,694
1955-56 ..	0.3,669
1956-57 ..	0.1,565
1957-58 ..	0.0,911
1958-59 ..	0.1,857
1959-60 ..	0.2,670
1960-61 ..	0.3,996
Total 1951-52 to 1960-61 ..	0.1,341

NOTE.—For 1952-53 and 1953-54 "r" is not worked out as the crop failed in most of the survey numbers.

The observed values of the 'r' are small and for two years they are even negative indicating that in those years higher yields were associated with poorer soils. The explanation of this observed weak co-relationship may be that the plots selected for the crop experiments may have differed widely in respect of other factors (other than fertility of the soil)

which affect the yield such as manuring, quality of seed, standard of cultivation, etc. or, in other words, to use a technical statistical term that the data may be heterogenous.

20. Even the rainfall conditions may have varied, since on the average about 6 to 7 experiments are made in a year and in a taluka 2 or 3 plots are taken from a village so that the plots may have been located in 2 or 3 different villages and the rainfall conditions may have varied between them. The smallness of the observed values of 'r' indicate that the major portion of the differences between the yields obtained from the different plots were the effect of these other factors and only a small portion can be attributed to the differences between the soil classification values of the plots. This in turn indicates that it may not be possible to make the investigation of the relationship between the yield and the soil classification values on the basis of the data contained in the crop experiments made for estimating the mean yield per district but that it may be necessary for the former purpose to plan an independent series of experiments. Plots will have to be selected from the same locality, i.e., village or part of the village and it will have to be ensured that all other conditions such as quality of seed, manuring, etc., are identical and that the plots differ only in respect of their soil classification values and then the relationship between the observed yields and the soil classification values examined. It may be necessary to undertake a series of such planned experiments in the different districts and for different crops.

21. An analysis similar to that in paragraph 18 will have to be made for the data of other crops and for the several districts. The data of the crop experiments, as tabulated, gives the survey number of each experiment but not the soil classification value of the survey number and these soil classification values are therefore being ascertained from the Collectors. The work of the compilation of the analysis and the data will however be voluminous one as for each crop and each district there are about 600 crop experiments for the 10 year period, so that if the data is compiled for 10 crops, for the 25 districts, the total number of experiments to be handled would be of the order of $1\frac{1}{2}$ lakhs.

22. The work of the compilation and the analysis of the data will therefore require a longer period which may be up to a year or two. A report regarding this part of the terms of reference will therefore be submitted by us later.

23. In the meanwhile we propose as an interim measure and partly on an ad hoc basis a slight modification of the existing annewari formula. The relationship assumed in the current formula between the yield Y and the soil classification value S in any given year may be expressed as

$$Y = \frac{Y_0}{S_0}$$

S where S_0 represents standard soil annas and Y_0 the corresponding yield. This formula may also be written as—

$$Y = Y_0 + \frac{Y_0}{S_0}(S - S_0).$$

Thus the yield is assumed to increase or decrease at the uniform rate of $\frac{Y_0}{S_0}$ for the increase or decrease of one anna in the soil classification value. From the figures given in the table No. 17 it is seen that this assumed rate of increase is too high.

24. For testing the application of the formula, we may, as a first approximation, assume that the mean classification value of each range coincides with its mid point. Thus the mean classification values for the ranges 4—8 annas, 8—12 annas and above 12 annas may be taken as 6, 10 and 14 annas, respectively. In the lowest range 0—4 annas however, having regard to the fact that values in the neighbourhood of 0 annas are likely to be absent the mid point may be assumed to be $2\frac{1}{2}$ annas. This is equivalent to assuming that the range includes soil valuation from 1—4 annas. Then for Sholapur district we get the following figures of soil annas and corresponding 10 years average yields:—

Soil annas	10 years' average yield
$2\frac{1}{2}$ annas	215.0
6 annas	248.5
10 annas	309.2
14 annas	416.6

The standard soil annas for the rabi jowar generally vary from 7—9 annas and for the present purpose we may assume it to be 8 annas, so that $S_0 = 8$. The corresponding yield Y_0 is obtained by interpolating between the figures for 6—8 annas as about 270 lbs. Now as the soil classification value increases from $2\frac{1}{2}$ annas to 6 annas, 6—10 annas and 10—14 annas the rate of increase of the yield per unit increase in soil classification value is seen to be, respectively 10 lbs., 15 lbs. and 27 lbs. as against the assumed rate of 34 lbs. The average rate of increase over the whole range from $2\frac{1}{2}$ annas to 14 annas comes to about 17 lbs. which is about half the assumed rate of increase of 34 lbs. The figures for Ahmednagar district reveal a similar situation.

25. It is true that the above figures relate to the results of the Crop Cutting Experiments carried out in rabi jowar only. However, we are informed by persons who have experience of agricultural productivity that the dependence of the yield on the soil classification is much weaker than that assumed, in the present formula. The Commissioners with whom we have discussed this matter expressed the same view. In fact, this defect in the formula seems to have been noticed as early as during the Second World War when a compulsory levy of food-grains was put on all the cultivators in the old Bombay State. For working out the extent of this compulsory levy, it was necessary for the Government to estimate the production of individual cultivators. For estimating the production, two factors were taken into consideration,—(i) basic yield and (ii) soil classification. A basic yield for every crop was fixed every year and for every tract with reference to the climatic conditions of that year. The basic yield was assumed to be produced on the standard or average soil of a tract. The production of individual cultivator was then estimated with reference to the soil classification of his land on the basis of the formula which was known as the Sholapur Formula. This formula assumed a proportionate decrease in yields on soils below the standard or the average soil but only half the proportionate increase in yield in soils above the standard soil. To take an example, if the standard soil and the basic yield of a tract were fixed at 8 annas and 400 lbs., respectively, the estimated production on soil of 12 annas

would be 500 lbs. per acre, but on the soil of 6 annas would be 300 lbs. per acre. Thus, the Sholapur Formula was based on the assumption that for the soil above the average the rate of increase in productivity is only half of the rate in soils below the average.

26. As the Sholapur formula gives effect to the fact observed in the general experience as stated before, that the rate of variation of the yield with the soil classification value is much lower than that involved in the relationship of proportionality and as this formula was taken as the basis of the levy system which had been worked extensively, and successfully, over the whole State, we carefully considered whether this same formula cannot be adopted on an ad hoc basis and temporarily i.e., till it becomes possible to ascertain more precisely the relationship between the yield and the soil classification value, for making the crop annewari. This would however give rise to the following difficulty viz., that we shall have to introduce two annewari formulas, the present formula *(formula D) continuing to apply for value of the soil classification 'S' below S_0 and a different formula being applied for values above S_0 . In the present state of uncertainty regarding the true relationship between the yield and the soil classification value—all that is known being that the yield is expected generally to increase with the fertility and secondly that the rate of increase may be much lower than that involved in the relationship of proportionality—the complication of having two different annewari formulæ applicable over two ranges of the soil classification value can hardly be to the justified. Moreover the assumption of an abrupt change in the rate of variation of the yield and soil classification value at the point $S=S_0$ is itself very artificial.

27. Ordinarily in a formula which is partly ad hoc and is intended as a first approximation, one would adopt a uniform rate of increase over the whole range. It is however not difficult to see why the authors of the Sholapur formula may have adopted the discontinuous rate of change at the point $S=S_0$. As the decrease in the rate of variation for values of S above S_0 resulted in the reduction in the levy demand it was the safe to assume it. The decrease in the rate of

*Vide Para. 1 of Chapter IV.

variation for values of S below S_0 would on the other hand increase the levy demand. The available evidence regarding the rate of variation of yield with the soil classification value may not have been considered sufficient to justify the risk of overestimating the demand. It may therefore have been thought prudent to err on the side of safety and continue to apply the original Anderson's formula for values of S below S_0 . In that case of annewaris however the effect will be exactly the contrary. Overestimating the rate of decrease of the yield with the decrease in the soil classification value would lead to the fixing of lower 12 anna yields and consequently the overestimation of the annewaris and consequential denial of relief in case where it was really needed. For these reasons we consider that it would not be desirable to adopt the Sholapur formula wholesale for the purpose of making the crop annewari but that the general principle contained in it should be accepted viz., that the rate of variation of the yield with the soil classification value should be much lower than that involved in the present formula (formula D), it being reduced by about $\frac{1}{2}$ for crops like bajri or jowar which are ordinarily grown in soils of classification value of about 6 annas.

28. The question may also be examined from first principles. Assuming that the relationship between the yield and the soil classification value can be expressed as a linear function at least as a first approximation over the range of values of S in which the crop is normally grown in the district the relationship will have to be of the formula.

$$Y = Y_0 + K (S - S_0)$$

Y_0 being the yield in the year for the average soil classification value S_0 . It will be reasonable to assume that K is roughly proportional to Y_0 that is to say the yield will increase or decrease by some fixed percentage such as 5 per cent or 10 per cent for every increase or decrease of one anna in the soil classification value. The formula then becomes.

$$Y = Y_0 [1 + \lambda (S - S_0)]$$

Now the relationship assumed in the existing formula (D) requires the further assumption that λ is inversely proportional to S_0 . But there is no apparent reason at all why the rate of

variation of the yield with the soil classification value should be proportional to the reciprocal of the average classification value of the soil in which the particular crop is normally grown in the particular district. We have also already seen how this assumption has come about accidentally. It was not present in the formula as originally given by Mr. Anderson which could be written as

$$Y=Y_0 \left[1 + \frac{1}{12} (S-S_0) \right]$$

Thus this formula assumed, for all crops and all districts, a fixed percentage $8\frac{1}{3}\%$ of increase or decrease of one anna in the soil classification value. There was a second assumption that Y_0 related to the value $S_0 = 12$ annas. The error in the second assumption was discovered in 1924, but when modifying the formula the question whether the assumed rates of variation of the yield with the soil classification value required any modification was not at all considered, so that it became accidentally equated to $\frac{1}{S_0}$.

29. The assumption that λ varies inversely as $\frac{1}{S_0}$ is thus seen to be without any basis. It would be simpler to assume for λ some fixed suitable value applicable to all crops and all districts. The value involved in the original Anderson formula viz., $1/12$ seems to be suitable for this purpose. We therefore consider that till it becomes possible to ascertain more precisely the relationship between the yield Y and the soil classification value S the following formula may be adopted for the purpose of making annewari:—

$$Y=Y_0 \left[1 + \frac{1}{12} (S - S_0) \right]$$

This formula is an ad hoc one but will give a less erroneous picture of the variation of the yield with the soil classification value than the assumption of proportionality. The formula implies that for crops like jowar, bajri grown in light soils for which the values of S may be about 6 the rate of increase is about $\frac{1}{2}$ of that implied by the present formula

For a crop grown in somewhat richer soils the rate of increase will be $\frac{2}{3}$ of that implied by the present formula. After further analysis of the data it may perhaps become possible to fix separate value of λ (which may be called the soil constant) for each crop and each district.

With the adoption of the above ad hoc formula the annewari formula will be modified as follows:—

$$\text{Annewari} = 12 \times \frac{\text{Observed yield per acre}}{\text{Standard yield}} \times \frac{12}{12 + S - S_0}$$

Applica-
tion of
formula
to
Vidarbha
Districts.

30. In the Vidarbha region, as we have seen though the soil classification values were not allowed explicitly, they were allowed indirectly as the revenue officers used to estimate separately the normal yield for each village, so that for villages having more fertile lands, normal yields were pitched higher. In view of this and for the sake of uniformity we recommend that the formula modified as above should be made applicable to the Vidarbha districts also.

The
deter-
mination
of
standard
soil
annas.

31. As regards the standard soil annas i.e., S_0 in the formula in the paragraph 29 above, we suggest that for the time being, the same should continue to be determined by the Collectors as at present.

32. The Commissioner, Nagpur Division, has reported that there would be difficulty in applying the Bombay formula in the four C. P. Districts. (Viz., Nagpur, Wardha, Bhandara, Chanda) because in these four districts classification value has not been fixed for each type of soil but they have been divided into classes and sub-classes such as Kali I, Kali II; Moran I, Moran II; Bardi I, Bardi II, etc. and the rate of assessment per acre fixed for each class or sub-class of soil. As regards this difficulty, it will be solved if the Director of Land Records can fix a notional maximum rate of assessment for the lands, so that the soil classification value of each type of soil can then be worked out from its rate of assessment. If this course is not found to be feasible then the matter would be further examined by us.

TABLE No. 17

Average yield of Rabi-Jowar (Wet) according to soil classification

Range (Soil annas)	Average yield in lbs./acre										Ten year's average yield
	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
District Ahmednagar											
0—4.0	236.3 (28)	32.3 (36)	123.3 (31)	147.5 (20)	271.5 (37)	219.8 (44)	316.6 (29)	265.7 (24)	262.7 (18)	374.7 (16)	225.0 (283)
4.1—8.0	225.5 (29)	34.8 (45)	163.3 (61)	273.8 (53)	271.3 (56)	223.5 (64)	466.2 (35)	344.4 (36)	305.3 (41)	289.4 (32)	259.8 (452)
8.1—12.0	277.0 (21)	68.0 (26)	250.0 (43)	299.8 (36)	306.3 (30)	358.5 (39)	651.2 (40)	481.6 (37)	351.6 (25)	483.2 (31)	352.7 (328)
12.1 and above ..	361.5 (20)	28.8 (18)	235.8 (34)	439.3 (19)	362.3 (24)	465.3 (36)	603.4 (21)	667.2 (11)	461.1 (21)	377.3 (7)	400.2 (211)
District Sholapur—											
0—4.0	67.0 (12)	75.3 (16)	136.3 (10)	347.5 (12)	201.3 (28)	198.3 (23)	291.4 (32)	275.0 (13)	280.6 (12)	277.6 (13)	215.0 (171)
4.1—8.0	128.8 (33)	65.5 (33)	208.0 (51)	354.8 (54)	223.8 (48)	189.3 (46)	315.6 (58)	419.4 (23)	309.4 (17)	269.6 (27)	248.5 (390)
8.1—12.0	207.0 (40)	72.5 (22)	257.8 (49)	478.3 (38)	275.5 (39)	227.3 (36)	466.2 (32)	402.5 (31)	276.5 (20)	428.7 (26)	309.2 (333)
12.1 and above ..	178.3 (29)	282.5 (34)	355.3 (38)	692.5 (41)	363.8 (40)	277.8 (42)	696.5 (42)	543.8 (25)	381.4 (20)	453.9 (21)	416.6 (332)

Note.—Figures in brackets indicate the No. of plots on which the yield per acre is based.

CHAPTER VIII

RECOMMENDATIONS

1. **Standard yield.**—The standard yields should be taken as the mean of the three best yields in a period of 10 years. (Chapter V, Para. 18).

2. Where the data for the full 10 year period is not available the standard yield may be taken as the mean of the best three yields, if the data available is for 8 or 9 years, and as the mean of the best two yields where the data is available for 5, 6 or 7 years. In the former case the standard yield should be revised as soon as the 10 year data becomes available. In the latter case the standard yield should be provisionally revised as soon as the data of 8 years becomes available by taking the mean of the best three years and then again revised when the data for 10 years becomes available. (Chapter V, Para. 20).

3. The standard yields should be rounded off according to the rounding off rules. (Chapter V, Para. 21).

4. **Revision of standard yields.**—The standard yields given now should remain fixed for the next 10 years period. The question of their revision should be considered after the data for next ten years i.e., for period ending 1971-72 becomes available. (Chapter VI, Para. 4).

5. **Driage factor.**—The mean driage factor should be calculated for the ten year period by the Agriculture Department and supplied to the Revenue Department. These driage factors should be used in converting the yield per acre of wet grain into the yield per acre for finding out the annewari of the crop by the formula.

Observed yield per acre = Yield per acre of wet grain \times driage factor

The driage factor should not however be used when the observed yield is obtained by eye-estimation. (Chapter VI Para. 1 and 1 A).

6. **Irrigated crops and other crops.**—For irrigated crops and crops for which the crop cutting data are not available, the standard yields may be fixed by the Agriculture Department on the principles enunciated in Chapter V of this report. (Chapter VI, Para. 2).

7. **Accuracy of preliminary estimates.**—The Collector, instead of first estimating the annewari should estimate the yield per acre he expect during the year and report the same in the forecast returns and then arrive at the estimate of annewari. (Chapter VI, Para. 3).

8. **Annewari of grass.**—No change should be made at present in the orders regarding the annewari of grass crops. (Chapter VI, Para. 5).

9. **Number of crop experiments.**—Minimum number of experiments conducted for estimation of the average yield per acre in a village for the purpose of annewari should be 5. These five plots should be selected on a representative basis from the fields having good, medium and bad crops roughly in proportion to their respective areas in the village. (Chapter VI, Para. 6).

10. **Scale for suspension of land revenue in Vidarbha.**—The scale of suspension currently in use in Western Maharashtra and Marathwada should be extended to Vidarbha districts also.

If for some reasons it is decided to continue to use Vidarbha scales, then for Vidarbha the standard yield as fixed by our formula should be taken as 13 $\frac{1}{3}$ annas instead of 12 annas. (Chapter VI, Para. 7).

11. **Remission of land revenue and recovery of suspended land revenue in Vidarbha.**—When applying the Western Maharashtra scale the Vidarbha limit of one year's revenue demand the excess over which is to be remitted should be made applicable to the specified tracts and a limit of two years revenue demand applied to the remaining districts. (Chapter VI, Para. 11).

12. Introduction of Soil Condition factors.—In the place of old factor :

Standard Soil annas

Soil Annas of the field

The following factor :

12

12+ Soil annas of the field—Standard Soil annas

should be used. (Chapter VII, Para. 29).

13. The above soil condition factor should be introduced in the Vidarbha region also. (Chapter VII, Para 30).

14. The determination of standard soil annas.—As regards the standard soil annas i.e. So in the formula in the paragraph 29 of chapter VII we suggest that for the time being, the same should continue to be determined by the Collectors as at present. (Chapter VII, Para. 31).

15. Application of formula to four C. P. Districts.—For the four C. P. Districts (namely Nagpur, Wardha, Bhandara and Chanda), a notional maximum rate may be fixed by the Land Records Department to enable the application of the annewari formula to them. (Chapter VII, Para. 32):

V. M. JOSHI,
Chairman.
22-8-63.

M. A. TELANG,
22-8-63.

D. S. RANGA RAO,
22-8-63.

APPENDICES

APPENDIX I-A

V. M. Joshi, D.O. No. 532 REV 8851
 Commissioner, Commissioner's office, Bombay Division
 Bombay Division. Old Secretariat, Fort, Bombay,
 Dated 31st October 1961.

Dear Shri Ghatge.

SUBJECT.—*Revised normal yield figure for Bajari.*

Please refer to my demi-official letter No. REV. 8817, dated 18th October 1961.

2. The standard yield of Bajari fixed for Nasik district under G. R. R. D. No. 7289/39, dated 28th September 1944 is 360 lbs. Your Statistician Shri Ranga Rao has now written to the Collector Nasik under his D. O. letter No. 4646 of 1961, dated 16th October 1961 that the average yield of Bajari in Nasik district for the 10 years ending 1959-60 comes to 235.4 lbs. and apparently his suggestion is that this figure should be used for the purpose of making annewaris.

3. I find that the Statistician has obtained the figure of 235.4 lbs. by taking the arithmetical average of the actual yields for the 10 years from 1950-51 to 1959-60. This process of mechanical averaging is not however, consistent with the concept of 'normal yield' as the term is understood in the context of our Annewari rules. (In the context of these rules the normal yield means not the average yield actually obtained over a period of years but the yield which the agriculturists may expect to get in a year in which the rainfall has been fairly satisfactory both in quantity and distribution.)

4. I would invite your attention to G.R.R.D. No. 7773-III, dated 10th July 1941. In the joint letter from the Commissioners dated 11th January 1941 which is given in the accompaniments of the G.R. are given two interpretations or definitions of a '12 Anna crop' vide paragraph (4) of the Joint letter. The first definition is as follows: (The present standard of valuation is the 12 anna crop, which means the yield in a season of rainfall fairly favourable in quantity and

distribution, and with proper cultivation for land of known classification quality) the alternative definition is that given by the Director of Agriculture which is that (the normal yield means the crop which the cultivator will not be disappointed to realise.) Whichever definition we take it seems clear that in fixing the normal yield we shall have to exclude years in which the crop was known to have been damaged. Now in the figures of which the Statistician has taken the average yields for 1951-52 and 1952-53 are seen to be so low that these years were probably declared as scarcity years in Nasik District. I expect that at least suspension or remission of land revenue was granted. The Statistician has not, however, excluded when from taking the average.

5. Another way in which the reasonableness of the revised figure can be checked is by testing its effect on suspension and remissions. Under the Land Revenue Rules the cultivators are given half suspension if the crop is below 6 Annas and full suspension if the crop is below 4 Annas. If the revised figure of 235.4 lbs. is used the Annawari would not be below even 6 Annas for a single year during 10 years period from 1950-51 to 1959-60. The minimum Annawari would be in the year 1952-53 for which it would be about 7 Annas. Again according to the revised figure the Annawari of the crop for 1953-54 comes to about 15 annas. I am very doubtful whether the Revenue Officers and the agriculturists had thought the crop in that year to be more than 8 to 10 Annas. Thus the Annawaris resulting from the use of the revised figure of 235 lbs. would not be consistent with the eye estimates of Annawari made by experienced Revenue Officers and Agriculturists. Thus the revised figure would be unrealistic.

6. As stated in paragraph 2 above in the Annawari Rules, the normal yield means the yield which the Agriculturists would get in a year in which the rainfall has been fairly satisfactory. Now in the case of crop like Bajari in Nasik district which is known to fall frequently the average yield observed over the period of years is likely to be much below the yield which the agriculturists would expect to get in a year in which the rainfall was satisfactory. It may quite

well happen that during the period of 10 years there may not have been more than one or two years in which there was satisfactory rainfall.

7. The figures of standard yield are being supplied by the Agriculture Department since before 1920. A reference to the previous files in your Department will show the basis on which the normal yield figures were compiled previously. I feel that it will be found that the basis previously adopted by the Agriculture Department will be the same as stated by me in paragraph 3 above.

8. The question of normal yield figure is of vital interest to the agriculturists when the annawari is below 6 annas, they get halt suspension of land revenue and conditions akin to scarcity are also declared. Thus (the cultivators will be deprived of all these relief measures if the normal yield figure is fixed too low and thus will lead to hardship.) I would, therefore, request you to re-examine the matter in the light of the above remarks.

Yours sincerely,
(Sd.) V. M. JOSHI.

Dr. M. B. Ghatge,
Director of Agriculture,
Maharashtra State, Poona.

APPENDIX I-B

Dr. M. B. Ghatge,
Director of Agriculture,
Maharashtra State,
Poona-1.

D.O. No. Stat/IS/120/5560 of 1961.
Dated the 29th November 1961.

Dear Shri Joshi,

Please refer to your d.o. letter No. 532-REV-8851, dated the 31st October 1961, regarding the revised normal yield figure for bajri. I am to state as follows:—

In para. 2 of the Joint letter No. REV-205, dated the 11th January 1941, from the Commissioners of Divisions, it has

been stated that "No exact calculation of the amount by which the crop in a good year exceeds or falls short of the normal crop is possible and that the determination of what is the normal is a problem of the greatest difficulty. It is difficult to decide what is a normal season since the rainfall may be normal in amount but well or badly distributed and the actual output from similar adjoining fields frequently varies for reasons which it is hard to account". Another interpretation of the normal yield "as the crop which the cultivator will not be disappointed to realise" also appears rather vague and is difficult to express in quantitative terms.

A good deal of almost continuous discussion on the interpretation of the term normal has been going on. The point at issue is whether it should mean the average over a period of years or higher than such an average.

As far back as 1919, this subject was discussed, at length, by the Board of Agriculture, at its eleventh meeting. The Board made an important recommendation regarding fixing of normal yields, viz., that the "villages, fields and plots on which crop cutting experiments are to be made should be strictly selected on a random plan to give the results the representative character which they were lacking. A moving ten-year average of these experiments was to be adopted as the normal yield. In order to remove the prevailing confusion in the interpretation of the term 'normal' the Board made the suggestion that the term 'normal' should be replaced by the term 'average' in connection with yield forecasting". These recommendations were repeated by other Committees and Commissions which had to deal with this question.

In the accompaniment to Government Resolution, Revenue Department, No. 7773 III of 10th July 1941, it has been stated that "The standard normal yield which should be termed the basic normal yield of each crop in each respective zone should be fixed for not more than four soil types, viz., poor, fair, medium and good." In fact, this recommendation does not seem to have been given effect to (as normal yields are fixed for the district as a whole irrespective of soil types.)

In para 3 of the Government Resolution, No. 7289/39, dated the 28th September 1944, it has been stated that "the only practical and sound basis for a scientifically accurate set of figures of normal yields is a very considerable number of crop cutting experiments carried out over several seasons on pieces of land selected by some such system of randomisation as has been suggested by the Director of Agriculture". The standard yield too has been defined as "The yield of a 12-anna crop in an acre of land of the average type of soil in the district upon which the crop under consideration is grown")

The Technical Committee for Co-ordination of Agricultural Statistics in India, appointed by the Government of India, in its report of 1949, has recommended in para 3.33 that "the normal yield should be computed as a moving average of the actual average yields per acre obtained by the method of crop cutting experiments based on the random sampling technique, wherever available, conducted during the preceding ten years".

The Statistical Committee of the Indian Council of Agricultural Research had recommended in 1947 that normal yields of crops should be based on ten years averages obtained from the results of crop cutting experiments. Government in Agriculture and Forests Department, had forwarded this recommendation to the Director of Agriculture and to the Collectors for their remarks. Taking into consideration the previous discussions on this subject, the Director of Agriculture, in his letter No. Res/493/609, dated the 14th January 1948, had stated that he agreed with the recommendation of the Statistical Committee of the I.C.A.R. The views of the Collectors forwarded to Government through the Commissioners are not, however, known to this Department.

The Government in Agriculture and Forests Department in Resolution No. SNY-1053-A, dated the 18th November 1959, while accepting the views of the Department has stated that for normal yields of paddy, rabi jowar and wheat, for which ten-year crop cutting data were available, a ten-year moving average should be worked out to replace the normal

yields shown in the statement accompanying the Government Resolution, Revenue Department, dated the 28th September 1944. Accordingly, the normal yields for these three crops have been revised for the major crop growing districts of the western Maharashtra region. As similar data in respect of three more crops, viz., bajri, kharif jowar and cotton are now available, it is proposed to base the normal yields on the results of past ten years data.

From the records available in this office, it is seen that the normal yield figures were originally framed by a Committee of Survey Experts, based on (a) crop tests, not based on objective procedure, (b) on replies received to numerous enquiries referred to Government officials, private landholders and cultivators.

Coming to your specific question regarding revised normal yield of bajri for Nasik district, I have to state that it comes to 235 lb. per acre and this is considerably lower than the existing normal yield figure of 360 lb. per acre. From a study of the past ten years data, it is seen that in none of the years, the yield has attained the mark of 360 lb. per acre. In fact, the maximum average yield obtained during 1953-54 is only 300 lb.

As the annewari made by the Revenue officials is in relation to the present normal yield of 360 lb., it is true that the annewari in any year would not be less than 7 annas if based on the revised yield. In fact, I should think that the proper way of estimating annewari of a crop for a group of villages in a taluka should be on the basis of taluka average yield based on the data of, say 15 years, and average soil annas of the crop in the taluka instead of district normal yield as at present.

Although it is true that the cultivators are likely to lose, if the revised normal yield is followed, the question of normal yield needs to be viewed from another point of view also, viz., revision of settlement. If the normal yield is fixed higher than the average, the cultivators are likely to suffer at the time of revision of settlement. In this connection, attention

is invited to para 8 of the joint letter, dated the 11th January 1941, from the Commissioners of the divisions, wherein it is stated that the tendency of cultivators at the time of settlement is to understate the normal productivity of the land, while when annewari is in question, they overstate the normal productivity in order to exaggerate the comparative deficiency of the crop in question.

Although the final forecast estimates of crops on which crop estimation surveys are in progress are based entirely on the results of the surveys, still the normal yield and condition factor are made use of in estimating the production in the earlier yield forecasts. Hence, (if the normal yield is pitched higher than the average, the estimate of production based on it would not reflect correctly the condition of the crop.)

In view of this, I am inclined to think that, the procedure of fixing normal yield as a ten-year average based on the results of crop estimation surveys carried out by this Department as communicated by the Director of Agriculture and approved by Government is an objective one and it also affords a more specific definition of the normal yield.

Hence, I am of the opinion that this procedure should be adopted for revision of existing normal yields.

Yours sincerely,
(Sd.) M. B. GHATGE.

Shri V. M. Joshi, I.C.S.,
Commissioner, Bombay Division,
Old Secretariat Building, Fort,
Bombay-1.

Serial No.	Recommendations made by the Statistical Committee of the Advisory Board of Indian Council of Agricultural Research
---------------	---

(1)

(2)

-
- 5 Normal yields should be based on 10 years' averages obtained from the results of crop cutting experiments conducted by the random sampling method instead of 5 years' averages as at present and should be moving averages of the 10 years' period.
-

APPENDIX I-C

V. M. Joshi,
Commissioner, Bombay Division.

D. O. No. 532-REV-9391
Office of the Commissioner, Bombay
Division, Old Secretariat Building,
Fort, Bombay No. 1.

11 January, 1962.

SUBJECT.—Determination of standard yields for making of Annewaris by Revenue Deptt. for grant of suspension and remissions of land revenue.

My dear

I am enclosing copies of my demi-official letter No. 532-REV-8851 dated 31st October 1961 to the Director of Agriculture, his reply under his demi-official letter No. Stat/I-S/120/5560 of 1961, dated 29th Nov. 1961 and a further Note which I have prepared on the subject.

2. The point of disagreement relates to the definition of the "standard yield" to be used in the Revenue Department's annewari for regulating suspensions and remissions of land revenue. As shown in my Note the previous definition of "standard yield" was (in Mr. Anderson's words) the "yield in a pretty good year" or more elaborately "the yield in a season of rainfall fairly favourable in quantity and distribution and with fairly careful and proper cultivation for land of known classification quality". This definition had prevailed for over a half-century. Suddenly about two years ago the Agriculture Deptt. has switched over to an altogether new definition which is "the average yield per acre of the preceding 10 years". I have shown in my Note in Section I by giving for ready reference the relevant extracts of the G. Rs. and Land Revenue Rules how the old definition was continuously in use since 1898, and how it is closely linked with our Rules regulating suspensions and remissions and of recovery of more than one assessment in good years, in Section II how the new definition will frustrate the object underlying the grant of remissions and suspensions and in

Section III how the grounds given by the Director of Agriculture for the change in definition are not valid and how the three references quoted by him have no relevance on this point.

3. Briefly stated, there has been a confusion of two different purposes. The State Government is concerned with the grant of suspensions and remissions and the recovery of land revenue; the standard yield to be used for making the annewari has to be fixed with reference to this purpose. The Government of India, on the other hand, is not directly concerned with this purpose. It is concerned only with the estimates of outturns of the crop. The Government of India's three committees referred to by the Director and other similar committees have therefore considered only the question of the statistic which is most suitable for making estimates of the outturn. This statistic is found to be the average yield per acre of the preceding 10 years. The ratio of the yield per acre in a particular year divided by the average yield per acre of the preceding 10 years and expressed as a percentage is called the "Seasonal Condition Factor" for the particular crop for the District. Again by making a preliminary estimate of the Seasonal Condition Factor and by multiplying it by the average yield per acre of the preceding 10 years we obtain a forecast (preliminary) of the Crop-outturn of the year. The final forecast is now obtained directly on the basis of the crop experiments.

4. This average yield per acre for the preceding selected period has all along been denoted in the Government of India's terminology as the "normal yield". This standard of comparison has been fixed only for the purpose of estimating the crop-outturn. The question whether the same standard of comparison is also suitable for regulating recovery of land revenue has not at all been examined by the three Committees referred to by the Director of Agriculture or by any other Committee of the Government of India because they were not concerned with it. The same standard may be suitable but the question whether it is, has to be examined independently by us as the recommendations of the Committees have no bearing on it.

5. It is shown in Section II that it is not suitable for our purpose because it would frustrate the object underlying the grant of suspensions and remissions. The object is to give protection to the agriculturists who live in tracts where rainfall is precarious. This object is frustrated if the standard of comparison also include the yields obtained in bad years. As shown in Section I of the note in 1898 when the Government of India was itself concerned with the recovery of land revenue, it had also accepted that the standard of comparison must be something different from and higher than the average yield per acre of the preceding years.

6. The conclusion therefore is that so far as the tabulation of the Seasonal Condition Factor is concerned the Agriculture Deptt. should certainly fall in line with the other States and tabulate it on the basis of the average yield of the preceding 10 years. But for the purpose of the Revenue Deptt's annewaris we shall have to adhere to the old definition of standard yield, i.e., the yield in a fairly satisfactory year.

7. The point is a very simple one. But you may perhaps like to have remarks on it of the Director of Bureau of Economics and Statistics. I am therefore endorsing a copy of this letter with its accompaniments to him. It may perhaps be desirable to appoint a small committee to consider the whole question as there are some other questions relating to the determination of the standard yields, which also require consideration.

Yours sincerely,
(Sd.) V. M. JOSHI,

Shri G. V. Bedekar,
Secretary to Governmen.,
Agriculture and Forests Department,
Sachivalaya,
Bombay-32.

Copy w. cs. to Shri D. R. Pradhan, Secretary, Revenue Department.

2. The matter is of basic importance to our Revenue Administration. The Revenue Department is, therefore, requested to pursue this point.

Copy w. cs. to Shri M. A. Telang, Director, Bureau of Econs. and Stats., Maharashtra State, Bombay.

Copy w. cs. to Dr. M. B. Ghatge, Director of Agriculture, Maharashtra State, Poona.

A Note prepared by Shri V. M. Joshi, I.C.S., Commissioner, Bombay Division, Bombay, on determination of standard yields for making of Annewaris by Revenue Department for grant of suspension and remissions of land revenue.

SECTION—I

The old definition of standard yield.

1. G.R.R.D. No. 725, dated 1st February 1898 of the Revenue and Agriculture Department: In G.R., R.D. No. 7392, dated 3rd August 1911 the letter of the Director of Agriculture No. A. 5707, dated 16th August 1910 is printed as an accompaniment. In his letter the Director has quoted paragraph 5 of the Government of India's Circular No. 9-27-4, dated 23rd October 1897 which is printed in the preamble of this G. R. No. 725 of the Revenue Department. It is stated that the Government of India says in the Circular "that it is obvious that in a tract in which the agricultural standard is low and the harvest precarious, the yield of the year will fall below the normal more often and more largely than will be the case in a highly cultivated tract and that in the former case the average will probably be considerably below the normal, while in the latter it will probably approximate very closely to it." Thus in 1898 the Government of India had also accepted that the standard of comparison to be used for making the revenue annewaris must be something different from the average yield and would be higher than it.

2. G.R., R.D. No. 7392, dated 3rd August 1911: In this the definition of the 'standard crop' is given as "a crop which the cultivator may reasonably expect from his field in a year

of rainfall fairly favourable in quantity and distribution, and with proper cultivation." In the same paragraph it is further observed that the officers who make anna valuation of crops should bear in mind that 12 Annas is to be taken as representing a normal crop; it is not to be regarded as the figure indicating an average crop that is to say the crop which would be arrived at by taking the average of the actual crops over a series of years. Thus in this paragraph it has been expressly made clear that the standard yield is some thing different from the figure which would be obtained by taking the average over a period of years.

3. G.R., R.D. No. 773-B, dated 23rd June 1927: the Joint letter of the Commissioners, the Settlement Commissioner, the Director of Land Records and the Director of Agriculture No. C.N.R.-102, dated 20th December 1923 is quoted in the preamble of this G.R. In paragraph 5 of the joint letter the definition of the standard crop is given as 'a normal crop is the crop to be expected in a year of rainfall fairly favourable in quantity and distribution'. In the letter it is again proposed that the standing orders in future should be as follows: "The standard of valuation is the 12-anna crop, which means the yield in a season of rainfall fairly favourable in quantity and distribution, and with proper cultivation, for land of known classification quality'. The views expressed in paragraphs 5 and 6 of the joint letter have been approved under this Resolution. To this Resolution is also attached a note by Mr. F. G. H. Anderson, the then Settlement Commissioner and Director of Land Records. In paragraph 5 of his note he has proposed the making of crop experiments for the purpose of determining the standard yields. There he states that the "object of the experiments is to ascertain what is the standard crop on land of each classification value *in a pretty good year.*"

4. G.R., R.D. No. L.C.-1145-B, dated 24th June 1927, Government had appointed a committee consisting of Commissioners, a few Collectors and some non-officials for making recommendations regarding best method for fixing the anna valuation. In this G.R. as also in the report of the Annewari Committee, which is printed as an Appendix to it

the definition of standard yield has not been given. It seems clear, however, that the Committee had accepted the then prevailing definition of standard yield.

5. G.R., R.D. No. 7773-III, dated 10th July 1941: In the preamble of this G.R. is quoted the joint letter of the Commissioners No. REV. 205 dated 11th January 1941. In paragraph 4 of it the Commissioners have stated that the present standard of valuation is 'the 12 anna crop, which means the yield in a season of rainfall fairly favourable in quantity and distribution, and with proper cultivation, for land of known classification quality'. It is further stated therein that the Director of Agriculture did not agree with this definition and proposed instead another definition, *viz.*, "the normal yield is the crop which the cultivator will not be disappointed to realise." Though the Director of Agriculture has proposed an alternative definition it seems that his definition is equivalent to the old definition. In any case the Director of Agriculture's definition would not be equivalent to the average over a series of years, because in a District of precarious rainfall the agriculturist will generally be quite dissatisfied with the average yield which he has actually realised over a period of years. Thus even according to the definition proposed by the Director of Agriculture, the standard yield will be something higher than the figure obtained by taking a mechanical average of the yields over a period of years.

6. Land Revenue Rules A.O. XXX: This seems to have been sanctioned under G. R. No. 4466/26 of 1st May 1959. In this A.O. it is stated that the 'normal crop' or average of satisfactory seasons is reckoned at 12 annas. This order thus makes it clear that in fixing the standard yield we are to take into consideration only the years in which the rainfall has been satisfactory and the years in which the crops have failed are to be excluded.

7. Practice followed by Agriculture Department: I had also requested the Director of Agriculture to state how in practice the Agriculture Department had been fixing the standard yield in the past. In his demi-official reply No. Stat/I-S/1201/5560, dated 29th November 1961 the Director

states that from the records available in his offices it is seen that the normal yield figures were originally framed by a Committee of Survey Experts, based on (a) crop tests, not based on objective procedure, (b) on replies received to numerous enquiries referred to Government officials, private landholders and cultivators. The Director has not clarified exactly what was the nature of the inquiries. But I feel that if the records are referred to it will be found that the inquiry was made to ascertain from the private landholders, cultivators, officials etc., what would be the figure of standard yield which would be accepted by them as the expected yield in a year for which the rainfall was fairly satisfactory in quantity and distribution, so that in practice the Agriculture Department's figures in the past were based on the 'traditional definition'.

8. A.O. XXXIII: An inference regarding the definition of the standard yield can be drawn also from the scale which has been prescribed under the Land Revenue Rules in A.O. XXXIII for the recovery of suspended land revenue. This scale is as follows:

Anna classification of crop	Proportion of assessment the collection of which would be justified		
	Current	Suspended arrears	Total
11 Annas and over	1	1	2
8 annas and under 11 annas	1	$\frac{1}{2}$	$1\frac{1}{2}$
6 annas and under 8 annas	1	..	1
Over 4 annas and under 6 annas	$\frac{1}{2}$	..	$\frac{1}{2}$
4 annas and under .. .. .	..	..	Nil.

It is thus the scale goes only up to the annewari of 11 annas and no larger instalments of recovery are provided for higher annewaris. The reason for this seems to be based on the 'old definition' of the standard yield. Since the 12 anna crop itself represents the crop in a year of fairly good rainfall, yields much higher than 12 anna crop were not likely. A crop as high as 16 annas would represent a freak crop which would occur when everything by chance just goes right. But such freak coincidences are seldom expected to

occur in practice. That seems to be the reason why the scale has stopped at the annewari of 11 annas. We also see that under the scale for the annewaris between 8 annas and 11 annas the recovery is prescribed as $1\frac{1}{2}$ times the assessment. Now if 12 annas is taken as representing the average crop over a period of years then 8 annas would be $\frac{2}{3}$ of the average. What can be the logic in requiring an agriculturist who has realised only $\frac{2}{3}$ of the average crop to pay $1\frac{1}{2}$ times the normal assessment? Again for the annewari of 11 annas the total recovery is provided as twice the assessment. Here again one cannot see why an agriculturist who has just realised slightly below the average crop should be considered as able to pay twice the normal assessment. The scale prescribed for recoveries seems instead to be based on the assumption that the average yield actually derived by the agriculturist is not the 12 anna crop but perhaps somewhere between 6 to 8 annas. That is perhaps why it provides for the recovery of normal assessment when the crop is between 6 annas and 8 annas and for the recovery of twice the normal assessment when the crop is above 11 annas. The Secretariat proceedings underlying the A.Os. XXX and XXXIII may perhaps be available in the Revenue Department, if they are, reference to them will show whether my above inference is correct.

9. The conclusion drawn from the scale prescribed under the A.O. XXXIII will for the present have to be treated only as a guess till it is verified from the underlying proceedings. However, the remaining G. Rs. of 1898, 1911, 1927 and 1941 and the A. O. XXX all make it quite clear that all along in the past for over half a century the old definition "of the standard yield" had prevailed and our whole Revenue administration of suspensions and remissions were based on this definition.

10. I would incidentally here clarify one point which may be raised in connection with the G. R. No. 7289/39 dated 28th September 1944 under which the formula for making the crop annewari has been revised. In fact the Director of Agriculture has referred to this G.R. and has raised this argument. In the preamble of this G.R. is quoted a letter

From the Commissioner, C.D. No. A.G.R. 227, dated the 18th July 1944. In paragraph 3 of their letter the Commissioners state as follows:

“—it has long been accepted that the only practical and sound basis for a scientifically accurate set of figures of normal yields is a very considerable number of crop cutting experiments carried out over several seasons on pieces of land selected by some such system of randomization as has been suggested by the Director of Agriculture—”. It may be argued from this that the Commissioners had agreed that the standard yield was to be determined by taking the average of the actual yields observed over a period of years. This inference would not, however, be justified. Even according to the ‘old definition’ where the standard yield represents the yield in a fairly good year crop experiments over a series of years would be necessary for determining the figure of standard yield. In this case when taking the average we may exclude all years in which the rainfall was not satisfactory and take the average only over the remaining years. Or alternatively we may include the results obtained in the unsatisfactory years but after applying to them a correction factor for the unsatisfactory nature of the season. For example if in the particular year in which the rainfall is not satisfactory the observed yield is 300 lbs. per acre and it is estimated that the yield is only $\frac{2}{3}$ of what would have been obtained if the rainfall was proper, then for the purpose of taking the average the yield for that year may be taken as $300 + \frac{3}{2}$, i.e., 450 lbs. The average can then be taken of these corrected figures. Either of the procedure will give us a figure of standard yield which will indicate a yield to be expected in a year of fairly satisfactory rainfall. Thus in Shri Anderson’s note referred to above he has defined the standard yield as “the yield in a pretty good year” and yet has suggested crop experiments for determining it. There is therefore no reason for inferring that the Commissioners had intended a change in the definition of the standard yield. Their letter read as a whole shows clearly that no change was intended and the old definition of the yield in a satisfactory season was to be retained. They had suggested that this yield should be determined by crop experiments made

over a series of years. How the crop experiments made in bad years were to be excluded or allowed for was a point of detail which has not been gone into by the Commissioner's joint letter.

SECTION II

The "new definition" will frustrate object underlying grant of suspensions and remissions.

11. I shall illustrate this both by a hypothetical and by an actual example. Firstly, we shall consider a hypothetical example of two districts 'A' and 'B'. Suppose the crop under consideration is Jowar and that the conditions of the two districts are similar in all other respects except that 'A' has an assured rainfall while in 'B' the rainfall fails every alternate year. Suppose that the district 'A' gets every year an yield of about 360 lbs. per acre. Then in the years of good rainfall 'B' will also get yield of about 360 lbs. per acre. Suppose that in alternate years when the rainfall fails, 'B' gets a yield of 140 lbs. per acre; the District 'B' will thus have yield of 360 lbs. per acre in 5 out of 10 years and 140 lbs. per acre in the remaining 5 years. Then according to the 'old definition' of standard yield the standard yield will be fixed at 360 lbs. for both 'A' and 'B'. 'B' would then have an annewari of 12 annas in the 5 years of good rainfall and in the other 5 years when the rainfall fails its annewari would be 4.7 annas so that the agriculturists would get $\frac{1}{2}$ suspension of Land Revenue. Now, let us consider the effect of the "new definition". According to it the standard yield for District B would be fixed as 250 lbs. Hence in the five bad years the annewari of 'B' would be fixed as at 6.7 annas ($140/250 \times 12$) so that the agriculturists will not get suspension for a single year. Thus the whole object of grant of suspensions and remissions which is to give relief against precarious rainfall is frustrated by the adoption of the "new definition". It is also interesting to see how the annewari is fixed in the remaining 5 years of satisfactory rainfall. In them 'B' will be shown as having an annewari of $360/250 \times 12$, i.e., 17.3 annas; Thus District 'B' will have a super-abundant crop in 5 out of 10 years.

12. Lest it is argued that above is only an hypothetical example, I am applying this new definition below to the actual observed yields of Jowar crops which were resulted by the Agriculture Department and on which its revised prepared figure of standard yield for Jowar for Nasik District is based. The following table shows that average yields of unirrigated Bajari in the Nasik District during the decennium 1950-51 to 1959-60 and the annewaris year by year calculated according to the old standard yield of 360 lbs. and those calculated according to the new standard yield of 235 lbs. (by taking the average yield of 10 years which is 235 lbs.)

**Average yield of Bajari (unirrigated) based
on crop surveys—Nasik District.**

Year	Average yield in lbs.	Annewari according to standard yield of 360 lbs.	Annewari according to standard yield of 235 lbs. Annas
1950-51	222.7	7.4	11.4
1951-52	162.2	5.4	8.3
1952-53	135.6	4.5	7.0
1953-54	299.6	10.0	15.2
1954-55	264.8	8.8	13.5
1955-56	226.8	7.6	11.6
1956-57	260.0	8.7	13.3
1957-58	281.5	9.0	14.4
1958-59	266.8	8.9	13.6
1959-60	244.1	8.1	12.4

It will be seen that in two years—1953-54 and 1957-58 we obtain high annewaris of 15.2 annas and 14.4 annas which according to the old definition would have indicated nearly bumper crops. Again in the years 1951-52 and 1952-53 according to the old standard yield the annewaris were below 6 annas. In fact scarcity was declared in large parts of the Nasik District in these two years. But according to the proposed 'new standard yield' the annewaris in both these years would be much above 6 annas. If the new standard yield is taken as correct then it would mean that the Collector had erroneously declared scarcity condition for these two years and granted half suspension of land revenue though the crop had not really failed.

13. This sort of result would occur not only in the case of Nasik District but in the case of most other districts. I think it can be shown in the case of any of our most experienced administrators that he had wrongly declared scarcity conditions and granted suspensions or remissions of land revenue though the crops had not really failed according to the "new definition" of the standard yield. This would mean in effect that none of our officers are able to decide whether scarcity conditions really exist or not. This is of course an absurd conclusion. The existence of scarcity condition or of the need to grant remissions or suspensions of land revenue is not an illusory thing. One very well knows when such conditions exist. What is wrong is the arithmetical juggling which over-night converts a 'failed crop' valued at 5 annas (on the basis of standard yield of 360 lbs.) into a 'not failed crop' (valued at 7½ annas) by simply changing the standard yield to 235 lbs.

SECTION III

Grounds given by the Director of Agriculture for change of definition not valid.

14. In support of the change made by him in the definition of the standard yield the Director of Agriculture had quoted three references, *viz.*, (i) the Recommendations contained in the Report of the Technical Committee for Co-ordination of Agricultural Statistics in India, appointed by Government of India in 1949; (ii) the Recommendations contained in the proceedings of the 11th meeting of the Board of Agriculture held in 1919 and (iii) the Recommendations contained in the report of the Statistical Committee of the Indian Council of Agricultural Research 1947. The Statistical Committee's 1947 report has not been supplied by the Director (vide Footnote on page 20). However, I have gone through the whole of the other two reports and find that neither of them contains the least bit of justification for the change in the definition of the standard yield. What has happened here is that two concepts which are entirely different have got mixed up together because by accident the

same term came to be used for describing them. The two concepts are: (A) "a standard yield" to be used as the standard of comparison for regulating the recovery of land revenue, that is to say for deciding whether in a bad year the recovery of land revenue is required to be suspended, and if so, to what extent and in a good year whether more than the normal assessment can be recovered, and if so, how much more, and (B) "a normal yield" to be used as a reference yield for expressing how the yield per acre realised in a particular year compares with the yields per acre obtained previously in other years.

15. The second concept (B) is purely of a statistical significance only. It is agreed among the agricultural experts that the reference yield which is most convenient for the comparison is the average yield per acre obtained over a preceding period of years probably because the comparison then indicates to what extent the yield obtained in the particular year deviates from the yield per acre which the agriculturists have been getting in the past on the average. The ratio of the yield per acre of the particular year to the average yield per acre is expressed as percentage by multiplying by 100 and this is tabulated "as the Condition Factor" of the season in respect of a particular crop for the Taluka or the District (vide paragraph 3.34 of the Technical Committee's Report). The Seasonal Condition Factor for each crop is to be tabulated on the same basis for the province as a whole and also for the country as a whole. The seasonal Condition Factor tabulated is obviously a purely statistical index.

16. On the other hand the concept (A) is not purely statistical. The standard yield to be taken as the standard for comparison in the concept (A) cannot be fixed without considering several factors such as what constitutes an adequate return for the agriculturists, the paying capacity of the agriculturists, the system of land revenue assessment, the scale laid down for regulating the grant of suspensions and remissions and the recovery of more than the normal assessment, the size of the agricultural holding and other similar considerations.

17. As mentioned above in the concept (B) the reference yield is taken as the average yield per acre calculated over a period of years. It has been the practice of the Government of India since the start to describe this reference yield by the term "normal yield". This term has been used in all the three reports quoted by the Director of Agriculture starting with the report of the proceedings of the Board of Agriculture in 1919. Thus in this context a normal yield simply means the average yield per acre calculated over a period of years. Therefore throughout this note I have been careful to use a different term, viz., "the standard yield" to denote the standard of comparison which is to be used under the concept (A). In fact in our earliest G. R. viz., the G. R. of 1911, the term used is not 'normal yield' but "the standard normal yield". The first word 'standard' in this expression somehow came to be inadvertently dropped in some of the later G. Rs. and the same term 'normal yield' was used in them to denote the standard involved in concept (A). That is how the two concepts came to be confused with each other, which incidentally is a standard method of creating a fallacy, i.e., the same name is given to two entirely different things and later on the two things are identified on the ground that they have the same name losing sight of the fact that we ourselves have given this common name.

18. The three reports quoted by the Director of Agriculture are all concerned only with reference for yield to be used purely for the purpose of the statistical concept 'B'. They are not at all concerned with the concept (A) and consequently their recommendations have no bearing on the standard of comparison to be adopted under the concept A.

19. We may first take the Report of the Technical Committee for Co-ordination of Agricultural Statistics in India. For our purpose the relevant portion of its recommendations is contained in paragraphs 3.29 to 3.34 of the Report. As the name indicates this Committee was concerned with, laying down uniform definitions for the various statistics used in different states in connection with agriculture, viz., acreage under each crop, acreage under irrigated area, etc. One of the statistics considered is the

estimated outturn of a crop during a year. The Committee has recommended that the outturn should be estimated directly by estimating the yield per acre from crop experiments made in a sufficient number of fields selected at random and then by multiplying this yield per acre by acreage under that crop. Thus the annual outturn is directly estimated and for that purpose the definition of the "normal yield" is no longer necessary. But in addition to the annual outturn it is also considered desirable to tabulate a statistic which will show how the yield per acre realised in a year compares with the yield per acre obtained in the past in other years. As stated before the reference yield to be taken for this comparison is the average yield obtained over a period of years.

20. However, it is not sufficient merely to say that the comparison should be made with the average yield because an average can be calculated in numerous ways. For illustration the period for which the average is taken may vary; it may be 3 years, 5 years, 7 years, 10 years, etc. Secondly after the period is fixed the average may be taken over a fixed period or the period may vary continuously. For illustration if it is decided that the average should be taken over 10 years period, then we may lay down that during the decenium 1961 to 1970 we should throughout use the average based on the decenium 1951 to 1960. An alternative definition would be that the average should be changed being based on the preceding 10 years. Thirdly, the average can be a weighted average, the yield per acre each year being weighted by the area sown under that crop in that year or it may be a simple arithmetical average of the yields per acre observed during a period of years selected. Therefore for defining the index of 'Seasonal Condition Factor' it is necessary to define all these three conditions and to state precisely how the average yield is to be calculated. This is what the Technical Committee has done. It is laid down that the average should be taken over a period of 10 years; that it should change every year being based on the preceding 10 years, and further that it should be simply an average of the yields per acre obtained during the previous 10 years and not a weighted average.

21. Thus the Technical Committee has been concerned only with the purely statistical question of laying down uniform definition for the tabulation of the agricultural index called the 'Seasonal Condition Factor'. It has not considered and was not at all concerned with the question whether this Condition Factor or the reference yield used for calculating it should also be used or would be suitable for the purpose of the yield to be taken as a standard of comparison for the purpose of concept (A). There is not a single page in the whole of the Report where the expressions "the need of the agriculturists for grant of relief by suspension or remission" "ability to pay more than normal assessment, etc.," occur. Is it conceivable that the Committee would have made a recommendation on this point without using these expressions? Obviously the Committee has not considered these matters because they were entirely outside its terms of reference.

22. There is also a common sense reason why the Committee could not have made any recommendation regarding the standard of comparison to be used under concept (A). So far as the definition of a statistical index, viz., the Seasonal Condition Factor is concerned it is necessary that a uniform definition should be followed in all States. In respect of the standard to be followed for regulating grants of remissions and suspensions on the other hand it may perhaps be impossible to lay down a uniform standard applicable to all the States because this standard would be intimately linked with the land revenue system, the system of assessment of lands, the size of the holdings and the other various factors mentioned in paragraph 16 which will vary from province to province. In any case it is clear that the recommendation made by the Technical Committee relates only to the reference yield to be used for the purpose of concept (B) and has no bearing on the yield to be used as the standard of comparison under concept (A). It may of course happen that the Seasonal Condition Factor tabulated under concept (B) or the reference yield taken for that purpose may also be found suitable for the purpose of concept (A). But whether it is so or not has not been considered by the Committee and therefore will have to be

examined by us independently. As shown before they will not be suitable because the object underlying our rules regarding remissions and suspensions is the grant of relief to the agriculturists in areas which are subject to the vagaries of rain. Therefore the standard of comparison has to be based on the yields obtained in years in which there has been good rainfall and years of bad rainfall have to be excluded. The policy is frustrated if the average yield is taken for the purpose of comparison because it also includes the bad yields.

23. The above incidentally clarifies a point which has not been correctly realised by the Technical Committee or the other Committees. All of them have commented that the standard yields in most of the States seem to be fixed too high and require to be revised. They have assumed that this was due to a bias on the part of the Revenue officials and the cultivators to underestimate the annewari. The real explanation, however, has not been put up to the Committees and has escaped them. The true explanation seems to be that just as in our State in most other States also for the revenue annewari the standard of comparison is not the average yield but the yield in a satisfactory year, so that the standard yields have been correctly fixed above the average yields.

24. Broadly the same remarks hold good in respect of the Report of the Board of Agriculture in 1919. The relevant portion is contained in pages 22 to 31 of the Proceedings of meeting of the Board. Detailed remarks on this report are, therefore, not necessary. It is also concerned only with the reference yield to be used for the purpose of concept (B) and the definition of the Seasonal Condition Factor, and has not at all considered the standard of comparison to be used for the purpose of concept (A).

25. (A) I would, however, refer here to a formula given for estimating the total yield in the 1919 proceedings as that illustrates my argument. The formula is:

$$\text{Total yield} = \text{Area} \times \frac{\text{Average yield}}{\text{per acre}} \times \frac{\text{Seasonal Factor}}{\text{Average seasonal factor}}$$

This formula has been given by the then Agricultural Adviser to the Government of India, Mr. Stuart, and this has

been accepted by the Board. The term 'Seasonal Factor' on the right handside of the equation is used to denote in Mr. Stuart's words the annewaris made by the Patwaris. Since the annewaris made by the Patwaris are also checked by the higher Revenue Officers, we can take these annewaris as meaning those made by the Revenue Department Officers. Now the implication of this formula is as follows: Suppose the average annewari of crop during the preceding period of 10 years is 7 Ans. and the annewari for a particular year is 5 Ans. then the Seasonal Condition Factor for that crop for that year to be tabulated by the Agriculture Department would be $5/7 \times 100$, i.e., 71 per cent. Mr. Stuart has specifically clarified that so far as the annewaris made by the Revenue Officers are concerned, they should not be interfered with and they should be allowed to continue with whatever standard of comparison they have been following. Obviously the annewaris made by the revenue officers are for the purpose of determining grant of remissions and suspensions or recovery of larger instalments of revenue. Hence Mr. Stuart's argument implies that the revenue department's method of annewari was not to be changed. Further in this case the Seasonal Condition Factor would be tabulated as 71 per cent while the Revenue Department's annewari would be 5 Ans. which would involve grant of half suspension. Mr. Stuart had not remarked that the grant of this suspension would be too liberal or unjustifiable. This shows that the formula recommended had no concern with the standard to be adopted for regulating grants of suspensions and remissions.

26. As stated before the third reference, viz., the Report of the Statistical Committee of the Government of India's Council of Agricultural Statistics in 1947 has not been furnished by the Director, who has given only an extract of the relevent recommendation (copy enclosed). The recommendation is instead of using an average based on the past 5 years the average based on 10 years should be used. This wording also indicates clearly that this Committee also had considered only the question of making precise the definition of the 'average yield' and had not considered the question of the standard to be used for the purpose of concept A.

27. Another point which may be noted in this connection is that the definition of the normal yield as an average yield for tabulating the Seasonal Condition Factor has been given as back as in 1919. Successive Directors of Agriculture must have been aware of this recommendation, but none of them thought that this 'normal yield' was also required to be used as the standard of comparison for the purpose of the Revenue Annawari which was being made for suspension and remissions. The G. Rs. of 1927 and 1941 are subsequent to this recommendation and were issued after consulting the Director of Agriculture. Thus the successive Directors had clearly realised that the average yield which was to be used for tabulating the Seasonal Condition Factor could not be suitable for regulating the grant of suspensions and remissions. The confusion between the two different concepts seems to have been arisen for the first time only in 1959.

28. There is also another argument which will show how the "new definition" of standard yield is unsuitable. According to the "new definition" the standard yield is to be an average based on the preceding 10 years. This means that the figure of standard yield for each crop is bound to change every year. It can hardly be expected that the Taluk and Circle Inspectors should use for making annawaris, figures of standard yield which change every year in respect of each crop. This will lead to confusion and also to criticism from the public. This is of course a minor argument. The main arguments are those given before.

Foot Note regarding the Statistical Committee's 1947 Report: On subsequent informal inquiries with the Director of Agriculture it is ascertained that there is no such report, but that the Committees had only circulated certain recommendations on various points. As regards the standard yield only the recommendation was received by him and no explanatory note was received relating to this recommendation.

APPENDIX I-D

Tel : 51071

Telegrams : AGRIRESTA

Dr. V. G. PENSE, Ph.D. (Lond.), F.N.I.,
Statistical Adviser.

INSTITUTE OF AGRICULTURAL RESEARCH
STATISTICS

(Indian Council of Agricultural Research)
Library Avenue,
New Delhi-12.

No. S.A./62-Stat.

Dated the 10th April, 1962.

Dear Shri Ranga Rao,

Please refer to your D. O. letter No. Stat-S-I-1462, dated 30th March 1962. I have received the papers mentioned there and have gone through them carefully. I am submitting my observations below :—

Since the State Government is in search of a scientific method of determining normal yield for purposes of the revenue administration, we may state at once that the old definition of this term which is given in various ways, is highly arbitrary and unscientific. It is impossible to determine figures for normal yield uniquely according to this definition, since interpretation of expressions like pretty good years, fair satisfactory rainfall; rainfall fairly favourable in quantity and distribution, etc., will differ from person to person. A favourable distribution of rainfall is impossible even to define.

The accepted meaning of the term 'normal' in statistical science is the most frequently occurring event. The old 'normal' is far from this, being in fact a rather rare event. Taking the 10 years' yields of bajri for Nasik District given by Shri Joshi none of the 10 years will qualify to be called 'normal' according to the old standard. In fact the highest yield of about 300 lb. is less than 60 lb. of the old normal.

Judging from these figures one wonders if the so-called normal yield will be achieved even once in 20 or 25 years. If, as is suggested, yields of 4 or 5 such years should be averaged to give the 'normal' the work will have to extend over a century. The great advance made during the last 15 to 20 years by the State in co-operation with the Centre is to establish a scientific definition of yield levels for different districts and employ scientific and objective techniques of determining these levels, both the definition of average yield and its determination being entirely free from arbitrariness and subjective factors. To revert to the old 'normal' for which some justification might have been there in the past in the absence of authentic data on yield would be to disown all this advance as a result of which the old concept of the normal was demonstrated to be no longer tenable.

Even for revenue administration such reversion in my view is absolutely unnecessary. Scales for remission and suspension can be fitted to the level of average yield and its annual distribution. What that scale should be, would depend upon Government policy but it will be on a firm scientific basis when related to average yields and their annual distribution instead of being tied to an illusory concept of the 'normal'. A percentage index taking the average as 100 or even a scale in terms of absolute values of yield can be set up for granting remission and suspension of land revenue. Incidentally even the anna used as basis for the annawari is no longer a current coin. Shri Joshi has unfortunately interpreted the consequences of applying the old annawari scale to new averages. Nobody has even suggested that this should be done. In fact, the revenue administration of the State is in a position for the first time to rationalise its methods of helping the cultivators by providing rules for granting suspension and remission related to authentic data of average yield and its annual distribution which have become available through sustained scientific efforts both at all-India level and in the State. It should not be a difficult undertaking for experienced revenue administration.

The point I wish to emphasize is that it is not desirable to have two sets of yield figures, one for revenue administration and the other for agricultural development and other

purposes and this would cause great confusion. I am equally clear in my mind that this differentiation is quite unnecessary:

Yours sincerely,

(Sd.) V. G. PANSE.

Shri D. S. Ranga Rao,
Statistician,
Agriculture Department,
Maharashtra State, Poona.

APPENDIX I-E

Shri V. M. Joshi,
Officer on Special Duty.

D. O. No. Mis./I-OSD
General Administration Department.
Sachivalaya, Bombay, 12th June 1962.

Thank you for sending me a copy of Dr. Panse's letter No. S. A/62, dated the 10th April 1962. As I had presumed he has accepted the point raised by me, viz., that under our existing rules the arithmetical average yields cannot be used as standard yields. He does this in the fourth paragraph of his letter where he says: "Shri Joshi has unfortunately interpreted the consequences of applying the old annawari scale to new averages. Nobody has even suggested that this should be done".

The other point contained in his letter is his suggestion that the annawari rules should be suitably revised so as to bring them in conformity with the use of the average yields as standard yields. If such a revision of the rules were feasible it might have been the better course. I have, however, already explained in some of my previous notes why such revision may not be feasible. In any case, this is a separate issue. It is now accepted by all that unless and

until our ahnawari rules are revised the use of the arithmetical average yields as standard yields will have to be abandoned.

Yours sincerely,
(Sd.) V. M. JOSHI.

Shri J. B. DeSouza,
Commissioner, Bombay Division,
Old Secretariat,
Bombay.

Copy forwarded with compliments to—

- (1) Shri D. R. Pradhan,
Secretary, Revenue Department.
- (2) Shri R. C. Joshi,
Secretary, Agriculture and Forests
Department.
- (3) Shri Ranga Rao,
Statistician,
Department of Agriculture,
Maharashtra State,
Poona.

(Sd.)

Officer on Special Duty.

APPENDIX I-F

Proceedings of the meeting held in Secretary, A. & F. D.'s Chamber on 10-9-1962 at 12 noon to consider the definition of Standard Normal Yield for purposes of Annewari.

Present—

1. Secretary, R. D. (in the chair).
2. Special Secretary, G.A.D.
3. Secretary, A. and F.D.

4. Director, Bureau of Economics and Statistics.
5. Settlement Commissioner and Director of Land Records.
6. Superintending Agricultural Officer, Poona Division.

The question of proper definition of 'Standard Normal Yield' to be used as a yardstick for comparison with the yields in different years, was considered. A reference was made to the Revenue Department G. R. of 1944 and also to the relevant provision in Anderson's Manual according to which the Standard Normal Yield was defined as the average of yields in satisfactory seasons. It was therefore apparent that the Standard Normal Yield cannot be equated to the simple arithmetical average of ten years since this average also includes bad seasons. The next question was whether the Standard Normal Yield should be taken as an average only of very good years. It was mentioned by the Director, Bureau of Economics and Statistics that in a recent discussion with the Minister (Revenue), it has been proposed that the average of the best three years within the last 10 years should be taken for determining the Standard Normal Yield. It was, however, felt that this would be a suggestion for Government's consideration. The general view of the meeting however was that the Standard Normal Yield for the purposes of Annewari should be taken as the average of satisfactory years that is excluding both bad and very good years. It was stressed that a satisfactory year or a normal year should be a year which recurs and cannot be a year which occurs only once in 10 or 15 years. Thus the Standard Normal Yield should not be an arithmetical average of only very good years. It was agreed that the definition of Standard Normal Yield as now decided should be used for the purposes of Annewari and remissions of land revenue and that for estimation of levels of agricultural production, moving averages for 10 years based on the crop-cutting experiments should continue to be utilised.

2. A suggestion was made that instead of the Standard Yield being expressed in terms of annas, this may be expressed in terms of percentage. Thus, the 12-anna crop would be equated to 100% while 6-anna crop would be equated to 50% and so on. This was agreed to.

3. It was further agreed to set up a Committee consisting of Special Secretary, G.A.D., Director, Bureau of Economics and Statistics and S.A.O., Poona Division, to go into the question in further detail with regard to the definition now agreed and work out the Standard Normal Yield for each major crop in each district on the basis of the data of crop-cutting experiments available for the last 9 or 10 years.

4. The next question raised was as to the procedure to be followed for the current year's Annewari. It was agreed that no general orders could be issued pending receipt of the Committee's review of the matter. In the meantime, however, orders (confidential) may be issued to the effect that for purposes of Annewari in areas likely to be affected by scarcity in the current kharif season, the pre-1956 Standard Normal Yield figures may be adopted, pending issue of fresh Government orders on the subject.

APPENDIX II-A

Agricultural Statistics: Huzur Form No. 17 H.

No. 397

REVENUE DEPARTMENT

Bombay Castle, 16th January 1884.

Read a letter from the Commissioner, C. D. No. R-6026, dated 17th December 1883, forwarding one, with its accompaniments as per margin, No. 536, dated 27th November 1883, from Mr. Bulkley, President of the Sub-Committee appointed under Government Resolution No. 1327, dated 17th February 1883, for the purpose of drawing up certain formulae in connection with the information to be supplied in Huzur Form No. 17 H; stating that the suggestions made by the Sub-Committee appear to be, in the right direction and are calculated to secure approximately correct information as far as it is practicable and that he would suggest that the statements prepared by the Sub-Committee be printed both in English and the vernaculars in order that they may be handy for use both in the Collector's and the Mamlatdar's office; adding that as regards the vernacular translations Mr. Bulkley will have to be particularly requested to see that vernacular names of crops agree with those given in the alphabetical list of crops prepared by him (Mr. Robertson) and forming an accompaniment to Government Resolution No. 1327, dated 17th February 1883; and requesting sanction to the expenditure of Rs. 269-6-1 incurred by the Sub-Committee and referred to in the concluding paragraph of their report.

1. Report of the Sub-Committee, dated 26th November 1883.

2. Statements for the different districts as follows:—

- (1) Surat, (2) Broach, (3) Kaira, (4) Ahmedabad, (5) Panch Mahals, (6) Thana, Kolaba and Ratnagiri, (7) Poona, (8) Ahmednagar, (9) Nasik, (10) Khandesh, (11) Sholapur, (12) Satara, (13) Kaladgi, (14) Belgaum, (15) Dharwar, (16) Kanara.

3. Vouchers for the expenditure incurred by the Sub-Committee.

Read also the following report of the Sub-Committee referred to in the Commissioner's letter:—

“The Sub-Committee met at Poona for work first on the 3rd July last, and continued its sittings from time to time until near the end of September, Mr. Stormont having proceeded on leave since the date of first appointing the Sub-Committee has been represented by his *locum tenens*, Mr. Mylne.

“2. The formulæ for ascertaining according to its estimated quality in annas the approximate yield in lbs. per acre of each crop enumerated in the classified list appended to the joint letter from the three Commissioners of Divisions and the Survey and Settlement Commissioner, dated 12th January 1883, which are mentioned in paragraphs 10, 11 and 12 of that letter, have been fixed by the Sub-Committee on information at its disposal coming under the following heads:—

(a) The recorded results of crop experiments conducted by order of Government in the several divisions of the Presidency during the period ranging from 1872-73 to 1882-83.

(b) The results of other crop experiments made independently on various occasions by certain members of the Sub-Committee.

(c) The returns of estimated yield per acre furnished by taluka officials during the current year on the requisition of members of the Sub-Committee.

(d) The returns of estimated yield per acre furnished to Government in 1879-80 by the Collectors in the several divisions, based on figures fixed by specially appointed Taluka and Central Committees, and by the Mamlatdars and District Deputy Collectors.

(e) Statements of estimated yield furnished to members of the Sub-Committee, by independent landholders and cultivators.

(f) Reports on the produce of the more important crops in certain talukas of Gujarat drawn up in 1825—1827 by Captain Cruikshank of the Maji Jarif.

(g) Local knowledge and acquaintance with agricultural processes and their results in various districts of the Presidency.

The figures derived from all these several sources of information have been carefully collated and considered before fixing those finally embodied in the formulæ drawn up and hereto appended.

“3. For the talukas of Gujarat these formulæ represent the approximate yield per acre of a crop in lbs. according to its estimated anna-value, on a symmetrical scale, so that the yield for each anna-value downwards from the top yield for 16 annas is shown proportionately lower by one-sixteenth, until the yield of that crop, estimated at one-sixteenth or less of the top yield or at one anna and under, is reached. This system of working the formulæ has been adopted as in accordance with the ascertained custom of landholders and cultivators of the province in estimating the yield of standing crops.

“4. For all the other Collectors of the Presidency the formula, though based upon an anna-valuation, gives the approximate yield, against each anna, graduated by certain percentage reductions. The figures of yield from 15 to 10 annas inclusive are somewhat higher, and from 9 to 1 anna lower than what an uniformly proportionate reduction would show. The object of so arranging the scale is not only to correct the tendency of native estimators, to underestimate the good and to overestimate the poor yields, but also to bring within the scope of the sixteen-annas scale all descriptions of yield from the superior to the poorest, and thus avoid making any minuter sub-divisions to meet such yields as experience and crop experiments have shown to be at times less than would be represented by figures obtained by an uniformly decreasing amount.

"5. In the case of every taluka all crops entered under the denomination of orchard and garden produce (Class III of the list), and those crops (in whichever other class entered) which yield under ground, in respect of which it seemed to the members of the Sub-Committee best acquainted with their conditions that a system of valuing quality by annas throughout the scale was less applicable than it is to the ordinary grain and pulse crops, the formulae show the relative qualities of their yield opposite 16, 12, 8 and 4 annas only in the scale, as representing yields estimated as superior, good, middling and poor.

"6. The Sub-Committee has spared no pains to arrive at the results entered in the formulae, and though conscious that in respect of a few of the rarer cereals and pulses and some of the orchard and garden products, the figures fixed may, by the light of further actual experiments, be found somewhat inexact, it ventures to express its confidence that as regards the others the estimates are sufficiently correct to supply Government with substantially reliable information about the resources of each district, if they are intelligently and carefully applied by the Mamlatdar and his staff.

"7. The Sub-Committee has also directed its attention to the subject of paragraph 15 of the joint letter, and has framed for each collectorate lists of the average amount of seed per acre required for the different crops grown therein, after carefully considering the several kinds of information at its disposal, and collating where practicable or useful the data relating to districts of similar characteristics. As, however, no experiments bearing on the amount of seed required for the rarer varieties of produce have been conducted (as it was hoped would be done) at the Model Farms in the Presidency during the current season, the Sub-Committee has lacked the advantage of the practical instruction which such experiments would doubtless have imparted. The lists which have been drawn up are submitted along with the formulae of estimates of yield.

"8. The Sub-Committee has also taken in hand that part of the subject discussed in paragraph 19 of the joint letter which has been entrusted to it, viz., the obtaining in all possible trustworthy channels of information regarding the monthly consumption of grain and pulses by cattle of all descriptions (including elephants, camels and mules in the case of those localities in which animals are sufficiently numerous to swell the ordinary amount), and the striking of averages of such consumption for each taluka. The statements containing this information which have been drawn up are submitted herewith, and from them the Mamlatdars will be enabled to prepare the returns which Government requires.

"9. The preparation of the several statistical papers of all kinds relating to the three subjects under notice has entailed an amount of writing and calculation work exceeding what could possibly have been got through by the ordinary staff of karkuns in the establishment of each member of the Sub-Committee present at Poona in addition to the current duties of the office, and it was found necessary, with the sanction of the Survey and Settlement Commissioner, to employ a few temporary hands for that purpose. These have been engaged as on low pay as was applicable and for only such time as their services were absolutely needed. The total expenditure on this head amounts to Rs. 244-13-7. A further expenditure of Rs. 24-8-6 has been incurred for the hire of furniture for the room in which the Sub-Committee held its sittings, and for stationery, &c. These charges have been met from the grant for crop experiments' expenditure for the season of 1882-83 made by Government to the Survey and Settlement Commissioner."

Resolution.—The thanks of Government should be communicated to Mr. Bulkley and the members of the Sub-Committee for the care and ability with which they have carried out the instructions of Government and prepared the required formulæ.

2. The formulæ and their translations in the vernacular languages should now be printed and the proofs forwarded for correction and revision to Mr. Bulkley whose attention

should be invited specially to the latter portion of paragraph 3 of the Commissioner's letter.

3. Printed copies of the various formulae and their translations should be forwarded to the Commissioners and Collectors, and the formulae should be used in future in the preparation of the various returns and forms to which they are applicable. The Collectors should carefully explain to the Mamlatdars how the formulae are to be used as otherwise at first mistakes may possibly arise.

4. The expenditure of Rs. 269-6-1 reported to have been incurred by the Sub-Committee is sanctioned.

JOHN NUGENT,
Secretary to Government.

APPENDIX II-B

No. 725

REVENUE DEPARTMENT

Bombay Castle, 1st February 1898.

Circular letter from the Under Secretary to the Government of India, Department of Revenue and Agriculture (Agriculture), No. 9-27-4, dated 23rd October 1897:—

“In paragraph 14 of the Government of India's Circular No. 89-A, dated the 25th July 1884, which dealt with the preparation of forecasts of crops it was pointed out that in estimating the probable outturn of crops, there was no objection to the employment of the American system under which 100 is used to denote an average crop, or if preferred, that the system of anna notation might be adopted, provided that twelve annas were taken to denote an average and sixteen annas a bumper crop.

“2. It was, however, presently brought to the notice of the Government of India that the latter system was unsuited to the North-Western Provinces, where ordinarily sixteen annas is used to denote a good average crop and

Circular
No. 28-6-76,
dated 21st
March 1885.

20 to 22 annas a bumper crop. As it was considered essential that the system of notation should be uniform for all provinces, Local Governments were asked whether there would be any objection to the general adoption of that in use in the North-Western Provinces. The replies received showed that in some part or other of most, and in the whole of some provinces sixteen annas is used to denote an average crop; and all Local Governments, with only two exceptions, were willing to adopt this standard in framing their crop forecasts. Accordingly, the Government of India, in their Resolution No. 129-A-7-197 of the 6th November 1885, pointed out the absolute necessity for the adoption of one uniform standard, and prescribed sixteen annas as the standard to be used in future to denote an average crop.

“ 3. Since the revision of the form of crop forecasts in 1892, anna estimates are no longer used in the final forecasts; but they are still frequently employed in the first and second forecasts. It has, however, been strongly and repeatedly urged upon the Government of India that the adoption of a scale which is at variance with that in local use necessarily tends to confuse the estimates; and it has been pointed out that the result of this confusion is that in some provinces the estimate has never yet been pitched so high as a sixteen-anna or average crop.

Department
of Revenue
and
Agriculture
Circular
No. 48 of
21st
December
1892.

“ 4. The Government of India have therefore decided that in future it shall be left to Local Governments and Administrations to fix the scale of notation for themselves in accordance with local conditions, the object being to secure that the returns are in terms of a normal crop. To secure conformity with local usage, it may even be necessary to use different scales in different parts of the same province. This being so, it is obvious that the anna standard will no longer possess any fixed or uniform value, and will therefore be unsuitable for use in any published forecasts. I am therefore to request that in all future forecasts that may be furnished to the Government of India or the Director General of Statistics the use of the anna notation may be entirely discontinued, and the

American notation used in its stead, 100 being taken to represent a normal crop, and the estimated outturn being stated as a percentage of that crop. Indeed there is reason to believe that, apart from the formal periodical forecasts, all estimates of crop-outturn furnished to the Government of India, for instance, as have been reported in connection with this year's famine, are subject to the same uncertainty of standard; and I am therefore to request that in future, whenever outturn is mentioned in such cases, either the American notation may be used, or, if the anna scale is preferred, the standard on which it is based may be stated. A brief parenthesis (so many annas = normal) is quite sufficient.

"5. It will be noticed that in the above instructions the word 'normal' has been substituted for 'average'. The normal crop has been defined as that crop which past experience has shown to be the most generally recurring crop in a series of years; the typical crop of the local area, the crop which the cultivator has a right (as it were) to expect, and with which he is (or should be) content, while if he gets more he has reason to rejoice, and if less he has reason to complain. This will not necessarily correspond with the average crop of a series of years, which is indeed an arithmetical abstraction and may possibly never occur. For it is obvious that in a tract in which the agricultural standard is low and the harvest precarious, the yield of the year will fall below the normal as above defined more often and more largely than will be the case in a highly cultivated and well-irrigated tract, and that in the former case the average will probably be considerably below the normal while in the latter it will probably approximate very closely to it."

Memorandum from the Acting Survey Commissioner and Director of Land Records and Agriculture, No. A-102, dated 11th January 1898:—

"The Government of India propose that in order to remove misapprehension caused by the adoption of the 16 annas standard as an average crop, the use of the anna notation in the forecast reports should be entirely

discontinued and the American notation used in its stead, 100 being taken to represent a normal crop and the estimated outturn being stated as a percentage of that crop. In this connection reference is invited to Mr. Ozanne's letter quoted in the preamble of Government Resolution No. 6304, dated 5th September 1890, Revenue Department, in which it was pointed out that it is the ordinary practice in this Presidency to designate an average crop as a 12-anna crop. The standard of 16 annas as an average crop was adopted at the express desire of the Government of India, so as to secure uniformity of standard with other Provinces. As a result of the adoption of this new standard much confusion and misapprehension have generally arisen in the reported anna valuation of outturn, and the anna estimates have consequently, as remarked by the Government of India, been not pitched so high as a 16-anna or average crop. It is therefore desirable that the proposal of the Government of India should be accepted.

"2. Under this proposal the orders given in Government Resolution No. 6304, dated 5th September 1890, Revenue Department, should be cancelled and instructions should now be issued to district officers that in reporting the anna estimates of outturn in the forecast, crop experiment and other agricultural reports normal crop should be designated as a 12-anna crop in accordance with the common practice of this Presidency, and that, as suggested by the Government of India, a note should always be made showing the standard on which they are based in a brief parenthesis (so many annas=normal). The necessary calculations for showing estimates in the American notation will be made in my office while compiling the Presidency forecast reports for the Government of India."

Resolution.—Copies of the letter from the Government of India and of the memorandum from the Survey Commissioner and Director of Land Records and Agriculture should be forwarded to the Commissioner in Sind, the Commissioners of Divisions and all Collectors for information. His Excellency the Governor in Council is pleased to direct,

in supersession of Government Resolution No. 6304, dated 5th September 1890, that in all reports and returns submitted in future 12 annas should be taken as representing a normal crop. The particular attention of all officers should be drawn to the distinction between a normal and an average crop. The proposal made in the concluding sentence of paragraph 2 of the Acting Survey Commissioner's memorandum is approved.

(Sd.)

Acting Under Secretary to Government.

APPENDIX II-C

No. 2346 of 1902.

FAMINE DEPARTMENT

Bombay Castle, 17th November 1902.

From

W. T. Morison, Esq., I.C.S.,

Acting Secretary to the Government of Bombay,

To

The Secretary to the Government of India,
Department of Revenue and Agriculture.

Sir,

I am now directed to reply to Mr. Fuller's Circular letter No. 143-65, dated 9th January last. The important questions raised in it, some of which have been under discussion for more than a quarter of a century, demanded mature deliberation, and it was considered desirable to ascertain the views regarding them formed by Commissioners and Collectors in the light of the experience gained since the

famine of 1896-97. These views are exceedingly diverse, but many of the suggestions which have not commended themselves to this Government may be deemed by the Government of India worthy of consideration; and the reports are accordingly appended to this letter. It appears however to the Governor in Council that it would serve no very useful purpose to show why he regards the adoption of various recommendations as inexpedient or impracticable, and he will therefore confine himself to a statement of his own views on the points referred and of the reasons for them.

2. In Mr. Hardy's letter No. 4250-1, dated 5th June last, it was desired that there should be borne in mind the distinction between (a) elasticity of assessment and (b) elasticity of collection and that the two branches of the subject should be treated separately. Elasticity of demand is defined as the fluctuation of the Government demand year by year in accordance with prescribed rules, and in the Note which was appended to the letter it is described as the system of relaxing the rigidity of the assessment by making the revenue for each harvest vary in some kind of relation to the value of the produce of that harvest. But the Government of India have in paragraph 36 of their Resolution of 16th January 1902 pointed out that a fluctuating assessment in the sense of an assessment without a definite maximum limit in cash and annually varying with the outturn of the crops is exceedingly difficult to work with fairness, throws an undesirable amount of power into the hands of subordinate officials, lacks the influence for thrift which it has been the desire of Government to secure in its land revenue policy, would be retrograde step and would imply a reversion to the methods of Native rule. The Governor in Council infers that the abandonment of the standard demand which has been fixed in this Presidency by the labours for more than half a century of an expensive special Department is not a matter which falls within the sphere of the discussion contemplated and that the elasticity of demand referred to in the letter of 5th June corresponds to the system of fluctuating collections in specially precarious tracts alluded to in paragraph 3 of the letter of 9th January.

Fluctuations
of demand
for irrigated
land and for
dry land in
the Thar
and Parkar
desert.

3. It is to be observed however that for the greater part of irrigated land in this presidency there is levied an assessment which practically varies in proportion to the outturn. For land supplied with water from the Major Irrigation works in the Presidency proper there are collected rates determined according to the crop grown and the season and only for such crop as comes to maturity, and remissions are granted on account of any deficiency or excess in the supply which is independent of the act or omission of the person to whom the supply is given. A dry-crop assessment is also permanently due on account of these lands, but it is an almost insignificant proportion of the value of an irrigated crop. In Sind all the important cultivation is on irrigated lands, and subject to a provision in the fallow rules to prevent any person holding more land than he can properly cultivate the revenue for each survey number is paid only when it is cultivated and is determined according to the method of irrigation adopted. As pointed out by the Commissioner, the system of remissions is worked so freely that the assessment is adjusted to yield almost as completely as under the batai system. (In the Thar and Parkar desert also the assessment varies according to the crop grown and is not levied when the land is not cultivated.) There are grounds for believing that opportunities for illicit exactions are offered by the system in force in Sind and are taken advantage of by the subordinate officers, but crops dependent on water artificially supplied do not vary so much as crops dependent on rain and there is a consensus of opinion that the system is admirably suited to the circumstances. A perusal of Mr. Mountford's pamphlet on the Relations between Creditor and Debtor in Sind will show however that the elasticity of demand has apparently done little or nothing towards the prevention of increase of indebtedness and of the transfer of the land to non-agriculturists.

Character
of the
existing
demand
in the
Presidency
proper.

4. As above stated, the Governor in Council understands that he has the concurrence of the Government of India in the view that in no other part of the Presidency should the standard demand which has been fixed be abandoned and need not therefore dwell on the evils which would inevitably be brought about by the adoption of such a course, and

indeed they are set forth with sufficient fulness in the Note which accompanied Mr. Hardy's letter. The fluctuation which has to be considered is that which has relation to a standard demand, and the most important practical question for determination is whether the demand which has been fixed in this Presidency is such as except in abnormal conditions should be realised in full either annually or within a cycle of years or whether in any cases it should be regarded only as a maximum demand to be levied in good years and to be reduced according to the deviation of the outturn of any year from the maximum or normal outturn.

5. The recent Famine Commission have expressed the view that the assessment in the Bombay Presidency, including the Deccan districts, is a full assessment, one of the members however considering that the statement applied only to parts of the Presidency. An interpretation of this pronouncement not unnaturally put by persons interested in contending that the assessment is excessive is that the Commission hold the land revenue of this Presidency to absorb the full economic rent, and support is given to it by the following passage in paragraph 267 of the Report:—

“An assessment of 20 per cent of the gross produce in a fertile ryotwari region like Gujarat is not greater than the rent which landlords in many districts of Northern India levy from their tenants for lands of even less productiveness. But when landlords in Northern India take such high rents, they are obliged to allow suspensions in bad years.”

One of the considerations mentioned in paragraph 266 as grounds for the conclusion that the assessment in the Deccan districts is a full one is that in some parts a good crop is obtained only once in three years, and it is presumed therefore that the assessment in these districts is not considered by the Commission to be the equivalent of the rent in a good year, but on the other hand it is stated very emphatically that the assessment cannot be collected in short years without forcing the ryots into debt. The Governor in Council must leave it to the Government of India to determine what is the exact significance of the remarks of the

Famine Commission on this subject and whether the view intended to be conveyed is correct. But (if it is held that the assessment is such as can be paid by the ryots without borrowing only in favourable seasons, then it is clear that the revenue should be reduced; either the existing assessment should be regarded as a maximum assessment which should be levied only in favourable years and abatements should be made in other years according to the deficiency of the outturn or the assessment should itself be reduced so as to be what it has always been intended to be one which can be paid alike in good and bad years.) The Governor in Council admits that on the hypothesis abovementioned the proposals made below are altogether inadequate and almost equally so would be the scale of relief suggested in paragraph 271 of the Commission's report.

6. It is not necessary to repeat the reasons assigned in Memorandum forwarded with the letter from this Government in the Revenue Department No. 2181, dated 30th March 1901, and more briefly in paragraph 9 of the letter in this Presidency are such as can be paid without trenching on the cultivators' means of livelihood in all but abnormal seasons. The Governor in Council, however, assumes that proposals for a system of suspensions and remissions should be based on that view, which he believes has not been questioned by any official authority before the recent Famine Commission. There are, it is true, a few tracts in which there are indications of the assessment being or having been higher than is desirable, but in all such cases it has been or will be reduced. In Broach, in which district alone the statistics indicate that the average rate is about one-fifth of the gross produce, revision settlements which have been or are about to be sanctioned will effect a material decrease. The Governor in Council is very strongly of opinion that the adoption of the suggestions made below will provide as full a measure of relief from the burden of public dues in time of famine and of elasticity in collection even in the precarious tracts as is reasonable and called for in the light of what he holds to be the general incidence of the assessment. If the Government of India are of a different opinion, this Government will be prepared to make recommendations for more liberal treatment.

7. It must be admitted, however, that in Gujarat and Konkan account has not been taken in fixing the assessment of a probability of practical failure of crops in some years, whereas in the Deccan, including Khandesh and the Southern Maratha Country, full allowance has been made for the precarious nature of the climate. It must also be admitted that recent experience has not confirmed the view generally accepted and indeed still proposed by some of the officers consulted to be acted upon that cultivators who have ordinarily fair crops are better prepared for a failure than those who have not. In the circumstances this Government are inclined to think that the relief point may fairly be placed somewhat higher in Gujarat and the Konkan than in the Deccan and indeed this course is necessary if the revenue is on the whole to be realized, for the years in which arrears can be levied in the latter are less frequent than in the former. The suggestions made below are intended to be applied unconditionally only to *bona fide* agriculturists. The reason for distinction, the meaning to be attached to the terms and the conditions on which concessions which may be granted to occupants who do not fall within the class will be explained hereafter.

Reasons for different scales of suspension and remission in Gujarat and the Konkan and in the Deccan.

8. Many experienced officers deprecate the adoption of any scale, holding that relief should be given according to the recent history and the circumstances of the several tracts in which it is needed. The District Officers could hardly, however, be granted a larger discretion than they now have, and there is no reason to suppose that without detailed instructions they would exercise it more freely in the future than they have done in the past. On the other hand, whatever may be the case in Zamindari provinces, so complicated a scale as is suggested in paragraph 271 of the Report of the recent Famine Commission could not possibly be applied in this Presidency. The most competent expert could not regularly estimate the outturn even of individual fields within one-eighth of the actual, and where the yield of any class of crop, not to speak of the crops of all classes, within large or small tracts has to be gauged, it would be futile to attempt such close estimates. The insuperable difficulty actually experienced in making appraisements of crops which can be relied on is one of the reasons which

Necessity for graduation on broad lines.

render urgent an amendment of the Khoti Settlement Act. Where most village accountants have to keep separate accounts for several hundreds of holdings, the trouble of calculating suspensions and remissions in varying fractions would be enormous. If suspensions and remissions have to be systematically granted, the case can be dealt with only on broad lines. The Native method of expressing the condition of crops in annas can be roughly applied if necessary, but it gives an idea of accuracy which is often not in accordance with fact, and the Governor in Council is of opinion that classification not expressed arithmetically would be more easily applied.

Scales of
suspensions
recom-
mended.

9. In the opinion of this Government the full assessment can be levied without any harshness in Gujarat and the Konkan if the crops are somewhat less than normal, what may be called fair. If they are poor or not more than half normal, the collection of one instalment should be suspended and if they are bad or entirely fail, the collection of both instalments should be suspended. In the Deccan the assessment is so low that subject to the qualification stated below there is no need to suspend the collection of both instalments unless the crops absolutely fail or are not worth reaping. If the crops there are worth reaping, but bad, the collection of one instalment should be suspended, and if they are about half the normal, what may be classed as poor, the full assessment may fairly be levied. If the figures in paragraph 27 of the Memorandum appended to the letter from this Government, No. 2181, dated 30th March 1901, are accepted as a fair indication of the incidence of the rates the amount collected in the latter case would be about one-fifth of the value of the produce in Khandesh and little more than one-tenth in Sholapur and between these limits in other districts and all such proportions can easily be paid. The qualification above referred to is that if the amount due from any occupant is not more than Rs. 10 it should be held to be

payable in one instalment and the collection of the whole of it should be suspended if the crop is bad. In Gujarat and the Konkan also the same rule may be applied, although it is not there so necessary. (In the Deccan a bad crop will do no more than maintain an occupant who holds only so much land as is assessed at Rs. 10.) At present assessment of Rs. 4 or less is payable in one instalment, and the limit may be raised to Rs. 10, the option being given of paying it on the date of either of the ordinary instalments.

10. As regards the collection of suspended arrears the Governor in Council is very strongly of opinion that it ^{Collection of suspended arrears.} (should depend on the character of the seasons following that in which the suspension takes place.) The soundness of the recent Famine Commission's dictum that uncertainty in collection is less oppressive and demoralizing than uncertainty in demand is open to question, but at any rate it has no applicability to arrears which are overdue, and which obviously should not be suspended longer than is necessary for the benefit of the occupant. It would frustrate the objection aimed at to leave him to squander the large income of a good year and fix an instalment for collection in a year in which he could not without difficulty pay more than the revenue due for it. In the Deccan in particular, a large portion of arrears could not be levied at all if advantage was not taken of the seasons which are favourable. In this matter also a slight distinction should be made between Gujarat and the Konkan on the one hand and the Deccan on the other. In the former the full revenue of two years should be collected only in a year in which the crops are good or bumper, and in a normal year there may be levied the revenue of the year together with one instalment or half of the revenue of a previous year. In the Deccan there can be collected without hardship the revenue of two years in a season in which the crops are normal or above normal that

is in an ordinarily favourable season, and the revenue of the year together with half the revenue of a previous year can be collected in a season in which the crops are fair.

Table showing conditions of suspension and of collection of suspended arrears.

11. The following statement will show at a glance the proportions of assessment the collection of which would, in the opinion of this Government, be justified by the several classes of crops and prepare the way for proposals regarding remission :—

Classification of crops (1)	Proportions of Assessment the Collection of which would be justified in	
	Gujarat and Konkan (2)	Deccan (3)
Good or bumper	2	2
Normal	1½	2
Fair	1	1½
Poor	½*	1*
	(Except on holdings for which not more than Rs. 10 is due, when none should be levied.)	
Bad	0	½*
		(Except on holdings for which not more than Rs. 10 is due, when none should be levied.)
None	0	0

*i.e. one instalment.

It has been stated that in parts of Gujarat cultivators have themselves admitted that in a good season they could pay the revenue of three years, and there is little doubt that for many of the lands in the Deccan this could be done without any undue curtailment of the means of subsistence, but the

Governor in Council does not think that it would be expedient to levy in any year more than twice a year's assessment.

12. Coming to the subject of remissions, I am to state Remissions. that in the circumstances which have been explained the Governor in Council considers that in Gujarat and the Konkan the assessment due from *bona fide* agriculturists and any other occupants who fulfil the conditions described in paragraph 18 should be remitted if a crop entirely fails, while in the Deccan it will suffice in that case to remit the amount due from occupants whose holdings are not assessed above Rs. 10 or whose right of transfer is restricted. These remissions can be granted as soon as the failures is restricted. In no other cases are remissions needed on account of the failure of a single year. If the view expressed at the close of the last paragraph is adopted, it practically follows that any authorized arrears in excess of a year's revenue should be remitted, and the Governor in Council is further of opinion that no arrears should be carried over for more than two years, for if the authorized arrears of one year cannot on the conditions which have been suggested be collected in the two following years, there must have been three continuous unfavourable seasons and a series of three unfavourable seasons must exhaust the resources of almost all *bona fide* agriculturists.

13. The proposals which have been made are at least Proposals as fully applicable to local or isolated as to widespread losses. equally applicable to the failure of crops in small areas or even in individual fields as to widespread failure. If anything more consideration is due in the former case than in the latter, for such crops as are reaped in years of extensive scarcity or famine are of unusual value, whereas prices are not affected by losses in small areas or individual fields. But it seems to this Government that the principles which have been proposed can be fairly and equitably applied to crop failures of all classes and that there need be a difference only in the method of applying them.

14. It is stated in paragraph 5 of Mr. Fuller's letter that Basis of uniform suspensions. the Government of India have accepted the conclusion of the Commission that in case of widespread calamity suspensions of revenue should be granted generally being based

on estimates of the loss suffered by homogeneous tracts or groups of villages without reference to the position or resources of individual revenue payers.) The principle of dealing with such a case has therefore been settled and this Government have no remarks to make regarding it in addition to those contained in paragraph 9 of their letter No. 2159, dated 3rd October 1901. But it is presumed that in years in which there is an enormous difference between the state of the main crops of different classes regard should be had to it. In the past two years owing to the failure of late rain crops of some classes were entirely or almost entirely lost, but early bajri and in some places cotton were good in Gujarat. If however it is found that the discrimination of persons who had crops of a class which generally were good and those who had crops of a class which generally failed would involve too much delay, than for reasons pointed out in the letter above quoted the relief granted must in the opinion of the Governor in Council be in proportion to the state of the worst crops. A cultivator who has reaped little or nothing and has no other resources can no more pay an instalment or other fraction of his assessment than he can pay the whole.

Basis of suspensions in case of local or isolated calamities.

15. As regards local or isolated calamities there can generally be no difficulty in the ascertainment by superior officers of the extent of failure in each field within the limits which have been indicated. The Governor in Council does not think that even in that case there should be an attempt to estimate otherwise than on broad lines or that relief should ever be given by fractions of instalments. (If the calamity although not in the ordinary sense widespread extended to large areas such as districts or even talukas, there would be the same reason for uniform treatment as in the case of extensive scarcity or famine.)

Basis of remissions.

16. There is no alternative to the acceptance, for the purpose of remissions due under the recommendations above made, of the same estimates as are adopted for the purpose of suspensions. If fields are not inspected before or soon after the time of harvest, no useful information can be obtained by inspecting them afterwards. Remissions are not however proposed on account of the failure of a single year unless it is absolute, and that is a palpable fact which

can be ascertained even for large areas without serious difficulty. (In the case of crops of different classes varying largely and one or more failing entirely remissions should not be granted without ascertainment of the fact that crops of a class which failed were sown.) The village accounts show the areas in each survey number under different kinds of crops and as this is a fact which can readily be tested, the record may be relied on as correct.

17. As regards inquiry into the circumstances of individuals as a condition of suspension or remission it is to be observed that this Government have never directed or authorized any inquisitorial proceedings. Since 1897 the broad distinction has been drawn between agriculturists and non-agriculturists, and in paragraph 3 of the letter to the Government of India No. 2599, dated 21st June 1900, it was explained that the non-agriculturists occupants who were not held entitled to concessions consist of money-lenders, mortgagees and occupants who are by common repute well-to-do. More recently the people to whom relief has been directed to be given have been designated *bona fide* agriculturists, and have been described as people who personally or through their families engage in cultivation for their livelihood. This definition excludes, as that in the Dekkan Agriculturists' Relief Act does not, members of agricultural castes who have accumulated capital and purchased lands which with their original holdings they now sublet to tenants. There is evidence that generally these people do no more for the improvement of the land or the benefit of their tenants than non-agriculturist holders do, and they are entitled to no more liberality unless they fulfil the conditions mentioned in paragraph 18 below. It is not overlooked that the recent Famine Commission state that the attempt to differentiate pure agriculturists and capitalist owners in Bombay has inevitably failed, but it does not appear on what evidence the statement is based. The Governor in Council does not admit that the attempt has failed. Doubtless there may be persons with regard to whom it may be difficult to say with certainty into which category they fall, but about the great bulk of occupants there can be no doubt and it has always been directed that the benefit of a doubt

Discrimination of occupants who have claim to relief.

should be given to the occupant. Certainly if the record-of-rights does not show with substantial correctness what land is in the beneficial possession of cultivating occupants, it will not be very useful. It is inferred with satisfaction from paragraph 6 of Mr. Fuller's letter that the Government of India acquiesce in the maintenance of the distinction which has been adopted in this Presidency.

Classes
entitled to
relief.

18. All occupants of land except inamdars will get the benefit of a general suspension ordered in time of wide-spread calamity. The balance of opinion is to the effect that even suspensions which do not lead to remissions are appreciated, and this view may be accepted, although in many cases the main reason for valuing them is probably that there is a chance of arrears not being collected in full. Suspensions and remissions have been as freely granted to Talukdar and landlords of cognate classes in Gujarat as to other occupants, and in most cases the tenants have benefited, but in some the attempt to secure this result has failed. The Governor in Council fully recognises that cultivating tenants have as much need or relief on account of failure of crops as cultivating occupants, and will be prepared to grant similar concessions, in respect of remission of assessment, to any landlords, except inamdars, who give an undertaking in a form which can be legally enforced to extend corresponding relief to their tenants, that is, to remit rent in the same proportion as it is decided to remit revenue, or who give through the Collector acquittances or releases for such proportion of rent. But (His Excellency apprehends that it may be difficult to assist in this manner tenants who have not a right to cultivate continuously.) Except in Ratnagiri where the special class of privileged occupants may fairly be granted the concessions allowed to cultivating occupants in other parts of the Presidency, there are few tenants who have continuing rights in their holdings beyond those allowed by special agreements; but if it is shown that there is a substantial number of tenants whose interest in the land is such that the benefit of a suspension or remission of land revenue could be secured to them by legislation, the Governor in Council would advocate legislation for the purpose. There are not, in the opinion of this Government, adequate grounds for any other exceptions to the principle

that relief from liability for land revenue should be confined to *bona fide* agriculturist occupants. Such inamdars as pay any dues pay a quit-rent which forms but a fraction—often but a small fraction—of a fair assessment. This quit-rent is permanently fixed, not being liable to enhancement for any reason, and correspondingly there should not for any reason be any abatement. (It has been suggested that power should be taken by law to require inamdars to grant the same relief to occupants under them as is granted by Government) but as the extent of the relief which Government should grant is not yet settled, this suggestion is at least premature. A more practical proposal is that assistance should be limited to such rent or revenue as in any set of circumstances is reasonable, and it will be more fully considered in connection with the question of a Tenancy Law. Other capitalist landlords, exclusive of real and nominal mortgagees, usually sublet their lands to annual tenants and generally for a share of crop as rent. These tenants would be in no way affected by any liberality shown to the landlords unless the conditions abovementioned are fulfilled, and the landlords have not on their own account any claim to an abatement of the assessment. They have purchased the land as an investment or speculation, and as the State does not share in any exceptional profits they make in favourable years, it should not share their losses in unfavourable years. In their case at any rate the revenue is mainly of the nature of taxation, and as pointed out by the Famine Commission of 1880, certainty and inflexibility in taxation are of the highest importance. (There is no reason connected with the public interest why the accumulation of land in the hands of capitalists should be encouraged, or why they should make large profits, out of concessions intended to promote the prosperity of the cultivators.) As regards mortgagees, although they do not infrequently grant nominal leases to the registered occupants or to persons who were registered occupants, what is really exacted is not rent but the recovery with interest of money lent and it would not be justifiable to alter the nature of the obligation or practicable by any legislation to secure that the debtors would be benefited by consideration shown to the creditors. Of course the concession will not be refused to *bona fide* agriculturists who remain in occupation of their lands although there may be

debts secured by mortgage on them, as the result of exacting even from person almost inextricably involved revenue which they cannot pay out of the produce would increase the amount of the claim against them and render their ruin mere certainty.

Past practice in the matter of suspensions and remissions on account of local or isolated calamities.

19. Inquiry is made regarding past practice only in the case of local or isolated calamities, and as the practice in the case of widespread calamities has been sufficiently fully described in previous correspondence, it is not deemed necessary to say more regarding it, although in material points it has been misunderstood by the recent Famine Commission. In the infancy of the survey settlement, in the year 1847, it was directed that the assessment should be so low as to enable the cultivators to accumulate funds sufficient to pay it in years or more than average failure, and that as a system remissions should not be granted. But it was recognized that abnormal calamities might render an occasional abatement necessary, and it was ordered that the crops of each field should not be inspected, but that an average remission should be granted, inquiry being made only in exceptional cases. Again in 1867 it was desired that individual remissions should as far as possible be avoided, and in 1869 the instruction went to the length that individual remissions should never be permitted. On the other hand it was ordered in 1880 that no remissions should be granted without careful scrutiny in each case, and this order was emphatically repeated in 1882, it being specially directed that the concession was not to apply to persons who are not actual cultivators or who can well afford to pay. This has continued since that time to be the rule. In 1874 power was delegated to the Collectors to grant remissions for loss by fire up to a limit of Rs. 50 in each case and to Commissioners up to a limit of Rs. 1,000. In 1887 the powers of Commissioners were extended to all causes of losses, but it was directed that the orders of Government should be taken in the event of remissions being proposed over a large tract on account of bad harvests. As regards suspensions no definite rule has been prescribed, but the principle laid down by the Famine Commission that the Collector is not to sacrifice a good tenant by rigidly selling him up and ejecting him because his revenue is in arrear has been strongly inculcated, and to

occupants of all classes time for payment is freely allowed whenever it appears that there would be any hardship in immediate exaction.

20. It will be seen that very ample powers have been granted to the Commissioners and the Collectors. It may be that in the past these powers have not invariably been exercised so freely as is desirable, but it appears to the Governor in Council unnecessary to discuss that question, as the conditions which justify suspensions and remissions will now be distinctly prescribed. The Governor in Council however thinks that in respect of one matter a more definite instruction is desirable. For land irrigated from tanks and other minor irrigation works a consolidated assessment is levied. In Gujarat the assessment is separated into soil and water-rates and the original intention of this procedure was that when the water failed the water-rate should be remitted. But it was found that remissions were rarely granted, and in the revision settlements the water-rates have been lowered so that like other assessment they may be fairly levied in bad as well as in good years. This system of consolidated assessment has great practical advantages, saving an enormous amount of trouble and wrangling and expense, and is, it is believed, generally acceptable to the cultivators. It should not therefore be abandoned, and in regard to partial failure of crops the same principles should be applied as in occupation of the land, if on account of failure of the water-supply and from no default on the part of the holder or cultivator the crop does not come to maturity. The desirability of encouraging irrigation and the trouble and expense involved—especially in Lift Irrigation—justify this course, and the Governor in Council proposes to issue instructions accordingly. Collectors have indeed the power not to make remissions on this account and their special attention has been called to the case of failure of kacha pats, while Commissioners can reduce an assessment up to a limit of Rs. 50 on account of permanent failure of water-supply, but it is believed that the powers have not been regularly exercised. In Gujarat dry crops are generally grown when tanks do not fail, and in such case the soil rates only should be levied.

Remission
on account
of failure of
water-supply.

Fallows.

21. The question of the treatment of fallows is one intimately connected with the subject of elasticity of demand and collection. It might be argued with some show of reason that if a suspension or remission is granted on account of failure of crop it should also be granted when no crop at all is sown. It may be observed that in 1901 it was ordered that the assessment should be remitted in cases in which a cultivator could not sow owing to loss of bullocks or otherwise from want of means, and this course should generally be followed. But the case of land which has to be or is left fallow in order to secure a fair crop in a year in which it is cultivated stands on a different footing. Generally allowance is made for the fact in the pitch of the assessment. In some of the talukas of the Branch district there is a practice of leaving fallow every year about a fourth of the holding, and the course has been experimentally adopted of suspending the collection of one-fourth of the assessment for a year when that condition is fulfilled. But of course the result is that after the first year the full assessment is due, and a fourth of the assessment remains perpetually in suspense over the heads of the cultivators to be exacted if the condition is not fulfilled. It is doubtful whether after the first year the cultivators will see any advantage in the system, and the Governor in Council is not inclined to extend the experiment until it is proved to be useful. It is reported that in parts of the Konkan not more than 25 per cent of the warkas land is cultivated annually and some mal land in the Deccan is probably not more regularly brought under cultivation. But the assessment of these lands is exceedingly light generally but a few annas per acre and in an average year the assessment for the whole holding can be paid without any difficulty from the produce of the area cultivated.

Summary.

22. To summarise, the general principles on which the Governor in Council proposes to grant suspensions and remissions of land revenue, both in years of severe famine and on account of losses of a less severe or local character, are as follows:—

A.—SUSPENSIONS.

Suspensions will be granted according to the scale given below to all occupants, agriculturist and non-agriculturist

alike (inamdars excepted), without inquiry into the circumstances of individuals and being in the case of severe famine extended to homogeneous tracts or groups of villages:—

Classification of crops	Amount of assessment to be suspended	
	In Gujarat and the Konkan	In the Deccan
(1)	(2)	(3)
None	The whole	The whole.
Bad	The whole	Half, except on holdings for which not more than Rs. 10 is due when the whole will be suspended.
Poor	Half, except on holdings for which not more than Rs. 10 is due when the whole will be suspended.	None.
Fair, normal or bumper.	None	None.

B—REMISSIONS.

Remissions will be granted as explained in clauses (i) and (ii) below to *bona fide* agriculturists and to those non-agriculturist occupants (inamdars excepted) to whose cultivating tenants it is possible to secure, by guarantee given by the occupant or by legislation a corresponding remission of rent; there will be no inquiry into the circumstances of individuals except for the purpose of deciding whether occupants are within the category—

(i) If the crops fail entirely, remission of assessment will be granted as soon as the failure is ascertained to the following extent—

In Gujarat and the Konkan	To all occupants.
In the Deccan	To occupants whose holdings are not assessed above Rs. 10 or whose right of transfer is restricted.

(ii) Except as provided in clause (i) the grant of remissions will depend on the character of the two seasons following that in which the assessment was suspended. Suspended arrears will be collected to the extent permissible under the table given above in paragraph 11. In

accordance with that table, all suspended arrears which either—

(a) are in excess of one year's revenue, or

(b) are more than two years old

will be remitted.

(iii) When the assessment includes a separate rate for water advantage then, if the water fails, the portion of the assessment which represents the water-rate will in the case of all occupants be remitted without suspension.

These proposals dispose of questions (1) and (5) in paragraph 11 of Mr. Fuller's Circular letter No. 1-43-65, dated 9th January 1902. The remaining questions have been dealt with as follows:—

(2) The practice in the past in regard to the grant of suspensions and remissions has been explained in paragraph 19 above, and it is proposed for the future to follow the same principles in the case of failure of crops in small areas as in the case of widespread famine.

(3) It has been explained that throughout Sind and also for irrigated lands supplied with water from the Major Irrigation Works in the Presidency proper a system of fluctuating collections is already in force, and that the application of a similar system to any other lands is deemed inexpedient.

(4) Though there are no so-called Zamindars in this Presidency, the case of non-agriculturist occupants, whose lands are cultivated by tenants, is similar. It is proposed to refuse remissions to such occupants unless either they give an undertaking in a form which can be legally enforced to extend corresponding relief to their tenants or corresponding relief can be secured to the tenants by legislation.

Necessity of regarding any general orders as instructions for general guidance and of discretion in dealing exceptional cases.

23. The Governor General in Council will see that the present proposals of the Government of Bombay include important changes in the rules under which suspensions and remissions of land revenue assessments have hitherto been granted, and that they will, if sanctioned, be of material benefit to all especially to the poorer classes of agriculturists. Under the proposed rules, suspension of collection will be allowed on general considerations and announced without delay, while arrears of unpaid assessments will be

either recovered or definitely foregone within a short and fixed period instead of being left hanging over the cultivator's head, a cause of anxiety and an injury to his credit. The measure of relief proposed is considered by the Governor in Council to be sufficient in his view of the character of the assessment, but as already stated he will be prepared to formulate more liberal recommendations if His Excellency the Governor General in Council accepts the view of the recent Famine Commission. In any case it is, in the opinion of this Government, of the utmost importance that it should be understood that such concessions as are granted are given as a matter of grace and that the principles which are laid down are merely prescribed for general guidance, the Commissioners and the Collectors having power under the control of Government to deal with any case in such manner as the circumstances justify. Such an expression as "a system of suspensions and remissions" is apt to create in the public mind an impression that on certain conditions the officers of Government are bound to grant the concessions, and those interested will be very ready to contend without real ground that the conditions are fulfilled. Even general estimates of the state of crops are very open to discussion, as is illustrated by Mr. Maconochie's reports on allegations regarding measures taken for the collection of the revenue in Anklesvar and Olpad, and those of the officials are not likely to be accepted by the landholders. Moreover there will always be cases which could not equitably be dealt with on the general principles, especially in the Deccan where the rainfall is often exceedingly partial and unusually good and unusually bad crops may be found in fields close together. Further even in years of general failure there are lands easily irrigated and low lands which have been flooded yielding very valuable crops. The Governor in Council admits that if these cases are specially treated there is a departure from the principle of acting on a general estimate in a year of widespread calamity, and indeed it is often, if not generally, impossible and unnecessary to do more than discriminate the exceptional cases. In Bijapur in 1896-97, and in the tracts north of the Narbada in 1899-1900, there were no crops at all except on irrigated or flooded land. But unless manifestly exceptional cases are dealt with exceptionally, there

will on the one hand be hardship to individuals and on the other a clearly unnecessary sacrifice of revenue. The important point, however, is to have it recognized that it is entirely within the discretion of Government and the officers of Government to make such concessions as circumstances render expedient. The demoralizing effects of any extensive practice of remissions are recognized by the Government of India and need not therefore be set forth. The difficulties arising from a hope of benefiting from the published views of the Famine Commissions regarding the oppressive nature of the assessment and the need of frequent abatements of it have already manifested themselves and will interfere with the punctual realization of the revenue for some time to come. But the (difficulties will be mitigated if it is made clear to all concerned that the payment of the land revenue is as binding an obligation as the discharge of a private debt, and that any relief from the liability is given as a mere matter of grace at the discretion of Government and the officers of Government.)

I have the honour to be,

Sir,

Your most obedient servant,

W. T. MORISON.

Acting Secretary to Government.

APPENDIX II-D

Land Revenue,

Suspension and remission of—in the Ahmednagar district.

No. 3872

REVENUE DEPARTMENT

Bombay Castle, 16th June 1903.

Letter from the Collector of Ahmednagar, No. R. 1757,
dated 22nd April 1903:—

"I have the honour to solicit reference to Government Resolution No. 2272, dated 1st April 1903, Revenue Department, and request the favour of your instructions,

A-10-11-B,

"2. Last year (1901-1902) the suspensions were granted by whole villages to *bona fide* agriculturists when the crop outturn in them was 8 annas or below, vide Government Resolution No. 8494 dated 5th December 1901, Revenue Department. It appears, however, from the present Government Resolution that suspensions are to be granted (presumably by villages) to all occupants (whether *bona fide* agriculturists or not) for whom such concession appears to be required, when they have no crops or when the latter are bad. No such concession is to be granted when the crop is only poor.

"3. The question then arises as to what is to be held as a bad crop and a poor or fair crop.

"4. As regards this it is to be noted that a normal crop is denoted by 12 annas, vide Government Resolution No. 725, dated 1st February 1898 (see slip 141 A to Taluka Form 36). And in my opinion bad, poor and fair crops should be classified as under:—

Poor and fair	.. ..	Above 8 and below 12 annas.
Bad	.. ..	8 annas and under.

I would also respectfully urge that crops estimated at 4 annas and below be classified as no crops.

On these points I would ask your very early orders with special reference to the 68 villages included in the list submitted with this office No. R-807 of 28th February 1903."

Memorandum from the Commissioner, C.D., No. V.R.-2007, dated 1st June 1903:—

"Submitted to Government with a recommendation that the classification proposed by the Collector may be adopted."

RESOLUTION.—The Collector of Ahmednagar should be informed that he is right in presuming that the suspensions are to be given to all classes of occupants, whether *bona fide* agriculturists or not. Of course, with 12 annas as normal crop, six, rather than eight annas will represent about half the normal. But in estimating the crops, arithmetical

standards, which it has not been found possible to get applied with any uniformity, may be discarded. When the crops have either totally failed or are not worth reaping, they should be classed as "none". Where they are considerably below half the normal, but still worth reaping, they may be classed as "bad". If they are about half the normal, they will be "poor" or "better than poor".

P. J. MEAD,

Under Secretary to Government.

APPENDIX II-E

No. 6985 of 1904.

REVENUE DEPARTMENT

Bombay Castle, 13th September 1904.

RESOLUTION OF GOVERNMENT

Government are not yet in a position to issue final orders on the subject of suspensions and remissions of land revenue. It is, however, necessary that a definite pronouncement should be made at once regarding the course which is to be adopted in the present year, in which there are grounds for apprehending an extensive failure of the early crops. The instructions now issued are to be clearly understood as applying only to the present emergency, and as liable to such modifications as may be necessary hereafter when this Government receive the decision of the Government of India on the proposals that have been laid before them. Subject to these remarks, the following orders are published for general information and for the guidance of district officers. Collectors should take effective measures for making the orders known throughout their districts.

A.—SUSPENSIONS.

2. When a Collector has ascertained by local inquiries that owing to a partial or total failure or destruction of the crops, on account of drought or from any other cause, it will be necessary to suspend the collection of land revenue in any area, he is authorised to grant suspensions according to the

scale given below to all occupants, agriculturist and non-agriculturist alike, without inquiry into the circumstances of individuals:—

Classification of crops (1)	Amount of assessment to be suspended	
	In Gujarat and the Konkan (2)	In the Deccan (3)
None	The whole	The whole.
Bad	The whole	Half, except on holdings for which not more than Rs. 10 is due, when the whole should be suspended.
Poor	Half, except on holdings for which not more than Rs. 10 is due, when the whole will be suspended.	None.
Fair, normal or bumper.	None	None.

NOTE 1.—When crops have totally failed or are not worth reaping, they should be classed as "none"; where they are considerably below half the normal, but still worth reaping, they should be classed as "bad"; if they are about half the normal, they should be classed as "poor".

NOTE 2.—In applying this order the holding is to be taken as the unit for consideration.

3. Where the area affected is homogeneous, or while villages are very seriously affected, the suspensions should be announced for such tract or villages without detailed inspection.

4. The Collector should forthwith report his proceedings, stating fully the reasons for his orders and the extent of its application with all other particulars, to the Commissioner, who should inform Government at once of the amounts to be suspended.

5. The Collector should cause the occupants whose land revenue is suspended distinctly to understand that such suspension is provisional only, and that it will be decided subsequently whether the revenue suspended shall be ultimately remitted or collected.

6. To petty inamdars who themselves cultivate the inam lands suspensions may be granted in accordance with the foregoing orders, which, however, do not apply to other inamdars.

B.—REMISSIONS.

7. Remissions should be granted, as explained in clauses (i) and (ii) below, to *bona fide* agriculturists and to those non-agriculturist occupants to whose cultivating tenants it is possible to secure, by guarantee given by the occupant, a corresponding remission of rent; there should be no inquiry into the circumstances of individuals except for the purpose of deciding whether occupants are within the category:—

(i) If the crops fail entirely, remission of assessment should be granted, as soon as the failure is ascertained, to the following extent:—

In Gujarat and the Konkan To all occupants.

In the Deccan To occupants whose holdings are not assessed above Rs. 10 or whose right of transfer is restricted.

(ii) Except as provided in clause (i) the grant of remissions should depend on the character of the two seasons following that in which the assessment is suspended. Suspended arrears should be collected to the extent permissible under the table given below. In accordance with this table, all suspended arrears which either (a) are in excess of one year's revenue or (b) are more than two years old should be remitted:—

Classification of crops	Proportions of assessment the collection of which would be justified in	
	Gujarat and the Konkan	The Deccan
(1)	(2)	(3)
Good or bumper	2	2
Normal	1½	2
Fair	1	1½
Poor	½*	1

(Except on holdings for which not more than Rs. 10 is due, when none should be levied).

Classification of crops	Proportions of assessment the collection of which would be justified in	
	Gujarat and the Konkan	The Deccan
Bad	0	0*
None	0	0

* (Except on holdings for which not more than Rs. 10 is due, when none should be levied).

*i.e., one instalment.

8. When the assessment includes a separate rate for water advantages, then, (if the water fails, the portion of the assessment which represents the water-rate should in the case of all occupants be remitted without suspension)

9. To petty inamdars who themselves cultivate the inam lands remissions may be granted in accordance with the foregoing rules, which, however, do not apply to other inamdars.

Suspensions and Remissions of the Local Fund Cess.

10. When prior to the date of the first instalment of land revenue any suspension or remission of land revenue is announced, a suspension or remission of local fund cess in the normal proportion should be simultaneously announced, and the levy of the first instalment should be made accordingly.

11. Immediate intimation of all suspensions and remissions granted under the foregoing orders should be given by the Commissioners to the Accountant-General, who should report to Government how far they are likely to affect the Budget Estimates of the year.

12. Government deem it desirable to state that the different rates of remission for Gujarat and the Konkan on the one hand, and the Deccan on the other are based on the difference in the treatment of these tracts in the Survey Settlement. In the Deccan Settlement full allowance has

been made for the precarious nature of the rainfall, while in the Konkan and Gujarat rates of assessment are based on the assumptions of an assured rainfall. Hence in the latter areas more extensive suspensions and remissions are called for in case of a failure of the rains than are justified in the former in which recurring deficiencies in the rainfall are permanently allowed for in the assessments. Specially favourable treatment is accorded to holdings bearing an assessment not in excess of Rs. 10 because in other than very favourable seasons the bulk of the produce of such holdings remaining after all charges are met is required for the maintenance of an average family and little margin is left for payment of arrears of assessment.

13. The attention of all officers should be drawn to Government Resolution No. 4078, dated 30th May 1904, and they should be requested to give full effect to the instructions therein given.

Sd./—

for Under Secretary to Government.

APPENDIX II-F

No. 3-99-2.

GOVERNMENT OF INDIA

DEPARTMENT OF REVENUE AND AGRICULTURE
LAND REVENUE

Calcutta, the 25th March 1905.

RESOLUTION.

1. Since British rule was established in India the standard form of land revenue management in this country has been one under which the revenue has been imposed in cash at a fixed sum to be collected annually without alteration during a series of years. This form of management had so many obvious advantages and represented so great a relief from the harassments connected with the levy of land

revenue in the period immediately preceding the establishment of British rule, that for many years the officials of Government looked with great distrust on any proposals tending to relax or modify the strictest adherence to its principles. The evils attendant on the rigid collection of a fixed revenue in tracts and on occasions when the produce varied greatly were, however, brought to notice by the Famine Commission of 1880, and the Government of India in 1882 issued instructions with a view to modifying where necessary the strict system of revenue assessment and collection hitherto in force. The broad principles underlying the instructions of 1882 appear to the Government of India to have been perfectly correct and to be identical with those which they now would wish to affirm, but the instructions applied in the first place to the temporarily-settled districts of Northern India and the Central Provinces only and even in those districts they were for some years but imperfectly observed in practice. In many parts of India complaints were made to the effect that the indebtedness of the agricultural population was aggravated by the rigidity with which the Government demand was exacted in bad seasons, and in 1894 the Government of India, when dealing with the question of agricultural indebtedness instituted a special enquiry into the possibility of introducing a larger element of elasticity into the revenue system of the country. The first place in their attention, however, was claimed by other aspects of the question of agricultural indebtedness and no special action was taken in the direction contemplated by the enquiry of 1894, beyond the continued advocacy of careful investigation into agricultural defects as indicated by local statistics. The necessity for a reconsideration of the question was, however, brought to notice by the experience of the famines of 1896-97 and 1899-1900, and the Famine Commission of 1901 put forward in their Report a number of important suggestions for the improvement of the system of revenue collections throughout India. These suggestions were duly forwarded on the 9th January 1902 to the Local Governments for opinion, and the Government of India at the same time, in their Resolution of the 16th January 1902 on the land revenue policy of the Government expressed their readiness to provide for such an increase as might be found necessary in

the elasticity of the revenue collections. The opinions of the Local Governments on the suggestions of the Famine Commission have since been received, and the Governor General in Council, having studied the various replies with which he has been favoured, desires to take this opportunity of explaining the principles which should in future be accepted by the Local Governments for guidance in dealing with the subject.

2. It may, as an initial point, be noted that there is one main feature of the instructions issued in their Resolution of the 12th October 1882 upon which the Government of India are no longer anxious to insist. A prominent position was given in those instructions to the necessity for a general classification of all agricultural land under one or other of the three heads, 'Secure', 'Insecure' and 'Fluctuating', as a preliminary to the efficient revenue administration of the country. So far as this entails a continuous examination of economic conditions with a view to the early deduction of circumstances bringing about agricultural deterioration or depression which may cause an assessment originally equitable to press with undue severity, the necessity for enquiry into the character of agricultural land will always remain in force; and the statistical analysis of districts which has been systematically conducted in some provinces, should, therefore, be now carried out and completed under the general guidance of the Director of Land Records in every Province, so far as local circumstances and the strength of the village establishments admit. At the same time the Government of India recognize that such enquiries and classifications are not an essential preliminary to the introduction of a proper degree of elasticity in the revenue system. They are useful in so far as they direct the attention of District Officers to the parts of their districts which need such attention, but they can serve only as a general guide to the administration of the revenue. Local calamities, such as hailstorms, affect secure and insecure tracts impartially, while widespread calamities, such as drought and famine, may to a great extent obliterate distinctions previously made. A classification of the character contemplated by the instructions of 1882 must be based on prior speculations as to the likelihood

of failure in any particular area and such speculations are always liable to be falsified by events. The essential point is rather to obtain adequate and early information as to failure which has actually occurred and such information can only be based on efficient revenue records. Where the proper revenue machinery is non-existent, the material for such information is wanting; and where it exists, an ordinary degree of watchfulness on the part of District Officers will ensure that cases of failure are promptly brought to notice. Without, therefore, directing that the formal classification of areas prescribed by the Resolution of 1882 should be discarded, the Government of India wish it to be understood that such a classification is not an essential part of the arrangements for the remission and suspension of revenue, and that these arrangements should not be postponed or delayed in any district of province on the ground that the classification of areas has not been completed.

3. In discussing the question of elasticity in revenue management generally it is most important to observe the distinction (which in former consideration of the subject has often been neglected) between "elasticity of assessment" and 'elasticity of collection'. In the case of the former, the demand, fluctuates year by year under rule; in that of the latter the demand is fixed, but allowance is made for exceptional seasons by the suspension or remission of the demand which is due. The former is a system of assessment; the latter an exceptional act of grace. In the present instance it has not been the intention of the Government of India, to bring the question of elasticity in assessment under consideration, nor do they propose in this Resolution to attempt any formal pronouncement on this head. The principle of a fluctuating assessment, having now been accepted in the practice of most Local Governments, is already applied in the worst of the precarious tracts in India; and its possible extension to further areas is a matter which will receive separate attention from time to time as occasion offers. The remaining portion of this Resolution must be taken, therefore, as referring not to questions of elasticity in assessment, but only to those concerned with elasticity in collection, that is to say, to questions relating to the suspension or remission of fixed land revenue.

4. These questions differ somewhat in character according as they deal with 'widespread', calamities, such as famine, drought and general failure of crops, and "local" or isolated calamities, such as are occasioned by hail, floods, locusts, and the like. The procedure adapted to the former class will first be described (paragraphs 5—17), and the special action necessary in cases of local calamity will be subsequently considered (paragraph 18).

5. Turning first then to the treatment of "widespread" calamities, the Governor General in Council desires to lay emphasis on the principle that the cases with which this Resolution is primarily concerned are those in which the revenue-payer has not by rule or contract any right to an abatement of the fixed demand assessed upon his lands at settlement. The assessments have all been fixed so as to allow, so far as the assessing officers could judge, for ordinary variations of season during the period of settlement, and the demand ought in theory to be paid in bad years as well as in good. But experience has shown that it is hopeless to expect the revenue-payer to save in good years the means wherewith to supply the deficiency in very bad years and all investigations into the condition of the agricultural population have brought to notice the evil effects of rigidity of collection in adverse seasons. The Government of India have therefore for many years past recognized the necessity of organizing a proper system of suspensions and remissions fitted to meet such seasons. It is no part of the intentions of the Government of India that the system to which they give their adherence in this Resolution, should authorize anything in the shape of laxity or carelessness in the collection of the fixed demand, nor do they contemplate that the system of suspensions and remissions should form, as has been proposed, 'a regular feature of the revenue administration'. It is, indeed, to be adopted as an integral part of the revenue policy of the State; but it is to be recognized as a measure purely of grace and not of right, to be exercised only in exceptional cases of calamity so severe as to justify and necessitate a relaxation of the settlement contract. It is true that, even within the areas under fixed assessment, the necessity for relief will recur with greater frequency in some parts than in others; and that in tracts of great precariousness

which it has not been thought advisable to bring under fluctuating assessment, such relief may be frequently needed as a matter of administrative necessity; but, even in such tracts, the Government of India have no intention of abandoning the general principle of 'fixity of demand' with its attendant certainty, as the basis of its revenue system. They recognize, however, in all cases, that it is unwise, even in the interests of their own revenue, to insist absolutely upon what has been termed 'the sacredness of the settlement contract', or to call upon the cultivator to pay the revenue or rent in all circumstances, however unfavourable; that while it is wholesome and legitimate to expect him to take the bad with the good in years of ordinary fluctuation, it is hopeless to expect him to be able to meet the fixed demand in years when the crops barely suffice for his own sustenance; and that payments should not be enforced under conditions which would compel a cultivator of ordinary care and prudence to imperil his future solvency in order to meet them.

6. The general objectives of the grant of suspensions and remissions being of the character above described, it remains to determine the manner in which they should be carried out in practice. The Government of India do not desire to prescribe for observance any detailed rules of procedure on this subject, but they consider it important to place the Local Government in possession of their views as to the main principles upon which the arrangements should be conducted and to entrust to the Local Governments the duty of promulgating rules of practice which shall conform as closely as local conditions may allow with the principles herein laid down. In dealing with the subject it will be convenient to explain the wishes of the Supreme Government separately on each of the following points, viz.—

- (i) the unit to be dealt with in granting relief;
- (ii) the question whether suspensions should ordinarily precede remission;
- (iii) the degree of crop-failure which should be held to justify the grant or relief;
- (iv) the scale of relief for the various degrees of crop-failure;

- (v) the authorities to be empowered to sanction relief ;
- (vi) the circumstances justifying remissions ;
- (vii) the effect of the suspension or remission of revenue on rent and *vice versa* ;
- (viii) the degree to which differentiation should be allowed between revenue-payers ;
- (ix) the effect of suspension or remission in India of which the revenue is assigned.

7. (i) In dealing with widespread calamities it is essential that the relief given should be prompt and if due promptitude is to be ensured it is obvious that anything like a field-to-field enquiry is impossible. The degree of immediate relief given must necessarily be based on information compiled by villages or homogeneous groups of villages and must consequently be the same throughout such villages or homogeneous groups.

In provinces where the Collector is not invested with power to grant suspensions on his own authority, however, it would be well to make it clear that the orders of superior authorities prescribing a uniform ratio of relief over a tract or group of villages may be modified by the Collector if, after making his report, he finds reason to believe that the agricultural conditions of any villages have been wrongly reported by him. He may, for instance, find that some villages have been incorrectly entered in the tract, or that villages for which he thought that the suspension of half the demand would suffice require a suspension of the whole. In such cases he should not be so tied down to uniformity as to be prevented from making necessary alterations, such alterations, being based of course upon the agricultural condition of the village and not upon the circumstances of the revenue-payers.

8. (ii) In certain cases it will be found advisable to grant relief from the beginning in the form of remissions. If, for instance, the amount of revenue which it is decided not to collect is such that when considered with reference to the recent history and present condition of the people, the nature

of the assessment and the character of the tract, it is practically certain that it will be impossible subsequently to collect it, it should not be kept unnecessarily hanging over the heads of the revenue-payers but should be remitted at once. So again, the special conditions of certain tracts may justify the adoption of initial remission as the rule. But in view of the fact that remissions require more careful investigation than is necessary for an order of suspension, it may be taken as a general rule that in cases of widespread calamity, where promptitude is essential, relief should in the first instance be given in the form of suspensions.

9. (iii) The Government of India recognize that it is impossible to lay down a fixed criterion for the determination of the exact point of crop-failure which should be deemed to justify the grant of relief. It has been that only those calamities which are too severe to have been contemplated by the assessing officer as included in the normal course of events should be recognized, and the principle is sound in itself but does not cover the whole case. An 8 anna failure of crops in a precarious tract where it is of no unusual occurrence would have been taken into account at assessment and would not on this principle admit of the grant of relief, whereas a similar degree of failure in a rich and stable tract, not having been taken into consideration, would on the same principle be held to justify relief. In a tract of assured rainfall, however, the cultivators are more prosperous and their resources greater notwithstanding their heavier assessment than those of the cultivators in a precarious area, and it must be remembered that the relative burden of the assessment, as compared with the resources from which it has to be paid, is of more importance than its actual incidence. On the whole the Government of India have decided to accept the conclusion arrived at in 1882 and endorsed by the Famine Commission of 1901 that "relief will not ordinarily be required when there is half a normal crop". It may indeed be necessary to vary the standard for special tracts or under special conditions, and the considerations indicated above should then be borne in mind; but the Governor General in Council thinks that it should not be departed from except in rare cases and under

exceptional circumstances. On the other hand it does not necessarily follow that the failure of more than half a crop will always justify relief; as much depends upon the nature of the harvests immediately preceding and upon the importance of the harvest in question.

10. (iv) The Government of India are fully aware that, in dealing with the scale of relief to be given when the crops do not reach half the normal standard, it would be falacious to suppose that the various degrees of crop-failure can be accurately dealt with by slavishly following any arithmetical formula. At the same time they are convinced that, without the guidance of some arithmetical standard, it is impossible to ensure any kind of uniformity in the grant of relief and accordingly, while deprecating anything in the shape of servile adherence to formula, they are strongly of opinion that a standard scale of relief of an arithmetical basis should be prescribed for general guidance, and that a scale should be laid down in this form for each district or other suitable tract. When a district comes under settlement it will generally be advisable to make the revision of the scale for that district a part of the duties of the Settlement Officer.

In deciding on the correspondence between the degree of relief to be given and the degree of crop-failure experienced one important principle should be borne in mind, namely, that the degree of relief should increase, as the yield decreases, more rapidly than the degree of failure. The cultivator has to depend for his own sustenance and that of his family upon the margin left to him after his obligatory payments have been deducted from the yield of his fields. The amount required for that sustenance will no doubt be larger in good than in bad years since in the latter he must be content with a lower standard of living than in the former, but there is a minimum standard below which it is impossible for him to go a minimum which depends to some extent upon the general circumstances and habits of his class. And the deduction for subsistence being to this extent a constant quantity it is obvious that a four-anna crop will leave much less than half the margin which will be left by an eight-anna crop, out of which to pay rent or revenue,

The relief therefore should be more than double in the former of what it is in the latter case. Accordingly the Government of India, without attempting to prescribe any scale for general adoption, would suggest the following as a suitable type in cases where no relief is given for a failure of less than half the normal crop:—

Crop (16 annas normal)	Degree of relief
6 annas and less than 8 annas	25 per cent.
4 annas and less than 6 annas	50 Per cent.
Less than 4 annas	100 Per cent.

The above may moreover be looked upon as showing the degree of elaboration which the Government of India consider suitable for such scales and they would deprecate the introduction of tables of relief containing much greater complication than the type above indicated.

11. (v) As regards the remission of revenue the Government of India are content to leave the Local Governments to decide as to the authority empowered to grant sanction in each case. In the case of suspension however they are strongly of opinion that the power to suspend, that is to say, to postpone by formal order, the collection of the revenue should rest in the Collector, or at least in the Commissioner. It is essential that, if suspension is to have its full beneficial effect, the amount to be suspended should be communicated to those who would otherwise have to pay rent or revenue, before the day on which payment becomes due. The degree of failure, however, cannot be estimated till the season is well advanced, local enquiries take time, and if further delay is caused by a reference to the Board of Revenue or the Local Government, it becomes almost inevitable that this essential condition cannot be maintained. The system of merely abstaining to collect without any declaration as to the amount to be suspended referred to by the Famine Commission of 1901 in paragraph 241 of their Report is open to the strongest objection. Not only is the uncertainty paralysing to the cultivation, but the system penalises the good revenue-payer who pays up promptly (often at a sacrifice greater than he ought to have been expected to accept), while the

bad revenue-payer defers all payment in the hope of suspension, and when the order issues, the money which he might have paid to Government without inconvenience has disappeared. It is hopeless to look for punctual payment of revenue where this system obtains. The great essential is to let the people know how much they have to pay, and the landlords and officials how much they have to collect, before the process of collection begins. The orders should be so published as to reach the people, tenants as well as landlords, in proper time. It is true that under the law of some provinces they do not take legal effect upon the rent until they have been formally confirmed by the Local Government but the tenants know that confirmation will follow and will withhold payment of the suspended portion, and the confirmation will come in time to bar suits for recovery.

12. (vi) As already explained in paragraph 8 above, as soon as it becomes clear that it will be inadvisable to collect suspended revenue or any particular portion of it, it should be remitted at once. It is most undesirable to keep suspensions hanging for long over the heads of the revenue-payers; and the Government of India are of opinion that revenue which has been under suspension for three years should ordinarily be remitted as a matter of course. They are also prepared, in the case of fully assessed tracts with an outturn which is fairly constant, to accept a rule which would limit the amount of revenue under suspension at any given time to the equivalent of the revenue demand of an ordinary year. In the latter case it would not follow that when suspensions exceeded the limit, the whole amount suspended should be remitted and logically speaking only the balance by which they were in excess should be so dealt with. But in the case of calamities so severe as to call for heavy suspensions, greater liberality than this will no doubt be desirable. An absolute and general rule that the amount under suspension should never exceed a year's revenue would be open to objection; since there are many areas of fertile soil, where is no irrigation and the rainfall is uncertain in amount, and where on account of this uncertainty, the revenue is pitched so low, that in a really bumper year the people could pay very much more than the revenue assessed without the slightest inconvenience.

13. (vii) In paragraph 285 of their Report the Famine Commission of 1901 recommend that an early decision should be reached as to the amount of suspended revenue which should be at once remitted, and that the balance should be spread over two or three years for collection. They go on to express a strong opinion that instalments for recovery should be fixed, and that the whole amount should not be left over from harvest to harvest at the discretion of the local officers. If the meaning of the Commission is that the instalment of arrears to be collected with the current revenue of any particular harvest should be fixed and announced before the collections for that harvest begin, the Government of India are in complete agreement with their proposals. If on the other hand these proposals are to be interpreted as meaning that the instalments for the recovery of suspended revenue should be fixed at the time that the suspension is announced, the Government of India must express their entire dissent from them. Such an arrangement could not secure the object aimed at by the Commission, viz., certainty in demand; for in a bad season, or even in a poor one, following shortly after such a calamity as had necessitated special measures of relief, it would be out of the question to collect any portion of the arrears. On the other hand, the previous fixation of the instalment would create a serious danger of the whole amount being collected without due consideration of the question whether the harvest was such as to warrant its collection. So again, the announcement of the instalments would prevent advantage being taken of an exceptionally good harvest to collect a larger amount which could be paid without the slightest difficulty. For this reason the Government of India object also to a suggestion which has been put forward that no more than a certain proportion of the suspended arrears should be recovered with any current instalment. The amount of arrears to be collected with any particular instalment should be fixed and announced with reference to the character of the harvest and the condition of the people, before the collection of the instalment begins, and it should be the rule for the Collector to report some weeks before the first instalment for any harvest falls due the amount which he proposes to recover out of the suspended demand. In view however of

the time required for the recovery of the cultivator from the effects of a bad season, the Government of India are prepared to accept the principle that as a general rule no suspended revenue should be collected until after one fair harvest subsequent to the failure has been reaped in the affected tract.

14. (viii) In dealing with the collection of the revenue, the persons with whom the Government is chiefly concerned are the cultivators of the soil. It is primarily upon them that the payment of the revenue depends, even when a landlord or a middleman intervenes between them and the Government. The prosperity of the masses who till the fields of India is in the main identical with the prosperity of the country and the people and if a failure of crops is not of such a nature as to render necessary relief to the cultivator it is not of such a nature as to render necessary relief to the revenue-payer. Acting on this basis, the Government of India desire to affirm the principle that no relief should ordinarily be given to the revenue-payer unless it can be ensured either by legislation or by executive arrangement that a proportionate degree of relief will be extended to the actual cultivators of the soil or at least to the tenant class (sub-tenants being for present left out of consideration).

In the Punjab and in the Central and United Provinces there are legislative provisions which already to a greater or less degree secure this object and the Government of India are ready to accept the present arrangements in these provinces as sufficient.

In some of the other provinces where tenancy legislation is under consideration the opportunity should be taken of introducing into the proposed legislation provisions similar to those in force in the provinces above-mentioned. Where there is a likelihood of the legislation in question being delayed and the province is already provided with an act of the Legislature dealing with rent, the advisability of incorporating the provisions in question in the existing Act should at once be taken into consideration. And where legislation immediate or in the near future is not found possible, steps should at least be taken to ensure by executive arrangements,

that relief to the tenants should be made the condition of relief to the landlord. Such a condition will no doubt often be difficult to enforce, and perhaps impossible to enforce completely; but if the condition is made widely public, it will probably be fairly effective, especially if any breach of it were followed by immediate collection of the revenue which was suspended or remitted.

There are special difficulties connected with the adoption of this principle in Bengal, but the Government of India consider that it would be unsatisfactory if the actual cultivators in this important province should, alone in India, be left without any definite protection from Government in cases where their rents are unpayable and the Local Government will be separately addressed upon this question.

While laying down the rule that relief to revenue must ordinarily be conditional on relief to rent, the Government of India are at the same time prepared to accept the converse principle that when Government interferes authoritatively to secure suspension or remission of rent, it should afford corresponding relief to the payers of the revenue which is based on that rent, however wealthy the individual may be by whom the revenue is paid. This arrangement may not be logically necessary, but it avoids the possible appearance of injustice and its adoption is held by the Government of India to be most expedient.

15. (ix) In view of the urgency with which proposals for suspension in the case of widespread calamity must always be undertaken it must be recognized as impossible to make any discrimination in suspending revenue between different classes of payers, and such discrimination when exercised at all, must be confined to cases of remission. In dealing with remissions a distinction should in the first place be drawn between the classes who cultivate the soil whether as owners or as Government occupants or tenants, and the landlord class who hold estates which are cultivated by tenants. A man need not be excluded from the former class merely because his holdings is somewhat too large for him to cultivate himself and a portion of it is in the hands of tenants, nor should the fact that a land-owner who is in the main a

rent-receiver cultivates his own homefarm transfers him from the latter to the former class ; and it will not as a rule be difficult to distinguish the two classes with fair accuracy. Of course no discrimination between one kind of revenue-payer and another should be made in the case of persons belonging to the cultivating class. Whether such a discrimination should be exercised in dealing with the landlord class is a question of some difficulty. As a matter of principle the exercise of such discrimination is perfectly justifiable and legitimate, and in view of the fact that the justice of such an arrangement has in some quarters been impugned the Governor General in Council desires to express in the most emphatic manner his opinion that there is nothing in any way inequitable in a discrimination of the character indicated. The relaxation of the settlement contract is a concession granted as an act of grace in view of the necessities of the person who has entered into the contract, and the question whether it should be granted when those necessities cannot be said to exist is a question of expediency only.

In considering the advisability of discrimination in dealing with the landlord class, it must be remembered that throughout considerable parts of India the Government has power to ensure the suspension or remission of rent to meet cases of crop-failure and that when rent is so suspended or remitted, or when its suspension or remission can be secured by executive arrangement, the Government of India are prepared (as noted in paragraph 14 above) to suspend or remit a corresponding proportion of the revenue due from the landlord without regard to his circumstances. The field for discrimination is therefore narrowed down to those cases where the extension of relief to tenants cannot at present be secured. In such cases the following three classes of persons may fairly be excluded from remissions of revenue. Firstly, the men who are known to be bad landlords and rack-renters. Secondly, those well-to-do land-owners who can pay without imperilling their future solvency. And thirdly, the capitalist, money-lending and professional classes, who hold land purely as an investment. It may, indeed, be true, as pointed out by the Famine Commission of 1901 in paragraph 279 of their Report that many members of this last class are small men

who speculate with borrowed capital, but there is no reason why they should not be held to their contract and should not take the risks of investment in land, as much as of any other form of investment. While, however, authorizing the discrimination of these three classes of landlords in tracts where the extension of relief to tenants cannot be secured or where the rent is realised as a share of the produce, and this is automatically adjusted to the outturn of the harvest, the Government of India at the same time recognize the invidious character of any arrangement by which relief granted to land-owners generally is denied to an occasional money-lender or retired Government officer who here and there may have invested his money in land, and it will in their opinion be wise to abandon any attempt at discrimination except in areas where the classes to be discriminated represent a reasonable proportion of the land-owners or own fairly large tracts of land.

16. (x) Finally it may be laid down as a general principle that in granting remissions or suspensions of land revenue no distinction can be made between assigned and unassigned revenue. Assignees of revenue are entitled only to the revenue due under our rules, and if revenue is remitted or suspended the assignee must bear the loss. In the case both of assignees of land revenue and of holders of revenue-free land, the Government should have precisely the same power to require remission or suspension of rent as it has in revenue-paying lands, and the loss which in revenue-paying lands would fall on Government must in such cases be borne by the assignee or revenue-free holder. In provinces where the subject is of sufficient importance and the above arrangement is not already provided for, steps should now be taken to ensure the grant of relief to tenants in assigned and revenue-free lands in the manner above indicated in paragraph 14.

17. Briefly speaking, therefore, the broad principles which should govern the grant of relief for widespread calamities such as famine and adverse seasons are as follows: Relief should ordinarily take in the first instance the form of suspension and should be extended in a fairly uniform manner to whole villages or tracts or groups of villages. It should not ordinarily be given except in the case of failure of more

than half the crop, and the degree of relief given should be based on a simple scale of ratios so graduated that the degree of relief may rise more rapidly than the degree of crop-failure. The amount of relief granted should be known to the people before collections begin, and the Collector should, where possible, be given the power to determine and announce the suspension of revenue. Suspended revenue should be remitted as soon as it becomes apparent that it will not be collected, and this may ordinarily be assumed when it has been in suspension three years; and in certain classes of tracts a remission should be given when the amount suspended exceeds a year's revenue. The instalments of the suspended revenue to be recovered should be considered as the character of each succeeding harvest becomes known, and should be fixed and announced at a reasonable period before the ordinary demand for that harvest becomes due. Remission or suspension of revenue should entail a corresponding remission or suspension of rent and *vice versa*. Discrimination between revenue-payers should be undertaken in remissions only and should be confined to the landlord class; it should be exercised only where the Government has no power to ensure relief reaching the tenants, and where the classes discriminated are in fair strength or own considerable areas. And that in dealing with revenue which is assigned either to the assessee or to some third party the same principle should be followed as in dealing with unassigned revenue.

18. The above principles will also apply generally to the case of relief of distress which is caused by 'local' calamities, such as floods, hailstorms and the like. In the case of local calamities however the procedure should be subject to the four following modifications:—

- (i) Relief instead of being given on the same scale throughout the tract affected will as a rule be based on a field-to-field inspection showing the actual damage suffered by each holding,
- (ii) The revenue may in the first instance be suspended by the Collector pending receipt of the orders of higher authority, but it will usually be found most appropriate to arrange that the orders in such cases should be orders for immediate remission.

(iii) In view of the more minute inspection on which the relief is based there is no objection, should the Local Government so desire, to prescribing more elaborate and possibly more liberal scale for the graduation of relief according to the state of the crop than in the case of 'widespread' calamities.

(iv) In deciding whether relief is necessary or not an adequate discrimination between the persons concerned will be secured if regard is had not merely to the field affected but to the property or holding in which it lies.

If the field is cultivated by the owner, and the loss is small compared with the total income of his whole property; or if it is cultivated by a tenant and the loss is small compared with the total income of the holding, no relief need be given. No relief need be given, moreover, in areas where relief cannot be assured to the tenant and the owner belongs to one of the three classes described at the end of paragraph 15 above.

19. Such are the general principles which the Government of India desire to see followed in the suspension and remission of revenue; and Local Governments are requested to examine their existing rules in the light of what has been said in this Resolution. They will be addressed in certain points special to each. The Governor-General in Council is fully aware that, in this matter as in so many other, much must depend upon local conditions, and that uniformity in matters of detail would be not only unnecessary, but also inadvisable. But he thinks that certain general principles may be laid down with advantage, as underlying the grant of relief. He recognises, also, that the circumstances of certain tracts may be so special as to justify or necessitate some degree of relaxation of or exception from some even of these principles, and he is prepared to give the fullest consideration to representations to this effect.

But he believes that if the general principles which are discussed above are adopted and carried into practice by the Local Governments, the administration of the fixed land revenue system of India will be freed from the evils of excessive rigidity which have in some places hitherto attached to it, and that a degree of elasticity will have been introduced

sufficient to ensure that in times of agricultural calamity the burdens of the cultivating classes are not aggravated by any unreasonable insistence on the demands of Government.

Ordered, that the above Resolution be communicated to—

The Government of Madras.

The Government of Bombay.

The Government of Bengal.

The Government of the United Provinces.

The Government of the Punjab.

The Government of Burma.

The Honourable the Chief Commissioner, Central Provinces.

The Honourable the Chief Commissioner, Assam.

The Honourable the Chief Commissioner, Coorg.

Agent to the Governor-General and Chief Commissioner, North-West Frontier Province.

All Local Governments and Administrations, to the Finance Department, to the Foreign Department, for communication to the Chief Commissioner, Ajmer-Merwara, and to the Honourable the Agent to the Governor-General and Chief Commissioner, Baluchistan, and that it be published in the Supplement to the Gazette of India.

(Sd.)

Officiating Secretary to Government of India.

APPENDIX II-G

suspensions and Remissions of Land Revenue.

Revised rules for the grant of—No. 650.

REVENUE DEPARTMENT

Bombay Castle, 22nd January, 1907.

Letter* from the Collector of Belgaum, No. 611, dated 18th January 1906.

Letter* from the Collector of Belgaum, No. 11341, dated 21st December 1905.

Memorandum* from the Commissioner, S. D., No. F-231, dated 31st December 1905.

Memorandum* from the Accountant-General, No. B-837, dated 25th January 1906.

Letter* from the Collector of Belgaum, No. 1472, dated 13th February 1906.

Memorandum* from the Commissioner, S. D., No. F-76, dated 24th January 1906.

Memorandum* from the Accountant-General, No. B-875, dated 20th February 1906.

Government Memorandum* No. 2457, dated 13th March 1906.

Letter* from the Collector of Belgaum, No. 3001, dated 29th March 1906.

Letter† from the Government of India, Department of Revenue and Agriculture (Land Revenue), No. 532-356-9, dated 29th March 1906.

Government letter† No. 3958, dated 24th April 1906, to the Commissioners, C. D. and S. D.

Letter† to the Government of India, Department of Revenue and Agriculture, No. 60-M., dated 3rd May 1906.

Letter† from the Commissioner, S. D., No. F-552, dated 21st July 1906.

Letter† from the Collector of Sholapur, No. 1208, dated 24th February 1906.

Extract† paragraph 6 of the letter from the Collector of Satara, No. 5749, dated 22nd July 1906.

Letter† from the Commissioner, C. D., No. V.R.-2497, dated 10th August 1906.

RESOLUTION.—On careful consideration of the opinions submitted to Government the Governor in Council is of opinion that there is no necessity for any far-reaching alterations in

the rules regarding suspensions. There can be no question that, despite some difficulties in working and interpreting the rules, the Collectors have, on the whole, succeeded in giving sufficient, and at the same time not excessive, relief. The principle which should govern the grant of suspensions is that they should be liberal, that is, that no one should be without them who is really in need of them. The rules, therefore, ought to aim at simplicity and ought to err, if at all, on the side of liberality; for the grant of suspensions does not signify the loss of the revenue but merely a postponement of payment to a season when the occupant will be in a better position to pay. Government, therefore, consider that it will be right, as regards rule 1, to introduce the Gujarat scale into the Deccan—in other words, to give the Deccani holder terms no less favourable than those granted to the Gujarati. At the same time it appears advisable to abolish both in Gujarat and the Deccan all distinction of treatment based on the value and tenure of the holding. The Government of India accepted this distinction with hesitation, and it is very doubtful whether the relief reaches more than a small proportion of the persons for whom it was intended. The table under rule 1 has accordingly been altered in the revised rules hereto appended.

2. For reasons similar to those stated in paragraph 1 above with reference to suspensions the Governor in Council proposes to abolish the distinction in rule 6 in favour of occupants whose holdings are not assessed above Rs. 10 or whose right of transfer is restricted. In the case of remissions an additional reason for no longer retaining this distinction is to be found in the fact, that investigation into the circumstances of these occupants has undoubtedly led, in some districts, to undesirable delay in the announcement of relief. With the relaxation of rule 6 (ii), referred to below, these occupants will, Government are confident, receive amply liberal treatment in the matter of remissions.

3. Government are pleased to relax the existing rule 6 (ii) by removing all distinction between Gujarat and the Deccan in the matter of the recovery of suspended revenue. This measure has been sanctioned for the current year (1906-1907) as a special concession owing to the succession of bad years

through which the country above ghauts has passed. But it is obvious that under rule 6 (ii), as it stands at present, the maximum levy admissible under the table attached to that rule, or three times the assessment, would be possible only after an exhausting succession of bad years, that is, two years so bad that suspension of the whole of the revenue was required, or three years so bad that suspension of the whole was required in one year and half in the other two. It would not be reasonable to call on an occupant to pay three times the assessment, however, fine his crop might be, in the first good year after such a succession of bad ones. The only distinction, then, which may properly be retained between Gujarat and the Deccan, would be to allow suspended revenues in the latter to accumulate up to two multiples of the annual assessment, and in Gujarat only up to one. This distinction is justified by the much lower scale of the assessment in the Deccan. The occasions, however, on which suspended revenue amounting to twice the assessment will prove recoverable will probably be rare.

4. Government consider that the grant of remissions to holders in Gujarat and the Konkan independently of the character of subsequent seasons in the circumstances described in the second sentence of clause (i) of the existing rule 6 can be dispensed with. It is always possible for the Collector to recommend special treatment of such holders under the proviso inserted in the new rule 7 (i). Clause (i) of old rule 6 has, therefore, been cancelled.

5. As regards clause (iii) of the existing rule 6, Government are of opinion that no discrimination between the clauses mentioned need be exercised except in case in which the grant of relief to the tenants by the landlords cannot be assured. Rule 6 (ii) has been redrafted accordingly.

6. It should be understood that assessment recovered in accordance with the table in rule 6 should be credited first to the payment of the current year's revenue and then to payment of the arrears of the most remote year which are not so old as to entitle the occupant to remission. These orders, however, should not be taken as superseding the

instructions issued in Government Resolution No. 11363, dated 30th November 1906, and No. 538, dated 17th January 1907, which are specially framed to meet the conditions of the Deccan and Karnatak Districts at the present time.

7. The rules as now drafted will require the approval of the Government of India and this is being applied for. Copies should now be forwarded to all Collectors in the Presidency proper for observance in anticipation of the approval of that Government.

8. In paragraph 2 of Government Resolution No. 3152, dated 28th March 1906, the Commissioner, C. D., was asked to consider (a) whether a tract like Valva, where famine is scarcely known and extensive failure of crops is phenomenal and where the cultivating class is relatively well-to-do, should be allowed suspensions in accordance with the general rule and (b) the question of the treatment of well irrigated areas for the purposes of suspensions and remissions. As regards (a) Government concur in the opinions expressed by the Collectors and the Commissioner, C. D., that discrimination between different tracts on the grounds mentioned would be difficult to effect and should not be attempted. As regards (b) the procedure followed by the Collector of Satara should be observed.

9. The Collector of Sholapur in his letter No. 1208, dated 24th February 1906, has suggested that when suspended revenue amounts, in the Deccan, to two years' assessment, or the arrears are more than three years old, remission should not be granted without a requisition for payment of the arrears on any non-agriculturists who may be interested in the land, and that in the event of their non-compliance the land should be forfeited and regranted on the inalienable tenure to the actual cultivators. Government, however, consider that the course suggested is not free from objection, because it would merely result in swelling the debt of the agriculturist occupant, and because, under standing orders, it is not open to the Collector with the object of restoring lands on the restricted tenure to forfeit them in respect of any arrears which it would be proper to write off or remit,

In this connection, the Collector's attention should be drawn to Government Resolution No. 5364, dated 1st June 1906, copies of which should be forwarded to him and to the other Collectors and the Commissioners to whom it has not been communicated.

(Sd.)

Under Secretary to Government.

APPENDIX II-H

No. 7407

Bombay Castle, dated 30th July 1909.

To—The Secretary to Government of India.

Department of Revenue and Agriculture (Agriculture).

Sir,

I am directed to acknowledge the receipt of the letter from the Government of India, No. 566-263-2, dated 26th May 1909, regarding the continuance of crop experiments, conducted by Assistant and Deputy Collectors in selected villages of this Presidency, and, with reference to the inquiry made in the last sentence of paragraph 2 of the letter, to state that the quinquennial returns of the outturn of crops submitted in the past have not been based on the results of crop experiments which must be necessarily misleading. The figures of the first return submitted in 1898 were based on the formulæ figures compiled in 1884, and the second return, submitted in 1899, was prepared by the Director of Land Records and Agriculture in consultation with Survey Officers, and the figures were considerably revised on the suggestions of Mr. Mollison, then Deputy Director of Agriculture in this Presidency. Since then the figures have not been altered for want of any trustworthy data. The Governor in Council is of opinion that a careful series of experiments conducted by the Agricultural Department and checked against the figures of the control plots which are maintained on the Government farms would give decidedly

more trustworthy data for the revision of the figures in the return in question than the so-called crop experiments which it is decided to discontinue.

I have, etc.,

R. A. LAMB,

Chief Secretary to Government.

APPENDIX II-I

Forecasts of Crops.

Improvement in the method of framing
estimates of outturn in crop forecasts.

REVENUE DEPARTMENT

No. 7392.

Bombay Castle, 3rd August 1911.

Government memorandum* to the Director of Agriculture,
No. 673, dated 25th January 1910.

Letter from Director of Agriculture, No. A-5707, dated 16th
August 1910.

Letter from the Director of Agriculture, No. A-7090, dated
8th October 1910.

Letter from the Director of Agriculture, No. A-2739, dated
28th April 1911.

RESOLUTION.—Regarding the first of the three factors on which the forecasts of outturn depend, the Settlement Commissioner and Director of Land Records should be requested to take the action suggested in paragraph 10 (a) of the letter from the Director of Agriculture, No. A-7090, dated 8th October 1910.

2. The proposals regarding the third factor which the Director of Agriculture makes in paragraphs 9 and 10 (e) of his letter do not commend themselves to Government,

They involve a yearly classification into three grades of the land cultivated with each kind of crop for which forecasts are prepared. This classification could not be carried out without a large addition to the present staff, and even if it were effected it may be doubted whether any great increase of accuracy would be obtained. The three classes of land are not sharply divided in the field but merge into each other and there would be as much guess work as in the calculations on which Mr. Mollison based his formulae. Mr. Mollison allowed for variation in the quality of the soils cultivated. His formulae may require to be revised and worked out for a smaller areas than the district but they are likely to yield more accurate results than a system which depends on an annual classification of land carried out by subordinates. Now that the staff of the Agricultural Department has been greatly improved and strengthened Government are of opinion that their services should be utilised in examining the formulae and in readjusting them where necessary. The work should be done on the existing lines and not on a system which depends on the Kulkarni for its application from year to year.

3. The second factor—the anna valuation of crops—is of great importance in respect to the collection of land revenue as well as in connection with calculating the outturns of crops. The efforts which are being made by Collectors to obtain a more accurate anna valuation will no doubt react on the statistics compiled by the Director of Agriculture, and there is good reason to believe that they will have the effect of making them more accurate. The Hon. Mr. McNeill's orders direct that in order to reduce the anna valuation the outturn should be referred to the assessment of the field under test. Government are unable to concur with the Director of Agriculture that this method is of no use for statistical purposes. The principal factor in the assessment is the productiveness of the field, and in broad calculations for statistical purposes the other factors, and also the variation in the prices of the products from year to year, may be neglected. It appears essential that the officers who make anna valuations of crops should bear in mind that 12 annas is to be taken as representing a normal crop; it is not to be regarded as the figure indicating an average

A-10—13-A.

crop, that is to say, the crop which would be arrived at by taking the average of the actual crops of a series of years. By normal crop is meant a crop which the cultivator may reasonably expect from his field in a year of rainfall fairly favourable in quantity and distribution and with fairly careful and proper cultivation. It seems clear from the Appendix A to the Director's letter that estimating officers are in the habit of regarding 12 annas as indicating a crop above normal; and his error in estimating it is of the first importance to eradicate. Where the Collectors find that notwithstanding their efforts and the orders they issue the subordinate staff continue to estimate on the basis of 12 annas as representing more than a normal crop, they will be justified in raising the estimates so as to make them correspond to a scale in which a normal crop is represented by 12 annas.

4. For the purpose of estimating outturns Government are inclined to think that experiment should be made with Mr. Moreland's method (described in his letter appended to Government Resolution No. 2062, dated 5th March 1910) of obtaining estimates of the weight per unit of area. The Director's objections are that the method would involve much averaging by the Mamlatdar to allow for the variation (1) in the soil and (2) in the rainfall in different parts of his taluka. But the Mamlatdar has to average for (2) at present. Only the variation in the soil is allowed for in the formulae and it is doubtful whether the allowance is correct. Where, however, the Hon. Mr. McNeill's methods are adopted, the Mamlatdar, from the information obtained from the cursory crop experiments and from his inquiries should be able to give an estimate of the average weight per unit of area which may yield more accurate results than can be derived from an application of the formulae to an anna valuation. The Director of Agriculture should be requested to make a trial on the above lines with cotton, without discarding the existing methods.

5. The suggestions made by the Director in sub-paragraphs (b) and (d) of paragraph 10 of his letter are approved.

(Sd.)

Under Secretary, to Government.

Accompaniments to Government Resolution, Revenue
Department No. 7392, dated 3rd August 1911.

No. A-5707, dated 16th August 1910.

To—The Under Secretary to Government, Revenue Department.

Sir,

With reference to paragraph 3 of Government memorandum No. 673, dated 25th January last, I have the honour to offer the following explanation:

1. The outturn of the cotton crop, given in paragraph 11 of the Season and Crop Report for 1908-09 and remarked upon in paragraph 6 of Government Resolution No. 395, dated 15th idem, was taken from the final forecast report on that crop and it was inclusive of the yield of the crop in Sind as well as in the Native States including Baroda. Thus there was no relation between the outturn of the cotton crop shown in paragraph 11 and the acreage under cotton given in Appendix B which dealt with British districts only.

2. Further, in stating this outturn to be 21 per cent, over the average it was simply meant that the total estimated outturn of the crop, for the year exceeded to that extent the arithmetical average of the actual total outturn reported in the previous ten years which included a number of bad and indifferent years. This average is thus different from the normal given in Appendix B which, as Government is aware, represents an average of five ordinary years as required by the Government of India (paragraph 4 of Circular letter No. 13-324-1 of 16th October 1905, Revenue and Agriculture (General), printed in the preamble of Government Resolution No. 61, dated 4th January 1906, Revenue Department). Working out the outturn of cotton for British districts only on the same years, the outturn of the year 1908-09 shows an excess of only about 6 per cent over the normal as against an increase of 9 per cent in area.

Besides, it may be stated that these normal years were selected, taking into account only the general character of the season on the whole which may or may not be applicable to particular crops. For instance, the year 1897-98, which has been included in the normal, was fairly good year on the whole though it was not so for cotton.

3. The Government view that the anna valuations over a series of years after excluding famine years ought to average 12 annas or the normal will, it is submitted, hold when the agricultural conditions are more uniform than they have been of late. As Government is aware, there have recently been a number of years in which the season was far from favourable though the adversity did not amount to famine. In this connection reference is requested to paragraph 5 of the Government of India Circular No. 9-27-4, dated 23rd October 1897, Revenue and Agriculture, printed in the preamble of Government Resolution No. 725, dated 1st February 1898 Revenue Department, in which they say that it is obvious that in a tract in which the agricultural standard is low and the harvest precarious, the yield of the year will fall below the normal more often and more largely than will be the case in a highly cultivated tract and that in the former case the average will probably be considerably below the normal, while in the latter it will probably approximate very closely to it.

4. The tendency of under-estimating crops is a long standing complaint and this office invites the attention of the district officers from time to time to the point (vide, e.g., Circular No. A-2158 of 13th June 1900, printed in the preamble of Government Resolution No. 3750, dated 19th April 1909, Revenue Department). I shall be submitting a detailed report on crop estimates and anna valuations in the course of a week or so.

I have, etc.,

G. F. KEATINGE,

Director of Agriculture.

No. A-7090, dated 8th October 1910.

To—The Chief Secretary to Government, Revenue Department.

Sir,

With reference to instructions contained in Government Resolution No. 2062 of 5th March 1910, I have the honour to report as follows :

I have consulted Mr. McNeill, as directed, and I attach a copy of his letter on the subject. It will be seen that his process is exactly the reverse of that on which the outturn estimates of this office have been based on the past. We obtain the anna valuations made by the Mamlatdars and with the help of our formula figures deduce the total outturn for statistical purposes. He, on the contrary, obtains the actual outturn by means of a large number of crop experiments, and from this he deduces anna valuations for the purposes of applying the rules regarding the collection of land revenue.

2. In this connection I would point out that in recent years, since the new rules governing the remission and suspension of land revenue have come into force, the importance of the anna estimate is far greater than it formerly was. Formerly the anna estimate was of little importance except for statistical purposes, and received but little attention on the part of district officers. Now-a-days it may make all the difference to the question of remitting or suspending lakhs of rupees whether the anna valuation is fixed at 7 or at 8 annas. Accordingly in some districts the Collectors are devoting much attention to this matter and are issuing detailed instructions on this subject, which I imagine, must have the effect of altering the general pitch of these anna valuations, which have to serve not only for their own revenue purpose, but also for the statistical purposes of this office. This is bound to have a very disturbing influence on the outturn statistics.

3. Before making any suggestions in the matter I would like to offer a few general remarks on the statistical aspect of the question. The implication underlying the discussion in hand is that the outturn estimates are inaccurate. In order

to see how far this assumption is true I have taken the only crop for which we have a trustworthy check *viz.*, cotton and I show below a comparison of the estimates made with regard to the cotton growth in Khandesh and Nasik for five years (1) on a basis of the Mamlatdars anna valuations; (2) on a basis of ascertained export from the tract, and of estimated consumption within the tract.

TABLE I

Statistics of total outturn based on the anna valuation and issued by this office for Khandesh and Nasik.

In bales of 400 lbs. clean cotton.

District	1904-05	1905-06	1906-07	1907-08	1908-09
Khandesh	173,545	277,000	243,212	73,868	198,846
Nasik	1,542	1,798	4,900	2,888	2,745
Total	175,087	278,798	248,112	76,756	201,591

TABLE II

Figures for the same area arrived at on a consideration of trade movement and local consumption.

In bales of 400 lbs. clean cotton.

	1904-05	1905-06	1906-07	1907-08	1908-09
Net export, by rail, mainly to Bombay (imports deducted).	200,218	465,168	307,662	241,221	279,397
Estimated net import by road (exports deducted).	10,011	23,258	15,383	12,061	*13,970
Deduct net imports by road from net exports by rail, and the result is net exports.	190,207	441,910	292,279	229,160	265,427
Rough estimate of annual local consumption—10,500 bales.	10,500	10,500	10,500	10,500	10,500
Grand total of net export and local consumption.	200,707	452,410	302,779	239,660	275,927

*Calculated at 5 per cent of the net exports by rail shown above.

	Bales
†Mill consumption	7,260
Bedding	2,750
Wicks	290
Hand spun	200
Total	10,500

4. For purposes of handy comparison I place together the totals arrived at in Tables I and II.

TABLE III
Bales of 400 lbs. of clean cotton.

	1904-05	1905-06	1906-07	1907-08	1908-09
1. As estimated on a consideration of net exports and local consumption.	200,707	452,410	302,779	239,660	275,927
2. As estimated on our present system.	175,087	278,798	248,112	76,756	201,591

It will be seen from the above that the estimate based on the present system is less in every year than that based on a consideration of export and local consumption. In a small degree this is probably due to the fact that some areas in the tract taken do not report statistics, and for purposes of estimating the accuracy of our present system it will be best to add a figure equal to $1\frac{1}{2}$ per cent, to the figures reported. This will amend the figures as follows:—

	1904-05	1905-06	1906-07	1907-08	1908-09
3. As estimated on our present system and rectified.	177,713	282,980	251,834	77,908	204,614
4. Percentage by which estimate in row 3 falls below estimate in row 1.	12%	38%	17%	68%	26%

5. From Table III it will be seen that there is a great divergence between the figures arrived at by the different systems; and I think that there can be little doubt that the figures based on trade movements and local consumption are fairly correct, and that those based on our present system are very wrong. The figures based on the returns of rail-borne trade must be taken as approximately correct, and the estimates of imports and exports by road and of local consumption though more conjectural, are based on reasonable assumptions, and in any case are so small that they do not seriously affect the argument. I fear therefore that it must

be taken as proved that as regards Khandesh cotton our estimates are greatly under-pitched, and that there is a strong probability that this is the case with other crops and in other localities. It would perhaps not be fair to take the rail-borne trade as necessarily denoting the extent of the crop for a particular year, since stocks of cotton are to some extent held up locally and may be sent to Bombay a long time after harvest; but taking the average for five years it would appear that we have been under-estimating by about 30 per cent.

6. Turning to the reason for this serious under-estimate, I may mention the three factors concerned in the framing of our estimates—

(a) The area under each crop, as supplied by the village officers.

(b) The anna estimates supplied by the Mamlatdars.

(c) The formulae figures by which this office interprets the anna estimates and deduces from them the estimate of the crop in lbs. per acre.

7. As regards (a), I have consulted various people, and I find, that there is a general impression that these estimates, though rough, are fairly correct. Elaborate rules have been framed prescribing the extent to which Circle Inspectors shall check the estimates of village officers, and I presume that a District Inspector would rectify these estimates on a basis of the reports which Circle Inspectors made as to the direction in which they found them liable to err; but I must confess that I have no definite knowledge of the quality of the work of averaging and rectification done by District Inspectors, nor does this work come under my supervision.

8. As regards (b), I attach as Appendix A* a statement showing the anna estimates made for fifteen years in all districts with regard to jowari, bajri, rice, wheat and cotton. The last fifteen years have undoubtedly contained some very bad ones; but there have also been some fair seasons, and it is remarkable how very low these anna estimates are pitched in most cases. It must be remembered that a 12-anna crop is supposed to denote a fair average crop in an average season,

such as will give the cultivator no cause for particular joy or annoyance. It might be expected that such crops would often be obtained and often be exceeded; but it will be seen that according to the anna valuations this is not the case. Except very occasionally in Gujarat and Khandesh jowari and bajri and wheat are always regarded as well below a fair average, Bijapur, Ahmednagar, Ratnagiri and Kanara never get an average crop of anything, and the whole of Sind is always far below the average for every crop; indeed from these estimates one would infer that Sind was a tract subject to very unfavourable and precarious conditions. I cannot help thinking that our under-estimates are due to the very low pitch of anna valuations supplied by the Mamlatdars. The lowness of their estimates is probably due to several causes. In the first place they reflect the pessimism which is a common trait of cultivators. Secondly, it is a fact, as stated by Mr. McNeill, that Mamlatdar have a very vague idea as to what a 12-anna crop means; and even in a year of very good crops they always seem to reduce the anna estimates because the inferior lands do not yield as much as the good lands. I am prepared to issue a circular on the subject, but would hesitate to do so without definite orders since the annewari is a matter with which Collectors, are closely connected from a revenue point of view and about which many of them have issued instructions.

9. Turning to the formulæ used in this office to interpret the anna valuations made by the Mamlatdars, it may be remarked that the formulæ were originally prepared in 1883 by officers of the Survey Department and were published in 1884. These formulæ gave a very elaborate estimate of the outturn of each crop for each taluka in the Presidency. Subsequently these formulæ were revised by Mr. Mollison in 1897, and his figures were published in Government Resolution No. 881 of 3rd February 1899, Revenue Department. They give estimates of the outturns of the different crops by districts instead of by talukas, and abandon the system adopted in framing the old formulæ figures referred to in paragraph 2 of Mr. McNeill's letter according to which the outturn of a crop did not vary directly with the anna valuation. According to Mr. Mollison's figures a 6-anna crop

would be exactly half of a 12-anna crop, and a 4-anna crop one-third of a 12-anna crop. Mr. Mollison further took into consideration the low yields on inferior lands and made considerable reductions in the estimates of dry crop cereals; especially in the Deccan, which had been fixed by the old formulae figures on a consideration of the outturn of fairly good land. The net result of the change was to reduce considerably the estimates of crop produce except in the case of bad years when the change tended to increase the estimate. Mr. Mollison's figures, I think, give a more accurate indication of the facts, and it is right that the averaging should be done by these figures and not by the Mamlatdars. It must be admitted, however, that Mr. Mollison had not got sufficient data to enable him to do the averaging in preparing these figures; and his results were admittedly based on guess work. If an average estimate is to be struck for any crop in any district, say, bajri in the Sholapur District, it would be necessary to have such general information as the following:—

One-fourth of the bajri is grown on	good land.
One-third	do. do. medium land.
Five-twelfth	do. do. poor land.

Supposing then that the normal crop were estimated thus—

Good land	.. ..	700 lbs. per acre.
Medium land	.. ..	500 lbs. do.
Poor land	.. ..	200 lbs. do.

It would be possible to obtain by proper averaging a figure which would give an intelligible estimate for the district. Such information has never been collected hitherto.

10. Coming to definite proposals for the improvement of outturn statistics, I would suggest that the following steps might be taken:—

(a) The Director of Land Records might be asked to look into the question whether the areas of crops reported are accurate, and in particular whether this is so in the case of mixed crops, with regard to which I have heard it suggested that the system of reporting results in an underestimate.

(b) I will endeavour to rectify the outturn figures of cotton each year on a basis of trade movements and local consumption and will ask reporting officers not only to frame anna estimates but also to state what proportion the crop of the current year bears to the last. I should then be able to vary the figures on the basis of the rectified figures for the year before, as suggested by the Director General of Commercial Intelligence. I must point out however that about half of the cotton crop reported in the estimates of this Presidency comes from the Native States of Kathiawar, Baroda, etc. and that I have no knowledge of the methods or efficiency of their reporting agency.

(c) I can do the same for oil seeds if Government desire; but in the case of oil seeds the local consumption is a much more important factor, I can endeavour to frame an estimate regarding local consumption with reference to the number of bullock ghanis at work, but this will mean a good deal of trouble.

(d) As regards other crops, I can only suggest that I be given authority to rectify the figures of outturn deduced from the anna valuations supplied by the Mamlatdars in such cases as it seems likely from the nature of the season that they need rectification. This would of necessity be a somewhat arbitrary proceeding, but it can be done on a basis of the rainfall returns and the information supplied to me by agricultural officers.

(e) If Government wish an estimate of outturn to be prepared on an intelligible basis, such as that indicated at the end of paragraph of this letter, it can be done but will involve much labour. It would mean ascertaining in what fields each crop was grown in a given year and dividing these fields into classes on a basis of the classification settled in the survey records. Careful tests could then be made by this Department to ascertain the average yield of each crop on each class of soil. Every five years this office is called on to revise the formulae figures. Unless some such enquiry is made, I should personally never be prepared to

revise Mr. Mollison's figures. To do so would merely be substituting one piece of guess work for another. On the other hand, I am very doubtful whether the possible advantage to be gained from such an enquiry as that suggested above would be sufficient to justify the expense involved.

11. In this connection the various uses of these estimates may be considered :—

(a) For purposes of revenue collection the anna estimates are of much importance, and the fact that they have to serve two purposes will greatly complicate matters. For purposes of applying the rules of remission and suspension of revenue it may be quite satisfactory to base the anna valuation on a consideration of the ratio of the value of the gross outturn to the assessment, as suggested by Mr. McNeill in paragraph 3 of his letter attached; but for statistical purposes it would be no use, since the assessment depends not only on the fertility of the land but also on its accessibility; while the value of the crops, in terms of money, may vary 50 per cent, in the course of a few years.

(b) The forecasts of crops subject to export are, I believe, of use to exporting firms. They are interested to know the state and progress of the crops, and obtain general indications from the information given; but I fancy that they do not place much reliance on the actual estimates; of bales or maunds shown. They have private sources of information; and a cotton exporter will have agents and sub-agents in every tract whose business is cotton dealing and who can form a very accurate estimate of the amount of cotton that is likely to be available for export in any year. He knows the business and he knows the tract, and he no doubt fixes his estimate of exportable cotton for the coming season with reference to the actuals of past years.

(c) Quinquennial reports of outturn are supplied to the Secretary of State I do not know what they are required for unless it be to estimate the food supply, or the general wealth of the country.

12. It is for Government to say whether the importance of these statistics is sufficient to call for additional efforts in their preparation. The suggestions made in paragraph 10 will involve extra labour.

I have etc.,

G. F. KEATINGE,
Director of Agriculture.

No. R-3754, dated 11th August 1910.

To

The Director of Agriculture.

Sir.

With reference to your No. A-1904, dated 18th March 1910, I have the honour to state that in this district an effort has been made to make anna valuations of crops for revenue collections with regard less to the output of crops than the value of the yield.

2. Government ordered that revenue collections should be based on anna valuations of crops according to an ascending scale. It was found that there was no clear understanding or agreement as to the actual meaning of the figures in the scale. A definition of a 12-anna crop has been supplied and that definition is possibly understood in more or less the same way by the higher officers of Government. It leaves however, room for varying interpretations. What exact proportion of 4-anna crop, a 6-anna crop and an 8-anna crop held to a 12-anna crop was not uniformly understood. A reference to the crop yield worked out by the Survey Department will show that a 4-anna crop was not necessarily or usually regarded as a crop giving one-third of the yield obtained from a 12-anna crop.

It was further found that quite apart from the meaning of terms used in Government Resolutions, subordinate officials frequently did not know what they meant themselves

by a 7-anna crop or an 8-anna crop. I found that crops were valued at "5 annas and 4 pies" or "7 annas and 6 pies", but on inquiry regarding the valuer's capacity to make extremely accurate valuations, I found that these figures conveyed no definite meaning to himself.

3. I also found that crops were being valued for revenue and statistical purposes by officials of all grades who knew very little about crops or soils or the varying yields of crops. In order to train the revenue staff in estimating crops and render them more independent of valuations made by revenue-payers with reference to revenue recoveries, I directed Circle Inspectors, Mamlatdars and Assistant Collectors to conduct crop experiments. They were at harvest time to collect information about crops and make conjectural valuations as before.

The villages of each circle were to be provisionally divided into classes according to the classification scale for revenue recovery. If in the restricted area of a circle the conditions varied greatly, there might be five classes of villages, but ordinarily there would not be more than two or three classes, say, probable 4 to 6-anna crops of each circle at least three experiments were to be made on average crops and the outturn and value per acre calculated. With these experiment results before them the Prant Officers who toured and personally experimented in the harvest season would make their valuations. It was suggested that if the total yield was worth less than 8 times the assessment, the crop might be below 4 annas, below 12 times the assessment below 6 anna crop below 20 times the assessment below an 8-anna crop, below 30 times the assessment below a 12-anna crop.

The ratio was not to be regarded as decisive. The crop experiment results were thus to be used with discrimination as an aid in checking and framing estimates not of output but of capacity to pay assessment. For revenue recovery purposes the weight in pounds is less important than the value in rupees. Half a normal crop of cotton last year was as well able to pay assessment as a normal crop of bajri.

Though more importance has been attached to the systematic training of Government officers for the purpose of assessing the revenue demand and to the adaptation of the revenue demand to the value of crops in multiples of assessment, the system of carrying out crop experiments can hardly fail to render more accurate estimates of crops prepared for statistical purposes. Subordinates shrink from estimating any crop as higher than 10 annas. When experiment shows not in one but in many cases that the outturn is worth 25 to 40 times the assessment. While it is popularly represented as a 6 or 7-anna crop officials framing crop experiments will be gradually compelled to recognise that conventional official estimates are much too low. They will realise that if a 12-anna crop is to be taken as yielding twice as much as a 6-anna crop and if a popular 6-anna crop corresponds in value to 25 times the assessment, 12-anna crops are agricultural ideals only. I think something would be gained if formula of outturn of staple crops for a few classes of soil were calculated, but mere calculation by formulae will not obviate the necessity of requiring framers of crop estimates to have practical first-hand knowledge of local crop yields under varying seasonal conditions. No formula can make up for absolute want of agricultural knowledge on the part of the valuer.

I have, etc.,

(Sd.) J. McNEILL,

Collector of Ahmednagar.

No. A.—2739, dated 18th April 1911.

To—The Chief Secretary to Government Revenue Department.

Sir,

With reference to Government Resolution No. 9646 of 22nd October last, I have the honour to state that in my opinion neither of the changes suggested in the letter from the Government of India would be of the least use.

2. In my No. A.—7090 of 8th October 1910 I stated at length the measures which in my opinion would be necessary to produce any improvement in the crop forecasts; and

I do not think that anything less will be of any use. At present we are admittedly basing our estimates on guess work, and to tinker with the details of a system so based will merely cause irritation and bewilderment to the reporting agency and do no use.

3. The difficulty in this country arises from the fact that some crops are grown on good lands properly cultivated, while others are grown on very inferior soils, or with very inferior cultivation. It is possible to ascertain definitely with approximate accuracy the areas of cultivated land upon which these different conditions obtain in any locality, but it would be an effort to do so. If such areas are ascertained, it will be possible to fix an average outturn for each class of lands, and for the whole area. If this is done, there would not be much difficulty in interpreting the anna valuations made by the Mamaltdars, and in checking them where possible by trade movements. The main thing necessary, if accuracy is required, is to get rid of the guess work, on which the average outturn per acre is based.

I have, etc.

G. F. KEATINGE,
Director of Agriculture.

Confidential.

APPENDIX II-J

Suspensions and Remissions.

Method of assessing anna valuation of crops for the purpose of—

GOVERNMENT OF BOMBAY.

REVENUE DEPARTMENT

RESOLUTION No. 7773/CONFIDENTIAL.

Bombay Castle, 14th May 1923.

Letter from the Commissioner, S. D., No. R. E. V.—68 dated 20th March 1923—

“I have the honour to forward translation of an application from the villagers of Kanmadi, taluka Bijapur, which is apparently the result of an organized movement

and to state that I have before now as Collector pointed out that the adoption of annas for our annewari estimate will bring us into conflict with the cultivator who estimates his crops in annas. In a number of villages where I held enquiries in Sholapur, Satara and Poona I found he calls a 6 to 8-anna crop 'as good as he ever gets'. One Kulkarni (Tembhurni-Sholapur) informed me that if his village had all necessary rain at suitable times, its crops would never exceed 12 annas. When therefore we estimate a normal crop at 12 annas which the cultivator calls a 6 or 8-anna crop, we invite comparison, for if it is half the normal we call it 6 annas and he calls it 3 or 4 and demands remission".

"2. The rule says that a normal crop is to be estimated at 12 annas and I take this to mean 12 annas or marks as a basis for calculation. It does not say that a 12-anna crop shall be considered a normal crop. A 12-anna crop is not a normal crop it is a good crop and no cultivator will call his crop a 12-anna crop unless it is excellent. Excellent crops are not normal but very rare. In Government Resolution No. 725, dated 1st February 1898 it was stated that the Government of India proposed that in order to remove misapprehension caused by the adoption of the 16-anna standard as an average crop, the use of the anna notation in the forecast reports should be entirely discontinued and the American notation used in its stead, 100 being taken to be a normal crop, and the estimated outturn being stated as a percentage of that crop. It was pointed out to the Government of India that it was practice of this Presidency to adopt 12 annas as an average crop and the Government Resolution then laid down 12 annas as a standard on which to base the normal crop. In the past, the Punjab estimated the normal crop at 100 points (and for all I know does so now) and I have urged in the last 10 years more than once, in administration reports and crop reports, that we should adopt that method to save confusion. As confusion is bound to arise it might be well to change our classification for the purposes of annewari and a Press Note might issue on this subject".

"3. In an average Deccan district or in Bijapur we find over a run of 5 years that we seldom get more, according to a cultivator's annewari, than one crop of 12 annas, two of 6 to 8, and 2 from 5 to 4 annas. The question then is: what crop has he a right to expect? If this is the usual run over 5 years, he has no right to expect anything better than some 7 annas or a little over. Years of failure are not cataclysmal but normal in a 5 years' run and always have been and so far as can be judged, always will be. Then if he has no right to expect more than a 7-anna crop he is naturally upset when he gets a half normal and we estimate it as a basis of calculation at 6 annas. The normal crop is not to be called an average crop, but the crop "the cultivator has a right to expect than which if it is better he has reason to rejoice, than which if it is worse he has reason to complain" and the normal crop which he has a right to expect each year is not a 12-anna crop. I maintain that he does not expect fairly favourable rains each year. He knows his locality and he has a pretty shrewd idea of what he and his fathers before him have suffered from climatic conditions: and he is not bound to complain if he gets poor rains: they are part of the routine to his existence".

"Thus we have two different basis of calculations, but we use the same nomenclature which causes confusion".

"4. When Government fixed the original assessments, the basis of a run of several years was taken, and the assessments were fixed low in precarious localities on the assumption that whatever the crop was, the cultivator would be able to pay easily over a run of 3 years. One bad year in 3 was the accepted standard of vicissitude in the Deccan and in 5 seasons there were 3 total failure (page 259, Land Revenue Policy of the Indian Government, Bombay). Yet we are told in Government Resolution No. 7392, dated 3rd August, 1911 that a normal crop is the crop to be expected in a year of 'Rainfall fairly favourable in quantity and distribution'. Such years are rare and are not normal. They are very abnormal. Our assessments were framed on the average and we are asked to take the annual

*Above Government Resolution of 1898.

annewari on an imaginary normal, which occurs very rarely in the Deccan districts and Bijapur and which calculation must lead to heavy suspensions and remissions most years, although our assessments are light and are calculated on the average season. In talukas where rainfall is not usually fairly favourable we have for example fixed a light assessment on the basis that rainfall is scanty".

Mr. Stewart (paragraphs 28—30) has pointed out and illustrated the fact that it is an important part of the survey valuation of land to make full allowance in the assessment rates for the uncertainty of the harvest in tracts where the rainfall is irregular. The system provides relief for ordinary or partial failures of harvest by what is in fact a standing remission. This relief is embodied in the survey records and operates mechanically and independently of "the varying views of individual revenue officers or even of successive Governments". Remissions on a large scale are therefore properly limited to exceptional calamities, such as a visitation of locusts, famine or agricultural depression caused by bad seasons following famine. (Extracts from paragraph 16 of Appendix III, to Government Resolution No. 2619 of 1884).

Instances to show the extent to which climatic differences affect the maximum rates are not difficult to find. Let us take the district of Satara which stretches from the Ghats inland for a distance of about 75 miles. In the western villages where the rainfall is heavy and seasonable, the maximum dry-crop rate is as high as Rs. 3-0-0; while in the most eastern villages, the prevailing maximum rate is only Re. 0-15-0. For this great distinction there is no reason but that in the one case good seasons are fairly frequent, while in the other they cannot be depended upon. Take again the instances of Indapur, the most easterly taluka of the Poona district, and Savda which holds the same position in the Khandedh Collectorate. The situation of these talukas with regard to the sea coast and the Ghats is fairly similar. They differ but little in the matter of soils, both containing a considerable area of the best soil of the first

order, classed at 16 annas. This soil in Indapur is rated on revision principles at Re. 1 per acre only, while in Khandesh it bears an original settlement rate of Rs. 2-6-0. As both talukas are intersected by the railway and have excellent roads and markets for the disposal of produce, there is not a pin to choose between them in these respects. But the great difference in the maximum rate which regulates the assessment of all classes of land is caused by the fact that whereas Indapur is a district which possesses a capricious climate, Savda is situated in a part of the country which for some hidden reasons has a particularly steady rainfall. The revenue rates fixed for Indapur admittedly contemplate only one good year in three, and allow for a bad one in the same period, while the rates in Savda are pitched on a tolerable certainty of a fair annual crop. If our system were such as to rate lands in Indapur and in Savda upon their possibilities of production, instead of as now on their probabilities, then the necessity of allowing for remissions and suspensions in the former would be paramount. The effect of a rule, which would bind a revenue officer to allow remissions in a district like Indapur every time there was a crop below a certain average, would simply be to pile concession upon concession on exactly the same grounds and to diminish still further an already very attenuated rent charge.' (Extract paragraph 29 on page 13 of Appendices to Government Resolution No. 2619 of 1884)'.¹

"Having already reduced our assessments on account of capricious climatic conditions are we again to grant suspensions on account of such conditions? Since our revision assessments were made, Government made land revenue collections even more elastic by breaching its own contract with the cultivators to its own disadvantage. After first allowing a moderate assessment to be paid easily over a run of 3 years, taking into consideration the average crop and average rainfall, it then acted as if full assessment was only to be paid on a normal crop when the rainfall was 'fairly favourable in quantity and distribution and allowed suspensions and remissions year by year in

spite of the natural features of a taluka, which have cost since the innovation crores of rupees. I think, I can safely assert that had the principle of remissions and suspensions been in force when our first revision settlements were introduced the assessment would have been pitched much higher and would have been based upon 'fairly favourable and well distributed' rainfall. If so I would have no objection to the present policy of suspensions which would at least have been logical. All these are points which the Press Note could enunciate to avoid disappointment in future. I consider we should base our remissions and suspensions on the average crop just as all our settlements are based on average crop after considering all climatic conditions. If however we are to continue remissions and suspensions according to a normal crop, let Government at least instruct the Settlement Officer to fix the assessments according to the fictitious normal year of 'fairly favourable and well distributed rainfall'. This would mean a large increase of assessments everywhere. It will be a simpler policy, however, to remove all doubt by abandoning the anna notation, which deceives many experienced Mamlatdars (as I have found by personal enquiry) and most Circle Inspectors, and by declaring that as our assessments are pitched over a run of years, we should take the average crop, on which our assessments are based, as the foundation of our annewari. We have not fixed our rates on land according to their possibilities of production, but on their probabilities and our remissions and suspensions should, therefore, be not on their possibilities but on their probabilities".

"5. I will conclude by a quotation from Government Resolution No. 2619 of 1884, Revenue Department, paragraph 38:—

'No consideration is more potent in the adjustment of rates than the security or insecurity of the crops in the area under settlement. A taluka is often divided into five or six groups for no other reason than the comparative certainty of the rainfall. Thus allowance is made in the assessments for the fluctuations in agricultural returns caused by variations of season by what may be

called a standing remission co-extensive with the settlement in favour of the less fortunate tracts. The principle certainly is that the assessments thus carefully adjusted to the average production should be punctually paid.

The Settlement Officer is not concerned with a hypothetical normal yield. He is concerned with actual sales, leases and concrete averages and the kind of crop a ryot in the group has a right to expect over a run of years and that is, an average crop."

Anna valuation of crops of villages in Bijapur District for 1922-23.

1. Name of taluka .. Bijapur.
2. Name of village .. Kanmadi.
3. Population .. 2,500
4. Total cultivable area .. 15,000 acres.
5. Area cultivated during the current year (1922-23). 12,000 acres.
6. Details of cropped area—

	Acres
Jowari	5,000
Rapeseed	1,000
Wheat	4,000
Cotton	400
Gram and linseed	300
Kharif crops	1,300
Total	12,000
7. Area out of the area shown against column (5) in which seedling germinated. 12,000 acres.
8. Area not sown 3,000 acres.
9. Average anna valuation 2 annas.
10. Remarks Crops failed owing to unseasonable rainfall.

Dated 12th February 1923.

(Signature of the Panch).

Notes (1).—A normal crop is represented by 12 annas.

(2) One copy of this should be sent to the Collector, another to the Commissioner and the third to the Secretary of the District Congress Committee.

Government endorsement No. 7773-B.—Conf., dated 6th April 1923:—

Forwarded to the Commissioner in Sind, the Commissioner, N. D., the Commissioner, C. D., the Director of Agriculture for the favour of remarks.

Letter from the Director of Agriculture No. A-3361, dated 5th May 1923:—

"I have the honour to acknowledge receipt of your note No. 7773-B.—Conf. of April 6th 1923, with regard to the question of the anna valuation of crops. I think that I can associate myself fully with Mr. Mountford's criticism of the present system, without feeling that his proposal to use the American system of valuing crops instead of the 'anna system' will give any better results than the present. The same proposal was made as far back as 1884, and the Government of India left it to the discretion of local Governments to use either system (Circular No. 89-A, dated Simla 25th July 1884). The Government of Bombay deliberately decided then that the village or district officer should report the conditions of the crop in annas, a normal crop being 12 annas, and the office should then convert this into the American notation in completing the Presidency returns. I do not think that the change from one system to the other will affect the accuracy of the returns".

"2. The normal crop has been determined for every taluka in the Presidency (except Sind), and the figures used are in my office for many crops, besides those for which forecasts are prepared. These are, of course, for 12 anna land and it is the fact, I believe, that the question of the value of the land has not been considered that has led to the very great condition of confusion that we are in at present. A cutting experiment in a field, in a case of doubt with due regard to the quality of the land would enable a check to be made in any area when special doubt is felt".

"3. I feel in fact that the complications of this matter have so many that they cannot be dealt with by minutes and notes. I would suggest that a meeting of the

chief authorities involved should be called in the coming rains. I will place all papers and records on the matter before them, and the difficulties by which we are always faced on the statistical side, and after consideration a definite recommendation could be made to Government. Something must, I feel, be done to get out of the present very unsatisfactory condition of things."

Resolution.—Government approve of the suggestion made in paragraph 3 of the Director's letter. Accordingly the Commissioner, Northern Division, should be requested to convene a meeting of the Commissioners, Northern, Central and Southern Divisions and the Director of Agriculture, during the coming rains to consider the question and submit a joint report to Government, through the Commissioner in Sind, who should be asked to favour Government with his remarks thereon.

By order of the Governor in Council,

(Sd.) A. R. DALAL,

Deputy Secretary to the Government of Bombay,
Revenue Department.

G. R. No. 7773/Conf., R. D., dated the 14th May 1923.

To

The Commissioner in Sind,

The Commissioner, Northern, Central and Southern Divisions.

The Commissioner, Bombay Suburban Division,

All Collectors, including the Deputy Commissioner, Upper Sind Frontier,

The Settlement Commissioner and Director of Land Records,

The Settlement Commissioner and Director of Land Records, Bombay Suburban Division.

The Director of Agriculture.
The Finance Department.

No. _____ of 1923.

Copy forwarded for information and guidance to.

APPENDIX II-K

Crops

Method of assessing anna valuation of for the purposes of suspensions and remissions.

GOVERNMENT OF BOMBAY

REVENUE DEPARTMENT

RESOLUTION No. 7773-B.

Bombay Castle, 23rd June 1927.

Memorandum from the Commissioner in Sind No. 2716-I, dated 5th June 1923:—

“The Commissioner in Sind presents compliments and with reference to Government endorsement No. 7773-B/Confl., dated the 6th April 1923, on the subject noted above, has the honour to state that in Sind assessment is based on an irrigational settlement of which 1/10th represents land rent and 9/10th water rate, and so remissions are only given when canal water fails. This simplifies the question and the conflict of an annewari estimate, which estimates a ‘normal’ crop at 12 annas, with the cultivator’s own annewari estimate, which estimates a good crop at 12 annas, does not arise”.

“2. In the Bund Virah tract of the Kotri Taluka in the Karachi District a normal crop for remission purposes is estimated at 16 annas, thereby conflicting with the 12-anna rule of the Presidency.”

Letter from the Commissioner, N. D., No. C.N.R.-102, dated 15th June 1923.

Government memorandum to the Commissioner, N. D.
No. 7773-B, dated 21st June 1923.

Joint letter from the Commissioner, N., C. and S. Divisions, the Settlement Commissioner and Director of Land Records, and the Director of Agriculture, No. C.N.R.-102, dated 20th December 1923:—

“We have the honour to submit our views on the questions raised in Mr. Mountford’s letter printed in the preamble of Government Résolution No. 7773/Conf. of 1923. Mr. Mountford suggests that confusion and misunderstanding have arisen in the past and are likely to arise in the future owing to want of a clear conception of what is meant by the normal crop which is our standard for the purpose of valuation of crops and which is represented by 12 annas. In the first place Mr. Mountford shows that the ryot thinks that he has been hardly treated and his argument may be summarized as follows:—

“We call a normal crop 12 annas. But to the ryot in the Deccan or Bijapur 12-anna crop means an excellent crop and his name for the normal crop that his experience has accustomed him to is 7 annas.

Consequently when in any particular year his crop is about half normal he calls it $3\frac{1}{2}$ and expects relief and concessions while we call it 6 and say that he is not entitled to relief.

On the other hand Mr. Mountford holds that the exact opposite of this occurs and the ryot frequently gets far more relief than is justly due, because the Government valuer adopts the ryot’s mental attitude and standard and assigns a very low value to a crop which is not much, if anything below the actual normal of experience, but is far below the ideal normal of our standard.

From what Mr. Mountford has written in the fourth section of paragraph 4 of his letter about the crores of rupees which this confusion has cost we gather that he thinks that on the whole our remission and suspension system is being worked with undue laxity in such a way as to give unnecessarily lavish relief and that this is due

to the misunderstanding by our revenue officials of the meaning of our standard and their substitution of a popular standard which means something quite different.

"3. Now our view on these matters is that if this confusion does exist, the proper remedy is to make it impossible by making the use of our terms absolutely clear and by training our officials to understand them so that in future there may be no danger of ambiguity owing to confusion of terminology.

But we cannot agree with Mr. Mountford that the confusion and misunderstanding have been so serious as to cause heavy and unnecessary sacrifices of revenue in the past. We find no support of this statement in the statistics of remissions of revenue in the Deccan and Bijapur during the last 20 years.

"4. In his fourth paragraph Mr. Mountford produces a number of opinions and views recorded in 1884 arguing against the application of any system of suspensions and remissions to precarious tracts. This it is said is simply piling concession upon concession because all the relief necessary has already been given by keeping the pitch of the assessment low.

Our reply to this is that since 1884 experience has taught us that we were wrong in expecting that the ryot would practise the virtues of thrift and foresight and economy and pay his dues in a year of failure out of savings laid by in good years.

We have found that our revenue system must be made more elastic by the adjustment of the demand to the nature of the season and all the revenue officers whom we have consulted are agreed that the relief and the concessions which the system is providing and has provided in the past are not excessive.

As regards the determination of future assessments in future revisions of the land revenue settlements, we are of opinion that nothing need be added to the existing orders about the standard with reference to which the Settlement Officer should determine the pitch of the assessments.

"5. Returning now to the question of the definition of the normal standard we state our opinion that there is no reason for departing from the definition laid down in the Orders of 1911 (Government Resolution 7392)— a normal crop is the crop to be expected in a year of rainfall fairly favourable in quantity and distribution".

There will be no possibility of misunderstanding this definition, if in future it is made to have a quantitative as well as a qualitative significance.

To substitute as Mr. Mountford proposes a scale of 100 points for a scale of 12 points would in our opinion be no remedy at all.

This would be merely to reproduce the same confusion disguised in a different shape. What we must do now is to emphasize and elaborate the correct principles which have already been stated on page 59 of the Land Revenue Rules (1921).

"6. A quantitative significance must be given to our standard by using the tables published in 1884 of estimated crop outturns for every taluka in the Presidency. These at present are the only detailed taluka estimates which we possess and the Director of Agriculture has told us in conference that they can safely be used as a standard of comparison.

The standing orders in future must be as follows:—

The standard of valuation is the 12-anna crop, which means the yield in a season of rainfall fairly favourable in quantity and distribution, and with proper cultivation, for land of known classification quality. For making the valuation of any particular crop in a village the procedure should be as follows:—

A. Ascertain the average classification value of the total area of land in the village under that crop. This can easily be found by comparing the average acre assessment of that land with the maximum rate.

B. Work out from the taluka table the number of pounds in a 12-anna crop on land of that classification.

NOTE.—The tables are made for 12-anna soil. Therefore if the average classification value is 6 annas and the table shows 1,500 lbs. as the normal 12-anna crop then the normal crop for the soil in that village would be 750 lbs. per acre. In the yield in pounds for lands of such classification can be worked out from the figures in the taluka tables. Thus if the average classification value is, say, 15 annas and the table shows 1,500 lbs. as the normal 12-anna crop, then the normal crop for the 15-anna soil should be taken as 1,875 lbs. per acre.

C. Next the valuing officer must make local enquiry and observations while the crops are still standing and must record the definite opinion as to the average acre outturn in the village of the particular crop under consideration. This opinion must of course be based on his estimate of the actual outturn on various fields which he has seen or tested.

A comparison of that average with the normal standard will fix the anna valuation of the crop. Thus if the normal were as in the above instance 750 lbs. per acre and he found that the average outturn was 500, he would record that the anna valuation was two-thirds of 12 annas, i.e., 8 annas. After the completion of the separate estimates for each of the crops grown in the village the anna valuation for the whole village would be calculated in the way laid down on page 59 of the Land Revenue Rules, 1921. We recommend that Government should order that in future all anna valuations should be made in the manner above described."

Letter from Mr. L. J. Mountford, I.C.S., Commissioner, S. D., No. R.E.V.-68, dated 23rd December 1923:—

"With reference to Government memorandum, No. O-B, dated 15th November 1923, I have the honour to forward copy of my circular No. R.E.V.-68, dated 16th March 1923, and to state that the Collectors of this Division have been warned for several years past by me against the danger of the application of the words '12-anna crop'.

The point of my letter No. R.E.V.-68, dated 20th March 1923, was that in several districts and portions of districts in the Southern Division such as Bijapur, North Belgaum and East Dharwar, the rainfall is so rarely 'fairly favourable in quantity and distribution', that assessments were pitched low in consequence. I trust, therefore, that my interpretation of the 'normal crop' be allowed for this division as it is most suitable, i.e., 'as that which the cultivator has a right to expect and with which he is (or should be) content, while if he gets more he has reason to rejoice, and if less he has reason to complain' (*vide* Government Resolution No. 725 of 1st February 1898). The unfavourable climatic conditions having already been taken into account, I considered that a mathematically accurate estimate of the annewari for the purpose of suspensions and remissions was not called for, as apart from being (to my mind) impossible, the suspensions and remissions were more of a rough and ready calculation to provide relief when really necessary. I also desired to guard against the insidious growth of the idea that Government was responsible for every untoward incident in the life of the crop.

"2. I beg to differ from the average valuation proposed by the Commissioners in their joint letter, No. C.N.R.-102 (Confl.) dated 20th September 1923, as it will be impossible for actual experiment to be made to show what the average yield in grain is per acre in a village. The villager calls his normal crop 6 annas and if it is about half this normal he calls it 4 annas. We should however call this half normal 6 annas and he complains very naturally, as he knows that a 4-anna valuation means entire suspension while a 6-anna means full assessment and there will always, therefore, be misunderstanding. Moreover I do not see how the average outturn in a village can be obtained without actually taking the yield of a number of fields of each kind of classification and then deciding the average yield of the fields of each kind of classification and comparing this with the agricultural details fixed since 1884. These agricultural details however are not reliable, and are fixed on a basis which could probably be challenged, as it is not at all certain that they

were based on an anna valuation which was the same as that on which we now base our remission and suspension rules. From 1890 to 1898 they were based on a valuation of 16 annas for an average crop, but it was a crop taken in good soil and we have no data of crop yield in poorer soils. In Deccan Districts some lands pay assessment of 4 annas only and if many such lands were taken into a general average, they would bring down the average yield considerably; and hence my supposition that averages would have to be taken for lands of each classification. If it is said that only the 12-anna classified lands were to be taken, this would not be a fair basis for considering the crops in the very poor soils, and *vice versa*. Crops in poor soils will fail when crops in good soils can exist, as the cessation of rain for a fortnight does not so prejudicially affect the latter similarly slight rains at frequent intervals would be enough to maintain crops in the light 'barad' soils of the Deccan while they would not be sufficient for crops in heavy soils. Hence it appears to me that we should have to take the average yield for several classifications of soils in a village and this labour would appear insuperable.

RESOLUTION.—Mr. Mountford's first suggestion is to substitute a scale of 100 marks for a scale of 12 annas. Government consider that, although the anna notation system is not entirely satisfactory, it would nevertheless be unsafe to discard it for an entirely novel and untried form of notation. They think it doubtful moreover whether the change of notation would have the desired effect of reconciling the respective points of view of the official valuer and of the cultivator. The essential difficulty arises from the fact that the former takes the 'normal' crop as his standard, *i.e.*, a crop grown under fairly favourable rainfall conditions, whereas the latter takes as his standard the 'average' crop, *i.e.*, the means of the crops produced over several years in which years of deficient rainfall predominate. Under the present rules any crop below half the standard entitles the cultivator to suspension. Consequently, on the basis of the official standard, suspension is less frequently secured than it would be on the basis of the cultivator's standard. These divergent points of view will not be reconciled merely by

substituting 100 marks for 12 annas. The cultivator in applying the 100 marks standard to the average instead of to the normal crop would still think that when his crop is valued at 50 marks, *i.e.*, half the normal, it is being overvalued. The difficulty might be removed by altering the Government standard to that of the cultivator, and then, in order to avoid the loss resulting from such a change, raising the proportion which is fixed as the maximum limit for suspension. But this would not be understood and would give rise to a general outcry that Government were making the suspension and remission rules more stringent. Moreover, the cultivator's standard, which is an average or mean, is probably more difficult of exact ascertainment than the official standard, which, in certain conditions, approximates more closely to actuality. Government, therefore, prefer to adhere to the anna standard and agree with the Commissioners' view on the subject. They also agree with the views expressed in paragraphs 5 and 6 of their joint letter.

2. Government approve the scheme of crop experiments suggested by Mr. Anderson in the note appended to this Resolution. The Director of Agriculture should be requested to submit definite proposals in the matter in consultation with the Commissioner of Settlements.

3. Another point which has been prominently brought to the notice of Government is the tendency to undervalue good crops and to overvalue poor crops. The district officers are therefore requested to impress on all subordinates who are responsible for anna valuations the necessity of making their estimates as accurate as possible.

4. Government are unable to accept the recommendation made by the Commissioner, S. D., in his letter No. R.E.V.-68, dated 23rd December 1923, that his interpretation of the normal crop should be allowed for the Southern Division.

By order of the Governor in Council,

(Sd.) A. E. SERVAL,

Acting Deputy Secretary to Government.

15-7-27.

G. R. No. 7773-B., R. D., dated the 23rd June 1927.

To

The Commissioner in Sind,

The Commissioner of Divisions,

All Collectors, including the Deputy Commissioner,
Upper Sind Frontier,

The Commissioner of Settlements and Director of Land
Records,

The Settlement Commissioner and Director of Land
Records, Bombay Suburban Division.

The Director of Agriculture,

The Finance Department.

**Accompaniments to Government Resolution, Revenue
Department, No. 7773-B, dated 23rd June 1927.**

NOTE by Mr. F. G. H. Anderson, I.C.S., Settlement Commissioner and Director of Land Records on the anna valuation of crops for the purposes of the remission and suspension rules and the need of statistical investigation.

Many economic inferences about the purchasing power, or annual income, of the rural population, as well as accurate forecasting of the output of crops for export or mill consumption, depend upon one fundamental fact, "how many lbs. of produce can we expect from each acre cultivated under that crop? If this number of lbs. is correctly known, the only other factor is the number of acres in which that crop is sown, and this at any rate is ascertainable within quite a small percentage of possible error, particularly now that the pot hissa survey is completed and we know the precise area of almost every plot of land under cultivation in the Presidency, except in a small percentage of inam villages, and a rather serious area of talukdari and

khoti tenures. The pitch of the land revenue does not depend on gross produce but it is always well to know the relation between them.

2. The foundation of our knowledge must be the number of lbs. pre acre. All cultivated land is classed, usually with 16 annas as a maximum value, but sometimes owing to the addition of "chads" and combinations of dry-crop virtues with water facilities, there are some lands which are classed up to a maximum of 24 annas, or even higher. Every plot of land has a different anna valuation in the scale. Now this scale was invented and applied in the firm belief that the net productivity would vary in proportion to the class; in other words that "8-anna" land would produce half as much profit as 16 anna land, and "4 anna" land would produce $\frac{1}{4}$ th, and so on. The authors of the classification must be presumed to have had in view not gross produce but net profit or rental capacity. But they are very vague about it; and whatever they had in mind we should prefer to know to what degree they had succeeded in hitting off the correct ratio. There is land which is capable of producing some crop but is not capable of paying any rent, and therefore should get a nil classification on the rental basis, but perhaps 1 or 2 or more annas classification on the gross produce basis. At any rate the first point upon which we are totally without evidence is whether the gross produce does or does not vary in the same ratio as the anna classification, or whether the rental value has this co-efficient. Such statistics of rent as we have, go to show that rent does vary according to anna classification of the soil; but the evidence is utterly scanty and inconclusive.

3. We have very little information as to the degree to which a failure of rain or its untimely occurrence affects the gross yield. Taking a district in which a good crop can certainly be got with 30 inches of rain, it is probable that even with 24 inches and in some years even with 20 inches, if the whole rainfall were so distributed as to involve no waste, still the crop would be of almost normal excellence. We may take it that for that district there could not be

good crop with less than 20. From this we might assume that with 10 inches there would be a half crop, and with 5 inches one-fourth and yet this obviously would be false; because on most of the land, with an aggregate fall of less than 10 inches there will be no crop at all, and with 5 inches; there would certainly be no crop. On the other hand there are "barani" tracts in Sind where with a fall of 5 inches quite a fair crop would be obtained, since the crop grown and the soil in which it is grown, are specially suitable and give a harvest within a very short time before the moisture has time to dry up.

4. In the past we had quantities of crop experiments but they were not conducted by expert agriculturists, but by Assistant and Deputy Collectors and Survey Officers, some of whom were quite competent and others no doubt were not. They have in their crop experiment reports given us careful information about the seasons and prices, and we can almost certainly rely upon the actual measurement of produce which they recorded; but they did not correlate this gross produce to the anna classification of the land on which it grew. Nevertheless we are in possession of the records, and we could go over these records and deal with them as follows:—

(1) First, we could divide them according to survey groups in which they were made;

(2) We could work out the classification value of the land;

(3) We can determine both from the information in the reports and from the records the general character of the season in that tract.

Then we could compare the output therein reported with the standard output for such a season and such a quality of soil which the Agricultural Departmental tables for that taluka give us; and by the time we had so analysed all existing crop experiments, we should have got a valuable mass of information tending either to corroborate or to correct the Agricultural Department standard output figures.

5. But the Land Records administration, and the controversy about remissions and suspensions, and the annual appraisal of crops for the purpose of the suspension rules, can hardly afford any longer to rest upon figures which have been put together largely as the result of conjecture or assumption, and have not for many years been subject to the test of actual experiment. It therefore follows that this defect should be supplied even though it costs an appreciable sum. It is plainly the duty of Government to devote some percentage of its increasing land revenue to an investigation which ought finally to set at rest all these criticisms, fears and doubts. In order to secure uniformity in the results we should select an officer from the Agricultural Department, considered by the Director to have special aptitude for the work. We should first require him to make computations on paper from all the existing records of crop experiments as above detailed. We should then provide him with a sufficient staff of men of the field surveyors' type, and send him out with instructions to obtain every year for a series of years as many exact crop measurement results as he reasonably can. The schedule of instructions could of course be drawn up by the Director of Agriculture and approved by the Commissioner. The object is to ascertain what is the standard crop on land of each classification value in a pretty good year. He can always ascertain (except in Gujarat villages, of which the classification record was burnt) the actual anna-class of the land he is experimenting upon. But he would have to be on his guard against the possibility of the land having been

101000

(1) much improved by levelling, embankments, and so on since the original classification; and

101000

(2) deteriorated and neglected since that time.

Also he would have to be careful that the cultivation was neither particularly skillful and above the average, nor particularly negligent and below the average. The again the quality of manure and tillage is of obvious importance. On 2 plots of the same classification held by the same

village, in the same year, and with everything else the same, a very considerable difference in the weight of output can be got by manorial treatment or even as the consequence of crop rotation. These are the facts which would be of course perfectly well-known to the trained man of the Agricultural Department we contemplate. The standard output of the land of any given classification would in time be derived from this by proportion which the ratio of classification value to gross crop has been determined. When we have got the results of one-thousand such measurements we should then be in a position to reconsider the assumption that classification and gross produce vary directly or not, and see whether it might not be that as the classification of land declines so the gross output declines in a greater or less ratio, also whether rent varies in proportion to classification and in the same or in a different ratio to gross produce. Perhaps also the investigation would ultimately throw some light on the quite unsolved problem of the exemption of taxation of improvements. The investigation should first be directed to those districts where remissions and suspensions are most prominent; whether it will be necessary to extend it at all to those districts where remissions and suspensions have not exceeded more than 2 or 3 per cent of the revenue could be determined subsequently after the results of the precarious districts were before us. One man cannot be at two places at the same time. It will be therefore in all probability necessary for the experiments to be conducted in a batch of villages close together, and a move might be made to another group of villages for the purpose of measuring a different crop. There would be rice crop, kharif crop, bajri, etc., then rabi crop, then also irrigated crops of wheat, onions, and various other produce right on to the hot weather, and the rains could then be spent in a critical examination and comparison of the results with one another as well as the farm results. Every other province has got its record of crop experiments. Settlement operations in some provinces very largely consist of crop experiments. But no province has a soil classification like Bombay, and consequently results outside Bombay cannot be subjected to the all-important

correction for soil value. The cost of such appointment may be estimated thus :—

	Average	Per
	Rs.	mensem
	Rs.	Rs.
For a six years' campaign—		
1. Supervisor at	370	370
6. Graduate measurers at	125	750
6. Fieldmen at	33	198
2. Peons at	20	40
	Total ..	1,358
	× 12	16,296
Contingencies .. .. .	..	3,600
Travelling allowance .. .. .	..	3,000
	Total ..	22,896
	Say ..	23,000

My figures are arrived at in this way.

Dr. Mann proposed a supervising officer of the Provincial Agricultural Service on Rs. 250—20—550. For the type of crop measurement work we contemplate a man on such high salary as Rs. 550, a fairly senior Deputy Collector, is hardly required. But starting at, say, Rs. 310 we could retain him for 6 years up to Rs. 430 at an average cost of Rs. 370, which I think is quite enough.

Next the six graduate measures: He proposes Rs. 105—5—140: average Rs. 125. This I would accept.

Next, he proposes 6 fieldmen on Rs. 30—5/2—80. Here I do not think that these men, whose functions would not go beyond those of a fairly competent guard and peon, and would not involve high educational or clerical abilities, need be taken from the regular clerical service. We want competent outdoor men of the superior sepoy type on Rs. 30—1—36 for the period of their employment, average cost Rs. 33.

Next Dr. Mann puts down three clerks. But I do not see the need. There is no great bulk of correspondence and reporting. The graduate measurers can be expected to do their own writing up of results, and the few other items of clerical work such as answering questions or preparing their pay bills; they cannot be out of doors all day and every day, and they do not require clerks,

If my view of the functions of the fieldmen is accepted, we shall not want in addition three peons, but perhaps two at the most may be given to the Supervisor. The fieldmen peons will do this class of work for the graduate measurers.

Dr. Mann puts contingencies at Rs. 750 per month for the half year, *i.e.*, Rs. 125 per measurer, or Rs. 4 a day. Probably this is intended mostly for labour. I do not think it can be fully determined in advance exactly how much such labour would be needed in addition to that of the cultivators themselves and the fieldmen. I certainly should try to make other labour unnecessary. But in any case I am sure that the proposed amount is too high and I put it 20 per cent lower at Rs. 3,600.

I also retain his estimate of Rs. 3,000 for travelling allowance, through here too. I think by organising movements this amount would be too much. However, we may take it that the aggregate cost would not be much less than Rs. 20,000 a year for about 6 years. As to this Dr. Mann says if the annual expenditure were (according to Dr. Mann's estimate) Rs. 28,500 to Rs. 29,000 it will be well worth it.

6. The officer so appointed should also be required to test the quinquennial (crop) inspection in a certain area and supervise the collection of returns from crop sharer tenants of the quantity of produce paid as rent. He would be well able to detect obvious over-or-under-statement, and would inspect their fields and interrogate the tenants making incredible returns. If given this duty he would require one or two clerks, say, another 1,500 a year in all.

Appendix to Mr. Anderson's Note.

A closer study of this question has yielded the following results. There is no doubt that Mr. Pringle (1835—40) classified according to the estimated net or rental produce of the land because he contrasts his method with Sir Thomas Munro's classification in Madras which was based upon gross produce,

2. The Joint Report "considered what assessment an acre of each sort of land could bear" and upon that consideration evolved "jantris" according to personal judgment, discarding Pringle's attempt to calculate net produce in elaborate "kaifiyats". From this of course the natural inference is that the authors were not decided whether to classify by gross or net, but since land that produced no rent "could not bear" any assessment, the inclination was in favour of the rental foundation. In paragraph 11 of the First Joint Report of 1840 (not 1847) we certainly should understand that the classification corresponds to the gross produce; but again in paragraph 17 we should infer that the assessment rates had regard to the rent, although the rent was not accurately ascertainable, and in many cases did not actually exist.

3. The next stage was in 1872. The Government of India then sanctioned Rs. 2,000 for crop experiments pointing out that their value depended altogether on the selection of the land. They must be carefully conducted; must be numerous; must extend over every description of soil and season, and include every mode of culture. (R. 3,859.72.) The Bombay Government orders then followed that fields should be selected of good and middling quality (*i.e.*, excluding the lower grades) with reference to the classification, thus at once negating the directions of the Government of India which applied to every description of soil. There then followed squabbles whether the plot selected for experiment represented a "fair average of the whole field" or not. There was no need to squabble about this because a reference to the classification books which were in existence would have settled it at once. But this was not thought of. After 37 years, it was finally decided in R. 8719-09 to discontinue these experiments. It was reported that "the experimenters were inexpert. Everything depended upon the anna valuation of the soil, which they had not paid attention to. Their results could not be used to test the expert formulæ of the Agricultural Department." (This criticism was quite unjust, because it only had needed a few words to have made it incumbent upon the experimenters to exhibit clearly the anna valuation of the soil of

which they cut the crop). It was next pointed out that "it was useless to compare the gross produce with the assessment. In the case of sugarcane the assessment might be half per cent on the produce; in the case of cotton it may be 20 per cent. The only useful ratio was the ratio of the net profits of cultivation to the assessment." These orders show a misconception of the very nature of these experiments. We did not want to ascertain the relation of net profits to assessment; because we can always at all times do that by tabulating the rents; what we really wanted to know was how far our classification of the soil actually coincided with the rental valuation. Also we wanted to know whether the Agricultural Department theory as to gross produce was correct. Now all would have been well had Government ordered that the experiment should be conducted only upon rented land of which the rent was known; and, secondly, should have always been accompanied by a pick-off of the classification map of the survey number. So that not only the average classification of the whole number, but the precise anna valuation of the particular fraction experimented upon would have been known. I need not elaborate this point. Any one who knows classification and assessment technique will realise the significance of this and the great facility with which these instructions would have been applied. The only things against which the experimenters need have been on guard were the abnormal variations in the application of manure; special improvements tending to deepen the soil or otherwise improve it, or likely to deteriorate it; and special differences of husbandry. What was really wanted from the beginning was properly thought out directions by the Bombay Government. The ideas of the Government of India were perfectly sound.

4. Mr. Keatinge reported that the tables of standard outturn which his Department had been using were based not upon experiments or upon records of the farms, but were mere guesses, "revised upon suggestions" of Mr. Mollison, the Deputy Director. He then very rightly observed "it is probable that a careful series of experiments conducted by this Department and checked against the

figures of the control plots which we have in our farms would give trustworthy data for the revision of the outturn figures" (3rd July 1909). Thereupon Government ordered the crop experiments to stop and to be replaced by a carefully planned series of investigations by the Agricultural Department into gross profits, cost of cultivation, net profit of standard crops, and the rotation of crops on different qualities of soil. These were to be conducted both on and off the farms. Had these orders been carried out, we should have nothing whatever to complain of, since the series could not have been "carefully planned" unless they have taken into account the soil classification. But it almost goes without saying that these experiments were never made, and the whole reason why we are up against the present problem is because the Joint Report did not face the problem; in 1872 when the Government of India wanted it faced, it was bungled, and in 1909 very wise instructions were issued but have not been obeyed. This is the history of the crop experiment question, and I find in it nothing upon which one can find any criticism of my proposals to revive these experiments on proper lines.

No. of 1927

Copy forwarded for information and guidance to

APPENDIX II-L

Extract of the G.R., R.D. No. 4966/24,

Dated 27th March 1928.

Para 6.—We are further of opinion that our annewari classification, together with the multiples of land revenue to be collected, should be slightly modified as follows:—

8 annas and under 11 to pay $1\frac{1}{2}$ multiples of assessment.

11 annas and over to pay 2 multiples of assessment.

We are not in favour of collecting more than 2 multiples of the assessment even in the most favourable years. The collection of 2 multiples as a maximum has become established by long usage and we feel that any increase would be strongly resented by the cultivator.

RESOLUTION.—Government agree with the Commissioners that the surrender of suspended arrears of land revenue which are more than three years old is not justified by the seasonal conditions of certain parts of this Presidency and are therefore pleased to direct that in the tracts detailed in the margin.* suspensions shall not become automatic remissions until the arrears are more than four years old.

Sholapur District, Ahmednagar District (except Akola, Kopergaon and Sangamner talukas), Indapur and Bhimthandi talukas of the Poona District (including Dhond and Sirur-mahals), Bijapur District and Gadag (including Mundargi petha), Ron and Navalgund (including Petha) talukas of the Dharwar District.

2. The modification in the existing classification of annewari suggested by the Commissioners in paragraph 6 of their letter of 11th June 1926 is approved.

3. An improved system of making anna valuations of crops has recently been introduced in the Presidency, and Government consider it desirable that the effects of this system should be carefully examined before any action is taken in the direction of reducing the size of sub-divisional charges in order to admit of a more effective supervision of the annewari work.

4. Government agree with the Commissioners that the character of past seasons is an integral factor in the determination of the question whether suspensions shall or shall not be given. The attention of the Collectors should be invited to the present rules and they should be reminded that suspensions are not to be given as a matter of right.

5. Government also agree with the Commissioners that a more careful enquiry is necessary into the question whether a landlord has granted suspensions to his tenants, before he is allowed to receive the benefit of the suspension and remission rules.

6. Government are pleased to direct that rules 3 and 11 of the existing rules shall be deleted and the following new rule added after the present rule 12:—

“The Collector should report to the Commissioner his proceedings, as soon as he issues his orders, as regards both suspension and remission of land revenue, stating fully the reasons for those orders and the extent of their application with other relevant particulars. The Commissioner should transmit the Collector’s report to Government with his own opinion thereon.”

7. Rule 10 of the present rules has been rendered inoperative by section 93 (2) of the Bombay Local Boards Act. The question of its retention or modification will be considered in connection with that of the separation of land revenue and local fund cess in the accounts.

8. The Commissioners should be requested to submit in consultation with the Commissioner of Settlements a new draft of the rules as revised in accordance with the orders in this Resolution.

By order of the Governor in Council,

(Sd.) G. K. JOSHI,

For Under Secretary to Government.

APPENDIX II-M

Crops.

Method of anna valuation of— N. P. for purposes of suspensions and remissions.

GOVERNMENT OF BOMBAY.

REVENUE DEPARTMENT

Resolution No. 7773.

Bombay Castle, 17th September 1935.

Joint letter from the Commissioner, C.D. (Mr. W. W. Smart, I.C.S.), the Commissioner, S.D. (Mr. H. B. Clayton, C.I.E., I.C.S.), and the Commissioner, N.D. (Mr. A. W. W. Mackie, C.I.E., I.C.S.), No. R.E.V. 68, dated the 4th May 1935:—

"We have the honour to refer to the formula occurring in note No. 270 in the Manual of Land Revenue Rules at the bottom of page 116, viz.—

$$\frac{(1) \dots 192 \dots \times (3) \text{ Actual produce}}{(2) \text{ Soil-annas of the area under the crop.} \quad (4) \text{ Full Standard produce (16 annas soil in a 12 annas season).}$$

"2. The Director of Agriculture has informed the Commissioner, C.D., in his No. 84/13559, dated 23rd November 1934, that the figures of standard yield supplied by him represent a 12-anna crop in a soil of 12-anna classification. The figures thus supplied by him are used for item No. (4) in the above formula. This is clearly wrong, since the formula requires figures of the yield of 12-anna crop in an 16-anna soil. It is, therefore, necessary in order to secure the results aimed at from this formula to add one-third to the figures supplied by the Director of Agriculture and to use the modified figures so obtained as item No. (4) in the formula.

"3. An alternative is to make use of the figures supplied by the Director of Agriculture in the formula and to modify the formula so that it will still yield the same

results as would be obtained by the manipulation mentioned in the preceding paragraph. Item (4) in the formula would then read 'Full Standard produce (12-anna soil in a 12-anna season)' and the only other alternation necessary is the substitution of '144' for '192' as item No. (1) in the formula. The figure '192' stands for 12 (annas crop) \times 16 (annas soil), and as a 12 annas soil is to be taken into account instead of a 16 annas one, the figure obviously becomes $12 \times 12 = 144$.

We recommend that the formula and the heading of the column 2 of the table on page 116 be amended accordingly."

RESOLUTION.—Government accept the Commissioners' recommendation made in paragraph 3 of their letter, and are pleased to direct that the following changes should be made in the table and the formula given in note No. 270 in the Manual of Land Revenue Rules:—

(1) For the figure "16" occurring in the heading of column 2 of the table, the figure "12" should be substituted.

(2) For the figures "192" and "16" occurring in the formula below the table, the figures "144" and "12", respectively, should be substituted.

2. Government consider it desirable that the orders approved in Government Resolution, No. 7773-B, dated 23rd June 1927, relating to the method of making anna valuation of crops, should be indicated in full in the Manual of Land Revenue Rules in the form of a note under Administrative Order No. XXXVIII.

3. The Senior Superintendent of Land Records, S.C., is requested to issue the requisite correction slips to the Manual.

By order of the Governor in Council,

(Sd.) T. E. STREATFIELD,

For Under Secretary to Government.

To
The Commissioner in Sind, etc.

APPENDIX II-N

Crops.

Anna valuation of grass.

GOVERNMENT OF BOMBAY.

REVENUE DEPARTMENT

Resolution No. 2181/28.

Bombay Castle, 13th October 1937.

Government memorandum No. 2181-B/28-28042, dated the 15th December 1936, to the Political and Reforms Department :—

“The undersigned presents compliments to the Chief Secretary to Government and is directed to state that it has been decided that the question of the best method of making the anna valuation of the grass should be discussed by the Commissioners in conference. It is therefore requested that this subject may be included in the agenda of the next conference.”

Government memorandum No. 3781-B/24, dated the 21st January 1937, to the Commissioner, S.D.

Joint Report of the Commissioners of Divisions (Mr. J. H. Garrett, C.S.I., Mr. J. W. Smyth, C.S.I., C.I.E., I.C.S. and Mr. J. A. Madan, C.I.E., I.C.S.) No. R.E.V. 68, dated the 8th July 1937.

“With reference to Government memorandum, No. 3781/B/24, dated the 21st January 1937, we have the honour to report that we have discussed in conference the question of the best method of making the anna valuation of grass.

“2 The practice of treating grass areas for the purpose of anna valuation is not uniform in any of the divisions in this Presidency. The standing orders on the subject are contained in note 270 (iv) under Administrative Order No. XXX in the Land Revenue Rules. In practice grass is sometimes treated as an ordinary crop and its annawari

fixed as in the case of other crops. In some places the annawari of grass is taken at 6 annas and in others the crop is excluded from consideration.

"3. In our opinion where large areas of grass are reserved for cutting or grazing and where grass is profitably grown as a money crop, the anna valuation of grass should be made just like other crops, after taking its normal yield into consideration. It should not, however, be left to the talati to decide in which villages grass is to be treated as an important crop. The Collector should himself prescribe the areas where the grass is to be taken as a valuable crop, and its anna valuation should be fixed as in the case of other crops. There are large areas of this description in Thana, Ahmedabad and Kanara districts and also in the neighbourhood of cities like Bombay, Poona and Belgaum.

"4. It is necessary for this purpose that there should be a table of estimated crop outturn for grass as in the case of other crops. Unless there are standard outturn of grass crop, the anna valuation in any particular year cannot be arrived at according to the standing orders. If no such standard outturn are known and if it is left to the individual discretion of the local officers to fix the standard outturn of a normal crop in a normal year in a 12-anna soil, it may be difficult to enquire into complaints received from the public. It will perhaps be desirable to ask the Agricultural Department to work out such standard outturn of grass for different kinds of lands in localities where grass is a valuable crop.

"5. We think that, subject to the exception mentioned in the following paragraph, all other lands in which grass is grown should be valued at 6 annas in a normal year.

"6. In places where the area under grass is not less than 10 per cent of the total cropped area and the grass is of little or no value, it should be excluded altogether from consideration. Such would be the case in parts of the Ratnagiri district as also in the Mallad tract of the Dharwar district. The matter is not of much importance

in the Konkan districts where anna valuation is seldom, if ever, below 6 annas. But in Mallad, where grass is cheap—in some cases its value is almost nil owing to the abundance of forest and revenue pastures—it will be a hardship on the people if the grass is valued at 6 annas or even less.”

RESOLUTION.—In villages where grass is valuable and yields a profit not markedly less than others of the less valuable crops, its anna valuation should be made like that of other crops by consideration of its normal yield. The Collectors should prescribe the areas in their districts in which grass should be treated in this way. Copies of the orders passed by the Collectors in this matter should be forwarded to Government.

2. It is also necessary for this purpose to have estimated outturns for grass as for other crops. The Director of Agriculture should be requested to prepare figures of standard outturns of grass for different kinds of land in the localities so defined by the Collectors.

3. In villages where grass is not valuable and yields a profit appreciably less than that of other crops the grass area should be treated in the same way as fallow is treated in making annewari. For the purpose of the illusion given under Note 270 on page 113 of the Land Revenue Rules (1953), the normal cropped area in such villages will exclude not only the average unsown area but also the average area under grass. Thus though the annewari of grass land in such cases will be nil, this will not affect the anna valuation of the village except to the extent of any excess over normal in the area under grass.

4. The Director of Land Records should issue the necessary correction slip amending note No. 270 (iv) under Administrative Order No. XXX on page 113 of the Manual of Land Revenue Rules (1935).

By order of the Governor of Bombay,

(Sd.) N. A. FARUQUI,

Under Secretary to Government.

APPENDIX II-N (1)

No. 84 of 1940

From

W. J. Jenkins, Esquire, M.A., B.Sc., C.I.E., I.A.S.,
Director of Agriculture,
Province of Bombay, Poona.

To

The Secretary to the Government of Bombay,
Revenue Department,

Poona, 4th October, 1940.

SUBJECT.—*Preparation of Annewari/Letter on, from
Commissioner, N.D.*

Sir,

I have the honour to refer to your endorsement No. 7773-B, Revenue Department, dated 1st May, 1940, below copy of letter from the Commissioner, Northern Division, No. R.E.V., dated 14th April, 1940 and accompaniment and to submit my remarks hereunder. In consideration of this subject, I have availed myself of the expert assistance of Professor P. O. Mahalanobis, Statistical Laboratory, Presidency College, Calcutta.

(2) Considering, in the first place, the essential features of the problem from the statistical point of view, the object of crop-cutting experiments for revenue purposes is to determine the yield of one or more standard crops grown on different classes of land in different seasons. If it were possible to gather and measure the whole of the crop on each individual plot throughout an area under consideration (which might be a taluka, a district or even the whole Province) and to repeat this work from year to year over a

long period, a two-way yield table could be prepared which is shown schematically in the diagram below:—

Class of land	Type of Season			
	a'	b'	c'	.. .. .
(1)	(2)	(3)	(4)	
a	y(aa')	.. y(ab')	.. y(ac')	
b	y(ba')	.. y(bb')	.. ..
c	y(ca')	.. ..	.. ..
d	y(da')	.. ..	.. ..
..				
..				

As above, the land can be classified into any convenient number of grades such as a, b, c, etc., the actual number being settled from practical considerations and may be 4, or 5 or 16 or 20 or any other convenient number. These grades of land are shown in column (1) above. Similarly, the seasons may also be classified (on the basis of amount and distribution of rainfall and other factors appropriate from the agricultural point of view) into a number of types a', b', c', etc., here again the actual number being according to convenience. These are shown as columnar headings in the diagram.

(3) If this field survey is carried on for a long time, records of crop yields for each grade of land (a', b', c, etc.), for a large number of each type of season (a', b', c', etc.) would be obtained and, taking the average of these yields, it would be possible to calculate the average or expected yield for each grade of land in each type of season. These expected or normal yields could then be entered at the appropriate place in the diagram. Thus y(aa') will represent the expected yield in land of grade a in a season of type a'; y(cb'), the yield in land of class c in a season of type b' and so on.

(4) Once such a table could be formed, it is clear there would be no difficulty in deciding the yield of any particular grade of land in any particular type of season but it is obviously impossible to construct such a table by a complete

survey of all plots, continued over a number of years, as such a procedure would be quite impracticable from the point of view of both expenditure and administrative arrangements. For this reason crop-cutting experiments have been carried out in the past on a limited number of holdings, distributed among a limited number of grades of land each year. In doing this, there is absolutely no justification in assuming that the proportional yield from two classes of land will remain the same under different seasonal or weather conditions. Thus the yield of land of grade a may be double the yield of land of grade d in an exceptionally good season of type a', and yet, in a bad season of type d', the yield of land of grade a may be reduced to only 10% of the yield of land of grade d. In other words, as pointed out by the Commissioner, Northern Division, in his note, it is not possible to assume that the expected yields in different columns of the table would be in constant proportion which means that it may be necessary to use different proportions for estimating the yield in the same pair of grades of land in different years.

(5) With reference to crop-cutting experiments, therefore, it is necessary to settle what should be the area of the ultimate sampling units or individual cuts in the field, the number of classes of land to be included in the sampling programme, and how many sampling units should be allotted to each class of land. Finally it must also be decided how the sampling units allotted to any particular class of land should be distributed over the geographical area. This is the ultimate statistical problem and it must be admitted, in my opinion, that the differences and discrepancies now admitted to exist in our figures of "normal crop yields" in the Province are mainly due to inadequate time and provision being devoted to well-organised crop-cutting experiments, designed on an adequate statistical basis, in the past.

(6) In the schematic diagram given in paragraph 2 above, neutral phrases such as a, b, c...or a', b', c' have been intentionally used. But it is possible to attach anna labels. That is, land of grade may be called 16-anna land, land of grade b as 15-anna land and so on. Similarly a' might

denote a 16-anna season, b' a 15-anna season, etc., or the classifications can be condensed by using intervals of two or four annas. Even if anna labels are used, it must be emphasized that these are only labels and when this is understood and it is clear that yields in different columns cannot in general be assumed to be proportional, it is easy to see why 8-anna land in one year may give 50% of the yield of 16-anna land and, in another year, only 10%.

(1) Turning now to the points raised in Mr. Bristow's letter (The paragraphs numbers refer to the paragraphs in that letter).

(1) The difficulty regarding the normal yield of 6-anna land being not half that of 12-anna land has already been explained. The assumption is made solely on account of the lack of adequate statistical data based on a long series of organised crop-cutting experiments which would enable a more correct appreciation of the proportional relations between yields on different grades of land in different types of seasons to be obtained. It is quite possible that some of the entries in the table given in para. 2 above would be as there would be nothing surprising in 4-anna land producing not even grass in an extremely bad season.

(2) In para. 2, the question is primarily one of the equitable relation between the gross and the net value of the crop. There is a good deal of substance in Mr. Bristow's objection: the difference between the gross and net value of the crop cannot be assumed to be constant for all grades of land or all types of season. For scientific assessment, it would, therefore, be necessary to make a rough estimate of the margin of profit on different grades of land.

(3) A two-way table on the lines suggested in para. 2 above would supply an adequate solution. Although it may not be possible to give a mathematic formula connecting the yields on lands of different classes, such a two-way table could be constructed by adequate scientific crop-cutting experiments on modern lines. T

would undoubtedly be the most satisfactory but would require considerable time and expenditure. An attempt might be made to frame a tentative two-way table on the basis of existing evidence from past crop-cutting experience, known yields on Government Farms, etc., and local opinion derived from consultation with experienced district officers and cultivators. It is certainly worth trying even as a purely experimental measure in some well defined area.

(4) Paragraph 4 deals with the question of normal yield. It is true that a 12-anna season is purely hypothetical. The remedy would be to classify the seasons on an objective basis but this could not be done all of a sudden but would have to be gradually worked out. It could be done in time of crop-cutting experiments, at present done only haphazardly or not at all, were organised regularly and on scientific lines.

(5) This paragraph deals with the selection of "good", "medium" and "poor" land for crop-cutting experimental purposes. The present method is obviously subject to personal bias and is unsound. The proper method would be to accept a standard classification (even if only provisional) and distribute the sampling units among different grades of land in an appropriate way.

(6) The objection regarding the unreliability of average classification is quite valid and may be most misleading except in a homogeneous region.

(7) Crop-cutting experiments must be conducted on definite grades of land. From the statistical points of view they should be carried out, if possible, not on a single grade of land but on a number of different grades.

(8) The figures of "normal yield" arrived at by the Agricultural Department area admittedly not based upon direct experimentation which, in the past, has never been in any degree adequately or sufficiently carried out. Faute de mieux, the Department has been forced to base such figures on the very limited results of such crop-cutting experiments as are available but primarily upon the advice

and experience of district officers and experienced cultivators. Examinations and post-mortems of official crop forecasts, e.g., the periodic revisions of cotton crop forecasts carried out annually by the Indian Central Cotton Committee, has indicated the need for revision of "normal yield" figures which has been undertaken wherever accumulated evidence has shown that such revision is needed. It is true that the "normal" or "standard" yields in any region can only be settled by direct experimentation on the lines indicated in this Note. Without such scientific investigation, the present figures must necessarily be arbitrary. It is for Government to decide whether the considerable expenditure which would be involved in a scientific readjustment of these figures would be justified by the results obtained. Personally, I doubt very much if this would be the case.

(9) In conclusion, I would like to emphasize that I am in considerable agreement with the views expressed by Mr. Bristow but that I am unable to visualize any scientific revision of the basis for annewari calculations, especially in connection with grades of land and types of season and "normal" or "standard" crop yields except as a result of scientifically designed crop-cutting experiments carried out on a statistical basis over a prolonged period. This would involve considerable staff and expenditure. In the meantime, I would suggest that some considerable measure of improvement might be obtained if an expert Committee was appointed in each district with the Collector as Chairman to examine and revise the present normal yield figures for different crops under different soil and seasonal conditions. Both officials and non-officials should be represented on such district Committees.

I have the honour to be,

Sir,

Your most obedient servant,

Director of Agriculture

APPENDIX II-O

Land Revenue
Annewaris
Method of preparing.

GOVERNMENT OF BOMBAY

REVENUE DEPARTMENT

RESOLUTION No. 7773-III.

Bombay Castle, 10th July 1941.

Joint letter from the Commissioners of Divisions, No. R.E.V. 205, dated the 11th January 1941:—

“We have the honour to report that as directed in Revenue Department No. 7773-B, dated 14th November 1940, we have considered in conference the question of the preparation of annewaris in consultation with the Director of Agriculture and the Settlement Commissioner. We are agreed that the method laid down in A.O. XXXVIII inserted after page 118 of the Land Revenue Code Rules does not lead to conclusions accurately representing the comparative output of crops in any given year and that it gives a misleading appearance of exactness and authority by the introduction of mathematical calculations based on necessarily unreliable data. The method is reduced to absurdity in the note under 273 which assumes an exact ratio between the annas of soil classification and the weight of crop on the land. Not only is there no foundation for any such assumption but also it is demonstrably absurd. If it were true, the basis of the existing system of assessment would be wrong”.

“2. We would in the first place make it clear that no exact calculation of the amount by which the crop in a given year exceeds or falls short of the normal crop is possible and that the determination of what is the normal is a problem of the greatest difficulty. Rs. 40,000 is being spent by the Agricultural Research authorities on an attempt to determine the normal output of cotton

alone and the cost of doing so for all crops would be prohibitive. It is difficult in the first place to decide what is a normal season, since the rainfall may be normal in amount but well or badly distributed, and actual output from similar adjoining fields frequently varies for reasons for which it is hard to account”.

“3. We agree, therefore, with the Director of Agriculture that the present system of trying to ascertain the normal yield for each major crop in each taluka should be abandoned. He suggests that the Agricultural Department should work out a normal yield of each major crop for a geographical area or zone in which conditions are roughly similar, and determine the yield for 3 or 4 classes of land, e.g., bad, poor, medium and good in that area. This normal yield would be determined on the existing information, *viz.*, the result of experiments made by the Department, the results of weighing of crops by Mamlatdars for annewari purposes and by any other means. The result would necessarily be approximate and greater accuracy would only be obtained by experiment and observation over a prolonged period.

“4. The present standard of valuation is ‘the 12 anna crop’, which means the yield in a season of rainfall fairly favourable in quantity and distribution, and with proper cultivation, for land of known classification quality. The Director of Agriculture rejects this definition and we think rightly as it depends on the interpretation of such terms as ‘fairly favourable’ and so defines the unknown by the equally unknown. We accept his basis of a normal yield as the crop which the cultivator will not be disappointed to realise. This may sound vague but is in practice a more real and ascertainable measure since it is based on the actual experience over many years of the cultivator intimately acquainted with the soil. His expectation will vary in accordance with the quality of the land, and the expectation as between cultivators in one area and another will vary according to the normal climate and rainfall of these areas. The former variation will be allowed for by having a separate normal yield for different

qualities of land, the latter by having separate normal for different areas or zones. Thus, for example, the western Deccan with its assured rainfall will have one normal for medium land for jowari and the eastern Deccan with its scanty rainfall will have another, and each zone will have 3 or 4 normal yields for the various qualities of land in each”.

“5. By these normals the Mamlatdars will prepare their annewaris. The Agricultural Department will base their description of land on its fertility. The Mamlatdar will divide his annewaris according to the anna classification of the soil. It is useless to divide it by annas as no such fine distinction can be made in actual results, but if the Agricultural Department’s normals are for 4 kinds of land, then 4 classes of land based on the soil classification can be made, e.g., 1—4 annas, 5—8 annas, 9—12 annas and 13 annas and upwards. What is essential is that the soil classification should be recorded whenever the Mamlatdar or other officers make an experiment. This is not always done at present in spite of the stress laid on this by Mr. Anderson, the Settlement Commissioner, as far back as 1927 (see his Note in Government Resolution, Revenue Department, No. 7773-B, dated 23rd June 1927). Crop experiments which do not state the classification of the soil are worthless.

“6. The Mamlatdar will compare his results with those of the approximate normal yield and take the result into consideration in fixing the annewari; but on account of the lack of any means of exact calculation for many years to come, we suggest that the actual weight of crop found in an experiment should only be one factor in the decision, and that more importance should be given to what may be summed up as the ‘eye estimate’ which is the conclusion reached by common sense and observation and the general opinion of the cultivators. In actual practice it is easy to find out when the cultivators are hard hit, but Circle Inspectors and Mamlatdars are glad to take refuge behind the screen of figures which the present system affords. The recent decision of the Director of Agriculture to add 25 per cent, to the estimates of

outturn of cotton is sufficient commentary on the tendency to underestimate all crop yields. The new system will not prevent this, but it will not be possible to bolster up such under estimates by a show of figures”.

“7. While elaborate experiments would be too costly, we would recommend that in addition to those made for the purpose of annewari and those made by the Agricultural Department, there should, where possible, be selected fields on which the crop should be measured every year. It would be necessary to choose land belonging to a cultivator willing to assist Government. The classification of the land should be recorded and the actual weight of crop of each kind in each year ascertained and kept on record. Such continuous records of the same piece of land would be very useful as a check on other experiments and as a basis for deciding whether any particular year was above or below normal for any given crop.

“8. A further point is that in preparing revision settlement reports, settlement officers should be directed to record results of crop experiments always stating the soil classification of the land, and should also collect estimates of outturn of individual crops as made by the cultivators themselves. The tendency of cultivators at times of settlement is to understate the normal productivity of the land, while annewari is in question they overstate the normal productivity in order to exaggerate the comparative deficiency of the crop in the year in question. The records made in the year of revision settlement would be useful as a reply to subsequent statements about normal productivity”.

“9. If Government accept our proposals we would suggest that the Director of Agriculture should be instructed to prepare a list of zones and of normal yields for the major crops in each for the different classes of land. This should be done in consultation with the Collectors who should bring to notice local peculiarities. In course of time by the collection of data and the co-operation of the Revenue and Agricultural Departments in making experiments reliable figures of normal yields should be obtainable”.

"10. The Note* prepared by the Director of Agriculture is attached".

RESOLUTION.—Government agrees with the Commissioners that the present system of trying to ascertain the normal yield of each major crop for each taluka should be abandoned, and generally approves the principles proposed by them for the determination of normal yields of the major crops for a geographical area in which conditions are roughly similar. The Director of Agriculture should accordingly work out the details of the scheme in consultation with the Collectors and forward to Government the final recommendations through the Commissioner of Divisions. The Director should submit to Government proposals for any additional establishment, etc., required for the purpose of this inquiry.

2. Since the results of the new method will not be available for many years to come, for the purpose of fixing the annewari of crops, the existing system of preparing annewaris should be continued. Government accepts the Commissioners' suggestion that the actual weight of the crop ascertained at the time of crop experiments should only be one factor in deciding the anna valuations and that more importance should be given to the "eye estimate", which is the conclusion reached by common sense and observation and the general opinion of cultivators. The officers concerned should, however, exercise direction in depending upon the general opinion of cultivators in making their decisions of annewaris.

3. In Government Resolution. No. 1090/33, dated 12th June 1939, the revenue officers concerned with the preparation of annewaries have been instructed to make crop experiments for the purpose of verifying their estimates of yield of crops. As soil classification of land is an essential factor, the officers concerned should take care to record this factor whenever crop experiments are made, as otherwise the crop experiments will lose the greater part of their value.

4. Government accepts the Commissioners' recommendation for the measurement of crops of selected fields. The Collectors should, in consultation with the Agricultural

Department, if necessary, take steps for the selection of fields representative of the area, and instruct the officers concerned to ascertain each year the actual weight of the crop of each kind and record it together with the soil classification of the land. At the same time, care should be taken to see that the land has been properly cultivated and the crop correctly measured. Such records of the same fields should continue to be made from year to year.

5. The Commissioner recommend that the Settlement Officers should record results of crop experiments, always stating the soil classification of land and should also collect the estimates of outturn of individual crops made by the cultivators themselves. Government accepts this recommendation. The Settlement Commissioner and Director of Land Records should be requested to forward to Government proposals for an amendment of Rule 19-(A) of the Land Revenue Rules.

By order of the Governor of Bombay,

(Sd.) V. S. BHIDE,

For Secretary to Government.

Accompaniment to Government Resolution, Revenue Department, No. 7773-III, dated the 10th July 1941.

Note

At the Commissioner's Conference held in Bombay on the 5th January, 1941, the Director of Agriculture made certain suggestions regarding improvement and simplification in the method of fixing the standard yield of crops for the purposes of Annewari valuation. At present such estimated standard yields of different crops are laid down for every Taluka and Mahal and are based upon the assumption that standard yield, i.e., a 12-anna crop, represents the average yield on average soil during an average season. The Director of Agriculture suggested that the unit of the Taluka or Mahal as far as possible, should be given up and that with

regard to each crop in the Province, the Province should be divided into zones, each zone representing an area in which the crop in question is cultivated under comparatively similar environmental conditions and in which similar varieties are shown. The standard normal yield, which should be termed to basic normal yield of each crop in each respective zone should then be fixed for not more than four soil types, i.e., poor, fair, medium and good. These soil types could possibly be made to correspond with the anna classification of soils used by the Revenue Department for settlement purposes, i.e.,—

Poor soil=1 to 4 annas,

fair soil=4 to 8 annas

medium soil=8 to 12 annas, and

good soil=12 to 16 annas.

These basic average yields on each type of soil within each crop zone should be fixed on the basis of all existing information including previous crop cutting experiments, opinion of experienced district officers, etc., and should, as far as possible, represent the yield which might be expected to result from "effective" rainfall i.e., rainfall which in extent and distribution would be sufficient to bring the crop to full maturity and to yield to the cultivator a satisfactory outturn on the types of soil concerned. By satisfactory, the Director of Agriculture intended that he meant a yield, an excess of which the cultivator would be pleased to receive and a deficit of which would cause him disappointment. When such basic average yields have been determined, the crop zones should then be sub-divided where necessary into climatic areas and a plus or minus probability correction factor should be applied to the basic average yield in order to allow for the probability of such effective rain being received in such a climatic area of a crop zone. For instance, in the Deccan tract where bazri is grown, the probability correction factor in areas where rainfall is uncertain and scarce, would naturally be of a minus character whereas where rainfall is certain and generally

well distributed, there would be justification in adopting a plus probability correction factor. It was suggested further that this proposal should be circulated to Collectors of districts for their opinion as to its utility and workability and possibly the system might be tried as an experimental measure with one or two crops of the Province in the first instance. This system would result in removing the illogical assumption that an average normal yield on a 6-anna soil is necessarily half of that on a 12-anna soil. It would also enable more direct weight to be given to the effect of scarcity or ill distributed rainfall in certain tracts and would do away with the present unwarranted assumption that standard normal yields of different crops be necessarily varying within purely administrative zones.

APPENDIX II-P

G.R.,R.D., No. 7289/39, dated 28th September 1944.

Crops.—Standard Normal Yield of:—

Read letters from the Director of Agriculture, No. P. 135, dated the 8th November 1943, No. 998, dated the 29th May 1944 and No. 995 (Acreage), dated the 8th June 1944.

Government letter to the Commissioner, C. D. No. 7289/39-A (Agre.), dated the 24th June 1944—forwarding to the Commissioner for discussion with the other Commissioners for Divisions, the Director of Agriculture, the Supply Commissioner and the Director of Civil Supplies (Districts) the draft of the Resolution which Government proposed to issue on the question of standard normal yield of various crops and preparation of accurate crop forecast, and requesting the Commissioner to favour Government with the opinion of the conference on the Resolution.

Letter from the Commissioner, C.D., No. A.G.R. 227, Dated the 18th July 1944.—

“Reference.—Revenue Department letter No. 7289/39-A (Agre.), dated the 24th June 1944.”

"2. We have considered in conference the above Government letter asking for our opinion on the draft Government Resolution, R. D. No. 7289/39. The Supply Commissioner and the Director of Civil Supplies (Districts) were present with the Director of Agriculture and Secretary to Government, R. D. We considered at the same time the specific reference raised in Govt. letter No. 9971-39-A (food), of 27th June 1944—Whether the Circle Inspector cadre should be expected to do crop cutting experiments. We consider it necessary in the first place to emphasize that the two real problems before us, are quite distinct and should be kept separate. The first deals with the proposed method of obtaining scientific figures of the normal yields of the main crops which necessitates the collection of a mass of figure over a series of years. The second is concerned with how to arrive at as accurate a figure as possible of the output of the main crops of the coming season. We propose to reply to the second reference separately".

"3. For the purpose of the draft Government Resolution it has long been accepted that the only practical and sound basis for a scientifically accurate set of figures of normal yield is a very considerable number of crop cutting experiments carried out over several seasons on pieces of land selected by some such system of randomization as has been suggested by the Director of Agriculture in the extract from his letter that is enclosed. We have endeavoured to arrive at some definite figure of the number of experiment required. This was not easy in the absence of detailed statistics of cropped areas and of a statistician who alone is capable of advising on this point. It has, however, been held that even with a certain selection of the areas, the minimum standard would be at least one experiment per thousand areas under the crop. This would mean 75 to 100 experiments in each taluka. For statistical accuracy this element of selection must however, be reduced to the very minimum and it may be taken that for the purpose in view 150 experiments at least for each main crop in a taluka would be required. As the time for these experiments is extremely limited there figures at once

bring up the question of staff necessary. It is clear that we have now and will probably never have the trained staff in the export (Agricultural) Department to take on work of this magnitude. In fact this standard can be attained only (and even then by sound co-ordination only) of all Revenue Officers of and above the rank of Circle Inspector make about 15 experiments each during the harvest”.

This raises two issues (1) Are the C. Is. competent and sufficiently reliable to do the work required and (2) can C. Is. and other Revenue Officers do this work in addition to the volume of work at present expected of them. We are on the whole satisfied on the first issue. The Director of Agriculture and his staff will have to devise a method of random selection of about 150 fields in each taluka for the crop in question on which the experiment will be carried out by these officers. We are satisfied that with this preliminary selection they can be trusted to give reliable results.

The second point—whether this work could not be postponed until after the War—it in fact the real issue here. It is quite obvious that our Revenue staff in the districts has at present got such heavy and responsible duties to perform that we should not put any extra duties on them that can be at all avoided. We feel, however, that the tackling of the present problem is so urgent that it should not be delayed longer. The present figures of normal yields which are the only figures of any authority or weight at all have recently been subjected to so much criticism that they must be brought up-to-date without delay. They are far too important to our basic revenue system and to our future planning to permit such widespread doubts. We, therefore, are of the opinion that (1) this work should be taken up at once without delay and (2) that the C. Is. should be expected to take the main bulk of this work together with Revenue officers of ranks above them. We would and however, that this can only be done with the present volume of work if all the clerical work of compiling and collecting is done by the Agricultural Department. The Director of Agriculture has accepted this proposal and stated that proposals will be submitted for the staff necessary including a first class Statistician.

We propose a few specific improvements in the draft Government resolution :—

(1) We suggest that the second sentence of para. 2 of the Government Resolution should be redrafted as follows:—

The Collectors in consultation with the Deputy Director of Agriculture will ascertain and fix for each taluka the average type of soil for each crop. This will be shown in terms of the classification value of the soil in annas. The Collector will estimate the actual yield of the crop on soil of this character in the taluka in pounds per acre. This estimate will be supported as far as possible by crop experiments on fields of average character. The actual crop forecast will as usual show the anna valuation of the crop. This must of course, correspond to the collector's estimate of the average yield in lbs. For instance if the Collector reports that the annewari for Kharif jowar in East Khandesh is 8. it implied that the yield per acre average 480 lbs. since the normal standard yield is 720 lbs. The crop experiments done in the area should show results about this figure.

(2) We suggest that the figures of Standard Normal yields in the Government Resolution should be given by the Director of Agriculture for each taluka separately since we understand these figures are available with him. (Some doubt was expressed as to whether fodder, jowar in Ahmedabad District yields as much as 200 lbs. per acre. However, we have not sufficient data to question this figure at present.)

(3) We would also suggest that this Government Resolution should refer to Government Resolution No. 7773-III of 10th July 1941 on the method of preparing annewaris. That Government Resolution clearly intends that Mr. Gordon's formula for working out annewari printed on page 116 of the L. R. Rs. should be given up though this is not specially stated. In view of the fact the Standard normal yield figures or represent a 12 anna crop on the average type of soil on which that particular crop is normally grown, the formula in the L. R. Rs. must

be suitably amended. At present it is plainly inaccurate. A formula based on the formula in the draft Government Resolution should be devised and utilised instead. It is very desirable that the crop estimate for annewari purposes should be closely co-ordinate with those for agricultural forecasts.

As Government are expediting for our opinion in this matter I am forwarding this without getting the signatures of the other Commissioners which is the usual custom."

Government reference to the Director of Agriculture, dated the 1st August 1944.

Memorandum from the Director of Agriculture, No. P. 135-24040, dated the 22nd August 1944.

RESOLUTION.—Pending reinstatement of crop cutting experiments on a large scale in all districts for different kinds of crops, Government is pleased to direct that the figures of standard normal yield of different crops in different districts shall be as shown in the statement appended to this G. R.

2. The standard normal yield is the yield of a 12 anna crop in an acre of land of the average type of soil in the district upon which the crop under consideration is grown and the soil factor is not to be considered again in estimating the production which should be,—

$$\text{Production} = \text{Acres} \times \frac{\text{Standard normal yield} \times \text{anna valuation of the crop}}{12}$$

The territorial Deputy Director of Agriculture should in consultation with the Collectors concerned, ascertain and fix for each district the "average type of soil" on which each of the principle crops in the district is grown. This average type should be expressed in terms of anna valuation of the soil and communicated by the Deputy Directors of Agriculture to the Collectors concerned. The figures of standard normal yield supplied by the Directors of Agriculture should be taken as figures of yield of a 12 anna crop on an acre of

land of the solid classification value fixed in the above manner is annas 9 in the case of jowar, annas 15 in the case of paddy and annas 8 in the case of bajri, the standard normal yield supplied by the Director of Agriculture should be taken to be the yield of a 12 anna crop of jowar on soils of 9 anna classification value, 12 anna crop of paddy on soils of 15 anna classification value, and 12 anna crop of bajri in soils of 8 anna classification value.

3. The estimated outturn of the jowar crop is at present based upon the assumption that the whole acreage reported by Collectors is for grain production and no distinction is made in the return between jowar grown for grain and fodder purposes. This distinction should be made in future returns of acreage under jowar in all districts, particularly Kaira, Broach and Panch Mahals and Poona for Kharif season and Nasik, Bijapur and Dharwar for Rabi season. Jowar grown solely for purposes of fodder should not be included in the estimate of grain outturn, i.e., the standard normal yield should be taken as nil so far as grain outturn is concerned, except in Ahmedabad, Poona and Nasik districts where some grain is taken from jowar grown especially for fodder purposes. The standard normal yield for fodder jowar crop in Ahmedabad should be taken to be 200 lbs. per acre and that in Poona and Nasik districts to be 150 lbs. per acre both for the rabi and kharif seasons, as shown in the accompanying statement.

4. The formula for working out annewari given at page 116 of the Land Revenue Rules 1921, should be suitably amended in accordance with the orders issued in paragraph 2 above. Necessary steps for the issue of a correction slip to the L. R. Rs. will be taken separately.

5. The Director of Agriculture, should be requested to submit to Government necessary proposals (with detailed estimate of cost etc.), for the appointment of a first class Statistician and guidance of crop-cutting experiments in all districts on a large scale, based on the results of the scheme for crop-cutting experiments on rice (and other cereal crops) in Kolaba district sanctioned in Government Resolution No. 10457-39 dated the 25th August 1944.

(Accompaniment to Government Resolution, Revenue Department, No. 7289/39, dated 28th September 1944)

Statement showing standard normal yield of Crops (in lbs. per acre)

Serial No.	District	Rice (husked) i.e., clean Dry	Wheat			Jowar	
			Irrigated	Drv	Spelt irrigated	Kharif Dry	Rabi Dry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmedabad	1,440	1,300	500	..	600 (grain jowar) 200 (fodder jowar) 600	600 (grain jowar) 200 (fodder jowar) 600
2	Kaira	1,320	1,300	600	..	..	..
3	Broach	900	..	600	..	..	820
3-A	Panchmahals	1,200	1,300	700	..	1,190	820
4	Surat	1,560	..	550	..	760	600
5	West Khandesh	1,080	1,280	600	1,500	720	575
6	East Khandesh	1,080	1,280	600	1,500	720	575
7	Nasik	1,080	1,320	460	1,500	520 (grain jowar) 150 (fodder jowar)	520 (grain jowar) 150 (fodder jowar)
8	Ahmednagar	1,040	1,180	460	1,500	..	300

Statement—cont.

Serial No.	District	Rice (husked) i.e., clean Dry	Wheat			Jowar	
			Irrigated	Dry	Spelt irrigated	Kharif Dry	Rabi Dry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
9	Poona	1,120	1,080	350	1,500	400 (grain jowar) 500 (fodder jowar)	1,200* 400 (grain jowar) 150 (fodder jowar) 1,500* 350
10	Sholapur	900	1,080	400	1,500	.. .. .	1,200*
11	Satara	1,120	1,350	480	1,500	{ 700 1,500*	500 1,200*
12	Belgaum	1,140	1,200	560	1,500	800	800
13	Bijapur	800	1,080	400	1,500	540	540
14	Dharwar	1,140	..	500	1,500	1,000	600
15	Thana	1,200	..	..	..	..	..
16	Kolaba	1,250	..	..	..	..	..
17	Ratnagiri	950	..	..	..	..	..
18	Kanara	1,160	..	..	..	..	..

256

Serial No.	District	Bajri Dry	Rabi Dry	Maize Dry	Kodra Dry	Tur Dry	Gram Irrigated	Gram Dry
(1)	(2)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmedabad	750	1,440	1,080	1,000	560	..	500
2	Kaira	870	1,440	1,050	1,275	690	..	500
3	Broach	700	1,500	..	1,050	650	..	500
3-A	Panchmahale	820	1,200	1,000	1,130	800	..	600
4	Surat	600	1,200	1,160	1,120	680	..	500
5	West Khandesh	500	900	720	900	960	1,200	500
6	East Khandesh	380	900	900	900	960	1,200	500
7	Nasik	360	1,400	850	900	960	1,200	350
8	Ahmednagar	340	{ 900 1,400 }	900	900	960	1,100	380
9	Poona	340	900	500	900	800	1,200	320
10	Sholapur	320	..	800	900	960	1,200	360
11	Satara	360	900	720	900	960	1,200	360
12	Belgaum	400	900	{ 800 1,500* }	900	960	..	400
13	Bijapur	320	900	900	900	960	..	240
14	Dharwar	450	1,200	1,200	900	1,200	..	500
15	Thana	..	770	500	640	370	..	400
16	Kolaba	..	800	..	800	410	..	380
17	Ratnagiri	..	600	..	670	430	..	320
18	Kanara	..	1,100	900	..	480	..	480

* Irrigated.

APPENDIX II-Q
Annawari Procedure

Amplification of.....

GOVERNMENT OF BOMBAY
REVENUE DEPARTMENT

GOVERNMENT CIRCULAR MEMORANDUM No. A.N.I. 1054
Bombay Castle, 24th July 1954.

GOVERNMENT CIRCULAR MEMORANDUM

Some Collectors have approached Government seeking clarification in respect of certain points in connection with anna valuation of crops. The following decisions have been taken in respect of these points:—

Points raised by Collector (1)	Government's decision (2)
(i) In the absence of average soil classification as required for column (4) of the formula at page 127 of the Land Revenue Rules (1951 edition), correct anna valuation cannot be made.	(i) It has been found that the Officers of the Agricultural Department do not have any data for supplying figures regarding average soil classification (as directed in paragraph 2 of Government Resolution No. 7289-39, dated the 28th September, 1944), beyond personal observation. The Officers of the Revenue Department should also be able to make some estimate of average soil classification by comparison of rates of assessment and from their personal observations. It has, therefore, been decided that the Collectors should fix in respect of each crop for the district as a whole an average soil classification in consultation with the Prant Officers, District Agricultural Officers and the Mamlatdars.
	As soon as the results of crop-cutting experiments are available the present standard normal yields would be revised on the basis of these experiments and would be

Points raised by Collector (1)	Government's decision (2)
<p>(ii) The formula at page 127 of the Land Revenue Rules (1951 edition) and that contained in Government Resolution No. 7289-39, dated the 28th September, 1944 do not give the same results.</p>	<p>communicated to the Collectors. Even then, the average soil classification for each crop, fixed as stated above, will have to be followed. This average soil classification may, if necessary, be subjected to a review later. The Statistician of the Department of Agriculture would, in due course, advise as to the districts where the taking of talukawise standard normal yields would lead to greater accuracy. Only in cases where talukawise standard normal yields are used, should be average soil classification for each crop be fixed talukawise. Wherever the standard normal yield used is for the district as a whole, the average soil classification should also be for the district as a whole.</p>
<p>(iii) The specimen table at pages 127 of the Land Revenue Rules (1951 edition) does not give the correct figures of anna valuation in column (6) of it and the table, therefore, requires modification.</p>	<p>(ii) The formula given in Government Resolution No. 7289-39, dated the 28th September, 1944, was intended for working out the total production over an extensive area and hence the soil classification factor was not specifically considered in it. For the purpose of annewari, the formula in the Land Revenue Rules should be followed with the modification indicated in (iii) below.</p>
<p>(iv) Whether a ceiling should be fixed for annewari?</p>	<p>(iii) In order to get correct figures of anna valuation, the figures 12 x 16 should be substituted for the figures 144 in the formula in the Land Revenue Rules. The figures of 12 and 16 indicate the standard crop on soil of 16 anna classification. This figure ("16") should vary (would be invariably lower) according to the classification of soil for each tract.</p> <p>(iv) It is possible that a particular crop may have a high yield even when the other crops are poor. In arriving at the general annewari of a village, due weightage</p>

Points raised by Collector (1)	Government's decision (2)
(v) To what extent the annewari made by crop-cutting experiments should be modified by eye-estimates?	has to be given to the area under the various crops, <i>vide</i> Table at page 127 of the Land Revenue Rules (1951 edition). It is, therefore, not necessary to fix any ceiling for the purpose of annewari. (v) The question should be posed in the reverse. Eye estimates should be resorted to in the first instance and will hold good if unchallenged. When, however, a dispute arises, representative plots have to be selected for crop-cutting experiments and an average struck for 3 Survey Nos. bearing the same crop but assessed differently ranging from the maximum assessment for the group to the lowest.

2. All collectors are requested to bring these decisions to the notice of their subordinate staff for their guidance.

By order and in the name of the
Governor of Bombay,

(Sd.) V. C. THAKORE,
Assistant Secretary to Government.

APPENDIX II-R

Annewari

Procedure for fixation of—
Amendment to Land Revenue
Rules, 1921.

GOVERNMENT OF BOMBAY REVENUE DEPARTMENT

RESOLUTION No. ANI-1054-II-C.

Sachivalaya, Bombay, 17th December 1957.

RESOLUTION OF GOVERNMENT

Read: The Settlement Commissioner and Director of Land Records' Memorandum No. L. R. 268, dated the 7/12th January 1955.

Resolution—The Government is pleased to approve the accompanying amendments to the Administrative Order No. XXX-A in Land Revenue Rules by Mr. Anderson (3rd Edition 1951).

2. The Settlement Commissioner and Director of Land Records is requested to take necessary steps for issuing the correction slips to Land Revenue Rules, 1921.

By order and in the name of the
Governor of Bombay,

(Sd.) K. M. DIVATIA,

Special Officer,
Revenue Department.

Accompaniment:—Amendments.

Extract of the Amendments.

Formula—

$$\frac{(1) \text{ Standard soil} \times 12}{(2) \text{ Soil annas of the field}} \times \frac{(3) \text{ Actual yield}}{(4) \text{ Standard yield}} = \text{Annewari}$$

(If this annewari is considered too low or too high in comparison with the general eye-estimates for the village, give reasons e.g., accumulating of silt by bunding, denudation of soil, heavy manuring, bad cultivation and so on.)

APPENDIX II-S

Normal Yields of Crops

Revision of—

Extract of Government of Bombay, Agriculture and Forests Department, Resolution No. SNY 1053/A, dated 18th November 1959.

RESOLUTION:—Pending the institution of crop-cutting experiments on a large scale in all districts for different kinds of crops, figures of normal yields for different crops in

different districts were prescribed by Government in Government Resolution, Revenue Department, No. 7289-39, dated the 28th September, 1944. The normal yields of the various crops are to be calculated as a ten year moving averages of the yields obtained from the results of scientific crop-cutting experiments. These experiments are being conducted on the various crops in the Bombay State by the Agriculture Department and normal yields leased on 10 years' results of crop-cutting experiments on rice, wheat and rabi jowar have now become available, Government is, therefore, pleased to direct that the normal yields prescribed for these three crops in the Government Resolution mentioned above, should be replaced by the normal yields shown in the accompanying statement. The normal yields prescribed in respect of the remaining crops should, however, stand-still till they are replaced by the normal leased on crop-cutting experiments.

2. In the case of the following districts newly formed only six years' results of crop-cutting experiments are available at present and normal yields in respect of three districts will be fixed after four more years' results are available. Government is, however, pleased to direct that for the time being the normal yields of these districts would be the normal yields of the districts nearest to them as shown below:—

Names of the new districts	Name of the district whose normal yield should be used for the newly formed district
1. Amreli, Sabarkantha, kantha, Mehsana.	Banas- Ahmedabad.
2. Baroda	Kaira.
3. Dangs	West Khandesh.
4. Kolhapur	Belgaum.
5. South Satara	North Satara.

By order and in the name of the
Governor of Bombay,

(Sd.) HIRALAL MISHRA,
Assistant Secretary to Government.

Accompaniment to Government Resolution No. SNY-1053/A,
Agriculture and Forests Department, dated 18th
November 1959.

*Statements showing districtwise normal yields for rice,
wheat and rabi jowar leased on 10 years' results of crop-
cutting.*

Name of the district	Rice Unirrigated	Wheat Unirrigated	Rabi Jowar Unirrigated
(1)	(2)	(3)	(4)
	Lbs.	Lbs.	Lbs.
Ahmedabad	529	272	374
Kaira	540	405	374
Broach	348	249	385
Panch Mahals	396	405	374
Surat	821	257	374
West Khandesh	273	294	385
East Khandesh	•	320	385
Nasik	698	241	194
Ahmednagar	671	196	198
Poona	764	198	143
Sholapur	•	198	209
Satara	660	•	325
Belgaum	906	142	206
Thana	1,130	..	..
Kolaba	1,128	..	..
Ratnagiri	870	..	..

*Normal yields sanctioned in Government Resolution No. 7289/39, dated 28th September 1944, are to be used as the survey data are not adequate to give well determined normal yields.

APPENDIX II-T.

Extract of the Berar Revenue Manual, Volume II, containing Revenue Book Circulars from Government of Madhya Pradesh, Section I, Serial No. 11.

Para. 4.—The Deputy Commissioner, will decide the methods and details of the inspection and enquiries to be made and the areas in which they should be undertaken. Ordinarily a field to field inspection is required only in the case of local calamities such as damage by hail, flood and the like, but it is left to the discretion of the Deputy Commissioner to order a field to field enquiry in a general crop failure, if the conditions of the season appear to require this. The outturn of crops or 'state of crops' in a particular area will be estimated and expressed in terms of the proportion the actual yield bears to the normal yield of the area in question. The normal crop is the average representative crop received over a period of ordinary seasons, and in framing their idea of the normal crop, village and inspecting officers should be guided by their local knowledge and past experience of the crop checked by enquiry from independent persons capable of framing an intelligent estimate. The outturn of the normal crop is taken as $13\frac{1}{3}$ annas, because in popular estimation this is assumed to be the proportion of the full or 16 annas crop which is actually received on an average. The proportion of the current year's yield to the normal yield, which is taken as $13\frac{1}{3}$ annas, should be estimated and stated in anna notation. The normal yield of a crop in any particular area should not be confused with the standard outturn for the crop in question which is the yield in pounds per acre in an average year on the average of the class of soil upon which the crop is grown in the district, but it represents the actual yield obtained as a matter of experience on the area in question, which will differ from standard outturn according as the soil is above or below the average of the soil on which the crop is ordinarily grown. Experience shows that a cultivator's estimates of his own crop errs on side of pessimism while he is inclined to overstate the normal yield, and independent enquiry is, therefore, necessary to elicit the actual yield of particular fields or holdings and the yield normally obtained and wherever possible

the estimates of outturn framed should be put to the test of experimental cutting. Special care is needed in estimating the outturn of what may be called border line areas, i.e. areas in which the outturn is estimated to be just on the margin of that prescribed in the scales of relief.

APPENDIX II-U

Extract from "General Note on Provisional Figures for Standard Outturns of Crops in the Dominions by Dr. Harold H. Mann, D.Sc., Second Edition of H.E.H. the Nizam's Government", Statistics Department.

General.—In attempting to fix provisional figures for the standard normal yield in these Dominions, I have proceeded on the assumption that the first definition of normal yield in the Government of India's Manual on the preparation of crop forecast is the correct one, namely, that it is "the crop which the cultivator has a right (as it were) to expect and with which he is (or should be) content, while if he gets more he has reason to rejoice and, if less, he has reason to complain." The idea of the average must for the present be abandoned, for we have no figure from which to obtain an average and shall not have such figure for many years to come, and hence the elaborate treatment of the yield figures introduced by Mr. Stuart in Madras to get the normal outturn is impossible here. I may say that, as far as I know, the Madras treatment has not been introduced in other British Provinces: I know it has not been done in Bombay.

The materials now available for the construction of tables of standard outturns are as follows:—

(1) *Figures obtained during the original settlement operations.*—These are not easily available in all districts and I have not been able to consult them, except in the case of Aurangabad where figures were published in the Aurangabad Gazetteer in 1884 which, I presume, were from this source. I have used these in getting out figures for Aurangabad.

(2) *Crop-cutting experiments done in some, but not in all districts, and with only a few crops.*—They have rarely indicated, however, the class of soil on which the crop measured was grown, or, more important still, the anna valuation of the crop that was cut. Without the latter any crop-cutting experiment is useless.

(3) *Yields from Government Farms when these have continued for some years.*—I have used the figures obtained at the Parbhani, Himayat Sagar (Medak, etc.), Mahbubnagar, Alia (Nalgonda and Warangal) and Kamareddi (Nizambad) farms for the district mentioned.

(4) *Tests made in connection with demonstration in cultivators' fields.*—I have used these in connection with the yield of rice in Mahbubnagar.

(5) *The average returns per acre for the five years as reported from the districts.*—These are usually of little use and almost worthless.

(6) *The normal yields in adjoining British districts.*—These are very valuable if we can be sure that the conditions do not vary too far.

(7) *In a few cases independent estimates of yield by business firms or similar business bodies such as Ralli Bros, or the Hubli Co-operative Cotton Sale Society.*—These are usually most valuable for any year in which they can be obtained. I have used them in fixing the standard yield of cotton in Raichur.

In the definition of normal yield above give, no note is made of the soil on which the crop is cultivated in its relation to the yield, though it is obvious that in most cases it is the most vital factor and in the remainder of the cases it is a very important factor in determining the yield. This matter has caused a good deal of difficulty in connection with the sending in of estimates of normal yield, and there is no really satisfactory way of getting over the difficulty which will always introduce, consequently, an element of doubt into estimates of the total yield of districts. The only

way feasible at present in dealing with this difficulty is to consider the normal yield on the kind of land on which the crop in question is most usually grown. Thus bajra being a kharif crop of light land, it is on this type of land that the normal should be taken, while rabi crops generally are of soils of deep moisture-retaining character, and it is to this class of land that the normal should be applied.

APPENDIX III-A

No. 1237 of 1892.

From

The Director, Land Records and Agriculture,
Bombay ;

To

The Chief Secretary to Government,
Revenue Department, Bombay.

Poona, 27th May 1892.

Sir,

As desired in Government Resolution No. 2303, dated 4th ultimo Revenue Department, I have the honour to submit a Statement (A) in the prescribed form showing the average outturn of the principal crops in each* district of the Presidency Bombay on the bases of the Formulae sanctioned under Government Resolution No. 397, dated 16th January 1884, Revenue Department.

2. These Formulae require revision, †but the estimates based upon them must be accepted as the best at present available for the preliminary return required by the Government of India. The crop experiments systematically instituted from 1883-84 are not yet sufficiently numerous or complete to supply the information required for each principal crop in each district.

3. I beg, however, to append Statement (B) compiled from the Ledger of crop experiments for comparison. There is a close approximation in some cases, but there are some also striking differences, which indicate the caution with which these provisional returns must be accepted. It will be

**Note.*—In para. 1 of the Government of India letter quoted in the Government Resolution under reference averages for “Representative Districts” only are called for, but the form prescribed has been followed pending further instructions.

†*Vide* correspondence ending with Government Resolution No. 8566, dated 4th December 1886.

some time before the crop experiments can supply complete and trustworthy data for the check of the Formulæ estimates, but as they will eventually supplant them altogether, they are being meanwhile carried out methodically and are scrutinised with great care by this department.

4. For Sind, where no Formulæ have been prepared, the Commissioner has forwarded returns compiled from the Gazetteer, Settlement Reports, etc. These are being separately submitted to Government with the Commissioner's forwarding memorandum. There are no independent data by which to check the Sind estimates, but arrangements for instituting crop experiments are under consideration of the Commissioner.

I have the honour to be.

Sir,

Your most obedient Servant,

E. L. CAPPEL,

Director, Land Records and Agriculture, Bombay.

APPENDIX III-A

A.—Return showing the approximate yield in Lbs. per acre of the principal crops of each division in the Bombay Presidency (exclusive of Sind)

Name of Crop	Ahmedabad		Kaira		Panch Mahals		Broach		Surat		Khandesh		Botanical names	
	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.		
1. Jowari	1,075	.. ..	1,050	.. ..	1,150 (maize)	.. ..	1,170	.. ..	1,116	.. ..	1,015	Sorghum vulgare etc.	
2. Bajri	846	.. ..	954	.. ..	825	.. ..	1,075	.. ..	1,080	.. ..	640	Pennisetum typhoideum.	
3. Paddy	1,757	.. ..	1,768	.. ..	1,475	.. ..	1,215	.. ..	1,969	1,800	1,200	Oryza sativa.	
4. Wheat	1,479	885	1,243	900	1,400	1,200	960	1,016	1,080	780	Triticum sativum
5. Khapli	1,440	Triticum Speltum.
6. Kodra	1,380	.. ..	1,232	.. ..	1,150	.. ..	960	.. ..	1,237	.. ..	666	Paspalum Scrobiculatum.	
7. Ragi	1,475	.. ..	1,468	.. ..	1,400	.. ..	1,500	.. ..	1,237	880	.. ..	Eleusine Coracana.	
8. Tur	570	.. ..	686	.. ..	575	.. ..	600	.. ..	680	.. ..	640	Cajanus Indicus.	
9. Gram	619	.. ..	675	.. ..	825	.. ..	585	.. ..	670	.. ..	540	Cicer arietinum.	

10. Tobacco	.. ..	1,918	3,021	.. ..	1,350	..	2,250	..	2,089	..	2,400	Nicotiana tabacum.	
11. Sugarcane	..	4,018	..	4,887	..	2,875	..	5,062	..	4,828	..	480	..	Saccharum officinarum.
12. Sesame	.. ..	536	..	551	..	462	..	585	..	516	..	560	Sesamum Indicum.
13. Linseed	.. ..	450	..	..	..	480	..	..	..	..	..	400	Linum usitatis simum.
14. Rapeseed	.. ..	637	..	675	..	600	..	..	..	637	..	..	Brassica Napus.
15. Cotton (clean)	..	122	..	110	..	105	..	127	..	129	..	96	Gossypium herbaccum.	

Notes.—(1) This statement has been compiled on the basis of the formulæ sanctioned under Government Resolution No. 397, dated 16th January 1884, Revenue Department. The twelve-anna estimates of the formulæ have been taken to represent average outturn.

(2) No statistics of yield according to quality of soil, are at present available.

(3) Mixed crops are not returned as such in this Presidency.

APPENDIX III-A—cont.

Name of Crop (1)	Nasik		Ahmednagar		Poona		Sholapur		Satara		Belgaum		Botanical names (14)	
	Irrigated (15)	Un-irrigated (16)	Irrigated (17)	Un-irrigated (18)	Irrigated (19)	Un-irrigated (20)	Irrigated (21)	Un-irrigated (22)	Irrigated (23)	Un-irrigated (24)	Irrigated (25)	Un-irrigated (26)		
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.		
1. Jowari	..	710 (kharif) 924 (rabi)	..	952	..	720 (kharif) 1,010 (rabi)	..	1,097	..	1,083	..	1,006	Sorghum vulgare etc.	
2. Bajri	..	582	..	596	..	600	..	583	..	611	..	560	Pennisetum typhoideum.	
3. Paddy	..	1,950	1,200	2,100	1,200	1,971	1,200	1,800	1,200	2,100	1,200	2,286	1,314	Oryza sativa.
4. Wheat	..	1,080	673	1,080	705	1,080	700	1,080	663	1,040	771	1,040	754	Triticum sativum.
5. Khapli	..	1,440	..	1,440	..	1,440	..	1,440	..	1,440	..	1,440	..	Triticum spel- tum.
6. Kodra	650	..	800	..	800	..	640	..	651	..	Paspalum Scrobiculatum.
7. Ragi	..	880	1,173	880	1,120	880	1,168	880	..	..	1,047	..	1,074	Eleusine Carna. Corna.
8. Tur	..	567	..	560	..	560	..	617	..	625	..	629	..	Cajanus Indicus.
9. Gram	..	487	..	491	..	495	..	486	..	545	..	537	..	Cicer arietinum.
10. Tobacco	..	2,400	..	2,400	..	2,400	..	2,400	..	2,400	..	2,400	..	Nicotiana taba- cum.

11. Sugarcane	...	4,800	..	4,800	...	4,800	..	4,800	..	4,800	..	4,800	..	4,800	..	Saccharum officinarum.
12. Sesame	..	..	560	..	545	..	460	..	360	..	560	..	560	..	560	Sesamum Indicum.
13. Linseed	..	..	400	..	400	..	400	..	400	..	400	..	400	..	400	Linum usitatissimum.
14. Rapeseed	..	..	..	..	..	..	..	..	..	..	..	..	..	..	617	Brassica napus.
15. Cotton (clean)	..	..	96	..	96	..	96	..	96	..	96	..	96	..	96	Gossypium herbaccum.

Notes.—(1) This statement has been compiled on the basis of the formulae sanctioned under Government Resolution No. 397, dated 16th January 1884, Revenue Department. The twelve-anna estimates of the formulae have been taken to represent average outturn.

(2) No statistics of yield according to quality of soil, are at present available.

(3) Mixed crops are not returned as such in this Presidency.

APPENDIX III-A—cont.

Name of Crop	Bijapur		Dharwar		Thana		Kolaba		Ratnagiri		Kanara		Botanical names
	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	
(1)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(14)
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
1. Jowari	.. ..	1,000	.. ..	1,018	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	800	Sorghum vulgare & c.
2. Bajri	.. ..	640	.. ..	531	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Pennisetum typhoideum.
3. Paddy	.. 1,200	800	2,145	1,164	.. ..	778 (Sweet) 1,210 (Salt white) 800 (Salt red)	.. ..	2,114	.. ..	1,778 (Sweet) (1,200 (Salt white) 800 (Salt red)	.. ..	2,800 (Planted sown with drill) 1,490 (Planted sown with drill) 1,200 (Planted sown with drill)	Oryz sativa.
4. Wheat	.. 1,040	800	1,040	756	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Triticum sativum.
5. Khapli	.. 1,440	.. ..	1,440	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Triticum speltum.

274

6. Kodra	..	..	..	..	633	..	729	..	777	..	693	..	..	Paspalum acrobiculatum.
7. Ragi	..	..	640	..	996	..	729 (kharif) 1,458 (rabi)	..	777 (kharif) 1,600 (rabi)	..	693 (kharif) 1,387 (rabi)	..	1,400	Eleusine cora- cana.
8. Tur	..	..	640	..	625	..	373	..	411	..	427	..	560	Cajanus Indicus.
9. Gram	..	..	530	..	545	..	391	..	343	..	320	..	480	Cicer arietinum.
10. Tobacco	..	..	2,400	..	2,400	..	..	..	..	..	..	..	..	Nicotiana taba- cum.
11. Sugarcane	..	4,800	..	4,800	..	4,000	..	4,000	..	4,000	..	4,800	..	Saccharum officinarum.
12. Sesame	..	..	560	..	560	..	400	..	400	..	400	..	560	Sesamum Indicum.
13. Linseed	..	..	400	..	400	..	..	..	..	..	..	..	..	Linum usitatis- simum.
14. Rapeseed	..	..	..	..	..	..	..	..	..	..	..	..	..	Brassica napus.
15. Cotton(clean)	..	..	96	..	96	..	..	..	..	..	..	..	..	Gossypium herbaccum.

(Sd.) E. L. CAPPEL,
Director, Land Revenue and Agriculture, Bombay.

APPENDIX III-B

B.—Statement showing outturn of crops (In pounds) as exhibited by tests of crops taken in the Bombay Presidency from 1883-84 to 1889-90

Crop	Ahmedabad		Kaira		Panch Mahals		Broach		Surat		Khandesh		Crop (Botanical name)	
	Irri- gated	Un- irri- gated	Irri- gated	Un- irri- gated	Irri- gated	Un- irri- gated	Irri- gated	Un- irri- gated	Irri- gated	Un- irri- gated	Irri- gated	Un- irri- gated		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.		
Jowari—														
Maximum	1,508	..	970	..	1,456	..	1,356		
Minimum	650	..	600	..	484	..	585	Sorghum.	
Average	..	620	..	..	..	1,130	..	755	..	864	..	823	vulgare & c.
Number of tests	..	1	..	..	..	8	..	4	..	7	..	9	
Bajri—														
Maximum	..	626	..	1,354	..	..	..	..	..	..	..	904	
Minimum	..	376	..	517	..	..	..	..	..	..	..	420	Pennisetum
Average	..	502	..	953	..	..	..	..	..	..	..	616	typhoideum.
Number of tests	..	2	..	3	..	..	..	..	..	..	..	3	
Paddy—														
Maximum	..	1,670	..	3,364	1,800	..	..	..	..	..	..	..
Minimum	..	1,386	..	2,687	1,520	..	..	..	..	..	..	..	Oryza sativa.
Average	..	1,528	..	3,025	1,640	2,188	..	..	..	1,444	..	..
Number of tests	..	2	..	2	3	1	..	..	..	1	..	..
Wheat—														
Maximum	..	1,700	728	1,107	1,022	2,147	1,336	..	1,162	..	897	..	1,217	
Minimum	..	663	475	850	589	1,251	484	..	783	..	799	..	372	Triticum
Average	..	1,210	614	678	860	1,699	862	..	654	..	834	460	748	sativum.
Number of tests	..	9	6	2	6	2	7	..	5	..	3	1	13	
Kodra—														
Maximum	
Minimum	Paspalum
Average	1,220	1,866	scrobiculatum.
Number of tests	1	1	

Nagli—												
Maximum	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..	Elusing
Average	..	..	..	..	..	..	..	..	..	..	..	Coracana.
Number of tests	..	..	..	..	..	..	..	..	..	..	..
Tur—												
Maximum	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..	Cajanus
Average	..	..	..	..	..	..	..	..	..	..	399	Indicus.
Number of tests	..	..	..	..	..	..	..	..	..	..	1	
Gram—												
Maximum	..	..	..	..	..	834	..	..	..	..	1,272	
Minimum	..	..	..	..	..	410	..	..	..	..	322	Cicer arietinum.
Average	..	..	..	738	1,347	646	..	..	..	..	655	
Number of tests	..	..	..	1	1	5	..	..	..	..	3	
Tobacco—												
Maximum	..	..	2,119	..	..	..	..	..	..	..	..
Minimum	..	..	1,394	..	..	..	..	..	..	..	..	Nicotiana
Average	..	..	1,716	..	..	..	..	..	..	..	..	tabacum.
Number of tests	..	..	4	..	..	..	..	..	..	..	..
Sugarcane—												
Maximum	..	..	..	..	..	..	..	..	7,666	..	..
Minimum	..	..	..	..	..	..	..	..	5,325	..	..	Saccharum
Average	..	..	..	..	..	..	..	..	6,495	..	..	officinarum.
Number of tests	..	..	..	..	..	..	..	..	2	..	..
Linseed—												
Maximum	..	..	..	..	..	..	..	..	..	..	449	
Minimum	..	..	..	..	..	..	..	..	..	..	269	Linum
Average	..	..	..	..	..	..	..	..	..	..	336	usitatissimum.
Number of tests	..	..	..	..	..	..	..	..	..	..	7	
Cotton (clean)—												
Maximum	..	160	..	..	..	..	..	..	..	..	135	
Minimum	..	60	..	..	..	..	..	..	..	..	60	Gossypium
Average	..	98	..	..	..	..	..	..	..	..	97	herbaccum.
Number of tests	..	6	..	..	..	..	..	..	..	..	2	

*Figures for Maize (Zea mays).

APPENDIX III-B—cont.

Crop	Nasik		Ahmednagar		Poona		Sholapur		Satara		Belgaum		Crop (Botanical Name)	
	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.		
Jowari—														
Maximum	778	..	1,268	..	1,184	Sorghum vulgare & c.	
Minimum	382	..	688	..	590		
Average	320	..	385	..	340	726	..	464	..	991		901
Number of tests	1	..	1	..	1	4	..	3	..	3		
Bajri—														
Maximum	1,146	..	..	..	..	..	..	..	..	..	Pennisetum typhoideum.	
Minimum	522	..	..	..	..	..	..	..	..	..
Average	698	..	..	..	..	..	..	486	..	..
Number of tests	7	..	..	..	..	..	..	1	..	..
Paddy—														
Maximum	2,662	Oryza sativa.	
Minimum	892		
Average	..	1,860	..	..	..	..	..	..	..	..	1,670	1,877	
Number of tests	..	1	..	..	..	..	..	..	..	..	1	3	
Wheat—														
Maximum	..	945	1,167	2,133	856	1,133	..	1,738	..	..	..	..	Triticum sativum.
Minimum	..	510	328	1,087	288	781	..	1,025	..	..	..	..
Average	..	778	535	1,558	467	988	578	1,279	..	1,466	475	..		435
Number of tests	..	4	11	4	5	5	1	4	..	1	1	..		1
Korda—														
Maximum	Paspalum scrobiculatum.	
Minimum		
Average		
Number of tests		

Nagli—											
Maximum	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..
Average	..	467	..	..	..	..	..	..	..	..	Elusine Coracana.
Number of tests	..	1	..	..	..	..	..	..	..	..
Tur—											
Maximum	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	333	..	..	Cajanus Indicus.
Number of tests	..	..	..	..	..	..	..	1	..	..
Gram—											
Maximum	..	..	1,463	366	..	1,020	..	490	..	408	..
Minimum	..	..	853	340	..	666	..	189	..	222	..
Average	..	1,018	1,158	353	685	861	..	340	..	315	..
Number of tests	..	1	2	2	1	3	..	2	..	2	..
..	..	..	..	..	..	..	..	..	..	..	1,024
..	..	..	..	..	..	..	..	..	..	..	1
Tobacco—											
Maximum	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	..	..	..	1,087
Number of tests	..	..	..	..	..	..	..	..	..	..	1
Sugarcane—											
Maximum	..	..	..	..	7,925	..	..	7,466	..	6,644	..
Minimum	..	..	..	..	2,736	..	..	4,940	..	2,690	..
Average	..	..	..	..	5,330	..	..	5,999	..	4,318	..
Number of tests	..	..	..	..	2	..	..	3	..	3	..
Linseed—											
Maximum	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	225	..	..	..	..	..	..	..	..	..
Number of tests	..	1	..	..	..	..	..	..	..	..	..
Cotton (clean)											
Maximum	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	..	..	..	..
Number of tests	..	..	..	..	..	..	..	..	..	..	..

*Figures for khapli (*Triticum speltum*).

APPENDIX III-B—cont.

Crop	Bijapur		Dharwar		Thana		Kolaba		Ratnagiri		Kanara		Crop (Botanical name)
	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
Jowari—													
Maximum	..	..	..	1,180	..	..	..	..	..	..	..	..
Minimum	..	..	..	375	..	..	..	..	..	..	..	..	Sorghum
Average	..	770	..	694	..	..	..	..	..	..	..	..	vulgare & c.
Number of tests	..	1	..	5	..	..	..	..	..	..	..	..
Bajri—													
Maximum	..	..	..	..	..	..	..	..	..	..	..	..
Minimum	..	..	..	..	..	..	..	..	..	..	..	..	Pennisetum.
Average	..	..	..	..	..	..	..	..	..	..	..	..	typhoideum.
Number of tests	..	..	..	..	..	..	..	..	..	..	..	..
Paddy—													
Maximum	..	..	..	2,136	..	5,896	..	2,253	..	3,360	..	..
Minimum	..	..	..	798	..	1,035	..	1,125	..	863	..	..	Oryza sativa.
Average	..	..	2,070	1,369	..	2,275	..	1,427	1,668	1,714	1,598	3,740	
Number of tests	..	..	1	4	..	14	..	8	1	19	1	1	
Wheat—													
Maximum	..	1,503	..	1,376	..	..	..	..	..	..	..	..
Minimum	..	281	..	303	..	..	..	..	..	..	..	..	Triticum
Average	..	838	..	602	..	..	..	..	..	..	..	..	sativum.
Number of tests	..	3	..	7	..	..	..	..	..	..	..	..
Kodra—													
Maximum	..	..	..	..	..	..	..	..	..	594	..	..
Minimum	..	..	..	..	..	..	..	..	..	325	..	..	Paspalum
Average	..	..	..	..	..	..	..	..	..	453	..	..	scrobicatum.
Number of tests	..	..	..	..	..	..	..	..	..	3	..	..

Nagli—												
Maximum	1,900	1,747	Elusine coracana.
Minimum	..	..	..	..	..	1,240	..	..	426	..	..
Average	..	..	..	..	..	1,510	..	..	944	..	1,783
Number of tests	..	..	..	..	..	3	..	..	3	..	1
Tur—												
Maximum	Cajanus. Indicus.
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	..	..	..	..
Number of tests	..	..	..	..	..	..	..	..	..	..	..
Gram—												
Maximum	504	..	746	Cicer Arietinum.
Minimum	..	..	240	..	291	..	..	..	..	..	..
Average	..	..	372	..	455	..	..	..	..	..	..
Number of tests	..	..	2	..	4	..	..	..	..	..	..
Tobacco—												
Maximum	Nicotiana tabacum.
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	..	..	..	..
Number of tests	..	..	..	..	..	..	..	..	..	..	..
Sugarcane—												
Maximum	6,052	8,171	Saccharum officinatum.
Minimum	..	..	4,870	..	..	..	..	..	5,520	..	..
Average	..	..	5,461	..	6,650	..	..	1,260	6,457	..	..
Number of tests	..	..	2	..	1	..	..	1	3	..	..
Linseed—												
Maximum	309	Linum usitatissimum.
Minimum	..	..	302	..	..	..	..	..	..	..	..
Average	..	..	305	..	..	..	..	..	..	..	..
Number of tests	..	..	2	..	..	..	..	..	..	..	..
Cotton (clean)—												
Maximum	Gossypium Herbaccum.
Minimum	..	..	..	..	..	..	..	..	..	..	..
Average	..	..	..	..	..	..	..	..	..	..	..
Number of tests	..	..	..	..	..	..	..	..	..	..	..

Bombay

E. L. CAPPEL,
Director, Land Revenue and Agriculture, Bombay.

APPENDIX III-C

Return showing the approximate yield per acre of the principal crops in the Bombay Presidency, 1897-98

Serial No.	Name of Crop		Average Outturn in Lbs. per acre cropped									
	Ordinary Name	Scientific Name	Presidency			Gujarat						
			Irrigated	Un-irrigated	Irrigated and un-irrigated	Ahmedabad		Kaira				
						Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)			
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.		
Cereals												
1	Rice (husked)	Oryza Sativa	..	..	..	..	1,230	1,230	..	1,440	..	1,320
2	Wheat	Triticum Aestivum	..	..	..	1,250	510	575	1,300	560	1,300	600
3	Spelt	Triticum Speltum	..	..	..	1,500	..	1,500	..	..	..	..
4	Jowari	Sorghum Vulgare— Kharif Rabi	..	..	..	1,550	670	{ .. ..	..	1,080	..	1,050
5	Bajri	Pennisetum Typhoideum	..	..	..	..	400	400	..	840	..	970
6	Ragi	Elusine Coracana	..	..	..	1,400	1,060	..	..	1,440	..	1,440
7	Kodra	Paspalum Scrobiculatum	..	..	..	..	1,120	1,120	..	1,320	..	1,275
Pulses												
8	Gram	Cicer Arietinum	..	..	..	1,200	410	..	..	500	..	500

A-10-19-A.

Oilseeds											
9	Linseed	..	Linum Usitatissimum	..	..	360	360	..	350	..	..
10	Til	..	Sesamum Indicum	..	..	400	400	..	400	..	400
11	Rapeseed	..	Brassica Napus	..	..	625	625	..	640	..	675
12	Ground-nut	..	Arachis Hypogen	..	..	3,000	3,000	..	..	..	..
Sugar											
13	Sugarcane (Gul)	..	Sachharum Officinarum	..	..	6,950	6,950	6,000	..	6,000	..
Fibres											
14	Cotton (Clean)	..	Gossypium Herbaccum	..	..	100	100	..	125	..	115

APPENDIX III-C—cont.

Serial No.	Name of Crop		Average Outturn in Lbs. per acre cropped									
			Gujarat									
			Panch Mahals		Borach		Surat					
			Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated				
(1)	(2)	(3)	(11)	(12)	(13)	(14)	(15)	(16)				
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.				
Cereals												
1	Rice (husked)	Oryza Sativa	..	..	..	..	1,200	..	900	..	1,560
2	Wheat	Triticum Aestivum	1,300	700	..	600	..	560
3	Spelt	Triticum Speltum	..	..	..	..	..	..	..	..	..
		Sorghum Valgare—	..	..	..	..	..	..	..	..	..
4	Jowari	Kharif	1,190	..	1,160	..	1,160
		Rabi	..	..	..	..	..	..	1,020	..	..
5	Bajri	Pennisetum Typhoideum	..	..	..	..	825	..	700	..	600
6	Ragi	Elusine Coracana	..	..	..	..	1,420	..	1,500	..	1,200
7	Kodra	Paspalum Scrobiculatum	..	..	..	..	1,130	..	1,025	..	1,120
Pulses												
8	Gram	Cicer Arietinum	..	..	..	..	600	..	500	..	500

9	Linseed	..	Linum Usitatissimum ..	..	..	..	360	..	..	..	..
10	Til	..	Sesamum Indicum ..	..	..	..	400	..	450	..	400
11	Rapeseed	..	Brassica Napus ..	..	..	..	600	..	..	..	..
12	Groundnut	..	Arachis Hypogen ..	..	..	..	..	..	..	3,000	..
	Sugar										
13	Sugarcane (Gul)	..	Sachharum Officinarum	..	..	5,000	..	7,000	..	7,000	..
	Fibres										
14	Cotton (Clean)	..	Gossypium Herbaccum	..	..	..	100	..	130	..	120

APPENDIX III-C—cont.

Serial No.	Name of Crop		Average Outturn in Lbs. per acre cropped					
			Deccan					
			Khandesh		Nasik		Ahmednagar	
			Ordinary Name	Scientific name	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated
(1)	(2)	(3)	(17)	(18)	(19)	(20)	(21)	(22)
Cereals								
1	Rice (husked)	<i>Oryza Sativa</i>		1,080		1,080		1,040
2	Wheat	<i>Triticum Aestivum</i>	1,280	600	1,320	460	1,360	460
3	Spelt	<i>Triticum Speltum</i>	1,500		1,500		1,500	
4	Jowari	<i>Sorghum Vulgare—</i> Kharif		720		} 520		
		Rabi			1,400		1,800	540
5	Bajri	<i>Pennisetum Typhoideum</i>		380		360		340
6	Ragi	<i>Elusina Coracana</i>		900	1,400	850	1,400	900
7	Kodra	<i>Paspalum Scrobiculatum</i>		900				
Pulses								
8	Gram	<i>Cicer Arietinum</i>	1,200	500	1,200	350	1,200	380

9	Oilseeds										
9	Linseed	..	Linum Usitatissimum	..	..	..	360	..	360	..	360
10	Til	..	Sesamum Indicum	..	..	..	400	..	400	..	400
11	Rape-seed	..	Brassica Napus	..	..	..	..	..	..	..	..
12	Groundnut	..	Arachis Hypogen	..	..	..	3,000	..	3,000	..	3,000
	Sugar										
13	Sugarcane (Gul)	..	Sachharum	..	..	..	7,000	..	7,000	..	7,000
	Fibres										
14	Cotton (clean)	..	Gossypium Herbaceum	..	..	..	90	..	90	..	90

APPENDIX III-C—cont.

Serial No.	Name of Crop		Average Outturn in Lbs. per acre cropped							
			Deccan							
			Poona		Sholapur		Satara			
			Irrigated	Un- irrigated	Irrigated	Un- irrigated	Irrigated	Un- irrigated		
(1)	(2)	(3)	(23)	(24)	(25)	(26)	(27)	(28)		
Cereals										
1	Rice (husked)	.. Oryza Sativa .. .. .	.. ..	1,120	..	900	..	1,120	
2	Wheat	.. Triticum Aestivum	1,080	350	1,080	400	1,350	480	
3	Spelt	.. Triticum Speltum	1,500	..	1,500	..	1,500	..	
4	Jowari	.. Sorghum Vulgare—								
		.. Kharif	}	500	}	720
		.. Rabi	1,500			..	1,500		
5	Bajri	.. Pennisetum Typhoideum	380	..	360	..	360		
6	Razi	.. Ehusine Coracana .. .. .	.. ..	900	..	..	..	900
		.. um Scrobiculatum .. .. .	.. ..	..	..	..	..	..
			
			
		.. rietinum	1,200	500	1,200	360	1,200	380	

	Oilseeds	..	..	..	..	..	..	..	..
9	Linseed	..	Linum Usitatissimum	..	..	..	360	..	360
10	Til	..	Sesamum Indicum	..	..	..	400	..	400
11	Rape-seed	..	Brassica Napus	..	..	..	..	..	..
12	Groundnut	..	Arachis Hypogen	..	..	..	3,000	..	3,000
	Sugar	..	..	..	..	..	..	..	..
13	Sugarcane (Gu)	..	Sachharum	..	..	..	7,000	..	7,000
	Fibres	..	..	..	..	..	..	..	..
14	Cotton (clean)	..	Gossypium Herbaceum	..	..	..	90	..	90

APPENDIX III-C—cont.

Serial No.	Name of Crop		Average Outturn in Lbs. per acre cropped					
			Karnatak					
	Ordinary Name	Scientific Name.	Belgaum		Bijapur		Dharwar	
			Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated
(1)	(2)	(3)	(29)	(30)	(31)	(32)	(33)	(34)
Cereals								
1	Rice (husked)	Oryza Sativa	1,140	800	1,140			
2	Wheat	Triticum Aestivum	1,200	560	1,080	400	600	
3	Spelt	Triticum Speltum	1,500		1,500		1,500	
4	Jowari	Sorghum Vulgare—						
		Kharif		800		540		900
		Rabi						
5	Bajri	Pennisetum Typhoideum	400		320		450	
6	Ragi	Elusine Coracana	900				1,200	
7	Kodra	Paspalum Scrobiculatum						
Pulses								
8	Gram	Cicer Arietinum	500		340		500	

Oilseeds											
9	Linseed	..	Linum Usitatissimum	..	..	..	360	..	360	..	360
10	Til	..	Sesamum Indicum	..	..	..	400	..	400	..	400
11	Rape-seed	..	Brassica Napus	..	..	..	..	..	..	..	..
12	Groundnut	..	Arachis Hypogen	..	..	..	3,000	..	3,000	..	3,000
Sugar											
13	Sugarcane (Gul)	..	Sachharum Officinarum	..	..	..	7,000	..	7,000	..	7,000
Fibres											
14	Cotton (Clean)	..	Gossypium Herbaceum	..	..	..	100	..	90	..	100

APPENDIX III-C—cont.

Serial No.	Name of Crop		Average outturn in Lbs. per acre cropped								
			Konkan								
	Ordinary Name	Scientific Name	Thana		Kolaba		Ratnagiri		Kanara		
			Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated	
(1)	(2)	(3)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	
Cereals											
1	Rice (husked)	Oryza Sativa	1,200	1,320	1,020	1,320					
2	Wheat	Triticum Aestivum									
3	Spelt	Triticum Speltum									
4	Jowari	Sorghum Vulgare— Kharif									
		Rabi									
5	Bajri	Pennisetum Typhoideum									
6	Ragi	Elusine Coracana	770	800	680	1,470					
			(early) 1,540	(early) 1,600	(early) 1,360						
7	Kodra	Paspalum Scrobiculatum	640	800	675						

Pulses							
8	Gram	.. Cicer Arietinum	..	400	..	380	.. 320 480
Oilseeds							
9	Linseed	.. Linum Usitatissimum	..				
10	Til	.. Sesamum Indicum	..	400	..	400	.. 400
11	Rape-seed	.. Brassica Napus	..				
12	Groundnut	.. Arachis Hypogen	..				
Sugar							
13	Sugarcane (Gu)	.. Sachharum Officinarum	..	7,000	..	4,000	.. 4,000 7,000
Fibres							
14	Cotton (Clean)	.. Gossypium Herbaceum	..				

**Memorandum to accompany the quinquennial return of
outturn statistics for June 1897.**

The present statement of quinquennial yields presents considerable variations as compared with the statement submitted in 1892. That statement was based on the "formulæ", as they were called which were estimates of yields of the principal crops in every taluka of the Presidency proper. The yields were given in pounds corresponding to various anna estimates of the crop; 16 annas being supposed to represent a full average crop. In the quinquennial return the yield of crops was taken in each district to be the average of the 16 anna yields of the talukas, as given by the formulæ. In some crops and in certain districts these results thus obtained certainly represent incorrectly the average crop in the average season.

2. As remarked by the Administration of the Central Provinces in their memorandum on the stock of grain published by the Government of India, 16 annas do not represent and never can be made to represent, to the average native mind, the average crop. The expression means a good crop, but above the average of the country as a whole. Cultivators seldom converse of their crops in annas; but they may be heard sometimes to say that such and such fine soils bears 16 anna crops, meaning that they are soils of more than average excellence. If the anna estimates furnished by Mamlatdars for the purpose of the annual reports of this Department during the last ten years were to be taken, it would be found that they are always far below 16 annas. It is clear, therefore, that 16 annas by no means represents to them the average crop of their taluka in an average year. In the case of dry crops the 16 anna yields of the formulæ probably represented well, what was then the ordinary conception of that yield, viz., a good crop in a good soil and a good year. The yields now given represent, as nearly as our sources of information will admit, what the Government of India have asked for, viz., an average crop, in an average soil, in an average year.

3. The idea of annas has been for the occasion excluded, and it is not intended to commit the Agricultural Department to the representation of the yields now returned by

any specific number of annas. Whenever the gross production of the country is again estimated the anna question will be fully entered into, with the probable result that some departure will be recommended in the method, by which Mamlatdars are asked to make their estimates.

4. As may have been anticipated from the above observations the greatest departure from the formulae has been in the yields of dry crops in poor districts. The general result has been that in the Deccan the estimated yields are considerably below the formulae figures of 1892. The yields now returned were in the first instance worked out by the Deputy Director of Agriculture, Mr. Mollison. Lastly Mr. Hearn, the Superintendent, Konkan Survey was consulted regarding our final estimates. Mr. Hearn has probably taken more experiments and knows more of the yields of the ordinary crops in the Konkan and parts of the Deccan than any one in the Presidency. He fully discussed the yields with Mr. Mollison, and agreed with those at which he and I had arrived. Mr. Hearn, who was one of the framers of the original formulae, admitted that the low yields of the poor soils and precarious climates were not enough allowed for, in some districts, when the formulae were prepared.

5. It should be mentioned that, for Bijapur and the Deccan, the opportunity of acquiring information regarding the yield of crops was fully utilised both by Mr. Mollison and myself, during our special famine tours.

6. The yield of irrigated crops has been more closely ascertained and stated. Experiments and results on the Poona Farm have brought accurate knowledge of the yield of sugarcane. There can be no doubt that the tendency hitherto has been to greatly underestimate the production of cereals under well irrigation.

7. The estimates of yield now returned will of course be subject to revision in the light of further knowledge and observation. But it is anticipated that no such wide departures from previous estimates, as the present returns show when compared with those of 1892, will appear again. The Deputy Director, who is of course an expert in the eye

estimation of crops, and exceedingly cautious in the formation of his conclusions, is convinced that as regards the crops returned we are now pretty near the mark and the undersigned ventures to agree with him.

8. The rules for the conduct of crop experiments are thoroughly efficient for their purpose, and need no revision. The pity is that experiments are not more numerous, and the rules not more strictly followed by experimenters.

9. The present return presents a great deal of heavy and careful labour on the part of the Deputy Director, the Personal Assistant and the office, which has greatly lightened the Director's task of reviewing and finally determining the figures to be entered in the return.

Return showing the approximate yield per acre of the principal crops in the Province of Sind (1892-1897).

Name of crop		Average outturn in lbs. per acre cropped					
Ordinary name	Botanical name	Province	Upper Sind Frontier District		Shikarpur District		
		Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated	Irri-gated	Un-irri-gated
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Wheat	Triticum Stivum	944		903		1,246	
Barley	Hordeum Vulgare	962		902		720	
Jowari	Sorghum Vulgare	853		652		1,167	
Bajri	Pennisetum Typho-ideum.	708		1,147		640	
Til	Sesamum Indiuem	269		295		120	
Sugarcane	Saccharum Officina-rum.	3,705					
Cotton cleaned.	Gosoygium Her-baccum.	283					
Rape-seed	Brassica Napus	513		346		711	
Gram	Cicer Arietinum	478		302		846	

RETURN—cont.

Name of crop		Average outturn in lbs. per acre cropped					
Ordinary name	Botanical name	Karachi District		Hyderabad District		Thar and Parkar Districts	
		Irrigated	Un-irrigated	Irrigated	Un-irrigated	Irrigated	Un-irrigated
(1)	(2)	(9)	(10)	(11)	(12)	(13)	(14)
Wheat	Triticum Stivdm	929		1,083		560	
Barley	Hordeum Vulgare	4,721		504			
Jowari	Sorghum Vulgare	585		1,008			
Bajri	Pennisetum Typha-ideum.	400		840		516	
Til	Sesamum Indicum	120		420		393	
Sugarcane	Saccharum Officinarium.	4,850		2,560			
Cotton	Gosypium Her-cleaned.						
Rape-seed	Brassica Napus	368		715		426	
Gram	Cicer Arietinum	325		400			

EXPLANATORY MEMORANDUM

Upper Sind Frontier District.

Wheat.—Extracted from a statement showing the result of one crop experiment made by the Deputy Collector in Kashmor Taluka.

Barley.—Extracted from a Settlement Report of the Kashmor Taluka.

Jowari.—Extracted from a statement showing the result of one crop experiment made by the Deputy Collector in Thul Taluka.

Bajri.—Represents average yield extracted from statement showing the results of two crop experiments made by the Deputy Collector in Thul Taluka.

Gram.—Extracted from a statement showing the result of one crop experiment made by the Deputy Collector in Thul Taluka.

Til.—Extracted from the Settlement Report of the Kashmir Taluka.

Rape-seed.—Extracted from the statement showing the result of one crop experiment made by the Deputy Collector in Shahadadpur Taluka, Shikarpur District.

Wheat.—Represents average yield extracted from statements showing the results of 25 crop experiments made by Assistant and Deputy Collectors in the Talukas of Rohri, Labdarya, Kambar, Kakar, Shikarpur, Sukkur, Naushahrao, Anrao, Rato-dero, Mehar, Mirapur, Ghotki and Larkhana.

Barley.—As shown in the previous return of 1892.

Jowari.—Represents average yield extracted from statement showing the results of 3 crop experiments made by Assistant and Deputy Collectors in Mehar, Ghotki and Rato-dero Talukas.

Bajri.—As shown in the previous return of 1892.

Gram.—Represents average yield extracted from statements showing the results of 2 crop experiments made by Assistant and Deputy Collectors in Kambar and Labdarya Talukas.

Til.—As shown in the previous return of 1892.

Rape-seed.—Represents average yield extracted from statements showing the results of 12 crop experiments made by Assistant and Deputy Collectors in Kakar, Kambar, Larkhana, Rato-dero, Shikarpur, Nasirabad and Sukkur Talukas.

Karachi District

Wheat.—Represents average yield extracted from statement showing the results of 4 experiments made in Dadu, Shewan and Kotri Talukas.

Barley.—Represents average yield extracted from statements showing the results of 2 experiments made by the Assistant Collector in the Tal of Sujawal and Shahbandar.

Jowari, Bajri, Gram and Til.—As shown in the previous return of 1892.

Sugarcane.—Extracted from a statement showing the result of one crop experiment made by the Assistant Collector in the Jati Taluka.

Rape-seed.—Represents average yield extracted from statements showing result of 2 crop experiments made by the Assistant Collector in Shahbandar Taluka.

Hyderabad District

Wheat.—Represents average yield extracted from statements showing the result of 5 crop experiments made by Assistant and Deputy Collectors in Hala, Sakrand, Badin, Moro and Guni Talukas.

Barley, Jowari, Bajri, Gram, Til, Sugarcane and Cotton.—As shown in the previous return of 1892.

Rape-seed.—Represents average yield extracted from statements showing the results of 2 crop experiments made by the Assistant and Deputy Collectors in Guni and Naushahro Talukas.

Thar and Parkar Districts

Wheat.—Represents average yield extracted from statements showing the results of 4 crop experiments made by Assistant and Deputy Collectors in Khipra and Sanghar Talukas.

Bajri.—Extracted from a statement showing the result of 1 crop experiment made by the Assistant Collector in Umarmkot Taluka.

Til and Cotton.—Extracted from the Settlement Report of Khipra Taluka.

Rape-seed.—Represents average yield extracted from statement showing the results of 2 crop experiments made by the Assistant Collector in Khipra Taluka.

(Sd.) A. WINGATE,

Acting Commissioner in Sind.

APPENDIX III-D

Statement showing the Standard Yield compiled in 1927

[Figures in Lbs.]

	Ahmedabad	Kaira	Panch Mahals	Broach	Surat	West Khandesh	East Khandesh	Nasik	Ahmed-nagar
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Rice—									
Unirrigated ..	1,440	1,320	1,200	900	1,560	1,080	1,080	1,080	1,040
Wheat—									
Irrigated ..	1,300	1,300	1,300	..	..	1,280	1,280	1,320	1,180
Unirrigated ..	530	600	700	600	560	600	600	560	460
Spelt ... ..	..	..	..	..	..	1,500	1,500	1,500	1,500
Jowari—									
Kharif	1,080	1,050	1,190	..	760	720	720	520	..
Rabi .. .. .	..	..	..	820	..	..	..	1,400	1,500
Bajri—									
Unirrigated ..	840	970	820	700	600	500	380	360	340
Ragi—									
Irrigated .. ..	..	..	..	..	..	900	900	1,400	1,400
Unirrigated ..	500	1,440	1,420	1,500	1,200	..	..	..	..

300

Gram—										
Irrigated	..	..	..	..	..	..	..	..	..	..
Unirrigated	..	500	500	600	500	500	500	500	350	380
Linseed—										
Unirrigated	..	350	..	..	..	..	360	360	360	360
Sesame—										
Unirrigated	..	400	400	400	400	400	400	400	400	400
Sugarcane—										
Irrigated	..	6,000	6,000	5,000	7,000	7,000	7,000	7,000	7,000	7,000
Cotton clean—										
Unirrigated	..	120	110	120	130	120	110	110	100	90
Rape and Mustard—										
Unirrigated	..	640	670	600	..	..	..	..	..	..
Kodra—										
Unirrigated	..	1,320	1,270	1,130	1,050	1,120	900	..	..	..
Groundnut—										
Irrigated	..	..	..	..	..	2,500	2,500	2,500	2,500	2,500
Unirrigated	..	800	..	1,000	..	1,000	..	..	..	..

APPENDIX III-D—cont.

[Figures in Lbs.]

	Poona	Sholapur	Satara	Belgaum	Bijapur	Dharwar	Thana	Kolaba	Ratnagiri	Kanara
(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Rice—										
Unirrigated ..	1,120	900	1,120	1,140	800	1,140	1,200	1,200	1,020	1,320
Wheat—										
Irrigated ..	1,080	1,080	1,350	1,200	1,080	..	..	..	..	..
Unirrigated ..	850	400	480	560	400	500	..	..	..	..
Spelt ..	1,500	1,500	1,500	1,500	1,500	1,500	..	..	..	..
Jowari—										
Kharif ..	500	..	..	..	..	..	..	..	..	..
Rabi ..	1,500	1,500	1,500	800	540	1,000	..	..	..	..
Bajri—										
Unirrigated ..	340	320	360	400	520	450	..	..	..	..
Ragi—										
Irrigated ..	900	..	900	..	..	..	..	..	..	..
Unirrigated ..	..	..	..	900	..	1,200	770	800	680	1,470
Gram—										
Irrigated ..	..	..	..	..	..	..	..	..	..	..
Unirrigated ..	320	..	380	400	..	500	..	360	320	480

Linseed—											
Unirrigated	..	360	360	360	360	360	360	..	..	..	..
Sesame—											
Unirrigated	..	400	400	400	400	400	400	300	300	300	300
Sugarcane—											
Irrigated	..	8,000	7,000	7,000	7,000	7,000	7,000	7,000	4,000	4,000	6,000
Cotton clean—											
Unirrigated	..	90	90	90	90	90	120	..	..	..	..
Rape and Mustard—											
Unirrigated	..	..	..	..	..	..	..	..	..	..	..
Kodra—											
Unirrigated	..	..	..	..	..	..	..	640	800	670	..
Groundnut—											
Irrigated	..	2,500	2,500	2,500	2,500	2,500	2,500	..	..	..	..
Unirrigated	..	..	..	..	1,500	1,250	1,500	..	1,250	..	..

APPENDIX III-E

Accompaniment to Government Resolution, Revenue Department, No. 7289/39, dated 28th September 1944

Statement showing Standard Normal Yield of Crops (in Lbs. per acre).

Serial No.	District	Rice (husked), i.e., clean Dry	Wheat			Jowar	
			Irrigated	Dry	Salt Irrigated	Kharif Dry	Rabi Dry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmedabad	1,440	1,300	500	..	600 (grain jowar) 200 (fodder jowar) 600	600 (grain jowar) 200 (fodder jowar) 600
2	Kaira	1,320	1,300	600	..	..	..
3	Broach	900	..	600	..	..	820
3A	Panchmahals	1,200	1,300	700	..	1,190	820
4	Surat	1,560	..	550	..	760	600
5	West Khandesh	1,080	1,280	600	1,500	720	575
6	East Khandesh	1,080	1,280	600	1,500	720	575
		1,080	1,320	460	1,500	520 (grain jowar) 150 (fodder jowar)	520 (grain jowar) 150 (fodder jowar)
		1,040	1,180	460	1,500	..	300

9	Poona	..	..	..	..	1,120	1,080	350	1,500	400 (grain jowar)	500 (grain jowar)	150 (fodder jowar)	{ 1,200* 400 150 1,500* 350
10	Sholapur	..	..	..	..	900	1,080	400	1,500	..	..	..	1,200*
11	Satara	..	..	..	..	1,120	1,350	480	1,500	{ 700 1,500*	..	..	{ 500 1,200*
12	Belgaum	..	..	..	..	1,140	1,200	560	1,500	800	..	..	800
13	Bijapur	..	..	..	..	800	1,080	400	1,500	540	..	..	540
14	Dharwar	..	..	..	..	1,140	..	500	1,500	1,000	..	..	600
15	Thana	..	..	..	..	1,200	..	..	..	..	..	..	..
16	Kolaba	..	..	..	..	1,250	..	..	..	..	..	..	..
17	Ratnagiri	..	..	..	..	950	..	..	..	..	..	..	..
18	Kanara	..	..	..	..	1,160	..	..	..	..	..	..	..

*Irrigated.

APPENDIX III-E—cont.

Serial No.	District	Bajari Dry	Ragi Dry	Maize Dry	Kodra Dry	Tur Dry	Gram Irrigated	Gram Dry
(1)	(2)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	Ahmedabad	750	1,440	1,080	1,000	560	..	500
2	Kaira	870	1,440	1,050	1,275	690	..	500
3	Broach	700	1,500	..	1,050	650	..	500
3A	Panchmahals	820	1,200	100	1,130	800	..	600
4	Surat	1,200	1,160	1,120	680	680	..	500
5	West Khandesh	500	900	720	900	960	1,200	500
6	East Khandesh	380	900	900	900	960	1,200	500
7	Nasik	360	1,400	850	900	960	1,200	350
8	Ahmednagar	340	900	900	900	960	1,100	380
			1,400					
9	Poona	340	900	500	900	800	1,200	320
10	Sholapur	320	..	800	900	960	1,200	260
11	Satara	360	900	720	900	960	1,200	260
12	Belgaum	400	900	{ 800	900	960	..	400
				{ 1,500*				
13	Bijapur	320	900	900	900	960	..	240
14	Dharwar	450	1,200	1,200	900	1,200	..	560
15	Thana .. .. .	..	770	500	540	370	..	400
16	Kolaba .. .. .	..	800	..	800	410	..	380
17	Ratnagiri .. .. .	..	600	..	670	430	..	320
18	Kanara .. .. .	..	1,100	900	..	480	..	480

*Irrigated.

APPENDIX IV

No. 358,

Education and Social Welfare Department,
Sachivalaya,

Bombay-32, the 2nd January 1963.

To

The Secretary to the Government of
Andhra Pradesh/Assam/Bihar/Gujarat/Jammu
and Kashmir/Kerala/Madhya Pradesh/Madras/
Maharashtra/Mysore/Orrissa/Punjab/Rajasthan/
Uttar Pradesh/West-Bengal, Revenue Department.

SUBJECT.—*Making of crop annawari for regulating grant
of suspensions and remissions of land revenue.*

Sir,

In the Maharashtra State, suspensions and remissions of land revenue in years of bad rainfall are regulated according to the general crop-annawari for the village, as a whole. Annawari of an individual crop in a particular field is determined by actually cutting and weighing the crop obtained in a measured area and then applying the following formula:—

$$\text{Annawari} = 12 \times \frac{\text{Observed Yield per acre}}{\text{Standard yields}} \times \frac{\text{Standard soil annas}}{\text{Soil annas of the field}}$$

In this formula, standard yield was defined (the question of revising of this definition has been under consideration since 1958) as the yield per acre of that crop obtained in a year of favourable rainfall and standard soil annas means the average anna classification of the soils of fields in the district in which that crop is ordinarily sown. From the crop experiments made in the village for the same crop, the average annawari of the particular crop is determined and then the general crop annawari for the village is determined by taking the weighted average of the annawaris of the individual crops, annawari of each crop being weighted with the area sown under that crop in the village.

2. Full land revenue is suspended if the annawari for the village is 4 annas or below and half is suspended if it is between 4 and 6 annas. In years of good rainfall, if there are previous suspended arrears, they are recovered by recovering $1\frac{1}{2}$ times the normal revenue when the annawari is 8 annas or more and twice the normal revenue if the annawari is 11 annas or more. Suspended arrears which have become more than three years old are remitted and similarly, when they exceed more than twice the normal land revenue, the excess is remitted.

3. The State Government has now appointed a Committee to examine the question of the definition of standard yields and standard soil annas for the purpose of the above annawari formula as also the question of suitability of the formula and the modifications, if any required in it. In this connection, it will be useful to examine the formulae used in the several States for determining annawari of the crop.

4. I shall therefore be grateful if you would supply the following information relating to your State:—

(i) The detailed procedure regarding the making of the crop annawari.

(ii) The formula, if any, used for determining annawari of the crop from the yield of a particular crop obtained in a field or from its estimated yield per acre together with explanations regarding the terms used in the formula.

(iii) The main provisions of the rules regulating the grant of suspensions and remissions of land revenue.

Yours faithfully,

V. M. JOSHI,
 Secretary to Government,
 Education & Social Welfare Department
 and Chairman Annawari Committee,
 Government of Maharashtra,
 Sachivalaya, Bombay-32.

REVENUE DEPARTMENT

Letter No. 1886 E1/62/2.

From

Shri V. S. Subbiah, I.A.S.,
Deputy Secretary to Government.

To

The Secretary to Government,
Education and Social Welfare Department,
Government of Maharashtra, Sachivalaya, Bombay-32.

Fort St. George, Madras-9, dated the 9th January 1963.

Sir,

SUBJECT.—*Making of crop annawari for regulating grant
of suspension and remission of land revenue.*

REFERENCE.—Your letter No. 358, dated 2nd January
1963.

I am directed to state that a copy of your letter has been
forwarded to the Board of Revenue, Madras, for furnishing
the particulars direct to you.

Yours faithfully,

B. SHAIK ISMAIL,
for Deputy Secretary to Government.

Letter No. 11605 E1/63-1.

From

Shri V. S. Subbiah, I.A.S.,
Deputy Secretary to Government.

To

The Secretary,
Annewari Committee and Joint Director,
Bureau of Economic and Statistics, Bombay-32.

Fort St. George, Madras-9, dated the 12th April 1963.

Sir,

SUBJECT.—*Making of crop annewari for regulating grant of suspension and remission of land revenue.*

REFERENCE.—Your letter No. 358, dated 2nd February 1963.

I am directed to state that a copy of letter from the Chairman of Annewari Committee, dated 2nd January 1963, has been forwarded to the Board of Revenue, Madras and they have been asked to furnish the particulars direct to you.

Yours faithfully,

B. SHAIK ISMAIL,

for Deputy Secretary to Government.

Letter No. 11605 E1/63-4.

From

Shri B. Shaik Ismail, B.A.,
Assistant Secretary to Government.

To

The Secretary,
Annewari Committee and Joint Director,
Bureau of Economics and Statistics,
Government of Maharashtra,
Sachivalaya Annexe Building, Bombay.

Fort St. George, Madras-9, dated the 24th April 1963

Sir,

REFERENCE.—Your letter No. 358, dated 4th April 1963.

I am directed to state that the Board of Revenue, Madras has been asked to furnish the particulars required direct to you.

Yours faithfully,

B. SHAIKH ISMAIL.

GOVERNMENT OF MYSORE

No. RD 1/SPL/63/1A

MYSORE GOVERNMENT SECRETARIAT,
VIDHANA SOUDHA,

Dated, Bangalore, January 1963.

FROM

Secretary to the Government of Mysore,
REVENUE DEPARTMENT

To

The Secretary to Government,
Social Welfare Department
and Chairman, Annawari Committee,
Government of Maharashtra,
Sachivalaya, Bombay-32.

Sir,

SUBJECT.—*Making of crop annawari for regulating grant
of suspension and remission of land revenue.*

With reference to your letter No. 358, dated 2nd January 1963, I am directed to state that draft of the seasonal remission Rules, proposed to be issued in Mysore State, is still under consideration of this department and as soon as it is finalised a copy of the same will be forwarded to you for information. It may be added that the Rules in force in the Bombay Area are proposed to be incorporated in the revised Rules with some modifications.

Yours faithfully,

B. SEETHARAMAN,

Under Secretary to Government,
Revenue Department.

GOVERNMENT OF ASSAM

REVENUE (LAND REVENUE) DEPARTMENT, LAND
REVENUE BRANCH

No. RLR 5/63/12, dated Shillong, the 25th January 1963.

From

Shri N. Choudhury, A.C.S.,
Under Secretary to the Government of Assam,
Revenue Department.

To

The Secretary,
Education and Social Welfare Department
and Chairman, Annawari Committee,
Government of Maharashtra,
Sachivalaya, Bombay-32.

SUBJECT.—*Making of crop annawari for regulating grant
of suspension and remission of land revenue.*

REFERENCE.—Your letter No. 358, dated 2nd January
1963.

Sir,

With reference to your letter quoted above, I am directed to say that in the State of Assam there is no annawari system for regulating grant of suspensions and remissions of land revenue. A copy of Rules regarding the suspension and remission of land in this State is, however, furnished herewith for your information and necessary action.

Yours faithfully,

(Illegible),

Under Secretary to the
Government of Assam,
Revenue Department.

EXECUTIVE INSTRUCTIONS

CHAPTER VII

Rules for the Suspension and Remission of Land Revenue in cases of Widespread Local and Private Calamities.

(1) These rules are based on Resolution No. 3-99-2, dated the 25th March 1905, of the Government of India, Department of Revenue and Agriculture, and apply only to the plains districts of Assam.

(2) Officers having powers under the rules to suspend or remit land revenue will have similar powers in the case of local rates or cesses payable along with land revenue. The Commissioner will recommend to Government the grant of compensation to Local Boards in any case where it may be necessary.

I.—Temporarily Settled Areas.

(A) *Widespread calamities, such as those resulting from a general failure of rainfall, or an earthquake, or a pestilence.*

101. The remedial measures necessary in the case of widespread calamities will be decided upon in each case by the Provincial Government in accordance with the principles laid down in the Government of India's Resolution No. 3-99-2 of 25th March 1905. In view of the fact that remissions require more careful investigation than is necessary for an order of suspension, it may be taken as a general rule that in cases of widespread calamity, where promptitude is essential, relief should in the first instance be given in the form of suspension. In such a case, the Commissioner will not hesitate to direct that all collections should be suspended pending the orders of the Provincial Government.

(B) *Local calamities, such as floods, hailstorms, blight, or ravages by insects, which cause damage to a limited area and affect a particular harvest.*

102. As an act of grace, relief in the form of a suspension or remission of land revenue may be granted to persons to whom a local calamity has caused losses which render them

unable to meet the Government demand from their own resources or without great hardship.

103. When the Deputy Commissioner receives information of the occurrence of a serious local calamity, he will, with the least possible delay, make, or cause to be made by an officer not below the rank of a Sub-Deputy Collector, a preliminary local inquiry to determine generally whether the damage done is sufficiently great to justify the grant of any relief.

(1) *Suspension:*

104. If, after a preliminary local inquiry made under the preceding rule 103, the Deputy Commissioner is satisfied that the settlement-holders in any local area or any class of settlement-holders in such area cannot pay the next instalment of land revenue from their own resources or without great hardship, but will be able to pay it subsequently in addition to the current Government demands if the succeeding harvests are normal, he will at once announce the suspension of revenue due from such settlement-holders and report to the Commissioner the action taken. If the revenue of which the payment is suspended does not exceed Rs. 5,000, his orders will be final; otherwise they will be provisional and subject to confirmation by the Commissioner.

When the suspension of revenue ordered in a single revenue year in any one district exceed Rs. 10,000 a report must be submitted for the information of the Provincial Government and the Comptroller.

105. In all such cases, the payment of the Government demand shall be postponed to a definite date, having regard to the extent of the calamity and the dates of the principal harvests in the locality. Some weeks before the dates so fixed the Deputy Commissioner shall report what proportion of the suspended demand he proposes to recover, having regard to the character of the harvest reaped since the calamity and the condition of the people, and announce his decision on this point and the date to which the payment of the balance, if any, is postponed.

(2) *Suspension and automatic remission:*

106. The following principles should be observed in converting suspensions automatically into remissions:—

(i) Revenue which has been under suspension for three years will be remitted, unless the Provincial Government for special reasons decide otherwise.

(ii) In fully-assessed tracts with an outturn which is fairly constant, when the amount of revenue under suspension at any given time exceeds the revenue demand of an ordinary year, the excess usually should be remitted.

The authority empowered to sanction remissions in such cases is that prescribed in rule 112 below and the action taken under this rule will be examined by the Commissioner in the course of his inspections.

(3) *Remission:*

107. If, after the preliminary local inquiry made under rule 103 above, the Deputy Commissioner is satisfied that immediate relief is necessary and that it is practically certain that it will not be possible to collect the revenue in full at a later date, even if fair harvests follow, without causing great hardship to the settlement-holders, he may at once suspend the payment of revenue in the affected area, giving notice to raiyats that detailed enquiries will be made to ascertain the amount of remission necessary in each case. He will, at the same time, report to the Commissioner the action taken and the arrangements which he has made for the detailed inquiry (rule 108).

108. A field-to-field inspection of the affected area will then be made by an Officer not below the rank of a Sub-Deputy Collector. The mauzadar or tahsildar, village recorder, and goanbura or panchayat must be present during this inquiry. Its results will be recorded separately for each village in a statement in the form below which will be accompanied by a cadastral map of the village (if the village has been surveyed) showing the area damaged broadly distinguished according to the extent of the loss of the crop. Columns (1), (3), (4) and (5) should be filled up by the village recorder before the inspecting Officer arrives.

FORM OF STATEMENT OF DAMAGE

List of fields damaged by..... in village.....mouza.....

A-10-21-B.

Name of pattadar	General condition of pattadar	Total holding and revenue of pattadar in this and in other village			Details of fields damaged in this village					Amount of revenue to be remitted on each field as recommended by.....			
		Name of village	Area	Revenue	Chitta number of each field.	Crop	Area	Revenue assessment (approximately).	Condition of remaining crop, in annas per rupee.	Inspecting Officer	Sub-Divisional Officer	Deputy Commissioner	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)

109. During the progress of the inquiry the Deputy Commissioner or Sub-Divisional Officer should arrange to visit the locality and see that the inquiry officer understands the procedure and is working on proper lines.

110. In filling up columns 11-13 of the form (remission proposed), the following general instructions should be observed:—

(i) No recommendation for remission should be made if the crop that remains, taken with any other crops which may previously have been gathered from the same land during the year, amounts to or exceeds a half-crop.

(ii) Subject to provisions (iii) and (vii) which follow, and provide that Government may sanction remission even if the crop is a half-crop, or vary the ratio of remission in any other case of loss, the ratio which should be adopted in apportioning the remission to the loss that has been suffered are as follows:—

When the crop remaining, taken with any other crops which may previously have been gathered from the same land during the year—

(a) is less than 4 annas of an ordinary crop ...	100%
(b) amounts to 4 annas but is less than 6 annas of an ordinary crop ...	50%
(c) amounts to 6 annas but is less than 8 annas of an ordinary crop ...	25%
(d) amounts to 8 annas of an ordinary crop ...	Nil.

(iii) Attention should be paid to the general circumstances of the village and the pitch of the assessment. Thus, in a prosperous village with a low assessment, remission may only be necessary in quite exceptional cases, while in a poor village with a comparatively high assessment, more liberal remissions may be necessary.

(iv) It is essential to ascertain the extent of the rayat's holding, not only in the village in which the inspecting officer is working, but also in other villages, and the degree of relief to be granted must depend on the extent of

damage over the whole holding. If, for example, a field-to-field inquiry is being made in a village in which land is held for temporary cultivation, no relief need be granted to a raiyat whose permanent cultivation is uninjured and from the profits of which the total demand can be paid, even though he has suffered a total loss of crop on his temporary cultivation. But if the raiyat's permanent cultivation is small, compared with his total holding, a recommendation for relief may be made.

(v) In the case of damage by floods in areas in which the damage can be recovered by a cold-weather crop, no relief need be granted. This is especially the case in areas sown with broadcast up-land rice.

(vi) In determining the degree of relief to be granted regard should be paid to the character of the crop in the preceding year. In flooded areas, two successive years of failure will justify liberal treatment.

(vii) Ordinarily no remission should be recommended for any land which is sublet. If, however, the inspecting officer is of opinion in any case that some relief is necessary, he may recommend a remission, provided that the pattadar agrees not to levy rent from his tenant. This should be made clear in the final column of the statement. If the pattadar does not adhere to his agreement, the remission that is granted to him will be cancelled.

111. The Deputy Commissioner or the Sub-Divisional Officer (unless he himself made the inquiry), on receiving the report of the inspecting officer, with the statement and the village map, will record his recommendations in the appropriate column and forward the papers for the orders of the Commissioner. It is of great importance that the recommendations should be submitted promptly.

112. Remissions in case of any one calamity to the extent of more than Rs. 10,000 in one district require the sanction of the State Government. Remissions not exceeding Rs. 10,000 in one district in the case of each calamity may be sanctioned by the Commissioner, who after passing orders will submit a brief report to the State Government for information.

(C) *Private calamities, such as fire, sickness, or loss of cattle.*

113. When it comes to the notice of a mauzadar, tahsildar, or officer of similar standing that a settlement-holder has suffered from a private calamity, such as fire, which has destroyed his homestead or crops, or from sickness or loss of cattle, which has prevented him from cultivating the whole or a great part of his land, the said officer shall report the facts to the Circle or Land Records Sub-Deputy Collector or the Sub-Deputy Collector in-charge of the tahsil, or, where there is no such officer, to the Sub-Divisional Officer or Deputy Commissioner.

Such officer, not being the Deputy Commissioner, in the course of his tour shall make a local inquiry, and, if he thinks that there are good grounds for affording relief to the raiyat, shall submit a full report to the Deputy Commissioner, who is hereby empowered to grant, in exceptional cases suspension of revenue or such portion of it as may seem to him equitable, within the limits of his power prescribed in rule 104, a report of the action taken being submitted to the Commissioner for approval. If, however, the Deputy Commissioner considers that suspension of revenue will not afford sufficient relief in any particular case, he will report the case in full to the Commissioner with a recommendation for remission of the revenue, or such portion of it as may seem to him equitable, and the Commissioner may take such action as he thinks fit within the limits of his powers prescribed in rule 112. Petitions for suspension or remission of revenue under this rule should ordinarily be sent to the mauzadar, tahsildar or officer of similar standing for report.

II.—Permanently Settled Areas

Widespread, local or private calamities in permanently-settled areas

114. The remedial measures necessary either for suspension or for remission of revenue will be decided upon in each case by the Provincial Government, in accordance with the principles laid down in the Government of India's Resolution No. 3-99-2 of 25th March 1905.

GOVERNMENT OF BIHAR
REVENUE DEPARTMENT

No. E/XXIV-3043/63 LR.

From

Shri K. K. Mitra,
Addl. Secretary to Government,

To

The Secretary to Government,
Education and Social Welfare Department
and Chairman, Annawnri Committee,
Government of Maharashtra,
Sachivalaya, Bombay-32.

Patna, the 7th February, 1963.

Sir,

I am directed to refer to your letter No. 358, dated the 2nd January, 1963, on the subject noted above, and to say that there is no system of general crop annawari for the village nor there is any formula for its determination in this State. The suspensions and remissions in this State are governed by the rules contained in the Booklet entitled "Rules regarding abatement, remission and suspension of rent demand in estates and tenures vested in Government under the Bihar Land Reforms Act, 1950", a copy of which is enclosed for information.

Yours faithfully,

K. K. MITRA,
Additional Secretary to Government.

RULES REGARDING ABATEMENT, REMISSION AND
SUSPENSION OF RENT DEMAND IN ESTATES
AND TENURES VESTED IN GOVERNMENT
UNDER THE BIHAR LAND REFORMS ACT, 1950.

1. These rules apply to the estates and tenures vested in Government under section 3(1) or 3-A of the Bihar Land Reforms Act, 1950.

2. In these rules, the terms "Anchal" and "Anchal Adhikari" include "Circle" and "Circle Officer", respectively, wherever they occur:

Provided that where a Circle Officer or an Anchal Adhikari is in charge of more than one Anchal, he shall maintain the accounts and registers, and prepare the returns, relating to each Anchal in his charge separately under these rules.

3. (i) "Collector" occurring in these rules includes any Deputy Collector to whom the State Government may, by general or special order, transfer any of the functions of the Collector under these rules.

(ii) "Sub-Divisional Officer" occurring in these rules include any Deputy Collector to whom the State Government may, by general or special order, transfer any of the functions of the Sub-Divisional Officer under these rules.

4. Part I of these rules prescribes the procedure for abatement of the rent demand, Part II for suspension and remission of the rent demand, and Part III for miscellaneous matters connected therewith.

5. These rules supersede the existing rules, orders or circulars to the extent affected thereby.

PART I—ABATEMENT OF RENT.

6. When an estate vests in Government, the old *tauzi* demand of that estate is replaced by the *mufassal* rental representing the rent demand of that estate.

7. The rent demand of a vested estate or tenure is annual, the whole demand for the year being treated as realisable from the 1st of April.

8. The accounts relating to the vested estates and tenures are maintained according to the financial year, and are balanced yearly, the sums remaining unpaid at the end of the financial year being treated as arrears.

9. (a) A rent demand or a portion thereof in respect of any holding is abated when the same is permanently written off from the accounts for any cause, e.g., acquisition of lands, surrender of lands due to diluvion, sale of lands free of rent etc.:

Provided that if the land of a holding or a portion thereof is lost by diluvion, there will be a proportionate abatement of rent of the holding, and the right, title and interest of the *raiyat* shall subsist in such land or portion during the period of loss by diluvion, as provided in section 52-A of the Bihar Tenancy Act.

(b) After a rent demand or a portion thereof is abated, a note of the order of abatement should be made in the permanent relevant record or records.

10. When any losses of revenue occur in the course of the year for any cause referred to in rule 9, they will be treated as "irrecoverable balances" for the year due for remission, and no alternation in the annual demand shall be made until the end of the financial year, when the requisite sanction under rule 12 should be obtained to an abatement of the annual demand on account of such losses, which will take effect from the beginning of the following year.

11. In order to ensure timely submission of the annual return [Form A (3)] under rule 15, the Collector will, soon after the close of the financial year, take action for sanction of remission of the "irrecoverable balances" under rule 27 and of the consequential abatement of the demand under rule 12.

12. (a) The Collector of the district is empowered to sanction, in the vested estates and tenures, abatement of rent without limit for any cause except in consequence of the acquisition of lands for public purposes or under the Land Acquisition Act I of 1894.

(b) The Commissioner of a Division is empowered to sanction, in the vested estates and tenures, abatement of rent in consequence of acquisition of lands for public purposes or under the Land Acquisition Act I of 1894.

(c) In all cases, abatement of rent in vested estates and tenures shall be subject to report under rule 15 to, and control by, Government in the Revenue Department (Land Reforms Section).

13. Before sanction by a competent authority, every alteration of demand due to abatement of rent must invariably be verified by the Anchal Adhikari, and after an abatement of rent is sanctioned under rule 12 on such verification, it should be entered in Index Register of Alteration of Demand in Form A(1), which shall be maintained Anchal-wise in the offices of the Anchal Adhikari, the Sub-Divisional Officer and the Collector.

14. The Collector will communicate each alteration of demand to the Anchal Adhikari through the Sub-Divisional Officer by means of a Correction Slip in Form A(2). The Anchal Adhikari will, in his turn, communicate the same to the Karmachari by means of a Correction Slip in the same form together with an Advice List, who will return the Advice List to the Anchal Adhikari with an endorsement thereon acknowledging the receipt of the Slip and certifying that necessary corrections have been made by him in the Halka registers concerned. Similarly, necessary correction should be made in the relevant Anchal records.

15. The Collector shall submit, in duplicate, an annual return in Form A(3) showing the total alteration of demand made during the year to the Commissioner by the 16th July along with an annual Return No. 1 relating to vested estates and tenures, copy being at the same time sent direct to Government in the Revenue Department (Land Reforms Section). The Commissioner will forward one copy of the report to Government in the Revenue Department (Land Reforms Section) with his comments by the 1st August.

PART II—SUSPENSION AND REMISSION OF RENT DEMAND.

16. Suspension and remission of rent demand may be granted in the event of—

- (a) widespread agricultural calamities, such as, famine, flood, drought, and general failure of crops over large areas;

(b) local or isolated agricultural calamities, such as are occasioned by hail, flood, locusts or the like, in which the failure of crops is not uniform, and does not extend over large areas ;

(c) occasional changes in *diara* lands due to diluvion ;

(d) lands lying fallow in consequence of an order made under any law by a competent authority ; and

(e) individual tenants being in arrears at the close of the financial year.

Widespread calamities.

17. When the Collector has reason to believe that there has been or will be such a general failure of crops in any part of the district as to make it probable that relief will be required, he shall cause an early enquiry to be made by an officer not below the rank of an Anchal Adhikari into the condition of the affected area and the extent of crop failure therein.

18. On receipt of the Enquiry Officer's report and after such test thereof as may be considered necessary, the Collector will decide, firstly, whether the calamity has to be treated as *widespread* or *local* and secondly, what relief, if any, is required to be given.

19. Where the Collector is satisfied about the probable existence of a widespread calamity in any tract, the enquiry under rule 17 shall be made as expeditiously as possible, and, to obviate delay, the Collector may, in submitting his original proposal, base his report as to the degree of immediate relief necessary, on the agricultural conditions of entire villages or homogeneous groups of villages within the affected area :

Provided that the degree of relief shall be the same throughout each village or each group of homogeneous villages and that no attempt shall be made to differentiate between the circumstances of individuals :

Provided further that if, after making such a report, the Collector finds reason to believe that the agricultural conditions of any villages have been incorrectly reported, he may submit a modification of his original proposal accordingly.

20. In case of widespread calamity, relief shall, where possible, be given, in the first instance, in the form of immediate suspension of rent demand:

Provided that where only a proportion of the rent demand is suspended or remitted, the cess demand will not be suspended or remitted:

Provided further that where the rent demand is entirely suspended or remitted, the case demand will only be suspended, and be realised along with the rent demand of any subsequent year when the same is actually collected.

21. In submitting his proposals for suspension or remission, the Collector shall have regard to the principles laid down in rule 22, and shall take into consideration, besides the previous history of the tract in question, the relation which the crops that have failed bear to the sum total of the crops of the year on the area affected.

Explanation.—If the *aghani* crop normally represents 60 per cent of the year's crops, and the *bhadai* 20 per cent, and the *rabi* 20 per cent, and if 50 per cent of the *aghani* is lost and the *bhadai* has been an 80 per cent crop, and a 75 per cent *rabi* may be anticipated, the calculation is—

$$\left(\frac{60}{100} \times \frac{75}{100}\right) + \left(\frac{20}{100} \times \frac{80}{100}\right) \text{ or } \frac{30+16}{100} = 46 \text{ Per cent.}$$

for the crops already secured, and a probable $\frac{20}{100} \times \frac{75}{100}$ or 15 per cent

on account of the *rabi* expected. Such a loss of crops would not ordinarily by itself constitute a sufficient ground for recommending suspension of rent demand, unless, on a consideration of the crops grown previous to the present harvest, it appears that there had been other crop failures in the land, for which no remission had been granted and the total effect is such as to justify remission.

22. The suspension or remission of rent demand shall not ordinarily be granted, except in the case of a failure which causes a loss of more than half the normal crops of the whole year. Every case shall be considered on its merits, and no relief shall be given unless it is found necessary.

23. The Collector shall take into consideration the crops of the two preceding years, and where the crops of these two years have been less than half the normal, or where any rent demand is already under suspension, the provisions of rule 22 may be relaxed and a special recommendation for suspension or remission may be made. Similarly, if the

result of such an examination is favourable to the area, the suspension or remission may be less than the scale prescribed in rule 24.

24. A scale of relief is laid down below for general adoption, which shall be taken as a maximum scale, and shall not be exceeded except in special cases, for which there is a full and satisfactory explanation:—

Normal outturn 100	Degree of relief
Forty per cent and less than 50 per cent of the year's normal crops.	25 per cent.
Twenty-five per cent and less than 40 per cent of the year's normal crops.	50 per cent.
Less than 25 per cent of the year's normal crops..	100 per cent.

25. In sanctioning remission of the rent demand under suspension, the Collector shall be guided by the principles laid down in paragraph 12 of the Resolution of the Government of India, Department of Revenue and Agriculture, No. 3-99-2, dated the 25th March 1905, as reproduced below:--

“As soon as it becomes clear that it will be inadvisable to collect suspended revenue or any particular portion of it, it should be remitted at once. It is most undesirable to keep suspensions hanging for long over the heads of the revenue-payers; and the Government of India are of opinion that revenue which has been under suspension for three years should ordinarily be remitted as a matter of course. They are also prepared, in the case of fully assessed tracts with an outturn which is fairly constant, to accept a rule which would limit the amount of revenue under suspension at any given time to the equivalent of the revenue demand of an ordinary year. In the latter case it would not follow that when suspensions exceeded the limit, the whole amount suspended should be remitted, and, logically speaking, only the balance by which they were in excess should be so dealt with. But in the case of calamities so severe as to call for heavy suspensions, greater liberality than this will, no doubt, be desirable. An absolute and general rule that the amount under suspension should never exceed a year's revenue would be open to objection, since there are many areas of fertile

soil where there is no irrigation and the rainfall is uncertain in amount, and where, on account of this uncertainty, the revenue is pitched so low, that in a really bumper year the people could pay very much more than the revenue assessed without the slightest inconvenience."

26. The Commissioner shall have power to sanction suspension of rent demand for the year in which suspension is granted, and shall report his proceedings to Government in the Revenue Department (Land Reforms Section). He shall also finally settle instalments for the collection of the suspended rent. All suspensions for a longer period require the sanction of Government in the Revenue Department.

27. (1) The authorities to sanction remission of rent and the limits of such sanction will be as follows:—

(i) The Collector of a district is empowered to sanction remission of rent in the district—

(a) up to Rs. 5,000 per annum in respect of one agricultural calamity for his entire jurisdiction;

(b) up to Rs. 100 per annum in respect of one village on any other ground; and

(c) up to any limit in respect of demand which has been clearly made in error.

(ii) The Commissioner of a Division is authorised to sanction remission of rent in the Division—

(a) up to Rs. 20,000 per annum in respect of one agricultural calamity for his entire jurisdiction;

(b) up to Rs. 500 per annum in respect of one village on any other ground.

(iii) Government in the Revenue Department (Land Reforms Section) will sanction remission of rent in all other cases.

Explanation.—The expression "one agricultural calamity" may extend to more than one financial year. In such a case, the above limits should be regarded as annual in terms of one agricultural calamity.

(2) The Revenue Department (Land Reforms Section) will send a copy of the annual Return No. I to the Accountant-General, Bihar, through the Finance Department, by the 16th August, as provided in rule 14 (i) of Rules providing for verification of collections, assessment of cess, etc., in

respect of vested estates and tenures. In this return, the total remissions sanctioned by various authorities should be shown separately.

28. (a) As a general rule, no suspended rent shall be collected until after one fair harvest subsequent to the failure has been reaped in the affected tract. But where the damage caused to the crop is severe, the Collector will, after necessary enquiry, first decide whether the whole or a portion of the suspended rent in the affected area is to be remitted. If it becomes clear to the Collector that it is inadvisable to collect the suspended rent or any portion of it, he will submit a full report to the Commissioner for orders.

(b) In both cases, namely, where no portion of the suspended rent is remitted and where only a part of the same is remitted, the recovery of the whole or a portion of the suspended rent shall be made in such instalments as may be fixed with the approval of the Commissioner, due regard being had to the character of the succeeding harvests from which it is proposed to be recovered and the general economic condition of the people at the time.

(c) The Collector shall report to the Commissioner at least two months before the first instalment for any harvest falls due, the amount which he, in addition to the current demand, proposes to recover out of the suspended demand from the proceeds of such harvest.

29. Notice shall be given to the tenants concerned of the orders of suspension or remission of rent, if possible, one full month before collections ordinarily start. The practice of merely abstaining to collect without any declaration as to the amount to be suspended shall be discarded.

30. The grant of relief to tenants shall be made conditional on their giving relief to under-tenants of all degrees.

31. In all cases of suspension under these rules, subsequent collection of rent shall be made without interest.

32. In cases of suspension and remission under these rules, the Collector shall send in Form A (4) the necessary particulars for each village to the Courts engaged in the trial of rent suits and/or to the Certificate Officers concerned.

Local calamities.

33. The foregoing rules shall also govern the procedure in the case of local calamities subject to the following modifications, namely:—

(i) In case of a local calamity, a field-to-field enquiry shall be made to ascertain the extent of the failure of crops, and consideration shall be given to the loss suffered by the tenant in comparison with his total income.

(ii) No relief shall necessarily be given to a tenant whose crops or whose sub-tenant's crops have been destroyed upon fields forming only a small portion of his entire tenancy.

Changes in diara lands due to diluvion.

34. In *diara* lands, which are liable to changes each year due to the fluvial action of a river, a responsible officer not below the rank of an Anchal Adhikari should ascertain, after spot-enquiry, the nature and extent of such changes after each rainy season and report to the Collector through the Sub-Divisional Officer in Form A(5) his proposals for remission of rent for lands which have been wholly diluviated or rendered unculturable by sand deposit or for any other reason, and also for lands which have seriously deteriorated as a result of sand deposit or otherwise without being rendered unculturable.

In this matter, the procedure laid down in rule 24 of the Bihar Government Estates Manual, 1953, read with Annexure I—Detailed instructions regarding the annual verification of *Diara* Estates vested in Government, shall be generally followed.

Lands lying fallow in consequence of an order by a competent authority.

35. Where any lands representing the whole or a portion of a holding lie fallow in consequence of an order made under any law by a competent authority at the instance of the State Government, the tenant concerned may, subject to the approval of the State Government, be allowed remission of the proportionate rent for the period during which such order remains in force. In such a case, the rent to be

remitted for the area lying fallow shall bear the same proportion to the total rent for the entire holding as the area of the land lying fallow bears to the total area of the entire holding.

Individual tenants being in arrears at the close of the financial year.

36. All cases of individual tenants in arrears are dealt with on scrutiny of the arrear lists given in the annual List of Defaulters (Return No. III) after the close of the financial year. Along with the annual Return No. I, in which the total amount of remission for the year to which this return relates, is given in column (9), the Anchal Adhikari has to prepare, in Form A(6), Return No. III—List of Defaulters for each Halka in the Anchal after necessary check in the manner required under rule 93 of the Bihar Government Estates Manual, 1953 read with paragraph 27(2)(ii)(f) of the Instructions for the guidance of Circle Officers in Government Estates. This return should reach the Sub-Divisional Officer on or before the 1st June each year.

37. On receipt of Return No. III in the Sub-division, the Sub-Divisional Officer will, after such enquiry as may be necessary, pass orders for filing certificates in suitable cases. Cases of arrears fit for remission or suspension should, however, be recommended to the Collector for necessary action under rule 38 on or before the 1st July each year.

38. (a) On receipt of the Sub-Divisional Officer's recommendation for remission or suspension of rent in regard to Return No. III—List of Defaulters, the Collector will either pass orders thereon himself under rule 27(1)(i)(b) or forward it to the Commissioner with his comments for necessary orders under rules 26 and 27(1)(ii)(b). It should, however, be noted that these rules do not confer a general authority to suspend or remit rent demands in cases of individual tenants in arrears irrespective of their financial condition or in cases where the remission is not justified. The discretionary powers should be exercised with care, after proper investigation, to ensure that the arrears are not due to failure or laxity on the part of Karmacharis, etc., to realise the arrears from the individuals.

(b) All remissions sanctioned under sub-rule (a) should be entered Anchalwise in District Remission Register VI in Form A(7), and a copy of the order sanctioning such remission or suspension sent to the Sub-Divisional Officer for necessary action under rule 39.

39. When the order sanctioning the proposed remission or suspension is received in the Sub-divisional, necessary entry regarding remission should be made in Sub-divisional Remission Register VI which shall be maintained Anchalwise in the same form, and a copy of the order sent to the Anchal Adhikari for necessary action under paragraph 11 of the Instruction for the guidance of Circle Officers in Government Estates.

40. No entry relating to any suspension of rent shall be made in Remission Register VI in any office till the whole or a portion of the suspended rent is remitted by a competent authority under rules 27 and 28, and then, an entry only in respect of the amount actually remitted shall be made in the said Register, the un-remitted portion of the suspended rent, if any, being treated as due for collection.

PART III—MISCELLANEOUS.

41. In explaining the outstanding balance under head (iii)—amount proposed for remission (i.e., doubtful and irrecoverable) at the foot of the annual Return No. I, the total amount of the rent demand under suspension, besides the amount proposed for remission, for the year to which the return relates, shall be specifically mentioned.

42. The authority competent to sanction suspension of rent under rule 26, may, subject to the approval of the State Government, sanction re-suspension of the rent demand already under suspension in suitable circumstances.

43. In all cases where remission of the rent demand is sanctioned under rule 27, the authority competent to sanction such remission under the said rule 27 may, subject to the approval of the State Government, sanction refund of the remitted amount for rent already paid:

Provided that no amount of cess already paid along with such rent shall be refunded.

ANNEXURE I.

DETAILED INSTRUCTIONS REGARDING THE ANNUAL VERIFICATION OF
DIARA ESTATES VESTED IN GOVERNMENT.

The enquiry prescribed in rule 24 of the Government Estates Manual, 1953 is not intended to be a complete resurvey and resettlement of a *diara* estate. It is prescribed for the ascertainment and record of the changes that have occurred as a result of the previous rainy season. On the basis of it the Collector is able to see—

- (i) What land has been completely diluviated or rendered unculturable by sand deposit or for any other reason.
- (ii) What land has deteriorated as a result of sand deposit or otherwise without being rendered unculturable.
- (iii) What new land has accreted and is capable of cultivation.
- (iv) What land has improved as a result of deposit of silt.

2. The Collector is then in a position to do four things—

(a) To accept a surrender of land, which a *raiyat* wishes to give up and to *abate* the rent due from such land in accordance with section 52-A of the Bihar Tenancy Act.

(b) To make for the year remissions of rent for land which is wholly unculturable or has deteriorated. The amount of the remission (a) for wholly unculturable land, and (b) for land which has seriously deteriorated should be according to a standard scale. Where the non-occupancy *raiyats* are holding under *habuliyats* of the form given in Appendix A to the Government Estates Manual, the rates fixed by those *habuliyats* should be considered when laying down a scale for remissions.

N. B.—Such remission is to be sharply distinguished from the reduction of rent which a Collector is required by section 25-A of the Act or otherwise to make in consequence of the permanent deterioration of land.

(c) To settle new-accreted land, subject to any rights that the *raiyats* may have on it under section 52-A(2) or by reason of the land accreting to the holding of a *raiyat*.

(d) To demand from non-occupancy *raiyats* additional rent for land which has improved, subject to the rights secured to them by contract or by statute. For example, if rent has been determined under section 46 (6) of the Bihar Tenancy Act and the *raiyat* has agreed to pay the rent, he is entitled to hold the land for five years at that rent.

3. The processes indicated above will not ordinarily affect the whole estate and amount merely to a revision of the current demand of the *jamabandi* and not to "a settlement of rents" as contemplated in Chapter XL of the Survey and Settlement Manual. Consequently, no administrative sanction by higher authority for the inception of the work (as prescribed in section III, Chapter III of that Manual for settlements) is necessary, and no "confirmation" as contemplated by rule 646 is required.

4. The amount of work involved in carrying out these annual enquiries must vary greatly with the circumstances of each particular *estate*. In some *estates* in certain years large changes will occur involving a reasonably accurate resurvey of a considerable proportion of the estate. In others, the changes may

be so slight as to render survey unnecessary unless the *raiyats* ask for it. In exceptional cases dealt with in the next paragraph the whole estate or a very large part of it is annually submerged, and only small portions are cultivated for catch crops. It will probably be found advisable for the Anchal Adhikari to make first a rapid inspection of the *diara* estates under his charge and then give the *amin* precise instructions, as to the amount of survey required, and the manner in which it is to be carried out, visiting the estates again for the purpose of checking the *amin's* work and deciding what recommendations will be made for remission or assessment. Rule 24 of the Government Estates Manual requires that there should be for each year for each estate a copy of the maps marked to show the position in that year. If no change is made, the fact may be merely recorded on the previous year's map.

5. For the exceptional cases, which will be rare, where the whole estate or a very large part of it is annually submerged, special measures will be necessary. As contemplated in rule 637 of the Survey and Settlement Manual, a settlement from year to year is required. It is impossible to make anything like an accurate map, without wholly disproportionate expense, the culturable land will ordinarily be in isolated patches. These should be identified by deputing an *amin* or any other suitable officer and given to persons who may be legally or equitably entitled, and they should be asked to pay the rent which is payable under the law or which may be deemed to be equitable at suitable rates according to the productivity and other advantages of the soil, as the case may be, for the lands actually found later to be cultivated by them in the year. It may be advisable to take an advance payment. The boundary of the portion of the estate which is found to have emerged from the river should be roughly sketched in on a copy of the 16" sheet, and the position of culturable patches indicated roughly thereon. These patches should be surveyed at once, the external boundary of the patch and the internal detail of the plots given to each *raiyat* being surveyed as accurately as possible, though the relation of one patch to another may be left only roughly determined. A *khasra* should be prepared and the copy of the map should be dated. An *amin* should again be deputed, as soon as the crops are fairly on the ground, to measure up-land which has emerged later and has been cultivated and to prepare a more complete *khasra* indicating not only the plots under each *raiyat* but also the crops grown thereon. The Anchal Adhikari should then pay a second visit and decide what rents are payable. His proceedings should be submitted to the Collector through the Sub-Divisional Officer for confirmation, and a brief report sent to the Commissioner for information and comment, if necessary. It should be specially noted in this report whether the estate shows signs of becoming sufficiently stable to warrant its treatment in future years in the manner indicated in the preceding paragraphs. The rates of rent for each class of land in each estate should be prescribed by the Commissioner and should not be varied without his sanction. The demand as determined by the Collector on the basis of the Anchal Adhikari's proceedings will be the demand of the year.

6. Three specific questions arise, *viz.*,—

(1) Does the annual *jama* of a *diara* estate, fixed after annual verification, require the Commissioner's sanction?

(2) Does a remission of rent allowed by the Collector as a result of annual verification require Commissioner's sanction when the total remission for a single estate exceeds Rs. 100?

(3) In non-occupancy *diara* holdings can the rent be legally enhanced whenever it is below the prevailing rate, provided the provisions of section 46 of the Act be followed, or is the rent of a non-occupancy *raiyat* not liable to enhancement for five years after it is fixed, irrespective of whether his land is *diara* or otherwise?

7. The answers to these questions are :—

(1) No.

(2) Yes, under rule 92 (b) of the Government Estates Manual read with rule 6, section XVIII, Chapter II at pages 65-66 of the Tauzi Manual, 1951, which clearly covers both arrear and current demands. For each estate there will, save in very exceptional cases, be a "full demand" *jamabandi* which will be altered from year to year by reason of (i) abatement on surrender, (ii) assessment on settlement of newly accreted land, and (iii) additional rent agreed to by non-occupancy *raiyyats* for improved land, *i.e.*, cases (a), (c) and (d) of paragraph 2 above. If the remissions proposed, which are covered by case (b) of that paragraph, bring the demand of the year down below the "full demand" as so altered by more than Rs. 100, the Commissioner's sanction is required under the existing rules.

(3) A non-occupancy *raiyyat's* rent can be legally enhanced at any time, provided that the *raiyyat* agrees, *except that it cannot be enhanced within five years of his agreement to pay a rent determined by a Court under section 46(6), Bihar Tenancy Act, as fair and equitable or of a settlement of fair rent under Chapter X of that Act.* It will be observed, however, that a non-occupancy *raiyyat* can stand out against an enhancement under section 46.

8. Three other points also arise on which it is desirable that orders should be passed :—

(i) Is it the policy of Government to prevent the accrual of occupancy rights in their *diara* estates ?

(ii) Should new settlements of *diara* lands be confined to certain classes of tenants ?

(iii) Is it necessary to take *kabuliyats* from *diara* tenants, and, if so, should they be registered ?

The answers are :—

(i) Certainly not. Under section 52-A, Bihar Tenancy Act, the occupancy rights of a *raiyyat* subsist in his land during the period of loss by diluvion, and the *raiyyat* has the right to possession on the reformation of such land on its old site.

(ii) New settlements should be made subject to the provisions of section 52-A, Bihar Tenancy Act, in relatively small blocks, especially with persons who have previously cultivated in the vicinity and have lost some or all of their lands owing to diluvion or with Harijans or landless agricultural labourers of the same village.

(iii) It will ordinarily be sufficient to take the signatures or thumb impressions of the tenants on the revised rent-roll. But where the past history of the estate suggests greater precaution, the Collector may direct that *kabuliyats* be taken. If they are taken it is preferable to have them registered, since the use of an unregistered written agreement as evidence is fraught with pitfalls (*See Maharami Janki Kuer v. Brij Bhikhan Ojha, Patna Law Times, 541*).

FORM A (1)

INDEX REGISTER OF ALTERATION OF DEMAND

District....., Sub-division....., Anchal....., Halka.....

Number of tenancy in rent rolls	Village with thana and thana number	Authority sanctioning alteration with date of order	Initials of the Gazetted Officer incharge and date of making corrections in the rent rolls	Previous demand, if any	Sanctioned demand	Increase in demand	Decrease in demand	Nature of alteration	Date from which the new assessment will take effect	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Schedule Spl. N.-S. Form No. V-41.

FORM A (2)

CORRECTION SLIP SHOWING ALTERATION OF DEMAND INCLUDING ABATEMENT OR REDUCTION OF RENT IN ESTATES VESTED IN GOVERNMENT

District....., Sub-division....., Anchal....., Halka.....

Name of tenancy in rent rolls	Village with thana and thana number	Authority sanctioning alteration with date of order	Initials of the Gazetted Officer incharge and date of making corrections in the rent rolls	Previous demand, if any	Sanctioned demand	Increase in demand	Decrease in demand	Nature of alteration	Date from which the new assessment will take effect	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Schedule Spl. N. S. Form No. V-51.

FORM A (3)

RETURN SHOWING ALTERATION OF DEMAND IN THE DISTRICT OF
FOR THE YEAR ENDING 31st MARCH 19

(Note.—This return is to accompany the Annual Return No. I relating to vested estates.)

	Previous annual demand	Increase in demand	Decrease in demand	Sanctioned demand showing the net effect of alteration [Cols. (1)+(2) —Col. (3)]	Nature of alteration	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rent						
Cess						
Miscellaneous .. .						

Total

.....
Collector.

District.....

Date.....

FORM A (4)

VILLAGEWISE STATEMENT SHOWING SUSPENSIONS AND REMISSIONS

(NOTE.—This statement is to be prepared Halkawise and villagewise)

District....., Sub-division....., Anchal....., Halka.....

Serial No.	Name of village with thana and thana No.	Name of tenant with parentage	Amount suspended		Amount remitted		Note, if any, rent suits/ certificates are pending ; if so, give reference	Remarks
			Year	Amount	Year	Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

REPORT SHOWING PROPOSALS FOR REMISSION OF RENT FOR DIARA LANDS FOR THE YEAR ENDING 31st MARCH 19 .

District....., Sub-division....., Anchal.....

Village with thana and thana No.	Halqa No.	Name of tenant	Description of holding			Extent of damage done by sand deposit, etc.		Anchal Adhikari's proposals for remission rent in respect of—		Sub-Divisional Officer's recommendations	Collector's orders
			No.	Area	Rent	Area actually difuviated or rendered unculturable	Area seriously deteriorated but not rendered unculturable	Damage to lands given in column (7)	Damage to lands given in column (8)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

339

FORM A (6)

RETURN No. III—LIST OF DEFAULTERS

District....., Sub-division....., Anchal....., Halka.....

Serial number in this list.	*(2) Name of tenant with parentage	No. of tenant in register II.	*(1) Annual demand.	Rent				Cess				Total.	Note, if certificates are pending, giving the number in Register X and the amount for which they were issued and date of issue	Sub-Divisional Officer's or Collector's orders	Remarks.		
				More than three years.	3rd year.	2nd year.	1st year.	Current.	More than three years.	3rd year.	2nd year.					1st year.	Current.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)

NOTES.—(1) Where there are other demands, e.g. Mahua, lac, etc., necessary additional columns should be added to this form.

(2) The name and thana number of the village should be written across the page above the first tenant's name.

FORM A (7)

REGISTER VI—REMISSION

District....., Sub-division....., Anchal....., Halka.....

Serial No.	Village	Thana and thana No.	Name of tenant	Number of holding in Register 1-A or 1-B	Amount remitted						Number and date or order sanctioning remission	Remarks (Initials of the Officers Incharge attesting entries with date)	
					Rent		Cess		Miscellaneous				
					Arrear	Current	Arrear	Current	Arrear	Current			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	

GOVERNMENT OF RAJASTHAN
REVENUE (B) DEPARTMENT

No. F-6 (98) Rev. B/Gr. I/62.

From

The Assistant Secretary to the
Government of Rajasthan.

To

The Secretary to Government,
Education and Social Welfare Department and
Chairman, Annawari Committee,
Government of Maharashtra, Sachivalaya, Bombay.

Dated Jaipur, the 28th February 1963.

SUBJECT.—*Making of crop annewari for regulating grant of suspensions and remissions of land revenue.*

Sir,

I am directed to refer to your letter No. 358, dated 2-1-1963 and to say that provisions in regard to the remission or suspension of rent in agricultural calamities are contained in section 126 of the Rajasthan Tenancy Act, 1955 (Rajasthan Act No. 3 of 1955). Rules to give effect to these provisions are rules 26 to 41 of the Rajasthan Tenancy (Government) Rules, 1955. The Superintendent, Government Central Press, Jaipur is being requested to supply one copy of the above Rules to you, direct. A copy of section 126-*ibid* is given below:—

126. *Remission or suspension of rent in agricultural calamities.*—On the occurrence of a famine or scarcity in any area or of an agricultural calamity affecting the crops of any area, the State Government or any authority empowered by it in this behalf may in accordance with rules made by the State Government in that behalf remit or suspend for any period the whole or any portion of the rent payable by a tenant in such area.

Yours faithfully,

(Illegible),

Assistant Secretary to Government.

GOVERNMENT OF RAJASTHAN

REVENUE (B) DEPARTMENT

No. F-6 (98) Rev. B/Gr. I/62.

To

The Superintendent,
Government Central Press, Jaipur.

Dated Jaipur, the 21st May 1963.

SUBJECT.—*Supply of publications.*

REFERENCE.—This Department endorsement of even number,
dated 28th February 1963.

Sir,

The Secretary, Annewari Committee, and Joint Director, Bureau of Economics & Statistics, Bombay has informed that a copy of the Rajasthan Tenancy (Government) Rules, 1955 has not been received by him, as yet.

2. I am, therefore, directed to request that one copy of the above Rules may please be supplied to the Secretary, Annewari Committee, and Joint Director, Bureau of Economics and Statistics, Bombay, urgently.

Yours faithfully,

(Illegible),

Assistant Secretary to Government.

Copy forwarded to the Secretary, Annewari Committee, and Joint Director, Bureau of Economics and Statistics, Bombay for information with reference to his letter No. 358, dated 9th April 1963.

(Illegible),

Assistant Secretary to Government.

GOVERNMENT OF JAMMU AND KASHMIR
CIVIL SECRETARIAT-REVENUE AND REHABILITATION DEPARTMENT

To

The Financial Commissioner,
Jammu.

No. Rev(s) 63-14, dated 20th February 1963.

SUBJECT.—*Making of crop annewari for regulating grant of suspension and remission of land revenue.*

Kindly refer to this office endorsement No. even, dated 28th January 1963 on the above noted subject and intimate action taken in the matter at an early date.

A. N. DHAR,

Deputy Secretary to Government.

Copy to the LRA Section for necessary action and report. This has reference to this office communication quoted above.

2. Copy forwarded to the Secretary, Annewari Committee and Joint Director, Bureau of Economics and Statistics, Bombay-32 for information in reference to his No. 358, dated 2nd February 1963.

GOVERNMENT OF JAMMU AND KASHMIR
CIVIL SECRETARIAT-REVENUE AND REHABILITATION DEPARTMENT

To

The Financial Commissioner,
Jammu.

No: Res(s) 63/14, dated 18th April 1963.

SUBJECT.—*Making of crop annewari for regulating grant of suspension and remission of land revenue.*

Kindly refer to the Secretary, Annewari Committee and Joint Director, Bureau, of Economics and Statistics, Bombay's D. O. No. 358, dated 9th April 1963 to your address and

intimate action taken in the matter at an early date. The matter is of urgent nature and requires your personal attention.

BHARAT BHUSAN,
Secretary to Government.

Copy to the Secretary, Annewari Committee, and Joint Director, Bureau of Economics and Statistics, Bombay, for information.

GOVERNMENT OF KERALA
REVENUE (B) DEPARTMENT

No. 839/B3/63/RD, Trivendrum, 6-2-1963.

From

Shri R. Gopaldaswamy,
Additional Secretary to Government,
Revenue Department.

To

The Secretary,
Annewari Committee and Joint Director,
Bureau of Economics and Statistics,
Bombay.

SUBJECT.—*Making of crop Annewari for regulating grant of suspensions and remissions of land revenues.*

REFERENCE.—Your letter No. 358, dated 2nd February 1963.

Sir,

I am directed to inform you that the matter is under correspondence with the State Board of Revenue. A reply will be sent to you as early as possible.

Yours faithfully,

(Illegible),

For Additional Revenue Secretary.

GOVERNMENT OF KERALA
REVENUE (B) DEPARTMENT

No. 839/B3/63/RD, Trivendrum, 9th May 1963

From
Shri R. Gopaldaswamy,
Additional Revenue Secretary.

To
The Secretary,
Annewari Committee and Joint Director,
Bureau of Economics and Statistics,
Government of Maharashtra,
Sachivalaya Annexe Building,
Bombay-32.

SUBJECT.—*Making of crop Annewari, for regulating grant
of suspensions and remissions of land revenue.*

REFERENCE.—Your Letter No. 358, dated 4th/9th April 1963.

Sir,

In continuation of this Government letter of even No.,
dated 6-2-1963, I am to inform you that the matter is still
under correspondence with the Board of Revenue of this
State and that a final reply is expected to be sent to you
shortly.

Yours faithfully.

(Illegible),

For Additional Revenue Secretary.

UTTAR PRADESH SHASAN

No. 616/IS-607/1963.

From
Shri Bhupendra Bir Singh,
Up Sachiv.

To
The Secretary,
Annewari Committee, and Joint Director,
Bureau of Economics and Statistics,
Government of Maharashtra,
Bombay-32.

Lucknow: March 18th, 1963.
Rajasthan (Abhav) Vibhag:

SUBJECT.—*Making of crop annewari for regulating grant of suspensions and remissions of land revenue.*

Sir,

With reference to your letter No. 358, dated January 2, 1963, and dated February 2, 1963, on the subject mentioned above, I am directed to say that some details in this connection are being collected and the information required therein will be sent in due course.

Yours faithfully,

BHUPENDRA BIR SINGH,
Up Sachiv.

UTTAR PRADESH SHASAN

No. 1475/15-607/63.

From

Sri Bhupendra Bir Singh,
Up Sachiv.

To

The Secretary,
Annewari Committee, and
Joint Director,
Bureau of Economics and Statistics,
Government of Maharashtra,
Sachivalaya Annexe Building,
Bombay.

Rajaswa (Abhav) Vibhag:

Dated: Lucknow: May 16, 1963.

SUBJECT.—*Making of crop annewari for regulating grant of suspensions and remissions of land revenue.*

Sir,

With reference to your letter No. 358, dated April 9, 1963, on the subject mentioned above, I am directed to say that

A-10—23-A.

some details in this connection are still being collected and the information required therein will be sent in due course.

Yours faithfully,

BHUPENDRA BIR SINGH,

Up Sachiv.

No. 1557-AV-63/1381.

From

Shri Aridalan, P.C.S.,

Under Secretary to the Financial Commissioners,
Punjab.

To

The Secretary,

Annewari Committee and Joint Director,

Bureau of Economics and Statistics,

Government of Maharashtra,

Sachivalaya Annexe,

Bombay-32.

Chandigarh, dated the 19/20th March 1963.

SUBJECT.—Making of crop annewari for regulating grant of suspensions and remissions of land revenue.

Sir,

I am directed to refer to the correspondence resting on your letter No. 358 of 2nd February 1963, on the above subject and given a note embodying the requisite information on the points enumerated in paras. 4 (i) to (iii) of your No. 358 of 2nd January 1963, so far as this State is concerned.

Note appended to Punjab Government's letter No. AV-63/1381, dated the 19th March 1963.

A-10-23-B.

(i) *The detailed procedure regarding the making of crop annawari.*

In Punjab average yield (In Maharashtra termed as standard yield) is determined at the time of Settlement for the assessment circle in which the particular village is situated. This average yield is cropwise and for the various classes of soil with or without irrigation facilities. When a crop fails to germinate or dries up or is destroyed by calamity of season, it is entered as "Kharaba" in crop inspection register. Deductions for Kharaba are given in the following scale taking 16 annas as the average yield of a crop:—

- | | | |
|--|-------|---------------------------------------|
| 1. Yield more than 12 annas | .. .. | No deduction. |
| 2. Yield more than 8 annas but not more than 12 annas. | .. .. | $\frac{1}{4}$ deduction of sown area. |
| 3. Yield more than 4 annas but not more than 8 annas. | .. .. | $\frac{1}{2}$ deduction of sown area. |
| 4. Yield not more than 4 annas | .. .. | Deduction of whole sown area. |

The degree of relief is determined by judging the yield of the crop concerned. In deciding the correspondence between the degree of relief to be given and degree of crop failure experienced, one important principle is that the degree of relief should increase as the yield decreases, more rapidly than the degree of failure. Accordingly the following is taken as a suitable type in cases where no relief is given for a failure of less than half the normal crop:—

Crop (16 annas normal)	.. ..	Degree of relief.
6 annas, and less than 8 annas	.. ..	25 per cent.
4 annas, and less than 6 annas	.. ..	50 per cent.
Less than 4 annas	.. ..	100 per cent.

(ii) *The formula, if any, used for determining annawari of the crop from the yield of a particular crop obtained in a filed or from its estimated yield per acre together with explanations regarding the term used in the formula.*

There is no arithmatic formula by which degree of crop failure can be measured. However to keep uniformity, the guidance of arithmatical standard has been kept in view. This standard has been discussed above. The Kharaba is determined by special girdawari (crop inspection), which is

checked by Tahsildar/Naib Tahsildar and Assistant Collector, Ist Grade and to get general view, Collector also makes crops inspection.

(iii) The main provisions of the rules regulating the *grant of suspension and the remissions of land revenue.*

At the time of Settlement of the District, the Settlement Officer classifies all the estates of each tehsil as:—

- (a) Under fluctuating assessment.
- (b) Secure.
- (c) Insecure.

He also draws up a scheme for the working of suspensions. Danger rate is specified for the insecure areas, which is considerably in excess of normal rate of incidence. This gives a good judgement for affording relief.

Calamities necessitating the Remissions or Suspensions have been classified as ordinary and extra-ordinary. Ordinary calamities are those, which are caused by variation of season or water supply. By extra-ordinary is meant calamities due to hailstorm, locusts, floods, etc. The method of calculating the remission in the case of extra-ordinary calamities is to apply "Bachh" rates worked out for each estate concerned at the time of Settlement to the area actually damaged. No remission can be granted if the amount so arrived is less than one-fourth of the total land revenue of the holdings.

In ordinary calamities the figures for the whole estate is taken and is not confined to a holding.

Due to unprecedented floods in the past few years the Punjab Government has been very liberal in the grant of remissions which are as follows:—

- (a) Where the loss exceeds 50 per cent, there should be full remission of land revenue and abiana, except in case of abiana on sugar-cane crop in which case the remission shall be 50 per cent.

(b) Where the loss is between 25 per cent and 50 per cent, the remission of land revenue and abiana shall be 75 per cent except in the case of abiana on the crops of Til, Chillies, Mash and Maize sown in the month of August in which case there shall be full remission.

Yours faithfully,

(Illegible),

Under Secretary to the Financial
Commissioner, Punjab.

No. 2018/532/VII/N-II.

GOVERNMENT OF MADHYA PRADESH
REVENUE DEPARTMENT

LETTER

From

Shri M. P. Singh,

Under Secretary to Government
of Madhya Pradesh.

To

The Secretary to Government,
Education and Social Welfare Department,
Chairman Annawari Committee,
Sachivalaya, Bombay-32.

Bhopal, dated the 1st April 1963.

SUBJECT.—*Making of crop annawari for regulating grant
of suspensions and remissions of land revenue.*

Sir,

With reference to your letter No. 358, dated 2-1-1963 on the subject cited above, I am directed to enclose herewith a note on the making of the crop annawari, which covers the points (i) and (ii) of para. 4 of your letter under reference.

2. As regards the main provisions of rules regulating the grant of suspension and remission of Land Revenue, copy of the rules made under section 144 of the Madhya Pradesh Land Revenue Code 1959 is also given below:—

Note on the procedure regarding the making of crop annawari and formula used for determining the annawari in Madhya Pradesh.

This estimates of most probable production are made while the crop is still standing in the field. The condition of the crop is reported by the patwari merely by eye appraisal. The patwari reports the production estimates in terms of annas. The normal annawari in the State has been fixed as 13.3 annas.

2. The Revenue Inspector reports the outturn of crop based upon—

(a) Information received from the patwaris of his circle.

(b) His knowledge of the condition of crop gained by inspection in his tour by enquiry from the people.

In addition the Revenue Inspector are required to make about 10 crop experiments for each crop for which forecasts are submitted. The results of these experiments are used for rechecking the estimates deduced from the statement of cultivators and the examination of the crop. The average outturn per acre in terms of Annawari of the present crop is equal to—

$\frac{\text{The present outturn per acre} \times 13.3}{\text{The average outturn per acre (or standard yield per acre)}}$

3. The district estimates of outturn is based upon the Revenue Inspector, reports, corrected in the light of the information possessed by the superior officers of the district as to the condition of the crop and of the results of crop experiments made by them separately. In calculating the outturn of the district the net area of each Revenue Inspector Circle for the current year is multiplied by the estimated outturn of the same circle, the products of all the circles added and divided by the total area of the district.

4. The annawari of an individual crop for a particular field is determined by applying the following formula:—

$$\text{Annawari} = \frac{\text{Observed yield per acre} \times 13.3}{\text{Standard yield per acre}}$$

The standard yield per acre are determined on the basis of the experiments carried out in the field which are judged by the Revenue Officers to bear the average crop. The definition of the standard yield or normal yield adopted is the same as that has been adopted by Government of India, i.e., the average outturn in average year on average soil. They have been periodically refixed so far on the basis of the quinquennial review of the results of crop cutting experiments which are conducted by the Revenue Officers in accordance with the instructions contained in the RBC 34 of M. P. Land Revenue Manual Volume II. The observed yield per acre is obtained by experimental crop cuttings by the Revenue Officer. 13.3 is the normal annawari.

Yours faithfully,

M. P. SINGH,

Under Secretary to Government.

RULES REGARDING SUSPENSION AND REMISSION OF LAND REVENUE.

1. Remission or suspension of land revenue may be granted:—

(i) in the event of failure of crops due to—

(a) widespread calamities such as famine, draught, etc.

(b) local calamities such as hail, floods, locusts and similar visitation, and

(ii) in cases in which crops could not be grown in any area in consequence of an order made under any law by a competent authority.

Widespread Calamities.

2. On hearing or getting any application that there has been such a general failure of crops in any part of the district as to make it probable that relief will be required, the

Collector shall cause early inquiries to be made into the conditions of the affected tract and the degree of crop failure in each village or group of villages. The enquiries shall include a reference to the Gram Panchayats or Gram Sabhas and such leading agriculturists of the neighbourhood as the Collector may think proper to consult.

3. The degree of relief shall be the same in each village or homogeneous tract, and no attempt shall be made to differentiate between the circumstances of individuals.

4. Relief shall be calculated according to A scale or B scale according to the previous revenue history of the tract. The A scale shall be used in villages whose revenue history is normal and the B scale in those which have suffered from recent crop failures. The sanction of the State Government shall be obtained to the application of the B scale except in villages in which there has been general suspension of land revenue in the previous two successive years or in which the outturn of crops in either of the previous two years has been less than Re. 0-4-0:—

State of Crop (normal-13 1/3 annas)	(1)	Degree of relief (2)
	A. Scale	
6 annas or over	.. .. .	.. Nil.
4 annas and less than 6 annas	.. .. .	.. Half.
Less than 4 annas	.. .. .	.. Full.
	B Scale	
8 annas or over	.. .. .	.. Nil.
Less than 8 annas but not less than 6 annas	.. .. .	.. Half.
Less than 6 annas	.. .. .	.. Full.

In calculating the outturn for each village, any shortage in the cropped area as compared with the normal shall be taken into consideration.

5. The Collector shall submit his proposals for suspension, remission or resuspension of suspended arrears to the State Government. The State Government may sanction suspension, remission or resuspension, as the case may be, of the demand to such extent as may be considered necessary. On receipt of sanction the Collector shall cause the nature of relief to be announced to all concerned before the instalment of revenue to which it relates falls due:

Provided that, if for any cause, it appears probable, that orders of the State Government cannot be received in time to allow announcement before due date, the Collector may, after obtaining the requisite authority beforehand from the State Government, pass orders himself suspending the amount of land revenue in anticipation of formal orders of the State Government.

6. No land revenue which has been suspended shall ordinarily be collected until the next harvest of crop, corresponding to the one which failed, has been reaped in the affected tract.

7. As the character of each successive harvest becomes known, the Collector, subject to any instructions he may receive from the State Government, should determine the amount of the suspended land revenue to be collected along with the ordinary demand and should announce it before the date fixed for the payment of revenue. The amount collected, if any, should be equal to a fourth, a half or the whole of the year's demand as circumstances justify.

8. Suspended land revenue may, with the sanction of the State Government be remitted in whole or in part—

(a) when the revenue which it is sought to remit has been suspended for three years ;

(b) in certain specified tracts when the amount suspended exceeds the annual revenue demand, in which case the amount in excess of the annual demand will ordinarily be remitted ; and

(c) in cases where it is clear from the conditions of the tract that it would be inadvisable to collect the suspended revenue or part of it.

Local Calamities.

9. The foregoing rules shall also govern the procedure in the case of local calamities, subject to the following modifications, namely:—

(i) relief shall be granted to individuals varying according to the damage done to the total holding of each ;

(ii) relief shall be granted on B scale, if any general suspension of revenue was granted in respect of the previous year's crops in the village otherwise on A scale; and

(iii) relief may be granted either by suspension or remission in the first instance. The Collector is authorised to remit land revenue up to Rs. 1,500 and the Commissioner up to Rs. 2,500 in a tract in connection with any single calamity subject to confirmation by the State Government.

10. (1) Remission of land revenue in any area in which crop could not be grown in consequence of an order made under any law by a competent authority shall be allowed according to the following scales, namely:—

State of area allowed to remain fallow	Degree of relief
(1)	(2)

- | | |
|---|-------|
| (i) If more than half the area allowed to remain fallow was cultivated during the previous year. | Full. |
| (ii) If less than half the area allowed to remain fallow was cultivated during the previous year. | Full. |

(2) Relief under sub-rule (1) shall be determined for individual holdings separately.

GOVERNMENT OF ORISSA

REVENUE AND EXCISE DEPARTMENTS

No. L.R. 24/63/24674/R.

From

Shri A. V. Ranga Rao, O.A.S.,
Deputy Secretary to Government.

To

The Secretary to Government, Education and Social Welfare Department and Chairman, Annawari Committee, Government of Maharashtra, Sachivalaya, Bombay-32.

Dated Bhubaneshwar the 15th April 1963.

SUBJECT.—*Making of crop annawari for regulating grant of suspensions and remissions of land revenue.*

Sir,

With reference to your letter No. 358, dated the 2nd January 1963, on the subject noted above, I am directed to forward herewith a printed copy of this Department letter No. 11308-R, dated the 12th April 1958, addressed to all Collectors in which detailed procedure for remission of land revenue and suspension of collection of land revenue had been given.

Yours faithfully,

(Illegible),

Deputy Secretary to Government.

GOVERNMENT OF ORISSA
REVENUE DEPARTMENT

No. 11308-R.

From

Shri R. P. Padhi, I.A.S.,
Secretary to Government.

To

All Collectors.

Bhubaneswar, the 12th April 1958

SUBJECT—*Instructions relating to revenue collections, recovery of arrears and charging of mutation fees.*

Sir,

I am directed to say that Government have under consideration the proposal for compilation of a Manual for Collectors on Revenue administration. Different systems of Tenancy and consequently rules for procedure on items like revenue collection, collection of arrears, calculation of interest, remission of rent, etc., are in force in different parts of the State. These instructions are in various Rules in different Manuals. Sometimes they are lost sight of due to the fact that they are somewhat obscure and also scattered

over different places. Consequently, complaints are often received by Government of non-application of the correct rules and procedure. It is for these reasons and for the facility of providing necessary guidance to Collectors and other Revenue Officers that Government are intending that a compendious Manual should be brought up. The points dealt with in this letter are same of the important aspects of the uniform set of rules which will be incorporated in the volume along with other detailed instructions.

2. Preparatory to this Manual, Rules for the Naib Tahasildars have already been made in six Chapters. These will be of assistance at all levels. They contain Rules for revenue collections, maintenance of accounts, mutations, certificates, encroachments, milan khasra and other miscellaneous matters. The rules relating to maintenance of accounts and mutations have already been supplied to all concerned. The other rules are under print and will be supplied as soon as these are made available by the Government Press. In the meantime, Government consider it desirable to issue a set of general instructions on some of the matters on which there appears to be some confusion at present, indicating briefly the broad procedure to be followed. These are meant for the immediate guidance and for full clarification they should be read with the concerned manuals. Accordingly, the instructions on the following matters are issued for the guidance of the Collectors and other Subordinate Revenue Officers:—

- I. Revenue Collection.
- II. Suspension and remission of revenue.
- III. Charging of interest on arrears.
- IV. Execution of certificates.
- V. Charging of mutation fees.

I. REVENUE COLLECTION

Collection of land revenue and cess is the main duty of the revenue collecting staff and deserves the utmost attention of all concerned with revenue administration. Past experience shows that due attention is not being paid by the

revenue collecting agencies to this most important work of theirs. Ordinarily the collections should not be less than 95 per cent of the demand.

2. The first pre-requisite for revenue collection is to arrive at a correct demand for each Tahasil. It has been found that in some districts the demand varies from year to year appreciably without sufficient explanation for the same. There is some justification in the variation of the fluctuating demand. But when the non-fluctuating items of demand like Land Revenue and Cess vary considerably from year to year, this needs close scrutiny. The Rent Roll has to be kept up-to-date and all alterations in it attested by the Competent Authority. Advices to the Naib Tahasildars and Revenue Inspectors for effecting alterations in such Rolls should be sent promptly so that the Registers maintained by the Naib Tahasildars or Village Officers, and others are corrected and made up-to-date.

3. It is the duty of the revenue collecting agents to prepare the revenue collection papers well in advance of the collection season. It is found that in many Tahasils, the preparation of collection papers were being carried on even after the season for collection has commenced. This is bound to affect collections. It is absolutely necessary that the collection papers should be made ready sufficiently ahead of the collection season. The Tahsildars, Sub-Divisional Officers and Collectors should ensure that the collection records have been kept ready in time so that there may be no difficulty in the commencement of the collection work, according to the kist dates.

4. The general complaint of the public is that the revenue collecting agents are not contacting the tenants in time. Efficient collection can be achieved by approaching the tenants at the right time when they have got money for payment of their dues. The revenue collecting agents should be well acquainted with the crop pattern within their areas so that they could approach the tenants preferably when a crop is harvested. Keeping this in view a programme has to be drawn up in advance for collection and given wide

publicity among the tenants. Once this is done and the tenants are made aware of this programme in advance, the collection work will be greatly facilitated.

5. It is sometimes noticed that the sources of fluctuating demand like *sairats* are not being leased out in time. It is absolutely necessary that these sources of income should be leased out in advance of the commencement of the lease period so that there may be no difficulty in obtaining orders of confirmation from the competent authority in time.

6. A set of Rules for collection of land revenue has been approved by Government and is under print. These will be supplied shortly. The instructions contained in these rules should be carefully studied and followed faithfully.

7. Government have been pleased to grant the following concessions from year to year in the matter of payment of rent in cash in lieu of produce rent by the tenants and temporary lessees holding kind rent paying lands in the ex-Zamindari areas of the State:—

1954-55—G. O. No. 1081-E.A., dated the 17th February 1955 to the address of all Collectors except Dhenkanal and Koraput. Cash value of the Government share of the produce should be realised at three times the rent payable for similar lands in the vicinity with similar advantages.

1955-56—G. O. No. 8469-E.A., dated the 23rd December 1955—Rent should be realised according to the provisions under the O. T. R. Act subject to the limitation that the rent per acre of land should not exceed the value of one maund of paddy for dry lands, two maunds of paddy for wet lands and 2½ maunds of paddy for lands growing a money crop.

1956-57—G. O. No. 7229-R., dated the 7th June 1957 for irrigated or first class lands Rs. 20 per acre, for non-irrigated or rain-fed or Dwayam or second class lands Rs. 15 per acre, for dry or Swayam or third class lands Rs. 8 per acre.

1957-58—G. O. No. 788-R., dated the 10th January 1958 communicated to Collectors in Memo. No. 789-R., dated the 10th January 1958. The same rate as for 1956-57.

Some instances have come to the notice of Government that produce rent at old rates had been collected from tenants before Government orders fixing concessional rates for different years reached the collecting agents. In such cases the difference between the old rate and the concessional rate fixed by Government for each year has to be treated as advance to be adjusted towards the future kists.

(A)

II. SUSPENSION AND REMISSION OF REVENUE

1. *Rules applicable to all districts of the State except Ganjam, Koraput and Sambalpur*—The rules regarding suspension and remission of land revenue as contained in section XX under Chapter II of the Bihar and Orissa Tauzi Manual are reproduced below:—

“SECTION XX—SUSPENSION AND REMISSION OF LAND REVENUE

Introduction—The resolution of the Government of India No. 3-99-2, dated the 25th March 1905 (reproduced in Appendix HH) lays down the principles to be followed in granting suspension and remission of land revenue during agricultural calamities. The main object in view is to give relief to the cultivating classes when they are unable to pay their rents on account of failure of crops. The following rules are based on these principles for the general guidance of Revenue Officers.

(1) *Classification of calamities*—Agricultural calamities shall be classified as—

(a) “Widespread” such as famine, drought and general failure of crops over large areas.

(b) “Local” or isolated such as are occasioned by floods, locusts, etc.

(2) *Inquiry in the case of widespread calamity*—When the Collector has reason to believe that there has been or will be so great a failure of crops as to render it probable that suspension or remission of land revenue may be necessary, he shall at once either himself proceed, or shall depute an

officer of as high a rank as may be available, but not below the rank of a Kanungo, to make an inquiry into the extent of the failure in the estates affected by the calamity.

(3) *Proportion of land revenue to be suspended or remitted*—On receipt of the Officer's report, and after such test of the report as may be possible, the Collector shall decide whether the calamity is to be treated as belonging to class (a) or to class (b), and shall proceed to determine the amount of revenue which should be recommended for suspension or remission, as the case may be.

In deciding what proportion of the land revenue should be suspended or remitted, the Collector shall take into account the fact that in accordance with the principles laid down in the Government of India's Resolution No. 13-356-10, dated the 21st August 1906, cesses (local cess) realised with land revenue will continue to be collected as usual; but that where an instalment of land revenue is wholly suspended or remitted, the cess demand will be suspended and realised with the next instalment or land revenue which is collected.

(4) *Immediate relief*—In the case of a widespread calamity, the enquiry under rule (2) shall be made as promptly as possible, and, to obviate delay therein, the Collector may, in submitting his original proposal, base his report as to the degree of immediate relief necessary on the agricultural conditions of entire villages or homogenous groups of villages.

If, after such report, the Collector finds reason to believe that the agricultural conditions of any villages have been incorrectly reported, he may submit a modification of his original proposal accordingly.

(5) *Immediate suspension*—In the case of a widespread calamity, relief shall, where possible, be given in the first instance in the form of suspension of land revenue.

(6) *Method of calculation of damage*—In submitting his proposals for suspension or remission the Collector shall have regard to the second sentence of rule (3) above, and shall take into consideration the relation which the crop which

has failed bears to the sum total of the crops of the year on the area affected, as well as the previous history of the tract affected.

Explanation.—If the aghani crop normally represents 60 per cent of the year's crops, and the bhadoi 20 per cent and the rabi 20 per cent and if 50 per cent of the aghani is lost and the bhadoi has been an 80 per cent crop and a 75 per cent rabi may be anticipated, the calculation is

$$\frac{66}{100} \times \frac{50}{100} + \frac{20}{100} \times \frac{80}{100} \text{ or } \frac{30 + 16}{100} = 46$$

per cent, for the crops already secured, and a probable

$$\frac{75}{100} \times \frac{20}{100},$$

or 15 per cent on account of the

rabi expected. Such a loss of crops would not ordinarily by itself constitute a sufficient ground for recommending suspension of revenue unless the previous history of the tract is unfavourable.

(7) *Limitation on grant of relief*—The suspension or remission of revenue shall not ordinarily be granted, except in the case of a failure which causes a loss of more than half the normal crops of the whole year. Every case shall be considered on its merits, and no relief shall be given unless it is found necessary.

(8) *Consideration of crops of previous years*—The Collector shall, however, take into consideration the crops of the two preceding years, and where the crops of these two years have been less than half the normal or where any revenue is already under suspension, the provision of rule (7) may be relaxed and a special recommendation for suspension or remission may be made. Similarly, if the result of such an examination is favourable to the area, the suspension or remission may be less than the scale.

(9) *Scale of relief*—A scale of relief is laid down below for general adoption, which shall be taken as a maximum scale, A-10-24-A.

and should not be exceeded except in special cases for which there is a full and satisfactory explanation:—

Normal outturn 100	Degree of relief
Forty per cent and less than 50 per cent of the year's normal crops.	25 per cent
Twenty-five per cent and less than 40 per cent of the year's normal crops.	50 per cent
Less than 25 per cent of the year's normal crops ..	100 per cent

(10) *Inquiry in the case of local calamity*—In dealing with local calamities falling under class (b) in which a field-to-field inquiry shall be made of the extent of the failure, consideration shall also be given to the loss suffered by the tenant in comparison with his total income, and no relief shall necessarily be given to a tenant whose crops or whose sub-tenants' crops have been destroyed upon fields forming only a small portion of his entire tenancy.

(11) *Principles of remission*—It shall be the business of the Collector to make recommendations for the remission of revenue, when he considers it necessary and in doing so he shall be guided by the principles laid down in paragraph 12 of the Resolution of the Government of India, which are here reproduced:—

“As soon as it becomes clear that it will be inadvisable to collect suspended revenue or any particular portion of it, it should be remitted at once. It is most undesirable to keep suspensions hanging for long over the heads of the revenue-payer; and the Government of India are of opinion that revenue which has been under suspension for three years should ordinarily be remitted as a matter of course. They are also prepared in the case of fully assessed tracts with an outturn which is fairly constant, to accept a rule which would limit the amount of revenue under suspension at any given time to the equivalent of the revenue demand of an ordinary years. In the latter case it would not follow that when suspensions exceeded that limit, the whole amount suspended should be remitted, and logically speaking only the balance by which they were in excess should be so dealt with. But in the case of calamities to severe as so call for heavy suspensions, greater liberality than this will, no doubt,

be desirable. As absolute and general rule that the amount under suspension should never exceed a year's revenue would be open to objection, since there are many areas of fertile soil where there is no irrigation and the rainfall is uncertain in amount, and where, on account of this uncertainty, the revenue is pitched so low that in a really bumper year the people could pay very much more than the revenue assessed without the slightest inconvenience."

(12) When the damage caused to the crop is severe the Collector should after further inquiry first decide whether the whole or a portion of the suspended revenue is to be remitted. If then it becomes clear to him that it is inadvisable to collect suspended revenue or any portion of it, he should submit a full report to the Commissioner.

* * * * *

In both cases, namely, where no portion of the suspended revenue is remitted and where only a part of the same is remitted the recovery of the whole or portion of the suspended revenue should be made in such instalments as may be fixed with the approval of the Commissioner, due regard being had to the character of the succeeding harvests from which it is recovered and condition of the people at the time.

(13) *Intimation to tenants*—In every case full notice shall be given to the tenant concerned of the orders of suspension or remission, if possible, one full month before the date when the kist falls due and in any case before collection of the kist would ordinarily begin. The system of merely abstaining to collect without any declaration as to the amount to be suspended shall be discarded.

(14) *Postponement of collection until after one harvest*—As general rule, no suspended revenue shall be collected until after one fair harvest subsequent to the failure has been reaped in the affected tract.

(15) *Report to Commissioner before recovery of an instalment*—The Collector shall report to the Commissioner at least two months before the first instalment for any harvest

falls due, the amount which he proposes to recover out of the suspended demand from the proceeds of such harvest, in addition to the current demand payable for such harvest.

(16) *Relief to extend to under-tenants*—The grant of relief to rent-payers shall be made conditional on their giving relief to under-tenants of all degrees.

(17) *No distinction between assigned and unassigned revenue*—In granting suspension or remission no distinction shall be made between assigned and unassigned revenue.

(18) *Power of sanction*—The Commissioner shall have power to suspension of revenue for the year in which suspension is granted reporting his proceedings to the Board of Revenue. He shall also finally settle the instalments for the collection of the suspended revenue. All suspensions for a longer period require the sanction of the Board of Revenue. Remissions of suspended revenue not covered by rule 12 are to be sanctioned by the Board of Revenue.

N.B.—It is essential that if suspension is to have its full beneficial effect the amount to be suspended should be settled and that the decision to suspend should be communicated to those who would otherwise have to pay rent or revenue before the day on which payment becomes due. In urgent cases, therefore, the Collector is authorised to pass immediate orders subject to the approval of higher authorities. In all cases the orders should be so published as to reach the people concerned in proper time."

(B)

RULES APPLICABLE TO THE DISTRICTS OF GANJAM AND KORAPUT

(a) *Season remission*—Detailed instructions relating to remission of assessment of wet lands and of water-rate on irrigated dry lands are contained in Board's Standing Order No. 13, which is reproduced below: "13. Season remission: The following rules relate to remission of assessment on wet lands, and of water-rate on irrigated dry lands."

N.B.—It should be distinctly understood that these rules and those in Standing Order No. 14 provide for concessions

which will be granted as a matter of grace and are liable to be modified from time to time at the pleasure of Government.

1. Notice of intention to ask for remission—

(i) *When and how to be given*—A ryot who desires to be granted remission must apply in writing to the Revenue Inspector of the Firka or Deputy Tahsildar or Tahsildar or Divisional Officer in time to allow of the inspection of the crop. Each such application must be presented before a specified date to be notified by the District Collector with reference to the harvest time. There is no objection to two or more applications being made on the same paper provided each applicant specifies the fields for which he desires remission and attaches his signature or mark to the application. Ryots who omit to apply will do so at their own risk and they should be warned that it is open to the Jamabandi Officer to refuse remission in all cases in which the crop has been cut, removed or grazed by cattle before inspection. Every endeavour should be made to have field inspections completed as promptly as possible.

(ii) *When the rule may be relaxed*—In special cases the Jamabandi Officer may, at his discretion, dispense with the submission of written applications and he may also, for sufficient grounds, condone delays in submitting such applications. The absence of application should not ordinarily be treated as a disqualification were azamaish has established the existence of the conditions required to make the land eligible for remission.

SECTION I—SETTLED TRACTS

2. *Case of total loss in which remission of the full assessment may be granted*—In settled tracts remission of the full assessment on single crop wet land will be granted where, owing either to deficiency or excess of water, the land is left west, or the crop is totally lost, provided that such excess or deficiency has not been occasioned by any act or neglect of the persons to whom the land belongs, or is not due to the neglect on the part of the ryots concerned to carry out the customary repairs to the irrigation work which forms the source of supply.

3. *Remission on double-crop lands*—(i) When granted on registered double-crop wet lands and compounded double-crop lands remission of the consolidated double-crop assessment will, subject to the proviso stated in rule 2, be granted if, owing to deficiency or excess of water, no crop is grown or all the crops grown are totally lost.

(ii) *Amount of remission*—On registered double-crop lands, only single-crop wet assessment will be charged if only one irrigated crop is secured and, subject to the proviso stated in rule 2, the other crop is owing to deficiency or excess of water, either not grown or is lost. This concession will not apply to compounded double-crop lands.

4. *Remission to be granted only for entire fields*—Such remission will be granted only when an entire survey field or recognised sub-division thereof is left waste, or when the crop on its entire area has totally failed, and not for portions of fields; but in cases in which a portion of a survey field is left waste and the crop on the remaining portion is lost the assessment on the whole field will be remitted subject to the proviso in rule 2.

5. *Constructive total loss*—Remission, as has been stated, is only granted when the field is left waste, or the crop is totally lost. It will be left to the discretion of Collectors to determine with due regard to the principles underlying the rules whether in any particular case the loss over the field as a whole may reasonably be rated as total.

SECTION 2—UNSETTLED TRACTS

6. *Cases in which remission may be granted*—In tracts which have not been settled by the Settlement Department, remission of the full assessment will be granted for total loss on wet land as in rule 2 and partial remission for partial loss on wet land when that partial loss is occasioned either by excess or deficiency of water, and such excess or deficiency has not been occasioned by any act or neglect of the persons to whom the land belongs, or is not due to the neglect on the part of the ryots concerned to carry out the customary repairs to the irrigation work which forms the source of supply.

7. *Partial remission how to be calculated*—In granting this partial remission no attempt will be made to estimate individual losses. Excluding fields which have borne a fair crop, as also occupied and unoccupied waste land, the ayacut of each irrigation work under which crops have been lost will be considered by itself. The condition of a sufficient number of the fields which have suffered will be examined, and the average percentage of loss determined.

8. *The calculated percentage loss how to be applied*—The demand in all the fields in which there has been a loss will be reduced by the percentage thus calculated. There is no minimum limit as to the size of a tract in this case, and nothing to prevent Collectors from adjusting the proportion of remission to a single village or the area under a single tank, or a proportion only of the latter. If in one and the same village where should be two or three separate sources of irrigation, under each of which the crop has partially failed, but with a marked difference of degree in each case, it will even be proper to give separate percentage remissions.

SECTION 3—GENERAL

9. *Remission when dry crops are cultivated on wet lands*—In all districts, whether settled or unsettled, where, owing to deficiency of water, dry crops are cultivated on wet land which must otherwise have remained waste, only dry assessment should, subject to the proviso stated in rule 2, be charged. By “dry assessment” is meant settled districts, the dry rate corresponding to the particular class and sort which the land bears as wet, and in unsettled tracts, the highest dry rate of the village, the entire village being considered and not any particular hamlet thereof in which the land may be situated; provided that in cases where the highest dry rate exceeds the assessment of the wet land, the Collector may, at his discretion, temporarily affix the rate of the dry land adjoining or the rate charged on dry lands of similar quality. This dry assessment will be levied on entire survey fields or recognised sub-divisions thereof irrespective of the extent cultivated. If one portion of a survey field or sub-division is

cultivated with dry crops and another with wet, the concession contemplated in this rule will apply if the wet crop is totally lost.

10. *Charge for a dry crop grown on wet land in certain cases*—When a dry crop is grown on single-crop wet land, but water becomes available in the irrigation source during any portion of the year, when it can be used for growing a wet crop, the usual wet assessment shall be levied. Where, however, no supply is received or the supply is received at a time when it cannot be used or in quantity insufficient for raising a wet crop, only the dry assessment shall be charged if the crop is not irrigated. If the dry crop is irrigated, the Collector may, at his discretion, charge either the full wet assessment on the entire field or the water-rate prescribed for the crop on the extent actually irrigated in addition to the dry assessment on the entire field, provided that in the latter case the combined charge does not exceed the single wet assessment on the entire field.

Note.—In the case of a wet field cultivated at the same time with more than one irrigated dry crop liable to different rates of water-cess, the rate of water-cess prescribed for the crop which covers the largest extent shall be applied to the total extent irrigated.

11. *Remission on compounded and other registered double-crop wet lands*—The concession contemplated in rules 9 and 10 will also apply to compounded and other registered double-crop wet lands; but it must be distinctly understood that double-crop wet lands may be charged dry assessment only if all the crops grown are dry and the water received in the irrigation source is not sufficient to raise a wet crop and is not used to irrigate any of the crops grown. If one or more crops are irrigated the appropriate water-cess shall be chargeable for crop on the extent actually irrigated in addition to the dry assessment on the entire field, provided the combined charge does not exceed the following maxima :—

(1) Compounded double-crop lands—the compounded double-crop rate.

(2) Other registered double-crop wet lands—

(a) when one crop is irrigated—single wet assessment.

(b) when two crops are irrigated—the consolidated double-crop wet assessment.

If the water received in the irrigation source is sufficient to raise a wet crop, wet rate shall be charged as follows whether the dry crops grown are irrigated or not:—

(1) Compounded double-crop wet lands—the compounded double-crop rate.

(2) Other registered double-crop wet lands.

NOTE.—In the case of a wet field cultivated at the same time with more than one irrigated dry crop liable to different rates of water-cess, the rate of water-cess prescribed for the crop which covers the largest extent shall be applied to the total extent irrigated in the field.

13. *Remission of water-cess*—Remission of water-cess on dry land will be allowed only when the crop is totally lost owing either to deficiency or excess of water, provided that such excess or deficiency has not been caused by any act or neglect of the persons to whom the land belongs; this rule applies not only to royotabari lands, but also to permanently settled and inam lands irrigated from a Government source. The same rule applies also to second crop charge on single crop wet lands.

NOTE.—Remission of water-rate may be granted on proprietary and minor inam land as well as on royotabari dry lands, which having once been irrigated with permission remain liable to water-cess under the rules in section B of Appendix I to Standing Order No. 4, paragraph 2; when they are left waste through excess or deficiency of water.

14. *Exemption from water-cess*—No water-cess will be charged on crops grown for fodder on a wet or irrigated dry land either immediately before the transplantation or immediately after the harvest of the principal wet crop, provided that the fodder crops are cut off or fed off, before they ripen seed and that they are used for the *bona fide* agricultural requirements of the cultivator himself. The concession is liable to be withdrawn if its exercise proves to be detrimental to the second crop revenue on a single-crop wet land or if water is irregularly taken for dry land. In order to ensure that the crops are not grown for sale, they should be brought to account No. 6 and the officer competent to charge water-cess should decide whether or not the concession should be

granted in each case. The crops should also be brought to village accounts Nos. 1 and 2 for statistical purposes.

NOTES.—(1) No condition will however be imposed for the irrigation of fodder cholam on dry lands and for the raising of fodder cholam as a second crop on wet land. The irrigation should not be irregular. No applications for water will be required if the land is wet or if permission to irrigate any crop in the fasli had been given in the case of dry lands. Provided the irrigation is not irregular no water-cess or second-crop charge will be levied for the cultivation of fodder cholam on dry lands or on wet lands as a second-crop.

(2) The concession in respect of the cultivation of cholam as a fodder crop also applies to cases where fodder cholam is irrigated as a first-crop prior to a wet crop on single-crop wet lands.

Green manure crops grown on wet or irrigated dry land will, until further orders, be subject to the following concessions, whether they are grown for the ryots' own use or for sale:—

(a) When they are raised in addition to other crops, they will be exempted from water-cess ;

(b) When they are raised on any land as the sole crop of the year, the charge to be made will be as follows:—

(i) In the case of dry land no remission of assessment will be granted but water-cess will not be charged.

(ii) In the case of single-crop wet land no assessment will be charged whether there was a possibility of raising another crop or not.

(iii) In the case of registered double-crop wet lands, if the supply of water was sufficient for only one wet crop, the full double-crop wet assessment will be remitted ; but if the supply was sufficient for two wet crops, the single-wet assessment will be charged and the difference remitted.

(iv) Compounded double-crop lands will be treated in the same way as ordinary double-crop lands.

The remissions contemplated in clauses (ii), (iii) and (iv) above shall be granted only on the areas actually cultivated with the green manure crop and are not subject to the restrictions laid down in Standing Order No. 13 (4). The grant of remission on any portions of survey fields or registered sub-divisions, not under green manure crops, will, however, be governed by the general rules.

The government reserve the right to withdraw the concessions after a year's notice either generally or in any particular locality.

15. *Refunds of remitted amounts already paid*—In all cases where remission is granted, refunds of remitted amounts already paid may be made under the rules for refunds elsewhere given; but remission of cesses does not follow on the remission of land revenue.

16. *Seed-beds*—In deciding claims to remissions, seed-beds should not be excluded from the benefit of the concession.

17. *Mamul waste*—No remission will be given in respect of "mamul waste".

NOTE.—"Mamul waste" is occupied land which is not cultivated regularly in a normal year and which it may be presumed would have been kept uncultivated even if the season and water-supply had been normal.

18. Suspension of the collection of charges which are certain to be remitted. By an order in writing detailing the reasons upon which it is based, tahsildars may suspend temporarily the collection of charges which are practically certain to be remitted at Jamabandi under this Standing Order submitting forthwith copies of such order to the Divisional Officer and to the Collector.

(b) *Suspension and remission of land revenue under exceptional circumstances*.—Detailed procedure has been laid down in Board's Standing Order No. 14 which runs follows:—

"14 SUSPENSION AND REMISSION OF LAND REVENUE UNDER EXCEPTIONAL CIRCUMSTANCES—*Relief under exceptional circumstances*—In very exceptional circumstances, i.e., on the occurrence of either widespread calamities such as famine, drought and general failure of crops, or of local calamities caused by hail-storms, floods, locusts and the like, suspension or remission of assessment may be allowed according to the following rules:—

(NOTE.—If owing to the operation of causes other those contemplated in this Standing Order, it should appear to the Collector that special measures of relief, whether by way of postponement of kist or otherwise, are required, he must at once submit a detailed report to the Board in order that the orders of Government may be obtained.)

A.—WIDESPREAD CALAMITIES.

1. *Grant of suspension or remission.*

1. Revenue Officers to take the initiative and submit proposals for suspension or remission. In seasons of exceptional drought or famine, when there has been general failure of crop, the revenue officers should take the initiative and make arrangements, as soon as the unfavourable character of the season has declared itself, for a thorough inspection of the crops and the submission, if necessary, of proposals for suspension or remission of revenue, on the lines indicated in paragraphs 2 to 6 infra, for the consideration and orders of Board and Government.

2. Circumstances to be considered in deciding whether any relief is necessary and whether it should take the shape of suspension or remission. In submitting the proposals for the grant of relief and as to the form it should take, Collectors should be guided by the following considerations among others:—

- (a) the outturn for the year of the dry crops, both early and late, in the tract reported on ;
- (b) the crop history of the tract during the two previous years ;
- (c) the abundance or paucity of its irrigation sources including wells, the irrigation results of the year and the question whether the dry cultivation is the main or a subordinate feature of the tract ;
- (d) the prices of produce prevailing in the year and the probability of prices ruling high in the next season also ; and
- (e) any special local circumstances which may indicate the need or the absence of need for relief.

3. *Suspension of revenue*—(i) Any suspension of the collection of revenue must relate to a definite kist and must be for a specified period, which cannot, without the sanction of Government, extend beyond the current fasli. Ordinarily any suspension of a kist within the fasli should be sanctioned

by the Board of Revenue. But it is desirable that any order granting a suspension of revenue should be made public before the date of collection arrives. Therefore if the sanction of the Board cannot be obtained before the date on which the collection of a kist should commence, the Collector may, by a formal order, postpone the collection of the kist for any specified period within the fasli. Such action should be immediately reported to the Board. As soon as an order, whether of the Collector or of the Board, directing the postponement of the collection of a kist, has been made, it shall be promptly published for the information of the ryots of the villages or tracts concerned by beat of drum and other means.

(ii) If the period for which the collection of any kist has been postponed under the last clause expires before definite orders as to the collection or remission of the kist have been received, the Collector should extend the period of suspension within the fasli, immediately reporting his action to the Board.

(iii) Suspension of revenue beyond the fasli and remission of revenue can be sanctioned only by Government. If, therefore, in exceptional circumstances, the Collector considers that suspensions beyond the fasli or remission of any kist which has been suspended under this paragraph is absolutely necessary, he shall submit his recommendation to the Board in sufficient time to allow the orders of the Board and Government to be obtained before the sanctioned period of suspension has expired or before the end of the fasli.

4. *Remission of revenue on wet lands*—(i) When the crop on wet lands is totally lost, remission may be granted under the rules for season remissions contained in Standing Order No. 13.

(ii) When the crop on wet lands is partially lost, remission may, if sanctioned by Government, be granted either in settled or unsettled tracts and will be determined in accordance with the rules relating to unsettled tracts in Standing Order No. 13, section (ii) and with reference to the average loss in the whole tract in which such remission is granted.

(iii) *Mamul waste*—The District Collector, when framing proposals for granting remission under clauses (i) or (ii) of this paragraph, may include wet mamul waste in the tract for which relief is proposed, provided that the land could not in any case have been cultivated owing to want of water and provided that his reasons for thinking that the holders of such land require special relief are at the same time fully explained.

NOTE.—“Mamul waste” is occupied land which is not cultivated regularly in a normal year and which would presumably have been left uncultivated even if the season had been a normal one.

(iv) Where it is impossible to determine a uniform rate for any given tract, as in cases where the loss, though considerable, is confined to limited areas, such as ayacut of a small tank, District Collectors may recommend for special sanction the grant, in lieu of an all-round percentage remission, of remission on those portions of recognised fields on which the crop has been totally lost, provided that each such portion is not less than one acre in extent and that arrangements can be made so that the Jamabandi Officer will be in a position to be satisfied in each case that the fields in respect of which remission is applied for have been properly inspected and the loss thereon duly verified.

5. Remission of revenue on dry lands—

(i) For loss of crop on dry lands remission may be granted if sanctioned by Government in accordance with the scale given in the next clause, but it must be given at uniform rates calculated not with reference to individual losses, but with reference to the average loss in the whole tract to which the relief is granted.

(ii) The scale on which remission may be granted—No relief will be granted in respect of tracts in which the average yield is one-half of the ordinary yield or more. When it is less, remission will ordinarily be granted on the following scale :—

When the yield is between one-half and one-third of an average yield.	From 25 to 50 per cent.
When it is between one-third and one-sixth	.. From 50 to 75 per cent.
When it is one-sixth or less	.. From 75 to 100 per cent.

NOTE.—In estimating the average outturn of an affected tract, the crop on all protected lands, *i.e.*, lands irrigated by wells, doruvus, etc., all lands occupied by permanent topes (date palmyra, etc.) as well as dry mamul waste lands should be excluded, but the crop on other fields which may have yielded fairly as well as land which has been left uncultivated owing to failure of rain should be included.

“Mamul waste” is occupied land which is not cultivated regularly in a normal year and which would presumably have been left uncultivated even if the season had been a normal one.

(iii) Relief on land left waste—For occupied dray waste other than mamul waste within the tract, the same rate of relief will be given as for land on which the crop has failed.

6. *Land cultivated without permission and minor inam lands*—Any concessions allowed to ordinary ryotwari lands may be allowed to lands cultivated without permission, provided that the Collector is satisfied that the cultivation is otherwise unobjectionable; also to minor inam lands charged with full assessment, or with a quit-rent or jodi equal to or more than the full assessment. Concessions to other minor inams will be allowed only in special cases, for which full reasons must be given by the Collector.

7. (i) Refunds—In all cases where remission is granted, amounts already paid may be refunded under the rules for refunds elsewhere given.

(ii) Cesses—Suspensions and remissions of land revenue will not ordinarily carry with them suspensions and remissions of cesses. Collectors should bear this in mind when recommending what proportion of the land revenue should be suspended or remitted. But when an instalment of the land revenue of any village is entirely suspended or remitted, the demand on account of cesses should be temporarily suspended and realised with the next instalment of land revenue that is actually collected, in order to save the individual revenue-payers from being harassed by petty demands in time of distress.”

2. *Adjustment of Suspended Revenue*

8. *Method of collecting suspended revenue*—Before the collection of suspended revenue is carried out, sometime should be allowed to ryots to recover from the effects of the

bad season which has necessitated the suspension. The revenue suspended under paragraph 3 above should therefore not be collected until one fair harvest subsequent to the failure has been reaped. Collectors should, about two months before the commencement of the kistbandi of the year following that in which revenue was suspended, submit for the consideration and orders of the Board and Government a report as to how the early crops of that year have fared and whether the whole of the suspended revenue and, if not, what portion thereof can be collected with the current kists. Similar reports as to the portion of the suspended revenue to be collected with subsequent kists should be submitted in succeeding years until the whole of the suspended revenue is either realised or written off.

9. *Circumstances justifying remission of suspended kists*—Revenue which have been under suspension for three years should ordinarily, and as a matter of course, be remitted and should, for that purpose, be included in the quarterly statement of irrecoverable arrears. Further, in the case of fully assessed tracts with a fairly constant at any outturn, the amount of revenue under suspension given time should not, as a rule, exceed the revenue demand of an ordinary year. When the amount suspended exceeds this limit, remission of the excess may ordinarily be recommended in the manner indicated above. These concessions are not applicable, as a matter of course, to unirrigated tracts of fertile soil where on account of the uncertainty of rainfall or other causes the revenue is pitched so low that in a really bumper year the people could, without hardship, afford to pay very much more than the revenue of a single year.

Example.—Revenue falling due to fasli 1317 is to be considered to have been under suspension for three years for the purpose of this rule, if it is not collected in faslis 1318, 1319 and 1320.

B.—LOCAL CALAMITIES

10. *Rules in regard to the relief to be granted*—The rules laid down in paragraphs 1 to 9 above in regard to the relief to be granted on occasions of widespread calamity will also

apply generally to the relief of distress caused by local calamities, subject to the following modifications:—

(i) Such relief, instead of being given on the same scale throughout the tract affected, should, as a rule, be based on a field-to-field inspection directed to the determination of the actual damage suffered by each individual;

(ii) the degree of relief to be granted will, instead of being regulated by the rates prescribed in paragraph 5 supra, be determined by Government with reference to the circumstances of each particular case;

(iii) in deciding whether relief is necessary or not, regard should be had not merely to the field affected but to the entire property or holding of the landlord or ryot to whom the field belongs and by whom relief is applied for.

(C)

POWERS OF GRANTING REMISSION

The powers of granting remissions by different authorities in respect of each Tahsil but not in individual cases are indicated below:—

	Rs.
Collectors up to	100
Revenue Divisional Commissioner up to	500
Board of Revenue up to	2,000
Government above	2,000

(D)

As there was drought and high floods during the years 1954-55 and 1955-56 and the crops were badly affected particularly in the districts of Cuttack, Puri and Balasore, Government in their order No. 112-P.B.R., dated the 14th April 1956, were pleased to order for suspension of land revenue in the flood affected areas of these three districts for 1955-56. There was a good crop during 1956-57. But in order to give the tenants opportunity to recoup the losses that they had sustained during the past two years, Government were pleased to announce in the Press Note a copy of

which was forwarded to all Collectors under cover of Memo. No. 9 4-R., dated the 26th January 1957, that the tenants are allowed to pay towards their dues, including their dues for 1957 April Kist, an amount not exceeding in all twice the annual demand, as immediate payment, but tenants in whose case certificates had to be filed for saving limitation will be allowed to pay $2\frac{1}{2}$ times the annual demand as instalment payment towards their total dues. In all such cases payment will be adjusted towards certificate dues at first and arrear dues next and the balance, if any, towards the current dues. In paragraph 5 of the said Press Note Government were further pleased to announce that each case of remission or abatement of rent in respect of holdings which are alleged to have been rendered unfit for cultivation by floods during years 1954-55 and 1955-56 should be decided on its own merits. The tenants were advised to submit their applications to the Anchal Adhikaris in respect of ex-Estate areas and to Tahsildars and Sub-divisional Officers for regular areas. In the Press Note dated the 22nd April 1957, a copy of which has been forwarded to all Collectors under cover of Memo No. 48 9-/R., dated the 22nd April 1957, the time for submitting applications for remission or abatement of revenue by the tenants affected by floods was fixed till the 31st July 1957. Accordingly some applications have been received in the different districts. They should be disposed of quickly if not already done according to the rules indicated above.

III. CHARGING OF INTEREST ON ARREARS

1. The rate of interest that has to be charged on arrears of rent and cess varies from area to area according to the law and rules in force in those areas. For example, under the Orissa Tenancy Act an arrear money rent shall bear simple interest at the rate of 6 per cent per annum from the expiration of the half of the agricultural year in which the interest falls due till the date of payment or of institution of the suit, whichever is earlier (Section 76). So far as Ganjam and Koraput districts are concerned, interest is collected at the rate of 6 per cent (vide paragraph 5 of B. S. O. 41). This is charged immediately after the close of the fasli year on arrears. Under the C. P. Tenancy Act, 1898 which is in

force in the Sambalpur district, interest on the arrears may be allowed up to the date of institution at such rate not exceeding 12 per cent per annum as the Court thinks fit. There is similar provision in section 82 of the C. P. Tenancy Act, 1920 which is in force in the Nuapara sub-division of Kalahandi district. In the Khasmahal areas Government are not so for charging any interest on arrears till certificates are filed. The position has changed after the abolition of the Zamindaris. Now most of the areas, in the State, have come under the direct management of Government. Government were considering for sometime past to levy a uniform rate of interest on arrears throughout the State. After careful consideration, they have been pleased to decide that interest at a uniform rate of 6 per cent per annum should be charged on arrears throughout the State from the current financial year (*see* rule 17 of the Rules for Revenue collection). Interest should henceforward be charged accordingly.

2. Legally interest is leviable if dues are not paid on the kist dates, whereafter they became arrears. It has been represented to Government that the revenue collecting agents are not able to approach all the tenants by the kist dates, as a result of which they are not able to pay their dues. In order that there may not be any hardship to the tenants on this score, Government have been pleased to decide that interest should be charged on the arrears remaining unpaid at the close of the agricultural year, fasli year or financial year as might have been adopted in different areas of the State for collection of revenue.

3. In order to give an opportunity to the tenants in the ex-Zamindari areas to clear up their arrears Government in their letter No. 8001—E.A.-43/56-I, dated the 8th November 1956 to the address of all Collectors were pleased to order that if the tenants pay up their arrears before the 31st March 1957, then no interest should be charged as of grace. In their letter No. 1309-R., dated the 30th April 1957, a copy of which has been forwarded to all Collectors by the Board of Revenue in its Memo. No. 2315-E.A., dated the 3rd May 1957, the time-limit was extended till the 30th June 1957, in respect of the ex-Zamindari areas which were affected by flood and drought in the districts of Cuttack, Puri, Balasore and Keonjhar. This was further extended up to the 30th

September 1957 in G. O. No. 10649-R., dated the 22nd July 1957 communicating to all Collectors in Boards Memo. No. 4638-E. A., dated the 27th July 1957. Government were further pleased to order in the aforesaid G. O. that interest if any collected on the arrears pertaining to the years 1954-55 and 1955-56 should be adjusted at the time of collection of rent in the ensuing kist. It is presumed that action has been taken by the Collectors accordingly. After this period the arrears remaining unpaid will bear usual interest. A doubt has arisen in certain quarters as to whether any interest should be charged during the period for which collection of revenue was suspended. From the rules quoted in section II(A) above it will be noticed that according to the provisions of the Bihar and Orissa Tauzi Manual, no interest shall be charged for the period of suspension of revenue. It is presumed that Collectors are acting accordingly. If in any particular case, interest for the suspended period has been collected it should be adjusted as advance collection of rent.

IV. EXECUTION OF CERTIFICATES

21. It has come to the notice of Government that in some cases for petty some certificates are being filed. It has further been represented that the tenants are not approached by the collecting agents for payment of rent and cess and large number of certificates are being filed for recovery of arrears. Although coercive measures are ultimately to be taken for recovery of arrears, certificates should be filed when the payment is not made in spite of personal approach by the collection agents or when a person refuses or avoids payment. Certificate cases should ordinarily be filed if the arrear is not paid by the end of the next kist day after the due date of payment or within three months from the date on which the amount falls due whichever is later (*see* rule 20 of the Rules for collection of land revenue in the State of Orissa). For petty amounts particularly for arrear of less than one rupee, coercive measures should not ordinarily be adopted. Attempt should be made to collect such arrears by contacting the defaulters concerned. But where payment is not made by the tenant in spite of personal approach by the revenue collecting agency, certificates should have to be filed. When certificates are filed for small amounts, it is the

duty of the supervising Officers to locally check the reasons for such arrears (rule 23 of the rules for collection of land revenue in the State of Orissa) 20/11/57.

2. One of the main defects noticed in the execution of distress warrants is that the execution programme is not planned according to the cropping pattern of different areas. It will be convenient for the tenants if the distress warrants are executed immediately after the harvest of different crops. This was impressed on all Collectors in G. O. No. 15666-R., dated the 18th September 1957. It has been reiterated in G. O. No. 1337-R., dated the 16th January 1958, to the address of all Collectors. Henceforward the execution of certificates will be so arranged that they correspond to the time when the tenants have a crop from which they can pay.

V. CHARGING OF MUTATION FEES

Rule 3 of the Rules for Mutation issued by the Board of Revenue with the prior approval of Government clearly gives indication about the rate at which Mutation fee has to be charged. It has been made clear therein that when fee has been paid for service of notice under section 31 of the Orissa Tenancy Act, no further fee for Mutation should be charged. For mutation of tenures in the ex-Zamindari areas of Cuttack, Puri and Balasore districts where Orissa Tenancy Act is in force, fee as permissible under sections 14, 15 and 16 of the Orissa Tenancy Act will be charged.

An Amin fee of Rs. 0-12-0 for the first two plots and Re. 0-2-0 for each subsequent plot are chargeable under the Milan Khasra Scheme. This is because new authentic records are being prepared for the benefit of the tenants. An application fee of Rs. 1-8-0 is payable by those tenants who desire to have a copy of an extract of the final orders. It is not compulsory for those who do not desire to have a copy.

Yours faithfully,

R. P. PADHI,
Secretary to Government.

No. ANI. 1055/13149-H.

Revenue and Industries Department
Sachivalaya, Ahmedabad,
Dated the 24th May, 1963.

From

The Under-Secretary to the Government of Gujarat,
Revenue and Industries Department.

To

The Chairman,
Annewari Committee, Government of Maharashtra,
Bureau of Economics and Statistics,
Sachivalaya, Annexe, 6th floor, Bombay 32.

SUBJECT.—*Making of crop annewari for regulating grant of suspensions and remissions of land revenue.*

Sir,

I am directed to refer to the correspondence resting with your letter No. 358, dated 2nd January 1964/2nd February 1963, on the subject noted above, and to state that no changes in crop annewari has been made by this State after bifurcation and hence the procedure as was adopted and followed during the ex-Bombay State is followed by this State.

It is, therefore, considered that no information on the points as requested by you is necessary to be furnished by this State.

2. This State has issued orders for prescribing the procedure for working out average classification annas. A copy of Government Resolution Revenue and Industries Department No. ANI. 1055/13149-H, dated 15th May 1963, is enclosed for your information.

Yours faithfully,

M. R. Vyas,

Under Secretary to the Government of Gujarat,
Revenue and Industries Department.

Annawari
Average soil
Classification
Determination of

GOVERNMENT OF GUJARAT
REVENUE AND INDUSTRIES DEPARTMENT

Resolution No. ANI. 1055/13149-H,

Sachivalaya, Ahmedabad,

Dated the 15th May, 1963.

Read.—Government Resolution, Revenue Department,
No. ANI. 1055/162778-C, dated 31st May 1957.

2. Letter No. REV, dated 3rd September 1959, from
Commissioner, Ahmedabad Division.
3. Letter No. REV. 314, dated 18th December 1962,
from Commissioner, Baroda Division.
4. Letter No. L. R. 264, dated 16th January 1961, from
Settlement Commissioner and Director of Land
Records.

Reference.—Government endorsement, Revenue Department,
No. ANI. 1058/178424-D, dated 21st November 1958.

In this case the point for consideration is "how to determine average soil classification for each crop in the district as a whole for the area (i) scientifically settled and (ii) not scientifically settled."

For finding out the average soil anna value of a tract growing a particular crop, normally the correct method would be to find out the assessment and the average of the lands growing that crop in a tract which may consist of one survey group of more than work out the average assessment for that tract for the Particular crop and then divide this average rate by the standard rate for that tract as given in the settlement report/Kayam Kharda. This resultant figure should then be multiplied by normal soil anna valuation viz, 16. This

would give the average soil anna value for the particular crop in that area. Ordinarily, the tract will comprise of more than one survey group with different standard rates of assessment. In order therefore to reduce the margin of error involved in taking the standard rates of assessment. In order therefore to reduce the margin of error involved in taking the standard rate of only one group, it would be appropriate to work out the average of the standard rates of the Survey groups included in a tract.

For example, suppose the average rate of assessment of Bajri crop in a particular tract or survey group is Rs. 3 per acre and the standard rate of the said tract is Rs. 4, the average soil classification annas of Bajri crop for that tract would come to $(\frac{3}{4} \times 16)$ 12 annas.

Similarly average soil classification for all crops of the Talukas should be determined for all such tracts separately and thereafter to average soil classification value worked out for each crop for the district as a whole.

After all, the annewari is in the very nature of it is an estimate of the outturn and it aims at having as accurate an estimate as possible of the expected yield in a season. It cannot therefore be made cent percent correct. The Settlement Commissioner and Director of Land Records has also not suggested any better solution.

As regards the second point relation to the merged areas which are not scientifically settled, the suggestion made by the Settlement Commissioner and Director of Land Records in the concluding portion of paragraph 2 of his endorsement No. L.R. 268 dated 25th March 1958 may be adopted.

In G.R., R. D., No. A.N.I. 1055/162278-C of 31st May 1957, Government have issued orders to follow the procedure as adopted by the Collector of E. Khandesh to work out the average soil classification of a crop for the district as a whole, for the purposes of annewari. In this connection, it seems the Collector of P. Mahals raised the following points.—

- (1) What should be the classification value in terms of annas of good, medium and inferior lands of the merged areas; and

(2) What should be the procedure to be followed for computing the average soil classification of the crop for the district as a whole.

In his endorsement No. L.R. 268 of 25th May 1958, the Settlement Commissioner and Director of Land Records, Poona, has offered his views.

2. The various Commissioners have given their views in view of the conditions obtaining in their Divisions. After bifurcation of the State, the method adopted by the Collector of East Khandesh for arriving at the average soil classification of a crop in the district cannot be of much use, in this State. East Khandesh District wholly comprised of union settled areas and no merged areas had integrated in the district. Therefore for all the areas in the district, Settlement reports giving the average assessment per acre for each class of land in each settlement group is available. In every district of Gujarat, the position is quite the otherwise. Of the total number of 17 districts in the State, only 5 districts existed during the pre-merger period. Even these districts have today got more than 50 per cent areas (except in Ahmedabad and Kaira districts) which are merged. The areas which have merged have been covered the L.R. Rs. 19, N and O and section 7 of the Jagiri Abolition Act in the Gujarat Area of the erstwhile Bombay State. L.R. R. 17 and Government orders regarding remission in respect of deemed settled villages in Saurashtra area and L.R. R. 19 U in Kutch area. After the implementation of the rules and orders stated above, no appendix has been prepared wherein contiguous villages governed by the same rates have been brought with their averages and assessments, so as to be able to work out the average soil classification of a crop of a district as a whole. In the circumstances, I would propose that in this State the most practicable course for adoption for this purpose would be as proposed in S.C. & D.L.R.s No. L.R. 268 of 19th May 1955 printed in the preamble of the G. R. of 31st May 1957 viz., selection by the Collectors by random sampling method of the S. Nos. growing different crops from the villages of the district also to be selected by random sampling method and then to work out separately the average of the soil.

The size of the sample may also be prescribed as stated classification annas of the S. Nos. growing different crops therein with a view to keep the sampling error low. As a further precaution, the selection of the villages and the S. Nos. may be made by the Collector in consultation with the Director of Agriculture or the Director Agricultural Officer.

3. Adoption of the above method is all the more necessary as implementation of the above rules have given different results in adjoining villages and the villages are not grouped as in the case of Settlement groups.

4. Where, in any particular village, lands are not classified by this Department and the *ad hoc* classification obtains, the classification values of good, medium and inferior lands may be ordered to be taken as 14 & 5 respectively as proposed in the concluding sentence of paragraph 2 of the S.C. & D.L.R.'s endorsement No. L.R. 268 of 25th March 1958.

The two points posed by the Settlement Commissioner and Director of Land Records are:—

- (1) What should be classification value in terms of annas of superior, medium and inferior land of the merged areas, and
- (2) What should be the procedure followed for computing the average soil classification of the crop for the district as a whole.

On receipt of this reference, I had called for remarks of some Collectors, who had mainly to deal with such areas. The Collector, Panchmahals, has suggested that the merged area should be totally omitted while arriving at the soil classification value of the district as a whole as such omission will not matter much because the soil anna value of the villages of the comparable union area will certainly reflect the correct picture while determining the average soil classification of the district for the particular crop.

He was, however, agreed to the suggestion of the Settlement Commissioner and Director of Land Records that for the purpose of computing the average soil classification of the crop for the district as a whole, the random sampling method may be adopted.

The Collector, Broach, on the other hand has agreed in total to the proposals of the Settlement Commissioner and Director of Land Records under reference.

As the question of adopting the arbitrary anna valuation of soil in the scientifically not surveyed and settled area suggested by the Settlement Commissioner and Director of Land Records would be confined only to a limited area of this division and the proposal of the Settlement Commissioner and Director of Land Records may, therefore, be given a trial to see how it works in absence of a better alternative.

As regards the procedure to be followed for computing the average soil classification of the crop for the district as a whole, I entirely agree with the Settlement Commissioner and the Director of Land Records as the proposal made by him appears to be only practical one in the present circumstances.

RESOLUTION.—The question, as to how the average of soil classification in Annas for different crops should be worked out in each talukā of a District (i) for the areas where actual classification of soil has already been done, (ii) the area where no classification has been done—was under the consideration of Government.

2. After consideration Government is pleased to direct that the average soil classification under different crops should be worked out by random sampling or by taking crop experiments of different crops in the taluka. The average annewari classification of the land should then be worked out.

3. In areas where soil classification has not been determined the average soil classification under different crops should be calculated roughly with reference to three board classifications viz., good, medium, and inferior. It is not necessary to work out the average soil classification in both types of cases every year, but it may be undertaken once a while. However, as the figures of standard yield are under process of fixation, the procedure for fixing average soil classification of land under different crops should be taken up

simultaneously.

By Order and in the name of the Governor of Gujarat,
 M. R. VYAS,
 Under Secretary to the Government of Gujarat,
 Revenue and Industries Department.

To:

All Commissioners,
 Settlement Commissioner and Director of Land Records,
 All Collectors,
 The Director of Agriculture,
 The L. Branch, Revenue and Industries Department.

GOVERNMENT OF WEST BENGAL
 LAND AND LAND REVENUE DEPARTMENT, LAND
 REFORMS BRANCH

From

Shri H. L. Chakravarti, M.A., B.L., W.B.C.S.,
 Deputy Secretary.

No. 12180 L. Ref., dated Calcutta, the 24th July, 1963/
 2-5-1885.

To

The Secretary to the Government of Maharashtra,
 Education and Social Welfare Department and
 Chairman, Annawari Committee,
 Sachivalaya, Bombay-32.

Sir,

I am directed to refer to your letter No. 358, dated the 2nd January 1963, regarding making of crop annawari for regulating grant of suspension and remissions of land revenue and to say that the general crop-annawari for a village is not prepared in this State. However, a copy of the report of the sample surveys undertaken in the State is forwarded herewith for information.

The suspension or remission of land revenue is granted in the State on consideration of the extent of failure or damage of crop and also loss suffered by each tenant in comparison with his total income. An extract of the relevant rules from the West Bengal Touzi Manual is enclosed herewith for information.

Yours faithfully,
 H. L. CHAKRAVARTI,
 Deputy Secretary.

(See Rules 150 and 166.)

Extract from Chapter XIV of the West Bengal Tauzi Manual, 1940, regarding suspension and remission of land revenue on account of agricultural calamities.

168. The Resolution of the Government of India No. 3-99-2, dated the 25th March 1905 (reproduced in Appendix E), lays down the principles to be followed in granting suspension and remission of land revenue during agricultural calamities. The main object in view is to give relief to the cultivating classes when they are unable to pay their rents on account of failure of crops. The following rules are based on these principles for the general guidance of Revenue Officers.

Introduc-
tion.

169. Agricultural calamities shall be classified as—

- (a) "widespread", such as famine, drought, and general failure of crops over whole estates and over large areas; and
- (b) "local" or isolated, such as are occasioned by hail, floods, locusts and the like in which the failure of crops is not uniform and does not extend over large areas.

Classifica-
tion of
calamities.

170. The rules below apply, however, in the main to both classes of calamities: the only specific exceptions relating to "local" calamities are those contained in rules 175 and 180 which contemplate a field-to-field inquiry in such cases. In dealing with "widespread" calamities, on the other hand, relief, if it is to be as prompt as is essential, must be based on information relating to entire villages or homogeneous groups of villages.

Applicability
of the rules.

171. In deciding what proportion of the land revenue should be suspended or remitted, the Collector should take into account the fact that, in accordance with the principles laid down in the Government of India's Resolution No. 13-356-10, dated the 21st August 1906 (vide Appendix F), where

Effect of
suspension
or remission
of land
revenue on
cess
demand.

only a proportion of the land revenue of an estate is suspended or remitted, the cess will nevertheless continue to be collected as usual; but that where an instalment of land revenue is wholly suspended or remitted, the cess demand will be suspended and should be realised with the next instalment of land revenue which is collected.

Estates directly managed by the State Government.

Inquiry in the case of widespread calamity.

172. When the Collector has reason to believe that there has been, or will be, so great a failure of crops as to render it probable that suspension or remission of land revenue may be necessary, he shall at once either himself proceed, or shall depute an officer of as high a rank as may be available but not below the rank of a Kanungo, to make an enquiry into the extent of the failure in the estates affected by the calamity.

Proportion of land revenue to be suspended or remitted.

173. On receipt of the officer's report, and after such test of the report as may be possible, the Collector shall decide whether the calamity is to be treated as belonging to class (a) or to class (b), and shall proceed to determine the amount of revenue which should be recommended for suspension or remission, as the case may be.

Immediate relief.

174. In the case of a widespread calamity, the enquiry under rule 172 shall be made as promptly as possible, and, to obviate delay therein, the Collector may, in submitting his original proposal, base his report as to the degree of, immediate relief necessary on the agricultural conditions of entire villages or homogeneous groups of villages.

If, after making such report, the Collector finds reason to believe that the agricultural conditions of any village have been incorrectly reported, he may submit a modification of his original proposal accordingly.

Form of relief.

175. In the case of a widespread calamity, relief shall, where possible, be given in the first instance in the form of suspension of land revenue.

In cases of local calamities, where field-to-field inspections have been made and properly checked remissions may be made

without preliminary suspension when the circumstances, in the opinion of the authority competent to sanction remissions, justify it.

176. In submitting his proposals for suspension or remission, the Collector shall have regard to rule 171 above, and shall take into consideration the relation which the crop, which has failed, bears to the sum total of the crops of the year on the area affected, as well as the previous history of the tract affected.

Method of calculation of damage.

Explanation.—If the winter crop normally represents 60 per cent. of the year's crops and the summer 20 per cent. and the spring 20 per cent. and if 50 per cent. of the winter is lost and the summer has been an 80 per cent. crop and a 75 per cent. spring may be anticipated, the calculation is

$$\left(\frac{60}{100} \times \frac{50}{100} \right) + \left(\frac{20}{100} \times \frac{80}{100} \right) + \left(\frac{30 + 16}{100} \right) = 46$$

per cent. for the crops already secured, and a probable

$$\frac{75}{100} \times \frac{20}{100} \text{ or } 15$$

per cent. on account of the spring crop expected. Such a loss of crops would not ordinarily by itself constitute a sufficient ground for recommending suspension of revenue, unless the previous history of the tract is unfavourable.

177. The suspension or remission of revenue shall not ordinarily be granted except in the case of a failure which causes a loss of more than half the normal crops of the whole year. The case of every village or homogeneous group of villages shall be considered on its merits, and no relief shall be given, unless it is found necessary.

Limitation on grant of relief.

178. The Collector shall, however, take into consideration the crops of the two preceding years, and where the crops of these two years have been less than half the normal, or where any revenue is already under suspension, the provisions of rule 177 may be relaxed and a special recommendation for suspension or remission may be made. Similarly, if the result of such an examination is favourable to the area, the suspension or remission may be less than the scale.

Consideration of crops of previous years.

Scale of relief.

179. A scale of relief is laid down below for general adoption, which shall be taken as a maximum scale and should not be exceeded except in special cases for which there is a full and satisfactory explanation:—

Actual outturn of the year's crops (normal outturn being 100)	Degree of relief
(1)	(2)
	Per cent
40 per cent. and less than 50 per cent. of the year's normal crops.	25
25 per cent. and less than 40 per cent. of the year's normal crops.	50
Less than 25 per cent. of the year's normal crops	100

Inquiry in the case of local calamity.

180. In dealing with local calamities falling under class (b), as a field-to-field inquiry will have been made of the extent of the failure, consideration shall also be given to the loss suffered by each tenant in comparison with his total income, and no relief shall necessarily be given to a tenant whose crops or whose sub-tenants' crops have been destroyed upon fields forming only a small portion of his entire tenancy.

Principles of remission.

181. It shall be the business of the Collector to make recommendations for the remission of revenue when he considers it necessary, and in doing so he shall be guided by the principles laid down in paragraph 12 of the Resolution of the Government of India (cited in rule 168), which are here reproduced:—

"As soon as it becomes clear that it will be inadvisable to collect suspended revenue or any particular portion of it, it should be remitted at once. It is most undesirable to keep suspensions hanging for long over the heads of the revenue-payers; and the Government of India are of opinion that revenue which has been under suspension for three years should ordinarily be remitted as a matter of course. They are also prepared, in the case of fully assessed tracts with an outturn which is fairly constant, to accept a rule which would limit the amount of revenue under suspension at any given time to the equivalent of the revenue

demand of an ordinary year. In the latter case it would not follow that when suspension exceeded the limit, the whole amount suspended should be remitted, and logically speaking, only the balance by which they were in excess should be so dealt with. But in the case of calamities so severe as to call for heavy suspensions, greater liberality than this will, no doubt, be desirable. An absolute and general rule that the amount under suspension should never exceed a year's revenue would be open to objection, since there are many areas of fertile soil where there is no irrigation and the rainfall is uncertain in amount, and where on account of this uncertainty revenue is pitched so low that in a really bumper year the people could pay very much more than the revenue assessed without the slightest inconvenience."

182. Where the damage caused to the crop is so severe that the Collector thinks that no portion of the suspended revenue should be collected afterwards, he shall, except in cases in which under the ordinary rules he has power to sanction remissions, at once report to the Commissioner the amount to be remitted. Where, however, he thinks that only a portion of the revenue should be remitted, he shall report to the Commissioner the percentage of revenue to be remitted. The balance in such case and in cases in which no remission is granted the whole of the suspended revenue shall be recovered from the tenants in such instalments as may be fixed, with the approval of the Commissioner, with reference to the character of the succeeding harvests from which it is recovered and the condition of the tenants at the time.

Remission and collection of suspended revenue.

183. In every case full notice shall be given to the tenants concerned of the order of suspension or remission, if possible, one full month before the date when the instalment falls due, and in any case before collection of the instalment would ordinarily begin. The system of merely abstaining to collect without any declaration as to the amount to be suspended shall be discarded.

Intimation to tenants.

184. As a general rule, no suspended revenue shall be collected until after the fair harvest subsequent to the failure has been reaped in the affected tract.

Postponement of collection until after one harvest.

Report to
Commissioner
before
recovery of
an instal-
ment.

185. The Collector shall report to the Commissioner, at least two months before the first instalment for any harvest falls due, the amount which he proposes to recover out of the suspended demand from the proceeds of such harvest, in addition to the current demand payable for such harvest.

Relief to
extend to
under-
tenants.

186. The grant of relief to rent-payers shall be made conditional on their giving relief to under-tenants of all degrees.

Power to
sanction
suspension.

187. The Collector has power to sanction the suspension of the collection of revenue or rent for the year in which suspension is granted, but where the amount involved exceeds Rs. 5,000 in the aggregate, such suspension shall be provisional only and shall be subject to the confirmation of the Commissioner. When the Commissioner sanctions suspensions exceeding Rs. 10,000 in any one district in the aggregate, he shall at once report the fact for the information of the Board and of the Accountant-General. All suspensions for a longer period than one year require the sanction of the Board.

N.B.—It is essential that, if suspension is to have its full beneficial effect, the amount to be suspended should be settled, and that the decision to suspend should be communicated to those who would otherwise have to pay rent or revenue, before the day on which payment becomes due. In urgent cases, therefore, the collector is authorised to pass immediate orders subject to the approval of higher authorities. In all cases the error should be so published as to reach the people concerned in proper time.

Power to
sanction
remission.

188. The power to sanction remissions of revenue or rent suspended on account of agricultural calamities shall rest with the authorities competent to sanction remission of unrealisable revenue or rent in estates managed direct. But where the amount exceeds the revenue or rent for a whole year, the sanction of the Board is necessary. Remissions should be granted as soon as it becomes clear, after proper inquiry, that it would be inadvisable to collect the revenue or rent of any portion of it.

189. The Commissioner should settle the instalments in which suspended revenue, which is not remitted, should be collected. Instalments of realisation to be settled by Commissioner.

196. In all cases of suspension under these rules subsequent collection of such revenue or rent shall be made without interest. Collection of suspended revenue free of interest.

Report on the Sample Surveys for estimating acreage and yield rates of various crops in the three crop seasons in West Bengal during the year 1952-53.

1.0. Introduction.—A consolidated report on the sample surveys carried out by the State Statistical Bureau in respect of the major crops in the three crop seasons of 1951-52 was recently submitted to the Government. In the present report is consolidated the results of the survey in respect of the three crop season of 1952-63, i.e., Jute-Aus season is shown in Table (1). It may effect from the Jute-Aus or autumn season of 1953-54, self-contained reports will be submitted separately for each crop season.

2.0. A description of the surveys in all their aspect is given in the following paragraphs.

2.1. Area under Survey.—The area under survey was the entire State of West Bengal including Cooch Behar. Reserve forests, big river beds, small pockets of lands in Eastern Pakistan, municipal areas and the hilly regions of the district of Darjeeling were excluded. Details of the area covered in the first crop season of 1952-53, i.e., Jute-Aus season is shown in Table (1). It may be noticed that the areas for various districts as shown in the corresponding tables in the report for 1951-52 have been slightly amended during the year 1952-53. This has been done in consultation with the Director of Land Records. It may, however, be noticed that the amendments were comparatively small in magnitude. It

may also be noticed in the table that figures for total areas of the districts as published in the "Monthly Statistical Digest" of the Bureau on the authority of the Director of Land Records, do not agree with the totals obtained by adding up the areas shown in the thousands of the mauza maps or village records. The two sets of district totals have been shown, one against the other, in the last two columns of the table. It may further be noticed that continued examination of the records of which the aforesaid amendments are the results has now reduced the discrepancy between the different sets of records to such an extent that the difference may now be ignored as far as the estimates of crops are concerned. The area under survey remained the same in the two successive seasons. It will be seen that total area under survey was of the order of 17 million acres.

2.2. **Sample Size and Unit.**—The size of the grid remained the same, that is 2.25 acres. Although it varies from crop to crop depending on the intensity of cultivation, the variability aimed at in the estimate of acreage was of the order of 1 per cent. for the State and 5 per cent. for a district. As in the preceding year a sample of one grid for every half square mile was drawn systematically from the mauza maps. A fresh sample was drawn before the commencement of the survey in 1952-53.

2.3. **Selection of Samples and Stratification.**—As in the year 1951-52 the Bureau adopted the simplest stratification by considering the jurisdiction of each thana or police-station, that is, the smallest administrative unit in the State as a stratum. Several police-stations constitute a sub-division and several sub-divisions constitute a district. There are 14 districts in the State excluding Calcutta. Samples were selected separately for each stratum, i.e., each police-station but the density of samples was the same in each. Two sample units were selected at random by using random co-ordinates on each square mile of the area under survey. Random selection of an adequate number of sample units (at 2 per square mile) over a bigger area, say a thana or a district, was not adopted in this case as the procedure mentioned first would ensure a more uniform coverage of the area under survey.

The sample, therefore, may be regarded as a systematic sample, randomness being obtained by selecting the initial grid at random in each stratum. In order to select the samples, the village, i.e., mauza maps of a police-station were arranged serially and cumulative totals of the area in square miles noted on each map. The area of a mouza is about $\frac{1}{2}$ square mile on the average including all lands and water surfaces, etc. Any map would, therefore, be allotted as many grids as there are 0.5 and integral values contained in the spread of the cumulative total over that map. It will be seen that the chances of any map being excluded were very small. It should, however, be pointed out that the samples would not be as uniformly spread out as could be wished in so far as a smaller village might receive two grids whereas a larger village only one. For example, a large village of an area of 0.9 square miles would receive only one grid. If the cumulative total area at the next village is 1.5 square miles that village, although its area is only 0.6 square miles, would receive 2 grids. But it is clear that over a larger area the average of two grids per square mile would still be maintained.

2.4. Interpenetrating sub-samples.—The odd and even number of grids were divided into two interpenetrating sub-samples. Workers were supplying with and asked to enumerate the first sub-sample first and report to headquarters when about 75 per cent. of the sub-sample would be covered. The list of the second sub-sample was given to the workers after information about the completion of enumeration in respect of the aforesaid 75 per cent. of the first sub-sample had been received at headquarters. No attempt was made to have the two sub-samples investigated by different batches of workers. A third sample, small in number, was, however, selected at random from the above two sub-samples to be enumerated by a batch of more experienced investigators placed under an independent control for the purpose of checking the enumeration carried out by the primary investigators engaged in the two sub-samples. These comparative records were meant for intensive studies with a view to developing a technique of supervision and control of quality of the work of the field staff. The sample checking

by this batch of investigators was conducted quite independently and in such a manner that the primary worker would have no prior knowledge as to which part of the work would be checked. The results of the studies will be discussed later in this volume. But the process itself proved very effective from the administrative point of view. Prompt and effective remedial action wherever discrepancies were actually found reduced the chances of errors considerably. Apart from this check by an independent set of investigators a further check was obtained with the help of the Inspectors. Spot checking along with the primary investigators was reduced to a minimum and restricted to cases where personal supervision and guidance from the Inspectors were called for. In all other cases inspection consisted mainly of duplication of the enumeration of a certain percentage of grids selected specifically for the purpose. Results of these duplications have been discussed later in this report.

2.5. Crop-cutting Experiments.—Previously importance was given to the consideration of the time lost by the investigators in travelling to the plots selected for crop-cutting experiments. It was, therefore, the practice to concentrate crop-cutting experiments round a number of centres selected at random within zones of 25—30 square miles in every district. Experience gathered during the three seasons in 1951-52 indicated that better results could be obtained if the samples were selected uniformly throughout the entire area under survey. Accordingly it was decided to select a sufficient number of grids for crop-cutting experiments from one of the sub-samples at random. This would ensure the desired even distribution over the stratum. The first sub-sample which was enumerated first was chosen for the purpose. The list of samples for crop-cutting experiments was supplied to the investigators at the commencement of area survey. This enabled the investigators to get acquainted with the plots as well as their owners during the survey of the first sub-sample. As contact with the owners would be necessary at the stage of crop-cutting experiments the investigators could proceed with the experiments later in the season with the least possible delay. Their contact with the owners also enabled the investigators to get an approximate idea about the time at which the crop could be harvested. The loss of

time on account of increased travelling during the crop-cutting experiments under the new procedure was thus largely compensated for. In every police-station thirty per cent. of the grids were selected at random from the first sub-sample and lists were prepared at headquarters arranging the numbers in order of selection. The field investigators were directed to take only one cut for each of the two crops, namely, jute and aus, from any of the selected grids. Thus the investigators were allowed to take a maximum of two cuts, one for jute and another for aus, from any one of the grids. The maximum number of cuts fixed for any primary worker was, however, thirty. If any worker secured total of thirty cuts without exhausting all the allotted samples and if the number of cuts in respect of either of the two crops, namely, jute and aus, was less than five, he had to proceed to the remaining grids so as to secure a total of at least five cuts in respect of that particular crop, if available. The size of the cut in respect of both the crops was the usual circular area of about 100 square feet divided into three concentric circles of radii 2 feet, 4 feet, and 5.63 feet, respectively.

2.51. The sample within the plot was to be located with the help of pairs of random numbers supplied to the primary workers. The first random number of the pair gave the number of steps the worker was to measure along the length of the selected plot from one corner and the second number gave the number of steps he was required to walk into the plot at right angles to the length of the plot. The point located in such a manner would be the centre of the sample, that is, of the three concentric circles from which crop was to be cut. This random point (or centre of the sample) must, of course, be located within the selected plot and enable the circular cut (in all its three stages) to be made entirely from within the plot in question. The pairs of random numbers were therefore to be tried seriatim one after another, as arranged in the list, till the above conditions for location of the sample were fulfilled.

2.52. It has been stated earlier that the lists of samples for crop-cutting experiments was prepared at headquarters. The field staff were required to try the plots in the order in which they appeared in the list. The list of sampled grids*

for crop-cutting purposes contained a larger number of samples than what would be actually taken as a safeguard against cases of drawing samples with no crop at all or from which crop had already been harvested.

2.53. During crop-cutting work the workers were instructed to re-survey the grids selected for crop-cutting work. This would supply material for estimating the acreage under different crops at harvest time. In practice, however, this objective could not be attained on account of the fact that staff available was too inadequate to enumerate the entire sample selected for the purpose without hampering the progress of routine work. Further, for the same reason enumeration was not possible in respect of these grids which had been included in the sample but did not have the crop in question.

2.54. In the case of aus the workers were required to take the actual weight in tolas of the paddy after thrashing. For convenience of reference these are called "green" weights.

2.55. Workers were also required to ascertain the ratio between the weight of the freshly harvested paddy and that of paddy after drying. A certain percentage of the collected samples of each worker was to be dried for about ten days and weighed again for the determination of this ratio.

2.56. No attempt was made to determine the ratio between the weight of cleaned rice and the corresponding quantity of dried paddy. The ratio was taken to be 0.67 throughout the entire State according to the usual practice.

2.57. In the case of jute, estimates of total production of jute (green plant) were prepared on the basis of similar experiments district by district. In order to estimate the ratio between the weights of dry fibre and the corresponding green plant experiments were conducted in a limited number of centres in the various districts on the crops collected from a number of plots selected around these centres. It should be noted that extraction of dry fibre from the green jute plant requires a degree of technical skill on the part of the cultivator. It also requires a suitable supply of water for retting and washing purposes. In conducting these experiments the

investigators of the Bureau were instructed to see that retting and washing, etc., were done properly and it is presumed that they secured the best conditions available within reasonable distances from the sites of the respective cuts. As the estimates of yield rate and total production of dry fibre presented in this report are based on the results of the experiments conducted under such conditions these may be used with caution giving due consideration to the availability or otherwise of adequate facilities for retting, washing, etc., in the area as a whole because it may be presumed that the yield of dry fibre will depend on the availability of such facilities. It should however be noted here that during the year under report the crop-cutting experiments were spread out over the districts to a much larger extent than in the preceding year. Altogether twenty-nine police stations were selected from the jute growing districts of the State for determination of the ratio between the weight of the green plant jute and that of its dry fibre. Investigators were directed to conduct a number of experiments in each of the selected police-stations.

2.58. The plan of crop-cutting work in the Aman season remained the same as in the case of aus.

2.59. In the case of rabi crops, special consideration was given to arhar, potato and sugarcane. Experiments on the usual scale were carried out in respect of all the remaining crops. In the preceding year altogether 11 crops had been surveyed in the Rabi season. But in the current year two more crops were added, details about which will be given later on in the report. A special design was prepared to carry out experiments in respect of arhar, potato and sugarcane. For each of these three crops police-stations of each district were grouped into two separate strata on the basis of intensity of cultivation. Police-stations having proportion of land under a particular crop greater than twice the mean proportion of land under that crop in the State were grouped into the first stratum. All other police-stations were grouped into the second stratum. The police-stations were treated accordingly for each of the aforesaid three crops. Thus a police-station which was treated as the first stratum for one of the crops might be classified under the second stratum in

respect of another crop. For experiments in police-stations of the second stratum the investigators were supplied with the usual list of sampled grids. But in case of police-stations in the first stratum a multi-stage sampling procedure was adopted. From each of the police-stations of this stratum a number of villages were selected at random. Workers were directed to take from each of the selected villages two cuts for each of the crops. Plots for crop-cutting work were selected at random from amongst the plots growing the crop in the village. The size of the cut for these special crops was a square area of 15' x 15'.

In the case of the remaining rabi crops the method of selection of grids and the plots therein was the same as in the case of jute and aus. The size of the cut was also the same as in the case of jute and aus. The investigators were directed to take only one cut for each of the ten crops from each selected grid, trying the plots seriatim from the list of plots for that grid. Thus the investigators were allowed to take a maximum of ten cuts, one for each crop, from any grid. The maximum number of cuts fixed for each investigator, however, was thirty.

The special experiments in respect of arhar, potato and sugarcane were conducted by the inspectors and investigators. But the experiments in respect of the other crops were done by the Assistant Investigators as usual. It may be noted that as a result of the new design in respect of the aforesaid special crops it was possible to secure a larger number of cuts than in the preceding year.

2.6. **Field Records.**—The workers were supplied with plot lists of the grids to be surveyed together with the corresponding mauza maps. They were required to identify each plot in the grid with the help of the mauza map and record in a prescribed form the condition of each such plot in respect of cultivation or otherwise, i.e., the name of the standing crop, if any, and its coverage in annas, the type of fallow, if any, together with its coverage in annas or any other condition, such as, water surface, house-hold land, etc., also in terms of annas, the total annas for each plot being sixteen. The results of crop-cutting experiments and harvest time surveys were to be recorded in forms prescribed for the purpose. A

few more forms were used by the workers for reporting their daily progress of work and additional information regarding seeds, name and quantity of manure used, condition of rainfall, damage to crops due to natural calamities and local estimates of current year's sowings as compared with those of the preceding year.

2.7. Pre-survey Statistical Work.—A fresh sample was drawn before the commencement of work in 1952-53 in the same manner as in the previous year. Work consisted of locating and stamping of grids at random on the selected maps with the help of co-ordinate graphs and tables of random numbers, numbering of the grids and preparation of lists of plots falling fully or partly inside these grids. It may be noted that about 49,000 grids were allotted for this work and each grid covered about twelve plots. The total number of plots to be investigated was, therefore, about 6 lakhs. It may, further be noted that each grid of 2.25 acres, square in shape, usually covered a fair number of plots only partly along its borders. Areas of these fractions of the plots had to be extracted and used in estimating acreage. But for field survey work it could not be expected that each Assistant Investigator would be able to identify the particular part of any plot which would be included in the grid. The field staff were, therefore, instructed to enumerate the entire plot and the conditions observed in respect of the entire plot were applied to the parts concerned. The list of plots to be surveyed by the field staff in respect of any grid, therefore, contained the numbers of all the plots which were either fully or partly covered by the grid.

2.8. Post-survey Statistical Work.—The statistical work of compilation and analysis is comparatively simple and straight forward, but the work is voluminous and as it has to be carried on continuously as the field records come in, it requires careful handling so as to avoid confusion in the posting of the incoming data at their proper places, there being about 240 groups, each divided into about a dozen classes. The time factor is important on account of the several forecasts to be made by the Government. A good deal of time is lost in transit of the data by post. Of course, each Inspector in the field has a messenger peon whose services could

be used for fetching the data to headquarters more quickly. But this was avoided to keep down costs. In order to expedite the preparation of estimates part of the compilation work was mechanised in the Hollerith Section of the Bureau, as described in a later paragraph.

2.81. Area extraction of all the plots falling within the grids was taken up soon after the preparatory statistical work had been finished. Acre plates were used for this purpose. In the case of plots falling partly within the grids the area of only the portion included within the grid was determined.

2.82. In the case of plots sown with more than one crop or in cases where only a part of the plot had been put under crop the field worker was required to estimate the cropped area in respect of each crop in terms of annas taking the area of the whole plot as 16 annas. These anna-estimates had to be converted into areas in standard units.

2.83. The areas under different crops or other characteristics within each grid and the percentages of these to the total area of the grid had to be calculated first. The means of the percentages of all the grids in a thana or police-station were used for calculating the areas under different crops or other characteristics in the thana concerned. With the introduction of partial mechanisation in the Aman season of the preceding year the various percentages under different characteristics in respect of each grid were transferred to a punched card for mechanical compilation.

2.84. Besides the calculation of crop acreages and yield rates, a large volume of analytical work had to be undertaken in connection with the assessment of the quality of the data on which the estimates had been made.

3.0. **Organisation.**—The organisation remained the same as in the previous year. All posts of Assistant Superintendents, however, could not be filled up. There were only nine Assistant Superintendents in post during the Jute-*aus* season. Work in the remaining five districts had to be controlled from headquarters. Three more Assistant Superintendents were appointed later in the year. During the Aman season, therefore, only two posts of Assistant Superintendents

remained vacant. One more post was filled up later on, so that, during the Rabi season only one post of Assistant Superintendent remained vacant. As considerable time used to be lost on account of leave the Government sanctioned twenty extra posts of Assistant Investigators during the year to compensate for the loss of time.

3.1. The distribution of field staff together with the volume of work involved is shown in Table 2. Regarding the volume of field work involved in the survey the table shows the number of grids which are estimated to fall in the various blocks calculated on the basis of two grids per square mile in the area under survey in that block. The table also shows the numbers of grids actually allotted in the various blocks. The discrepancy between the estimated and allotted numbers is due to non-availability of mauza maps. The availability of maps is shown in Table (3) district by district. Very few maps could be added to the stock during the year because maps were not available anywhere.

4.0. **Wield Work.**—Description of field work carried out in the three crop seasons is given below.

4.1. **Jute-Aus Season.**—Area survey work of the Jute-aus season commenced from the beginning of June, 1952 in the districts of Darjeeling, Jalpaiguri, Cooch Behar and West Dinajpur. In the districts of Malda, Murshidabad, Nadia and 24-Parganas, the survey was started about the middle of June. In the remaining districts field work could not be started before 7th July 1952, due to delayed completion of sowing. Survey actually commenced in these latter districts between 7th July 1952 and 15th July 1952, for the aforesaid reason. The area survey work of the season was completed on 30th September 1952. It may be noted here that the first sub-sample in a large part of the Cooch Behar district had to be re-surveyed on account of the fact that a fairly wide-spread flood had occurred in the district after the survey of the first sub-sample was nearly over. Dates of commencement of this survey in various districts and the number of grids surveyed, checked, etc., are shown in Table (4). It will be seen that 91.4 per cent. of the total

number of allotted grids could be actually surveyed. Although this is not totally satisfactory it was an improvement on the previous year, the percentage in that year being 83 only. It will be seen from the table that the percentage of grids checked was 13.4. This is somewhat less than in the previous year. The season was that from the commencement of this year the grids to be checked by the Inspectors were not left at their own discretion. These were selected systematically from the main samples by the District Officers concerned. This increased travelling time but ensured better and uniform inspection throughout the entire area.

4.11. Crop-cutting work commenced at different times in different districts, depending on the growth and maturity of crops. In the districts of Jalpaiguri and Cooch Behar crop-cutting experiments commenced in the fourth week of July, whereas, in the late harvesting areas, such as Bankura, Burdwan and Hooghly this work commenced from the third week of September and had to be continued up to the middle of October. Table (5) shows details about the volume of crop-cutting work in the different districts of West Bengal in respect of aus. The total number of crop-cutting experiments actually conducted for aus during the year was 1,306. Column 3 of this table will show that data in respect of only one experiment were rejected on scrutiny. The number of cuts in which dry weights were taken were 501. None of the data were rejected.

4.12. Details about the volume of crop-cutting work in respect of jute are shown in Table (5.1). It will be seen that altogether 1,461 cuts were taken throughout the State. None of the data were rejected. The number of cuts in which dry weights were taken was 183. None of the data were rejected.

4.2. Aman Season.—The area survey work commenced from the third week of September in the Bankura district. In all other district, however, the work was started from 4th October 1953, that is, immediately after the Puja holidays. The dates of commencement of the survey, together with the number of grids surveyed and checked during the season are shown in Table (4.1). It may be noticed that the percentage of grids surveyed was 96.0 as against 84.7 of the preceding

year. The percentage of grids checked during the season was 13.3. This is lower than the percentage in the corresponding season of the previous year, on account of the reasons already given in a previous paragraph in connection with jute-aus. The field survey for the Aman season was completed by 31st December 1952.

4.21. Crop-cutting experiments in respect of aman were undertaken from the first week of November in the early harvesting areas which continued till the last week of January 1953. Details about the volume of crop-cutting work carried out during the Aman season are shown in Table (5.2). Altogether 8,030 cuts were taken during the season. This is about 250 more than in the preceding year. It may be noticed that the numbers of cuts in the districts of Birbhum and Murshidabad were much higher than in the other districts. This was due to the fact that parts of these districts are included in Mayurakshi River Project where crop-cutting experiments were intensified for the purpose of assessing the effects of the project. The number of cuts in which dry weights were taken was 1,519 as against 1,316 in the preceding year. The number of data rejected was nil.

4.3. Rabi Season.—The area survey work of the Rabi season commenced in all districts in the first week of January 1953, except in the Murshidabad district in which the work could actually be started a fortnight earlier, from 20th December 1952. The area survey work of the Rabi season was completed in all the districts by 31st March 1953. The dates of commencement of the survey together with the number of grids surveyed and checked during the season are shown in Table (4.2). It will be seen that the percentage of grids surveyed during the season was 95.8 as against 91.5 in the corresponding season of the previous year. The percentage of grids checked was 11.9. This was somewhat less than in the corresponding season of the preceding year for reasons already explained earlier.

4.31. Crop-cutting work in respect of rabi crops commenced in the third week of January 1953, in the early harvesting areas and continued up to 7th April 1953. Experiments were

conducted for estimating the yield rates of the following crops:—

- (i) Wheat.
- (ii) Barley.
- (iii) Potato.
- (iv) Sugarcane.
- (v) Linseed.
- (vi) Mustard.
- (vii) Masur.
- (viii) Mug.
- (ix) Mashkakai.
- (x) Khesari.
- (xi) Arhar.
- (xii) Matar.
- (xiii) Gram.

Details about the methodology have already been explained in an earlier paragraph. It was stated therein that a new design was adopted for selecting samples in respect of arhar, potato and sugarcane and that the usual methods were adopted in respect of other crops. Details about the volume of crop-cutting experiment made during the season are given in Table (5.3). It may be noticed that altogether there was an improvement over the preceding year. On account of the new design being adopted in respect of arhar, potato and sugarcane the improvement is particularly noticeable. The numbers of cuts obtained in respect of these three crops were 90, 203 and 109 as against 60, 182 and 38, respectively, in the preceding year.

5.0. Difficulties encountered.—Non-availability of mouza maps continued to be the main difficulty. A fair number of samples could not be surveyed on account of the fact that they were situated too close to the border lines with Pakistan. These areas were not always safe and the investigators could not be induced to survey some of these grids. Cases of resignation and discharge also constituted a source of trouble. But in this respect there was an improvement over the previous year. A large number of staff has to be given leave.

medical grounds, particularly in the Aman season, which coincides with the peak period of incidence of malaria in the rural areas. As already stated earlier a large part of the first sub-sample in the district of Cooch Behar had to be re-surveyed on account of widespread floods in that district. Excessive rains and occurrence of floods hampered work in several other districts. Difficulties generally encountered in crop survey were discussed in detail in the report of the preceding year. Some difficulties peculiar to the Rabi season may, however, be noted here. Ploughing of land for aus-paddy and jute in some of the early growing districts such as Jalpaiguri and Cooch Behar actually commences before the survey for rabi crops is finished. In fact, in Jalpaiguri and Cooch Behar ploughing of land for aus and jute commences in March and sowing of aus seeds actually taken place towards the end of that month. This makes enumeration of plots very difficult indeed, as identification of plants or crops from roots, etc., is hardly possible in these circumstances. Local information also is not very reliable regarding the proportion of crops sown in the plots which were under mixed crops. The fact that growing of mixed crops is very common in the Rabi season impedes progress considerably. Crop-cutting experiments in this season also take more time than in the other seasons on account of travelling because the same grids would have to be visited a number of times on different dates if there are different rabi crops in the field which mature at different times. This factor also makes it necessary for the workers to keep a close watch of the maturity of the different crops in the different grids in order that the available cuts may not be missed.

5.1. Appointment, discharge and resignation of staff month by month, for the three seasons are shown in Tables (6), (6.1) and (6.2), respectively.

6.0. Results of the Surveys.—The results of the various surveys in the different seasons are discussed below.

6.1. Aus.—Estimated acreage under aus in 1952-53 is shown in Table (7) district by district. It will be seen that 44,982 grids were actually surveyed as against 39,439 grids in the corresponding season of the preceding year. It will be noticed from column 3 of the table that the number of Data

which had to be rejected for various reasons was 841 as against 45, in the corresponding season of the preceding year. This comparatively larger rejection was due to the fact that from the season under report it was decided that any sub-sample in any police-station which would remain unsurveyed to an extent of at least twenty-five per cent. would not be taken into consideration in the preparation of the estimates. In the case of some police-stations of some districts, therefore, only one half sample entered into the calculation. The numbers of effective samples after deducting the numbers of samples rejected in the various districts are shown in column 4. The percentage obtained from the samples in respect of any police-station was applied to the total area under survey for estimating the total acreage under the crop in that police-station. The total area under survey was calculated on the basis of the village records. The standard errors of the estimates in the various districts are shown in column 6 of the table and the percentage variabilities in column 7. The percentage variability of the estimate obtained this year was on the whole less than the variability in 1951-52. Taking the State as a whole the percentage variability during the year under report was 4.1 as against 4.3 in the preceding year. It will be noticed that the variability in the various districts was less than 5 in most cases but as in the previous year the percentage variabilities were very high in the districts of Howrah and Darjeeling. This is on account of the fact that the total acreage under aus in each of the two aforesaid districts is very small, namely, 2.29 (000) and 1.69 (000) acres, respectively. It may also be noticed from column 2 that the sample size in the two districts was also comparatively very much smaller than in the other districts, the total areas under survey being much smaller in both districts. The total acreage under aus crop in the State in 1952-53 is estimated as 1,356.76 (000).

6.11. Yield rate of Aus (Green paddy).—Estimates of yield rates per acre of aus (green paddy) in the various districts are shown in Table (8). The actual numbers of crop-cutting experiments conducted for the purpose in the various districts are shown in column 2. The total number of experiments in the entire State was 1,306 as against 1,491 in the

preceding year. The decrease is due to the new sampling method being adopted for the season under report. It will be remembered that the methodology was changed with a view to obtain a more representative sample by spreading it uniformly over the entire area under survey. Travelling time involved was, therefore, comparatively more than in the previous year. The number of data rejected on scrutiny was only one as shown in column 3. The effective number of samples which went into calculation was, therefore, 1,305. The yields per acre in maunds of green paddy in the various districts are shown in column 5. It will be observed that the variation from district to district is fairly high. The yield rate was highest in the district of Birbhum. Next in order are Howrah, Burdwan, 24-Parganas and Hooghly. In the previous year 24-Parganas, Birbhum and Howrah yielded the highest quantities per acre. The average yield rates for the State as a whole was 15.08 maunds (green paddy) per acre as against 14.00 maunds in the preceding year. The percentage variabilities of the yield rates in the various districts are shown in column 7. The sample size being very small in Howrah and Darjeeling the variabilities were also higher. Percentage variability for the State as a whole was 1.2 per cent. as against 1.4 per cent. in the preceding year.

6.12. **Estimates of Driage Factors for Aus.**—The estimates of driage factors for aus in the various districts are shown in Table (9). It was stated in the previous paragraph that the total number of crop-cutting experiments conducted for aus was 1,306. It was not possible to dry the crops gathered from all these experiments. A sample of 501 out of the total of 1,306 was selected for drying at various centres. The distribution of the samples by districts is shown in column 2. It will be seen from column 3 that the number of rejections on scrutiny was nil. Column 5 of the table shows the driage factors for the various districts. For the State as a whole it was 0.8919 as against 0.8937 in the preceding year. The percentage variability of this factor was very low in all the districts. For the State as a whole it was 0.3 as against 0.4 in the preceding year.

6.13. **Total Production of Aus.**—The estimates of total production of aus cleaned rice, district by district, are shown in Table (10). Columns 2, 3 and 4 of this table show the

total estimates of acreages and yield rates of green and dry paddy. Estimates of acreage and yield rate of green paddy have already been discussed in the previous paragraphs. The estimates of dry paddy in this table were derived by multiplying the estimates of green paddy by the drriage factors shown in Table (9). No experiments were conducted to determine the ratio between the weights of cleaned rice and dry paddy. The generally accepted ratio of 0.67 was used for calculating the quantities of cleaned rice per acre shown in column 5. The average for dry paddy and cleaned rice per acre over the entire State were 13.45 and 8.97 maunds respectively as against 12.50 maunds and 8.38 maunds respectively in the preceding year. The total productions of cleaned rice in the various districts are shown in column 6. The figures in this column have been estimated by using the yield per acre of cleaned rice upon the total estimated area under the crop in the respective districts. Major aus growing areas are Nadia, Murshidabad, Malda, Bankura, Birbhum and Midnapore, with totals of 2,027.33, 1,911.46, 1,314.72, 1,215.68, 1,099.92 and 1,048.07 thousand maunds of cleaned rice, respectively. The total production of aus in the entire State was 12,168.88 thousand maunds of cleaned rice as against 9,792.2 thousand maunds in the preceding year.

6.14. Correction for discrepancy in records of area under survey.—It has been stated earlier that there is a discrepancy in the total areas of the districts as between records published in the "Monthly Statistical Digest" of the Bureau on the authority of the Director of Land Records and village records themselves. Deducting the area excluded from the survey, namely, reserve forests, big river surfaces, etc., the total acreages under aus in the various districts on the basis of the two sets of records are shown in columns 3 and 4 of Table (11). The differences are shown in column 5. It may be observed that the difference for the State as a whole is now of the order of 1 in 1,000. The estimated total productions according to the two sets of records are shown in columns 6 and 7. It may be seen that the total production according to the village records, which has been shown in the various tables, is slightly lower. Based on the published figures in respect of all areas under survey the estimated total production of cleaned aus rice in the State was 12,184.00

thousand maunds. It is important to note that the difference, which used to be significant previously, is now very small and could be ignored. It has been pointed out earlier that it has been possible to reduce the difference by continued examination of the different sets of records of area with a view to reconciliation.

6.15. Comparison with other years.—Acreage, yield rate of cleaned rice and total production of cleaned rice in respect of aus crop for 1952-53 and the four preceding years are shown, district by district, in Table (12). The total productions in the years 1948-49, 1949-50, 1950-51, 1951-52 and 1952-53 were 11,428, 10,781, 9,141, 9,792 and 12,169 (approximately) thousand maunds, respectively. The yield rates of cleaned rice were 8.72, 8.38, 8.13, 8.38 and 8.97 maunds per acre, respectively. The acreages were 1,310.0, 1,286.3, 1,124.3, 1,168.5 and 1,356.76 thousand acres, respectively.

6.16. Estimates for sub-division.—The survey is designed for preparing estimates for districts within reasonable margins of errors. Each district, however, is sub-divided into four or five sub-divisions for administrative purposes. Each sub-division is again sub-divided into several police-stations. Although the primary stratum is a police-station and estimates are first prepared for these police-stations these estimates for police-stations are subject to large errors on account of the sample size being small in each small area. The estimates for sub-divisions also are subject to fairly large errors. Estimates for the districts for which the survey was designed have already been discussed in the previous paragraphs. Estimates of acreage for sub-divisions with their standard errors and percentage variabilities are, however, shown in Appendix I in order to give an idea of the errors involved.

6.17. Estimates of other characteristics.—A field investigator when he visits a sample grid enumerates completely all the plots of land which are recorded in the plot list prepared for that grid. Against each plot he has to record in annas the areas under various crops as well as areas which are not under crop, such as, fallow land, homestead land, etc. For

entire State was 1.31 as against 1.2 in the previous year. It may be noted that no dropping experiment was conducted in the district of Birbhum during the season. The yield rate for the district was taken to be the same as that of Burdwan.

1.6.22. Estimate of the ratio of the yields of dry fibre and raw jute plant.—The procedure adopted for this purpose has already been explained earlier. It may be noted that the experiments were more widely spread out during the year under report than in the preceding year. The distribution of the experiments over the various districts and the results thereof are given in Table (9.1). It will be noticed from the table that the total number of experiments during the year was 183 as against 160 in the preceding year. For the purpose of making the estimates several districts were grouped together in the following manner, namely, (i) Burdwan, Birbhum, Bankura, and Midnapore, (ii) Howrah, Hooghly and 24 Parganas, (iii) Nadia and Murshidabad, (iv) West Dinajpur and Malda, (v) Jalpaiguri, Darjeeling and Cooch Behar. The mean ratios for the various groups of districts are shown in column 5. The average for the entire State was 0.0621 as against 0.0625 in the preceding year. The standard errors of these estimates made for the various centres are shown in column 6 and the percentage variabilities in column 7. It will be seen that the percentage variabilities were small in all centres. The variability for the entire State was 1.8 per cent., the same as in the preceding year.

1.6.23. Total production of dry jute fibre.—Table (10.1) shows the total production of jute, district by district. The averages in the districts as already discussed are shown in columns 2. The yield per acre of green plant, also discussed earlier is given in column 3. Column 4 of this table shows the yields of dry fibre in maunds per acre for the various districts. It has been obtained by multiplying the yield per acre of green plant by the ratio of the weight of dry jute fibre and that of the green plant for the respective districts. Column 5 shows the yield rates of dry fibre in bales. The average yield rate of dry fibre in the State was 14.00 maunds or 2.88 bales per acre as against 14.98 maunds or 3.08 bales per acre in the preceding year. The total production in bales

is shown in column 6. The total production in the entire State was estimated to be 2,406.21 thousand bales of 400 lbs. each as against 2,699.8 thousand bales in the preceding year. 6.24. Correction for discrepancies in records of areas under survey.—As stated earlier, there is a discrepancy in the total areas under survey as between the figures published in the "Monthly Statistical Digest" of the Bureau on the authority of the Director of Land Records and the village records themselves. Table (11-1) shows the estimated acreages and total productions on the basis of these two separate sets of records. The respective acreages are given in columns 3 and 4. The differences are shown in column 5. It will be seen that if the published figures are taken the estimate for acreage for the entire State will have to be increased by 2,14(000) acres. The corresponding increase in the total production would be 591(000) bales.

6.25. Comparison with past years.—Comparative figures for acreage, yield rate, and total production of jute for 1952-53 and the four preceding years are shown, district by district in Table (12-1). Starting from 1948-49 the acreages in (000) acres were 349.9, 490.0, 650.9, 876.1 and 836.24 during the year under report. The corresponding yield rates in bales were 2.59, 2.92, 2.30, 3.08 and 2.88, respectively. The 2,14 (000) acres. The corresponding increase in the total, 2,624.0 and 2,406.21, respectively.

6.26. Estimate for sub-division.—As stated earlier in the case of aus, the survey is designed for preparing estimates for districts within reasonable margins of errors. Estimates for sub-divisions which are much smaller in size are, however, subject to fairly large errors. Estimates for the districts for which the survey was designed have already been discussed in the previous paragraphs. Estimate of acreage for sub-divisions and their standard errors and percentage variabilities are, however, shown in Appendix II to give an idea of the errors involved.

6.27. Diversion of area to jute in the current season.—It will be clear from Table (12.1) that although acreage under jute has slightly decreased during the year under report as

compared with the preceding year there has been a considerable increase in the cultivation of jute in the State during the last few years. Various types of land have been diverted to jute during these years. But it would appear that considerable experiment is being made in this respect by the cultivators in the various districts. It was stated in the report for the preceding year that a small subsidiary sample survey had been undertaken in that year to enquire into the past history of the plots on which jute was found grown during that year. Although the sample was too small for making any valid estimate of totals it indicated that a very considerable proportion of the total acreage under jute in that year actually came from aman land. Similar subsidiary sample survey on a small scale was also undertaken during the year under report. The results are shown in table (13). This small sample survey was restricted to the district of Howrah in the preceding year but during the year under report it was carried out in all the jute growing districts. Altogether 1,049 plots found partly or wholly under jute during the season under report were investigated. The total area of these plots was 331.96 acres. Of these 331.96 acres, a total of 181.58 acres was found under jute during the year as may be seen from column 4 of the aforesaid table. But it may be observed from the subsequent columns that only 100.52 acres of this total had been under jute in the preceding year. The distribution in the preceding year in respect of the remaining areas was as follows:—

32.46 acres under aus,	Estimate for distribution of
15.58 acres under aman,	do
18.99 acres under other crops,	do
6.10 acres of current fallow,	do
4.51 acres of old fallow and	do
3.42 acres of other lands.	do

It would appear from the above that jute is being tried not only as a substitute crop for aus, aman, etc., but small percentages of other lands are also being brought under cultivation for jute. Information gathered from the owners of the aforesaid plots indicated that they had sown 5,017

plots with jute during the season under report as against 4,893 plots in the preceding year, as shown in columns 13 and 12 of the table. This actually indicated an increase of three per cent. in the number of plots. This, however, should not be regarded as a valid estimate of increase of jute cultivation over the previous year because firstly, the sample size was too small and secondly, the figures refer to the numbers of plots and not the acreages. As stated earlier the acreage under jute was actually estimated to have decreased by about five per cent. as compared with the preceding year. Although the sample was too small for any estimate of totals the above results may be taken as a fair representation of the proportion of diversion from different types of land which took place during the year. Columns 16 to 22 of the table show the above figures expressed as percentages.

6.28. The sources of error.—This was discussed in detail in the report of the preceding year. It may, however, be briefly mentioned here that one of the main sources of error in the survey for jute is the present practice of cultivators of growing jute as an additional crop in aman land and harvesting the same before the jute crop is really ripe, so as to enable them to use the same land for cultivation of aman crop in the season immediately following the jute season. Such jute crops are missed at the time of the survey of the second sub-sample which merges fairly into the Aman season itself. As a result the estimate based on the second sub-sample in respect of jute is likely to be lower. Further, this additional jute crop is actually harvested in an immature state. Although their acreages would be obtained during the survey of the first sub-sample, yield rates obtained on the mature crop later in the season which are applied to the total acreage for estimating total production, also introduces some errors because it would be presumed that the yield rate of dry fibre of mature crop if harvested in proper time. It will be seen therefore, that the circumstances are such that in respect of acreage there would be some underestimate, whereas, in respect of yield rate there would be some overestimate. It is not known how far these two opposite tendencies would balance each other.

It was also stated in the report of the preceding year that non-availability of suitable conditions for retting and washing of the jute fibre might also affect the yield rates. To obviate this difficulty, the Bureau adopted a new sampling procedure during the year under report for crop-cutting experiments by spreading out the sample all over the State. Previously experiments were conducted only in these districts which grew jute abundantly, where conditions are particularly suitable. It was also explained in the report of the preceding year that enumeration of the two sub-samples simultaneously would not be a solution. In fact, it would be liable to error to a larger extent because all the early harvested jute grown on aman lands would be missed in both the samples towards the end of the season. Estimates from both the sub-samples accordingly would be under-estimates. It may be noted that in these cases the usual tests of reliability, such as, the estimate of variability and "t" test, although both satisfactory, would fail to reveal the defects and in fact would be misleading.

163. Aman.—Estimates of acreage under aman is shown in Table (7-2) district by district. It will be noticed that 47,251 grids were surveyed during the season. Column 3 of the table will show that data in respect of 123 grids were rejected. As explained earlier most of the rejections were due to the fact that with effect from the year under report data in respect of any sub-sample in any police station which would not be surveyed to an extent of at least 75 per cent were not to be taken into consideration in the preparation of estimates. The effective number of samples was 9047,129. The estimated acreage was 8,788.80 (000). The standard errors are shown in column 6 and the percentage variabilities in column 7. It will be noticed that the variabilities were very much less than 5 per cent in all districts. For the State as a whole the percentage variability was only 0.3. The size of the sample is indeed too big for the accuracy aimed at that is, a variability of 1 per cent, for the State as a whole. The size of the sample could, therefore, be reduced considerably. But aman being the main food crop of the State there is a demand for greater accuracy, also for estimates by areas much smaller than the districts.

Estimates for sub-divisions are regularly supplied to the Government. Estimates for police stations, although subject to fairly large errors, are also supplied to the Government for official purposes.

6.31. Yield rate of aman (green paddy).—Estimates of the yield rates per acre of aman (green paddy) in various districts are shown in Table (8.2). The actual numbers of crop-cutting experiments conducted in the various districts are shown in column 2. The total number of such experiments in the entire State was 8,030 as against 7,775 in the preceding year. It will be noticed that comparatively much larger numbers of cuts were taken in the districts of Birbhum and Murshidabad. The reasons have already been explained in connection with a. b. The number of data rejected on scrutiny was 82. The effective number of samples was therefore 7,948. The yield rates per acre for the various districts are shown in column 5. It may be noticed that the rate was comparatively much higher in the districts of Darjeeling (Silliguri sub-division), Birbhum, Hooghly and Howrah. Next in importance were the districts of Bankura, Burdwan and Jalpaiguri. Yield rates in the other districts were less than the average. The average yield rate of green paddy for the State as a whole was 17.46 maunds per acre as against 16.56 in the preceding year. The standard errors are given in column 6 and the percentage variabilities in column 7. It will be noticed that the percentage variabilities in all the districts except the district of Darjeeling were very much less than 5. The variability in the district of Darjeeling was 6.3. Taking the State as a whole the percentage variability was only 0.5.

6.32. Estimates of drilage factor for aman.—The estimates of drilage factor for aman in the various districts are shown in Table (9.2). For these estimates a sample of 1,519 was chosen as against 1,316 in the preceding year. The crop harvested from the cuts was dried and weighed according to the procedure already discussed earlier. The number of data rejected on scrutiny was nil. The effective sample, therefore, was 1,519. The drilage factors for the various districts are given in column 5. The drilage factor for the State as a

whole was 0.9261 as against 0.9239 in the preceding year. The standard errors are given in column 6 and the percentage variabilities in column 7. The percentage variability for the State as a whole was 0.3 as against 0.16 in the preceding year. It may be noticed that the percentage variabilities were very low in all the districts.

6.33. Total production of aman.—The estimates of total production of aman cleaned rice, district by district, are shown in Table (10.2). Columns 2, 3, and 4 of this table show the estimates of acreage and yield rates of green paddy and dry paddy, respectively. The estimates of dry paddy in this table were derived by multiplying the estimates of green paddy, shown in Table (8.2), by the drriage factors shown in Table (9.2). The average yield rate of dry paddy for the State as a whole was 16.17 maunds per acre. The ratio between the weights of cleaned rice and dry paddy has been taken as 0.67 which is usually accepted as the normal ratio. Estimates of cleaned rice in column 5 have been obtained by multiplying the data in column 4 by the aforesaid factor. The yield rate of cleaned rice per acre for the State as a whole was 10.78 maunds as against 10.20 in the preceding year. The total productions of cleaned rice in the various district are shown in column 6. The total production of aman in the entire state is estimated to be 94,721.93 (000) maunds of cleaned rice as against 84,339.8(000) maunds of cleaned rice in the preceding year.

6.34. Correction for discrepancy in records of area under survey.—As already explained in the case of jute and aus some correction has to be made on account of the discrepancy in the total areas of the district as between the records published in the "Monthly Statistical Digest" of the Bureau on the authority of the Director of Land Records and the village records themselves. Estimates of acreage based on the two sets of records are shown in columns 3 and 4 of Table (11.2). The differences are shown in column 5. The estimated total productions according to the two sets of records are shown in columns 6 and 7 and the differences in column 8. It may be noticed that the correction involved is of the order of 0.2 per cent. which is much less than in the preceding year.

6.35. Comparison with other years.—Acreage, yield rate of cleaned rice and total production of cleaned rice in respect of aman crop in 1952-53 and the preceding four years are shown, district by district, in Table (12.2). It may be noticed that the acreage since 1948-49 have been 7,866.3, 8,442.9, 8,637.2, 18,264.6 and 8,788.8 thousand acres, respectively. The corresponding total productions of cleaned rice were 78,476.9, 88,996.1, 96,875.2, 84,339.8 and 94,721.9 thousand maunds of cleaned rice respectively.

6.36. Estimates for sub-divisions.—As already stated in the case of jute and aus the survey is designed to make estimates for districts within reasonable margins, of errors. Estimates for sub-division which are much smaller in area than the districts are, however, given in Appendix III in order to give an idea of the errors involved.

6.37. Estimates of other characteristics.—As in the Jute-aus season estimates of other characteristics, such as, current fallow, old fallow, etc., were also prepared in Aman season. But on account of shortage of staff variabilities of the various estimates could not be calculated. These estimates are not, therefore, included in this report. A note, however, has been added towards the end of this report regarding, culturable and unculturable waste. The proposal which was made to the Government for additional staff to take up the preparation of the estimates of the aforesaid characteristics together with errors was not sanctioned during the year under report.

6.4. Rabi.—Estimate acreage under rabi crops are shown in Table (7.3). It will be seen from the table that 47,142 grids were actually surveyed of which the data in respect of 119 grids were rejected, on scrutiny. As already explained in connection with other crops most of these rejections were on account of the fact that any sub-sample in any police station which was not enumerated up to at least 75 per cent. was rejected. The number of effective samples which were actually considered in the preparation of the estimates of acreage was, therefore, 47,023. The multipliers used in the preparation of the estimates have been calculated from the areas shown in the village record. As calculation of standard errors of estimates for all the crops involved considerable volume of compilation work beyond the capacity of the

present staff, standard errors of estimates of acreages for only three crops, namely, gram, musur and mustard have been calculated. The standard errors of the estimates in the various districts are shown in columns 8, 12 and 20 and the percentage variabilities in columns 9, 13 and 21. It will be observed that the percentage variabilities in respect of the estimates of acreage for the above 3 crops were 1.65, 1.74 and 2.05, respectively, in the State as a whole. It may, however, be noticed that the variabilities for the districts were very high in the cases of gram and mustard. In all such cases, however, the total areas in the districts under the crops were small. The intensity of cultivation of rabi crops in some of the districts was very low and the number of samples was not adequate for the preparation of dependable estimates for districts. The total area under rabi crops during the year was 2,154.49 thousand acres as against 2,029.19 thousand acres in the preceding year. Details of acreage under the various rabi crops may be seen in the table itself.

6.41. Yield rates of rabi (green crop).—Estimates of yield rates per acre of green crops in various districts are shown in Table (8.3). The actual numbers of crop-cutting experiments for the various crops may be seen in the table itself. It was stated earlier that special measure was adopted for crop-cutting experiments in respect of arhar, potato and sugarcane with a view to obtain more representative samples. The number of cuts obtained during the year under report for arhar, potato and sugarcane was 90, 203 and 109, respectively as against 60, 182, and 38 in the preceding year. The table also shows the standard errors and the percentage variability in respect of each crop. It may be noticed that the percentage variability was of the order of 5 or less in most cases for the State as a whole. Only in a few cases the variability was of the order of 7 or 8 per cent.

6.42. Estimate of drriage factors for rabi crops.—Driage factors for all the crops except potato and sugarcane were determined and the estimates thereof for various districts are shown in Table (9.3). The table also shows the standard errors and the percentage variabilities. The variabilities in these cases also were more or less of the same order as those of the yield rates.

6.43. Total production of rabi crops.—The districtwise estimates of total production of different rabi crops in West Bengal during 1952-53 are shown in Table (10.3). The table also shows estimates of acreages, yield rates of green crops and dry crops. Except for potato and sugarcane total production of rabi crops is given in terms of dry crops. The estimates of dry yield rates in this table were derived by multiplying the estimates of green yield rates (shown in Table 8.3) by the drilage factors (shown in Table 9.3). The total estimated productions in thousand maunds of different rabi crops in West Bengal during 1952-53 are shown below. The corresponding figures for 1951-52 are also shown for comparative purposes:—

The estimates are in (000) maunds.

	1952-53	1951-52
Wheat	894.73	1,099.88
Barley	982.04	974.54
Gram	3,718.75	4,472.48
Mung	252.97	216.76
Masur	1,687.41	1,625.24
Kalai .. ..	..	2,355.82
Maskalai	1,730.44	..
Matar	227.40	..
Khesari	2,287.39	1,271.35
Arhar	459.59	420.97
Linseed	261.22	..
Mustard	1,182.47	1,058.48
Potato	11,189.25	11,678.84
Sugarcane	28,153.71	39,834.32

It may be noticed that an attempt was made during the current year to split up the different kinds of kalai. In the preceding year estimates were made only for kalai and khesari. During the year under report estimates were made separately for maskalai, matar and khesari.

6.44. Comparison with other years.—The total production of the various rabi crops during the year under report and the production in the preceding year were compared in the foregoing paragraph. Acreage, yield rate and total production of crops for 1952-53 and the preceding three years are shown district by district, in Table (12.3). As the past figures for certain crops are not available in any official records, comparative figures of only six crops are given in the table.

6.45. Estimates for sub-divisions.—It has been observed that the variability even on the district level for the rabi crops is already very high. Even so, estimates for sub-divisions, together with the errors, are shown in Appendix IV in order to give an idea of the errors involved. During the preceding years sub-divisional estimates together with the errors were shown for two crops only, namely, mustared and gram. In the present report another crop, namely, musur, has been added.

7.0. Reliability of the estimates.—The usual errors in respect of the estimates of acreage, yield rate, etc., have been shown in the table and discussed in the foregoing pages under various crops. It may be noted that variabilities have been calculated and given in this report in respect of the estimates for all the crop seasons. Apart from the calculation of these errors other steps were taken for assessing the reliabilities of the various estimates as described below.

(a). It was stated in the beginning that the entire sample was divided into two interpenetrating sub-samples for the purposes of investigations regarding the acreages under various crops. Estimates were prepared separately for the two sub-samples in the two major crop seasons, namely, autumn and winter in respect of the three main crops, namely, jute, aus and aman. The usual "t" tests were applied to the estimates obtained from these two sub-samples in respect of each of the aforesaid three crops. The respective estimates of the acreages obtained from the two sub-samples, district by district, together with standard errors, percentage variabilities and the values of "t" are shown in Tables (14), (14.1) and (14.2), respectively, for jute, aus and aman. It will be noticed that in the case of aman the value of "t" was not

significant in respect of the two estimates in any of the districts, nor for the State as a whole. But in the case of both jute and aus it was significant for the State as a whole, whereas, in respect of the district it was significant in seven districts out of fourteen in the case of jute and four districts out of fourteen in the case of aus. It may also be observed that in some cases a significant value of "t" was obtained although the percentage variability was low. In case of jute it could be expected that the value of "t" would be significant because, as explained in detail earlier, the circumstances of growing jute as an additional crop on aman land are such that the estimate of the second sub-sample would invariably be lower wherever the aforesaid circumstances exist. This is borne out by the estimates given in Table (14). If both the samples had been investigated together both of them would have been equally affected by the aforesaid circumstances. Nevertheless a better picture might have been obtained as far as the value of "t" is concerned. But this would have given a completely erroneous picture, because, for circumstances already explained both the estimates would be underestimates to a large extent. The only satisfactory remedy in the case of jute is to expedite the field survey in such a manner that the investigators may not miss any of the jute which is grown as an additional early crop on aman land. This, however, involves additional cost.

In the case of aus it will be observed that although the values of "t" in respect of the two estimates from the two sub-samples were significant in four districts, in three districts the values were really on the border line. It may be pointed out that the estimates of acreage in this season were to some extent affected by the occurrence of floods in Cooch Behar, Jalpaiguri and West Dinajpur. Considering the above it may be stated that the "t" test was satisfactory in the case of aus.

(b) As a further test of the quality of investigation in the Jute-aus season the estimates obtained by the Investigators were compared with the corresponding estimates obtained by the Assistant Investigators in respect of the same grids. The results are shown in Table (15) both in respect of jute and aus for all the districts. The table shows the numbers of samples

investigated by the two sets of field workers and the mean of the differences of the two sets of estimates together with standard errors and the values of "t". It will be observed that the value of "t" was significant only in one case in respect of aus. This was in the district of Bankura. It was not significant in respect of jute in any of the districts.

A similar "t" test was applied to the estimates obtained by the Inspectors and their respective Assistant Investigators, also in the Jute-aus season. The results are given in Table (15.1). It may be observed that the value of "t" was significant only in one case in respect of jute. This was in the district of West Dinajpur.

The above duplications of the survey in a part of the sample by the Inspectors as well as the Investigators were carried out about the same time as the primary investigation by the Assistant Investigators. Circumstances at the time of duplications were, therefore, similar to the circumstances as at the time of primary investigation as far as the cultivation of jute as an additional early crop on aman land was concerned. The above "t" test, therefore, indicate that the quality of field work was satisfactory.

(c) It was also decided to adopt other measures to test the reliability of the estimates indirectly. It was stated earlier that along with the estimates of acreage of crops estimates were also made in respect of other characteristics, such as, old fallow, current fallow, culturable waste, unculturable waste, water surface, etc. For the purpose of applying the "t" tests on the estimates obtained from the two sub-samples in any season as well as for comparison from season to season it was decided to make estimates for culturable and unculturable waste lands together. Current fallow and old fallow were not suitable for the purpose because there might change their characters from season to season, whereas, any change in the characters of culturable and unculturable waste is not likely to be too violent from season to season. As it is often difficult to distinguish between culturable and unculturable waste it was considered advisable to combine the two categories of land together and obtain their estimates accordingly. It will be clear that circumstances similar to the circumstances in respect of the acreage of jute as explained

earlier are not likely to affect these two characteristics during the course of any particular crop season. Estimates were accordingly made for acreage of culturable and unculturable waste from the results of the investigation of the two sub-samples separately. These estimates together with the variabilities and the values of "t" for the Jute-*aus* season are given in Table (16). It will be seen that the value of "t" is not significant for the estimates in respect of any district or for the State as a whole.

Similar results in respect of the *Aman* season are given in Table (16.1). It may be noticed that in the case of *aman*, although least expected, the value of "t" was significant in one district. This matter is under investigation.

The above results clearly indicate that both the sub-samples were drawn from the same population and the estimates obtained from each of the two sub-samples would be valid provided, the physical circumstances and the changes which take place during any crop season in respect of any crop could be adequately taken into account. The satisfactory "t" tests and the variabilities which have been obtained in respect of the estimates for *aman*, culturable and unculturable waste as well as *aus* and the very satisfactory agreement between the observations of primary workers and Investigators as well as Inspectors on duplicated parts of the surveys clearly indicate that the cause of the unsatisfactory nature of the "t" test in respect of *jute* must be looked for in the physical circumstances peculiar to *jute* which change with the progress of the season. It has been explained earlier that the cultivation of the *jute* as an additional early crop on an *aman* land is apparently the cause. The matter should, however, be further investigated. The significance of "t" in a few districts in the case of *aus* also requires further investigation because it appears that a variety of *aus* is harvested early and if the land is put under cultivation in the season immediately following for vegetables, etc., there is a possibility that the Investigators would not show any acreage under *aus* in these circumstances. The second estimate of *aus* will also tend to be lower in these cases.

Considering the circumstances as they are it will be noticed that the acreage of the estimates of two sub-samples,

investigated one after another, as at present done by the Bureau would give the best estimate in respect of jute. Taking the estimate of the first sub-sample alone, which, incidentally, includes all the additional early jute crop grown on aman land, would give an over estimate because it could be presumed that the yield rate of early harvested jute would be less than that of the mature crop. Taking the estimates of the second sub-sample alone would give an under estimate because all the above kind of jute would be excluded. If both the sub-samples were investigated simultaneously estimates of both the sub-samples would be under estimates because both would miss the above kind of jute in the latter half of the samples.

(d) Further proof of the quality of the estimates is provided by Table (17) in which may be seen the estimates made for acreage of culturable and unculturable waste in the three successive seasons, namely, jute-*aus*, aman and *rabi* of 1952-53. The standard errors and the percentage variabilities of the estimates for the three seasons are also shown in the table. It will be seen that the estimates made separately in the three seasons agree among themselves very satisfactorily.

(e) It was stated in the beginning of the report that each grid of 2.25 acres usually covered a fair number of plots only partly along its borders. It was also stated that during field survey it was not possible to identify the particular part of any plot which would be included in the grid along its borders and further that conditions observed in respect of the entire plots so situated were applied to the parts concerned. Theoretically there can be no objection in the procedure because the sample, if its size is big enough, will be sufficiently representative of the entire area under survey. An attempt was, however, made during the year under report to study the actual conditions and an analysis of the sample drawn for crop surveys for the year is given in Table (18). Column 2 shows the total number of grids included in the sample in the various districts. Column 3 shows the numbers of plots which were included in full within the grids. Column 4 shows the numbers of plots which were included only in part within these grids. Column 5 above the total

numbers of plots. Column 6 shows the percentages of the plots included in full within the grids to the total numbers of plots. Column 7 shows the corresponding percentages of the plots included only in part. It will be seen that on an average only 20 per cent. of the plots were included in full within the grids and 80 per cent of the plots were included only in part within these grids. As there is a preponderance of plots which are only partly included within the grids it could be apprehended that if the observations in respect of the whole was applied to the part, as is done in the present sample survey, the observation in respect of any grid might be seriously faulty. But it may be noted that the plots in this State, except in parts of one or two districts in North Bengal, are very small and it is not expected normally that such small plots would be further sub-divided for more than one purposes. Investigation was made in this regard on the sample drawn for the year under report. The average size of the plot was first ascertained by taking a sample of ten mauzas from each police station at random in each district. The results are shown in Table (19). It may be seen that altogether 2,310 mauzas or villages were selected for the purpose. The total areas of the selected mauzas and the total numbers of plots in the selected mauzas were determined from the mauza maps. These areas and the numbers of plots are shown in columns 4 and 5 of the table. Column 6 shows the average sizes of plots in the various districts. It will be seen that the average sizes of plots in the districts of Darjeeling and Jalpaiguri in North Bengal are much higher than the average sizes in the other districts. The average size of plot for the entire State was found to be 0.45 acres. Although this size is presumably too small for further sub-division for different purposes, experiments were conducted during the year to estimate the extent to which further sub-divisions may have taken place. This was done in the Aman season of 1952-53. The results of these experiments are given in Table (20). This table, incidentally, shows other details which were necessary for the purpose of developing a new technique of supervision described in a later paragraph. This table is mainly meant for a comparative study of the observations made by the Assistant Investigators and their Inspectors. The required information for the purpose

of the present paragraph, however, can be obtained from columns 6, 8, 10, 18 and 20. It will be seen from column 6 that 52.7 per cent. of the plots were fully under one crop and that 39.7 per cent. of the plots did not have the crop in any of their parts. Thus, the characteristics of the whole applied to the parts will not introduce any error, whatsoever, in 92.4 per cent. of the cases. This applies to the Aman season. The conditions will probably be different in the Jute-*aus* season and particularly in the Rabi season. Data have been collected for the above two seasons also, which are now under investigation.

8.0. New Technique of supervision and control of quality of field work.—It has been stated earlier that apart from primary field workers called Assistant Investigators there are two other types of field workers, namely, Inspectors and Investigators. It has also been stated that the Investigators work under the control of the technical section independent of the field section. Their services are used by the statisticians wherever they have any doubt regarding the data as a result of scrutiny. The Inspectors are responsible for checking up the work of the primary field workers and giving them advice, instruction and training, wherever necessary. Usually administrative action is taken on the reports of the Inspectors and it would not be incorrect to say that in most cases the success or otherwise of the inspectorate in these surveys is judged entirely by its efficiency of police functions. The stress is on the detection of errors and not their diagnosis. On the basis of such reports of the inspectorate only a qualitative estimate is made regarding the efficiency of field work. Unfortunately the work of the Inspectors in these surveys is not harnessed in such a manner as would afford a quantitative measure of the quality of the field work. A good deal of time is, however, spent at the analytical stage in applying several tests to throw light on this aspect. None of these tests, however, provide satisfactory knowledge as to the nature and extent of the Investigator bias involved, which, incidentally, may be of many kinds including those of ignorance, inefficiency and dishonesty. At best these are of a post-mortem type. Moreover, the tests do not permit of any diagnosis during the course of the survey as would

enable one to point a finger at the cause of the defect and remove the same during the survey itself so as to ensure accuracy of field work. Experience also indicates that the nature of bias of Investigators in surveys of this type is such that in practice it may not be possible to obtain a measure of the same by the aforesaid methods as would enable one to make some allowance in the final estimates. In the case of a machine, howsoever faulty, the bias is likely to be of a systematic nature, at least over a period of time. But where human elements are concerned and particularly where conditions of work are very arduous and the salaries that are paid are not so high or attractive as would permit the employment of Investigators of fairly high calibre on a permanent basis, it will be a serious mistake to talk of bias of any individual Investigator as a more or less fixed characteristic. It would, in fact, depend on factors, such as, character, endurance, etc., of the individual as well as many unpredictable factors, such as, the health and the mood of the worker depending on weather conditions, accessibility to the samples, travelling facilities, facilities for boarding, lodging, etc. In other words, in order to minimise the errors on account of bias, each individual responsible for primary work has to be studied as to his reliability in different circumstances. Experience shows that a fair percentage of the field records are made dishonestly and a fair number is also incorrectly recorded as a result of wrong identification of samples. Since the variability for the entire State aimed at is 1 per cent., it would be easy to see how seriously such sources of error might affect the results.

8.01. With a view to investigate the sources of error including bias a part of the inspection work was systematised for the purposes of certain experiments. From an examination of the records of such inspection in successive seasons, it appeared that something in the nature of the technique of the industrial quality control could be developed for assessing the quality of field work in crop surveys. The field records in respect of the entire sample could be regarded as the total product, similar to the manufactured product in industry. The final experiments were conducted in the winter rice or Aman season of 1952-53. The presumption in the experiments is that the Inspectors, being more experienced and of

approved service, shall not be liable to appreciable bias. On this presumption the observation of each Inspector in respect of any plot, could, in the first instance, be regarded as the specification for that plot against which the observation of the field worker in regard to that plot, that is, the final product of the survey as far as that plot was concerned, could be measured as to its accuracy. An essential characteristic of the experiment, therefore, is duplication of a sub-sample by Inspectors. As in the case of industrial quality control a technique of control for these surveys might be developed on the basis of these duplicated observations by dividing them into a number of yet smaller sub-samples suitably spacing them over the primary workers at different stages of the survey and geographically, if necessary. This, however, had to be abandoned on account of the following reasons, namely, (i) Investigator bias not being a fixed characteristic as in the case of machine bias, a study of the means would not be suitable and accordingly a method has to be devised as would afford a study of individual observations, (ii) the characteristics of the sample in crop surveys of West Bengal are such that certain types of errors depending on grid characteristics could be visualised and accordingly it was found necessary first to classify the pairs of observations in order to be able to subject the different classes to separate treatment, and (iii) it was considered necessary to test the reliability of the yard sticks themselves, that is, Inspectors during the course of the survey. To meet the above requirements inspection work was divided into two stages. The results of the first stage of inspection were used for the aforesaid classification. For one such class it was also possible to draw up control charts from the results of this first stage of inspection. A second stage of inspection on small sub-samples drawn from these various classes and to be carried out by some superior supervisory staff was then introduced for the purposes of investigation with a view to diagnosis. Two-stage inspection is, therefore, the second characteristic of the technique.

8.02. Duplicated observations on the selected sub-sample were arranged to be made by Inspectors and their primary

workers quite independently of one another. Their investigation records were then compared and analysed with a view to classification as follows:—

(A) Cases requiring no eye-estimate.—These may be subdivided as follows:—

(i) Plots which are covered 100 per cent. by the crop under survey according to the primary workers as well as the Inspectors, (ii) plots which are not covered shall by the crop under survey according to either the primary workers or the Inspectors. It may be noted that Investigator bias is not involved in any of these cases. Apart from sampling error any other error which may come into the picture could only be due to a collusion between the primary workers and their respective Inspectors, that is, if both of them were dishonest and had filled in the records without investigation by an agreement amongst themselves.

(B) Cases of wrong identification.—These may be subdivided as follows:—

(i) Plots which are covered entirely by the crop in question according to Inspectors, whereas, according to the primary workers the plots are either without or only partly under the crop, (ii) plots which are without the crop according to Inspectors but are either fully or partly under the crop according to primary workers and (iii) plots which are only partly covered by the crop according to Inspectors, whereas, according to the primary workers the plots are either without or fully under the crop. As it is not possible to mistake 100 or 0 per cent. as a fraction and *vice versa* it could only be concluded that in these cases either the primary workers or their Inspectors had failed to identify the samples and had probably obtained particulars in respect of wrong plots or that they were dishonest and had filled in the records without making any attempt to investigate the samples.

(C) Cases of bias on account of eye-estimate.—Cases which remain after (A) and (B) above could be only those plots which really are partly under the crop in question according to both the primary workers as well as Inspectors. In these cases the primary workers and their Inspectors are both required to make eye-estimates of the percentages of the

total areas of the plots which may be under the crop in question. In other words, it is only in these cases that a genuine observational error might be committed by the two sets of workers on account of their personal bias. It may be noticed that the three possible sources of error in the above three classes are due respectively to (1) dishonesty of both the sets of workers, (2) dishonesty or inefficiency of either of the sets of workers and (3) Investigator bias.

8.03. The results of this classification obtained from the experiments in the Aman season 1952-53 are given in Table (20). It will be noticed from this table that samples were investigated independent by both sets of workers in all the 14 districts of the State. The total number of grids investigated was 3,447. The total number of plots in the sample was 35,572. It may also be noticed that the number of plots falling into the three classes (A), (B) and (C) were 32,858, 1,136 and 1,578, respectively, representing 92.4 per cent., 3.2 per cent. and 4.4 per cent. in the aforesaid order. It may be interesting to note that in view of the fact that observational error is involved only in 4.4 per cent. of the total sample the theory of interpenetrating sub-sample with replication loses most of its significance as far as crop surveys in West Bengal are concerned. In fact, the theory is not applicable in 95.6 per cent. of the plots.

8.04. The problem of supervision may, therefore, be stated as follows:—

(i) In respect of 92.4 per cent. of the samples belonging to category (A), the object would be to find if there was any collusion between the primary workers and their Inspectors. It is expected that re-investigation by a higher class of supervisory staff of a very small percentage of this class of plots would be able to diagnose the cause of the defects, if there be any.

(ii) In 3.2 per cent. of the cases belonging to category (B) slightly higher percentage of samples might have to be investigated by a higher class of officers so as to ascertain the relative efficiency or reliability of the primary workers and their respective Inspectors.

(iii) In 4.4 per cent. of the cases belonging to category (C) regular contract charts could be prepared to plot the variation of the observation of the primary worker from the observation made by the corresponding Inspector in regard to each such plot, the presumption, as stated earlier, being that the Inspector could be regarded as more or less perfect and that accordingly his observation might be taken as the specification.

8.05.—Action on the above lines is proposed to be taken with effect from 1953-54. A detailed report on the proposed technique will be submitted to the Government and published separately.

N. CHAKRAVARTI,

Director, State Statistical Bureau,

The 18th December 1953. Government of West Bengal.

TABLE I
Area under Survey

District	Total area in (000) acres as published in Monthly Digest†	Area in (000) acres excluded				Total area under survey in (000) acres	
		Reserve forest	Big river	Bounded by Paki- stan area	Muni- cipality	Published figures	Village records
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan ..	1,731-20	..	2-77	..	13-83	1,714-60	1,714-86
2. Birbhum ..	1,115-52	..	..	..	6-52	1,109-00	1,108-97
3. Bankura ..	1,694-08	..	..	..	12-48	1,681-60	1,681-77
4. Midnapore ..	3,361-92	..	85-36	..	18-49	3,258-07	3,255-81
5. Howrah ..	358-40	..	16-46	..	8-76	333-18	333-36
6. Hooghly ..	773-12	..	5-77	..	20-99	746-36	746-30
7. 24-Parganas ..	3,359-36	*793-40	286-41	..	93-03	2,186-52	2,149-00
8. Nadia ..	965-76	..	8-97	..	18-29	938-50	937-48
9. Murshidabad..	1,320-96	..	12-14	..	17-04	1,291-78	1,291-10
10. West Dinajpur	886-46	..	..	..	..	886-40	886-71
11. Malda ..	890-88	..	..	..	1-98	888-90	888-91
12. Jal paiguri ..	1,519-36	359-34	..	..	1-92	1,158-10	1,158-36
13. **D ar jeeling (Siliguri sub- division only).	165-10	27-56	..	..	..	137-54	142-92
14. Cooch Behar ..	843-52	7-91	..	23-14	..	812-47	814-89
Total ..	18,985-64	1,188-21	417-88	23-14	213-33	17,143-02	17,110-44

†February 1953.

*D. L. R.'s Figure.

**The other three subdivisions of this district having an area of 602-90 thousand acres were excluded from survey.

TABLE 2
Distribution of Field Staff by administrative blocks

Block No.	Name of the district or districts in the block	Number of ranges	Police-stations	Number of grids		Number of Inspectors	Number of Assistant Investigators
				Estimated at 2 per square mile	Allotted*		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I	Darjeeling (Siliguri Sub-division only). Jalpaiguri (excluding Alipurduars subdivision) and Cooch Behar (Haldibari subdivision only).	4	13	2,861	2,717	4	17
II	Jalpaiguri (Alipurduars subdivision only). Cooch Behar (excluding Haldibari subdivision).	4	10	3,750	3,486	4	34
III	West Dinajpur	3	11	2,772	2,602	3	13
IV	Malda	3	10	2,777	2,675	3	15
V	Murshidabad	4	21	4,035	3,837	4	19
VI	Nadia	3	13	2,929	2,885	3	14
VII	24-Parganas (North) ..	3	23	3,197	3,050	3	15
VIII	24-Parganas (South) ..	4	17	3,518	3,271	4	16
IX	Howrah and Hooghly ..	3	30	3,374	3,367	3	16
X	Burdwan	4	23	5,361	5,318	4	22
XI	Birbhum	3	14	3,466	3,296	3	14
XII	Bankura	4	19	5,255	4,985	4	22
XIII	Midnapore (North) ..	4	16	4,597	3,727	4	2
XIV	Midnapore (South) ..	4	17	5,578	4,005	4	23
	Total ..	50	237	53,470	49,221	50	260

*Discrepancy due to want of maps.

TABLE 3

Area for which mauza maps were available

Serial No.	District	Area in (000) acres			
		Total area under survey*	Area for which maps were available	Area for which maps were not available	Percentage of column (4) to column (2)
	(1)	(2)	(3)	(4)	(5)
1	Burdwan	1,714.86	1,713.82	1.0	0.1
2	Birbhum	1,106.97	1,054.62	54.4	4.9
3	Bankura	1,681.77	1,574.72	107.1	6.4
4	Midnapore	3,255.81	2,393.48	862.3	26.5
5	Howrah	333.36	333.36	..	..
6	Hooghly	746.30	739.58	6.7	0.9
7	24-Parganas	2,149.00	2,140.40	8.6	0.4
8	Nadia	937.48	934.28	3.2	0.3
9	Murshidabad	1,291.10	1,238.16	52.9	4.1
10	West Dinajpur	886.71	821.44	65.3	7.4
11	Malda	888.91	868.47	20.4	2.3
12	Jalpaiguri	1,158.36	1,101.80	56.6	4.9
13	Darjeeling (Siliguri Sub-Division only)	142.92	139.52	3.4	2.4
14	Cooch Behar	814.89	763.55	51.3	6.3
	West Bengal	17,110.44	15,817.20	1,293.2	7.6

*According to village records

TABLE 4

Statement showing the percentage of grids surveyed and checked in Jute-Aus season, 1952-53

District	Number of grids allotted	Date of commencement	Number of grids surveyed	Percentage of grids surveyed	Number of grids checked	Percentage of grids checked
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	5,318	7-7-52	4,683	88.1	495	10.6
2. Birbhum ..	3,296	10-7-52	3,210	97.4	433	13.5
3. Bankura ..	4,985	15-7-52	4,929	98.9	438	8.9
4. Midnapore ..	7,732	10-7-52	6,500	84.1	999	15.4
5. Howrah	1,041	10-7-52	967	92.9	113	11.7
6. Hooghly ..	2,326	10-7-52	2,143	92.1	287	13.4
7. 24-Parganas ..	6,321	20-6-52	5,951	94.1	797	13.4
8. Nadia	2,885	20-6-52	2,746	95.2	343	12.5
9. Murshidabad ..	3,837	15-6-52	3,519	91.7	360	10.2
10. West Dinajpur ..	2,602	1-6-52	2,508	96.4	537	21.4
11. Malda	2,675	10-6-52	2,358	88.1	343	14.0
12. Jalpaiguri ..	3,409	1-6-52	3,038	89.1	434	14.3
13. Darjeeling (Siliguri subdivision only).	437	1-6-52	376	86.0	119	31.6
14. Cooch Behar ..	2,357	1-6-52	2,054	87.1	323	15.7
West Bengal	49,221	..	44,982	91.4	6,021	13.4

TABLE 4·1

Statement showing the percentage of grids surveyed and checked in Aman season, 1952-53

District	Number of grids allotted	Date of commencement	Number of grids surveyed	Percentage of grids surveyed	Number of grids checked	Percentage of grids checked
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	5,318	4-10-52	5,193	97·6	517	10·0
2. Birbhum ..	3,296	4-10-52	3,250	98·6	556	17·1
3. Bankura ..	4,985	18-9-52	4,934	99·0	403	8·2
4. Midnapore ..	7,732	4-10-52	6,938	89·7	1,002	14·4
5. Howrah ..	1,041	4-10-52	1,038	99·7	156	15·0
6. Hooghly ..	2,326	4-10-52	2,240	96·3	217	9·7
7. 24-Parganas ..	6,321	4-10-52	6,090	96·3	810	13·3
8. Nadia	2,894	4-10-52	2,873	99·3	382	13·3
9. Murshidabad ..	3,837	4-10-52	3,721	97·0	380	10·2
10. West Dinajpur ..	2,602	4-10-52	2,592	99·6	478	18·4
11. Malda	2,675	4-10-52	2,506	93·7	360	14·4
12. Jalpaiguri ..	3,409	4-10-52	3,313	97·2	570	17·2
13. Darjeeling (Siliguri subdivision only).	437	4-10-52	432	98·9	107	24·8
14. Cooch Behar ..	2,357	4-10-52	2,131	90·4	349	16·4
West Bengal ..	49,230	..	47,251	96·0	6,287	13·3

TABLE 4·2

Statement showing the percentage of grids surveyed and checked in Rabi season, 1952-52

District	Number of grids allotted	Date of commencement	Number of grids surveyed	Percentage of grids surveyed	Number of grids checked	Percentage of grids checked
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	5,318	3-1-53	5,202	97·8	504	9·7
2. Birbhum ..	3,296	7-1-53	3,250	98·6	426	13·1
3. Bankura ..	4,985	1-1-53	4,935	99·0	338	6·8
4. Midnapore ..	7,732	1-1-53	6,997	90·5	958	13·7
5. Howrah ..	1,041	3-1-53	1,000	96·1	89	8·9
6. Hooghly ..	2,326	3-1-53	2,197	94·5	203	9·2
7. 24-Parganas ..	6,321	3-1-53	6,166	97·5	791	12·8
8. Nadia	2,894	1-1-53	2,857	98·7	187	6·5
9. Murshidabad ..	3,837	20-12-52	3,679	95·9	355	9·6
10. West Dinajpur ..	2,602	3-1-53	2,506	96·3	431	17·2
11. Malda	2,675	7-1-53	2,489	93·0	341	13·7
12. Jalpaiguri ..	3,409	3-1-53	3,301	96·8	535	16·2
13. Darjeeling(Siliguri subdivision only).	437	3-1-53	435	99·5	96	22·1
14. Cooch Behar ..	2,357	3-1-53	2,128	90·3	344	16·2
West Bengal ..	49,230	..	47,142	95·8	5,598	11·9

TABLE 5.
Crop-cutting work for Aus, 1952-53.

N=Number of effective samples.

District	Number of cuts made	Number of data rejected	N	Number of cuts in which dry weight was taken		Number rejected	N
				N	Per cent.		
				(5)	(6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan	29	1	28	11	39.3	..	11
2. Birbhum	108	..	108	24	22.2	..	24
3. Bankura	174	..	174	48	27.6	..	48
4. Midnapore	79	..	79	39	49.4	..	39
5. Howrah .. ..	..	..	9	6	66.7	..	6
6. Hooghly	15	..	15	10	66.7	..	10
7. 24-Parganas	101	..	101	57	56.4	..	57
8. Nadia	186	..	186	76	40.9	..	76
9. Murshidabad	175	..	175	64	36.6	..	64
10. West Dinajpur	106	..	106	26	24.5	..	26
11. Malda	98	..	98	45	45.9	..	45
12. Jalpaiguri	105	..	105	44	41.9	..	44
13. Darjeeling (Siliguri sub-division only).	2	..	2	2	100.0	..	2
14. Cooch Behar	119	..	119	49	41.2	..	49
West Bengal	1,306	1	1,305	501	38.4	..	501

TABLE 5.1.

Crop-cutting work for Jute, 1952-53.

N=Number of effective samples.

District	Number of cuts made	Number of data rejected	N	Number of cuts in which dry weight was taken		Number rejected	N
				N	Per cent.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan	38	..	38	8	21.05	..	8
2. Birbhum .. .. .	..	..	..	..	..	..	..
3. Bankura	5	..	5	..	..	..	..
4. Midnapore	177	..	177	8	4.52	..	8
5. Howrah	57	..	57	8	14.04	..	8
6. Hooghly	63	..	63	16	25.40	..	16
7. 24-Parganas	199	..	199	24	12.06	..	24
8. Nadia	151	..	151	24	15.89	..	24
9. Murshidabad	183	..	183	24	13.11	..	24
10. West Dinajpur	126	..	126	23	18.25	..	23
11. Malda	89	..	89	16	17.98	..	16
12. Jalpaiguri	188	..	188	..	..	..	..
13. Darjeeling (Siliguri sub-division only).	25	..	25	8	32.00	..	8
14. Cooch Behar	160	..	160	24	15.00	..	24
West Bengal	1,461	..	1,461	183	12.53	..	183

TABLE 5-2

Crop-cutting work for Aman, 1952-53

N=Number of effective samples.

District	Number of cuts made	Number of data rejected	N	Number of cuts in which dry weight was taken		Number rejected	N
				N	per cent		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan	783	4	779 ¹	176	22.5	..	176
2. Birbhum	2,331	32	2,299	223	9.6	..	223
3. Bankura	507	..	507	118	23.3	..	118
4. Midnapore	790	1	789	194	24.6	..	194
5. Howrah	84	..	84	29	34.5	..	29
6. Hooghly	208	..	208	32	15.4	..	32
7. 24-Parganas	707	30	677	186	26.3	..	186
8. Nadia	211	1	210	73	34.6	..	73
9. Murshidabad	1,240	9	1,231	213	17.2	..	213
10. West Dinajpur	302	1	301	61	20.2	..	61
11. Malda	205	3	202	53	25.9	..	53
12. Jalpaiguri	325	..	325	72	22.2	..	72
13. Darjeeling (Siliguri sub-division only).	46	1	45	17	37.0	..	17
14. Cooch Behar	291	..	291	72	24.7	..	72
West Bengal	8,030	82	7,948	1,519	18.9	..	1,519

TABLE 5-3

Crop-cutting work for Rabi crops, 1952-53

Serial No.	District	Wheat			Barley		
		Number of cuts made	Number of cuts in which dry weight was taken	Percentage of Col. (4) to Col. (3)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of Col. (4·1) to Col. (3·1)
(1·1)	(2·1)	(3)	(4)	(5)	(3·1)	(4·1)	(5·1)
1	Burdwan	18	5	27·8	..	..	..
2	Birbhum	22	9	40·9	1	1	100·0
3	Bankura	33	21	63·6	6	5	83·3
4	Midnapore	5	..	..	1	..	..
5	Howrah	..	..	..	..	..	..
6	Hooghly	..	..	..	1	1	100·0
7	24-Parganas	1	1	100·0	..	..	..
8	Nadia	22	5	22·7	10	4	40·0
9	Murshidabad	47	31	66·0	51	25	49·0
10	West Dinajpur	9	6	66·7	13	8	61·5
11	Malda	17	14	82·4	82	22	26·8
12	Jalpaiguri	3	2	66·7	5	4	80·0
13	Darjeeling (Siliguri sub division only).	..	..	..	..	..	..
14	Cooch Behar	20	6	30·0	1	..	..
West Bengal		197	100	50·8	171	70	40·9

TABLE 5-3—cont.

Serial No.	District	Gram			Mug		
		Number of cuts made	Number of cuts in which dry weight was taken	Percent- age of Col. (4-2) to Col. (3-2)	Number of cuts made	Number of cuts in which dry weight was taken	Percent- age of Col. (4-3) to Col. (3-13)
(1-1)	(2-2)	(3-2)	(4-2)	(5-2)	(3-3)	(4-3)	(5-3)
1	Burdwan	34	13	38.2	6	4	66.7
2	Birbhum	67	25	37.3	6	2	33.3
3	Bankura	13	5	38.5	2	1	50.0
4	Midnapore	7	5	71.4	3	1	33.3
5	Howrah	2	2	100.0	6	3	50.0
6	Hooghly	12	5	41.7	3	1	33.3
7	24-Parganas	42	12	28.6	1	..	..
8	Nadia	143	35	24.5	..	..	..
9	Murshidabad	107	46	43.0	1	..	..
10	West Dinajpur	13	8	61.5	..	..	..
11	Malda	32	15	46.9	..	..	..
12	Jalpaiguri .. ..	..	..	..	..	..	..
13	Darjeeling (Siliguri Subdivision only).	..	..	..	..	..	..
14	Cooch Behar .. ..	..	..	..	..	..	..
West Bengal		472	171	36.2	28	12	42.9

TABLE 5-3—cont.

Serial No.	District	Musur			Mashkalai		
		Number of cuts made	Number of cuts in which dry weight was taken	Percentage of Col. (4.4) to Col. (3.4)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of Col. (4.5) to Col. (3.5)
(1.1)	(2.3)	(2.4)	(3.4)	(4.4)	(3.5)	(4.5)	(5.5)
1	Burdwan	26	11	42.3	3	2	66.7
2	Birbhum	29	18	62.1	2	1	50.0
3	Bankura	6	3	50.0	..	..	..
4	Midnapore	5	3	60.0	5	3	60.0
5	Howrah	17	5	29.4	..	..	..
6	Hooghly	18	10	55.6	3	2	66.7
7	24-Parganas	77	41	53.2	..	..	..
8	Nadia	53	14	26.4	..	..	..
9	Murshidabad	123	35	28.5	..	..	..
10	West Dinajpur	6	4	66.7	6	6	100.0
11	Malda	21	10	47.6	1	1	100.0
12	Jalpaiguri .. ..	..	..	..	7	3	42.9
13	Darjeeling (Siliguri Subdivision only).	..	..	..	..	..	..
14	Cooch Behar	5	2	40.0	..	..	..
West Bengal		386	156	40.4	27	18	66.7

TABLE 5-3—cont.

District	Matar			Khesari			Arhar		
	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4·6) to column (3·6)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4·7) to column (3·7)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4·8) to column (3·8)
(2·4)	(3·6)	(4·6)	(5·6)	(3·7)	(4·7)	(5·7)	(3·8)	(4·8)	(5·8)
1. Burdwan ..	2	2	100·0	6	4	66·7	..	..	..
2. Birbhum ..	..	..	..	31	16	51·6	3	..	..
3. Bankura ..	1	1	100·0	3	2	66·7	..	..	..
4. Midnapore ..	3	2	66·7	65	19	29·2	4	2	50·0
5. Howrah ..	8	4	50·0	52	10	19·2	..	..	..
6. Hooghly ..	3	2	66·7	22	8	36·4	..	..	..
7. 24-Parganas ..	16	14	87·5	38	20	52·6	1	..	..
8. Nadia ..	1	..	..	1	..	..	39	4	10·3
9. Murshidabad	18	12	66·7	49	24	49·0	41	10	24·4
10. West Dinajpur ..	..	..	..	4	1	25·0	..	..	..
11. Malda ..	5	4	80·0	20	9	45·0	2	2	100·0
12. Jalpaiguri ..	..	..	..	..	..	..	..	..	..
13. Darjeeling (Sili-guri subdivision only).	..	..	..	..	..	..	..	..	..
14. Cooch Behar ..	2	..	..	12	4	33·3	..	..	..
West Bengal ..	59	41	69·5	303	117	38·6	90	18	20·0

TABLE 5.3—cont.

District	Linseed			Mustard		
	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4.9) to column (3.9)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4.10) to column (3.10)
(2.5)	(3.9)	(4.9)	(5.9)	(3.10)	(4.10)	(5.10)
1 Burdwan .. ..	..	..	..	7	3	42.9
2 Birbhum	6	2	33.3	..	..	..
3 Bankura.. ..	3	2	66.7	1	..	..
4 Midnapore .. ..	..	..	..	8	2	25.0
5 Howrah .. ..	..	..	..	1	1	100.0
6 Hooghly .. ..	..	..	..	..	..	..
7 24-Parganas .. ..	..	..	..	3	2	66.7
8 Nadia	23	4	17.4	2	..	..
9 Murshidabad	19	13	68.4	11	7	63.6
10 West Dinajpur .. ..	..	..	..	58	17	29.3
11 Malda	12	8	66.7	89	24	27.0
12 Jalpaiguri .. ..	..	..	..	65	21	32.3
13 Darjeeling (Sili-guri subdi- vision only). .. ..	..	..	..	11	6	54.5
14 Cooch-Bihar .. ..	..	..	..	28	11	39.3
West Bengal	63	29	46.0	284	94	33.1

TABLE 5-3—concl'd.

District	Potato			Sugarcane		
	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column (4.11) to column (3.11)	Number of cuts made	Number of cuts in which dry weight was taken	Percentage of column 4.12 to column (3.12)
(2.6)	(3.11)	(4.11)	(5.11)	(3.12)	(4.12)	(5.12)
1 Burdwan ..	42	..	..	21	..	..
2 Birbhum ..	23	..	..	42	..	..
3 Bankura ..	10	..	..	5	..	..
4 Midnapore ..	28	..	..	2	..	..
5 Howrah ..	15	..	..	1	..	..
6 Hooghly ..	34	..	..	2	..	..
7 24-Parganas ..	14	..	..	4	..	..
8 Nadia ..	..	..	..	8	..	..
9 Murshidabad ..	11	..	..	14	..	..
10 West Dinajpur	8	..	..	2	..	..
11 Malda ..	12	..	..	8	..	..
12 Jalpaiguri ..	5	..	..	..	..	..
13 Darjeeling (Sili-guri subdivi-sion only).	..	..	..	..	..	..
14 Cooch Behar ..	1	..	..	..	..	..
West Bengal ..	203	..	..	109	..	..

TABLE 6

Appointment and desertion of staff (Field Branch) by month in Jute-Aus Season, 1952-53

Month	At the beginning	Appointed	Discharged or resigned
June 1952	237	2	1
July 1952	238	11	11
August 1952	238	27	7
September 1952	258	2	..

TABLE 6.1

Appointment and desertion of staff (Field Branch) by month in Aman Season, 1952-53

Month	Appointed	Discharged or resigned
October 1952	1	6
November 1952	6	6
December 1952 .. .. .	..	2

TABLE 6.2

Appointment and desertion of staff (Field Branch) by month in Rabi Season, 1952-53

Month	Appointed	Discharged or resigned
January 1953	4	4
February 1953	2	3
March 1953	4	3

TABLE 7

Estimated acreage under Aus in 1952-53

N=Number of effective samples.

District	Number of grids surveyed	Number of data rejected	N.	*Acreage in (000) acres	± S.E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	4,683	215	4,468	59.52	3.27	5.5
2. Birbhum ..	3,210	9	3,201	74.52	3.59	4.8
3. Bankura ..	4,929	227	4,702	145.94	5.45	3.7
4. Midnapore ..	6,500	123	6,377	128.44	5.48	4.3
5. Howrah ..	967	9	958	2.29	0.55	24.0
6. Hooghly ..	2,143	37	2,106	18.59	1.42	7.6
7. 24-Parganas ..	5,951	12	5,939	86.19	3.07	3.6
8. Nadia ..	2,746	6	2,740	206.87	4.92	2.4
9. Murshidabad ..	3,519	62	3,457	224.35	5.22	2.3
10. West Dinajpur ..	2,508	3	2,505	95.72	3.39	3.5
11. Malda ..	2,358	58	2,300	136.95	4.45	3.2
12. Jalpaiguri ..	3,038	62	2,976	44.42	3.21	7.2
13. Darjeeling (Sili-guri sub-division only).	376	18	358	1.69	0.61	36.1
14. Cooch Behar ..	2,054	..	2,054	131.27	3.91	3.0
West Bengal ..	44,982	841	44,141	1,356.76	14.27	1.1

*Calculated on the basis of total area under survey according to village records.

TABLE 7-1

Estimated acreage under Jute, 1952-53

N=Number of effective samples.

District	Number of grids surveyed	Number of data rejected	N	*Acreage in (000) acres	±S.E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	4,683	215	4,468	27.06	2.32	8.6
2. Birbhum ..	3,210	9	3,201	1.84	0.28	15.2
3. Bankura ..	4,929	227	4,702	5.48	0.95	17.3
4. Midnapore ..	6,500	123	6,377	44.25	2.27	5.1
5. Howrah ..	967	9	958	18.89	1.64	8.7
6. Hooghly ..	2,143	37	2,106	79.99	3.02	3.8
7. 24-Parganas ..	5,951	12	5,939	133.64	3.64	2.7
8. Nadia ..	2,746	6	2,740	115.41	3.33	2.9
9. Murshidabad ..	3,519	62	3,457	143.79	3.84	2.7
10. West Dinajpur ..	2,508	5	2,505	69.86	2.78	4.0
11. Malda ..	2,358	58	2,300	75.00	2.86	3.8
12. Jalpaiguri ..	3,038	62	2,976	44.37	2.05	4.6
13. Darjeeling (Sili-guri sub-division only).	376	18	358	5.04	0.78	15.5
14. Cooch Behar ..	2,054	..	2,054	71.62	2.67	3.7
West Bengal ..	44,982	841	44,141	836.24	9.50	1.1

*Calculated on the basis of total area under survey according to village records.

TABLE 7.2

Estimated acreage under Aman, 1952-53

N = Number of effective samples.

District	Number of grids surveyed	Number of data rejected	N.	*Acreage in (000) acres	±S.E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	5,193	11	5,182	1,047.76	9.60	0.9
2. Birbhum ..	3,250	5	3,245	720.66	7.66	1.1
3. Bankura ..	4,934	10	4,924	736.67	9.70	1.3
4. Midnapore ..	6,938	43	6,895	1,983.72	15.43	0.8
5. Howrah ..	1,038	2	1,036	240.00	3.64	1.5
6. Hooghly ..	2,240	2	2,238	435.32	6.42	1.5
7. 24-Parganas ..	6,090	15	6,075	1,400.01	9.27	0.7
8. Nadia ..	2,873	8	2,865	197.06	5.96	3.0
9. Murshidabad ..	3,721	6	3,715	486.73	7.74	1.6
10. West Dinajpur ..	2,592	2	2,590	517.62	6.62	1.3
11. Malda ..	2,506	5	2,501	263.81	5.51	2.1
12. Jalpaiguri ..	3,313	8	3,305	398.76	7.80	2.0
13. Darjeeling (Sili-guri sub-division only).	432	2	430	56.08	2.71	4.8
14. Cooch Behar ..	2,131	4	2,127	304.60	6.62	2.2
West Bengal ..	47,251	123	47,128	8,788.80	30.08	0.3

*Calculated on the basis of total area under survey according to village records.

TABLE 7.3
Estimated acreages* under Rabi crops, 1952-53

N=Number of effective samples.

District (1.1)	Number of grids* surveyed (2)	Number of data rejected (3)	N. (4)	Acreage (000) under	
				Wheat (5)	Barley (6)
1. Burdwan ..	5,202	9	5,193	3.20	1.78
2. Birbhum ..	3,250	6	3,244	10.85	0.57
3. Bankura ..	4,935	12	4,923	12.80	0.35
4. Midnapore ..	6,997	33	6,964	0.85	0.10
5. Howrah ..	1,000	1	999	0.02	0.00
6. Hooghly ..	2,197	4	2,193	0.60	0.13
7. 24-Parganas ..	6,166	10	6,156	0.42	0.26
8. Nadia ..	2,857	8	2,849	10.94	2.99
9. Murshidabad ..	3,679	14	3,665	41.35	33.14
10. West Dinajpur	2,506	7	2,499	2.22	4.85
11. Malda ..	2,489	6	2,483	6.89	60.33
12. Jalpaiguri ..	3,301	4	3,297	1.48	0.45
13. Darjeeling (Sili- guri sub-division only).	435	..	435	0.00	0.04
14. Cooch Behar ..	2,128	5	2,123	8.55	1.01
West Bengal..	47,142	119	47,023	100.17	106.00

District (1.2)	Acreage (000) under						
	Gram			Mug (10)	Musur		
	Acreage (7)	±S. E. (8)	±P. V. (9)		Acreage (11)	±S. E. (12)	P. V. (13)
1. Burdwan ..	15.17	1.31	8.31	2.72	16.14	1.24	7.68
2. Birbhum ..	34.13	2.06	6.04	4.19	12.74	1.11	8.71
3. Bankura ..	5.95	0.76	12.77	1.54	2.28	0.42	18.42
4. Midnapore ..	8.47	1.43	16.88	17.20	2.43	0.42	17.28
5. Howrah ..	0.63	0.26	41.27	1.30	5.17	0.80	15.47
6. Hooghly ..	9.26	0.70	7.56	2.55	17.32	1.42	8.20
7. 24-Paraganas ..	25.29	1.59	6.29	4.95	74.90	2.17	2.90
8. Nadia ..	130.94	3.92	2.99	0.59	45.69	2.15	4.70
9. Murshidabad ..	136.37	3.58	2.62	0.71	97.95	3.08	3.14
10. West Bengal ..	1.71	0.31	18.13	0.38	6.67	0.74	11.09
11. Malda ..	33.28	2.05	6.16	0.04	8.31	0.86	10.35
12. Jalpaiguri ..	0.66	0.36	54.54	0.59	0.49	0.22	44.90
13. Darjeeling (Siliguri sub-division only).	0.00	..	..	0.00	0.02	0.02	100.00
14. Cooch Behar ..	1.10	0.49	44.54	0.80	3.88	0.54	13.92
West Bengal ..	403.56	6.67	1.65	37.56	293.99	5.12	1.74

*Calculated on the basis of total area under survey according to village records.

ABLE 7.3—concl'd.

District (1-3)	Acreage (000) under				
	Maskalai (14)	Matar (15)	Khesari (16)	Arhar (17)	Linseed (18)
1. Burdwan ..	10.91	0.78	12.49	2.34	0.37
2. Birbhum ..	3.08	0.40	39.56	2.39	0.99
3. Bankura ..	11.58	0.53	3.57	4.33	0.93
4. Midnapore ..	39.44	0.52	70.19	5.18	1.47
5. Howrah ..	3.71	2.14	23.52	0.02	0.00
6. Hooghly ..	6.38	1.34	31.19	0.13	0.01
7. 24-Parganas ..	22.92	17.82	29.10	0.91	0.11
8. Nadia ..	71.23	5.72	3.69	24.55	14.30
9. Murshidabad ..	35.92	9.60	68.37	22.84	40.10
10. West Dinajpur ..	25.45	0.40	2.66	2.40	0.17
11. Malda ..	114.69	0.93	12.56	3.38	5.26
12. Jalpaiguri ..	7.74	0.01	1.69	0.40	0.06
13. Darjeeling (Sili- guri sub-division only).	0.30	0.00	0.00	0.03	0.00
14. Cooch Behar ..	8.52	0.54	7.32	0.57	0.04
West Bengal..	361.87	40.73	305.91	69.47	63.81

District (1-4)	Acreage (000) under					Total (24)
	Mustard			Potato (22)	Sugarcane (23)	
	Acreage (19)	± S. E. (20)	P. V.. (21)			
1. Burdwan ..	4.26	0.46	10.80	13.71	9.26	93.00
2. Birbhum ..	2.21	0.38	17.19	9.62	7.52	128.00
3. Bankura ..	2.90	0.51	17.59	4.05	3.06	53.87
4. Midnapore ..	9.54	0.90	9.43	10.37	3.46	169.22
5. Howrah ..	0.48	0.14	29.17	1.94	0.43	39.36
6. Hooghly ..	1.48	0.23	15.54	30.13	1.74	102.26
7. 24-Parganas ..	10.23	0.89	8.70	5.06	1.61	193.58
8. Nadia ..	9.84	0.85	8.64	1.60	5.47	327.55
9. Murshidabad ..	17.64	0.88	4.99	6.23	10.39	520.61
10. West Dinajpur ..	56.78	2.72	4.79	4.39	1.26	109.34
11. Malda ..	45.12	2.01	4.45	2.18	7.20	300.17
12. Jalpaiguri ..	29.28	1.60	5.46	2.66	0.51	46.02
13. Darjeeling (Sili- guri sub-division only).	2.61	0.42	16.09	0.82	0.03	3.85
14. Cooch Behar ..	31.53	1.78	5.64	2.67	0.15	66.68
West Bengal..	223.90	4.60	2.05	95.43	52.09	2,154.49

TABLE 8

Estimate of Yield rate per acre of Aus (green paddy), 1952-53

N= Number of effective samples.

District	Number of cuts	Number of data rejected	N.	Yield per acre (maunds)	\pm S E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	29	1	28	19.80	1.16	5.9
2. Birbhum ..	108	..	108	23.39	0.56	2.4
3. Bankura ..	174	..	174	13.97	0.48	3.4
4. Midnapore ..	79	..	79	13.79	0.84	6.1
5. Howrah ..	9	..	9	21.25	2.42	11.4
6. Hooghly ..	15	..	15	17.17	1.51	8.8
7. 24-Parganas ..	101	..	101	17.30	0.85	4.9
8. Nadia	186	..	186	15.79	0.42	2.7
9. Murshidabad ..	175	..	175	14.09	0.36	2.6
10. West Dinajpur	106	..	106	11.18	0.61	5.5
11. Malda	98	..	98	15.99	0.68	4.3
12. Jalpaiguri ..	105	..	105	13.93	0.47	3.4
13. Darjeeling (Sili-guri sub-division only).	2	..	2	7.12	5.48	77.0
14. Cooch Behar ..	119	..	119	11.83	0.37	3.1
West Bengal..	1,306	1	1,305	15.08	0.18	1.2

TABLE 8.1

Estimate of Yield rate per acre of Jute (green plants), 1952-53

N=Number of effective samples.

District	Number of cuts made	Number of data rejected	N.	Yield per acre (in maunds)	± S. E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	38	..	38	235.89	18.04	7.6
2. Birbhum ..	..	..	..	235.89*	18.04	7.6
3. Bankura ..	5	..	5	272.22	31.03	11.04
4. Midnapore ..	177	..	177	243.99	7.46	3.1
5. Howrah ..	57	..	57	230.37	8.62	3.7
6. Hooghly ..	63	..	63	289.07	15.27	5.3
7. 24-Paraganas ..	199	..	199	205.46	6.17	3.0
8. Nadia ..	151	..	151	189.59	6.40	3.4
9. Murshidabad ..	183	..	183	221.60	6.43	2.9
10. West Dinajpur	126	..	126	210.65	10.08	4.8
11. Malda ..	89	..	89	275.50	15.42	5.6
12. Japlaiguri ..	188	..	188	197.31	8.83	4.5
13. Darjeeling (Sili-guri sub-division only).	25	..	25	146.11	16.84	11.5
14. Cooch Behar ..	160	..	160	221.71	8.09	3.6
West Bengal..	1,461	..	1,461	225.45	3.01	1.3

*Yield rate of district Burdwan is used as no cut is available from the district.

TABLE 8.2

Estimate of Yield rate per acre of Aman (green paddy), 1952-53

N=Number of effective samples.

District	Number of cuts	Number of data rejected	N.	Yield per acre (in maunds)	± S. E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	783	4	779	18.99	0.2546	1.3
2. Birbhum ..	2,331	32	2,299	21.37	0.1369	0.6
3. Bankura ..	507	..	507	19.89	0.3299	1.7
4. Midnapore ..	790	1	789	17.20	0.2177	1.3
5. Howrah ..	84	..	84	20.12	0.7830	3.9
6. Hooghly ..	208	..	208	20.39	0.4983	2.4
7. 24-Parganas ..	707	30	677	14.08	0.2081	1.5
8. Nadia ..	221	1	210	12.58	0.3792	3.0
9. Murshidabad ..	1,240	9	1,231	16.84	0.1793	1.1
10. West Dinajpur	302	1	301	16.14	0.3888	2.4
11. Malda ..	205	3	202	16.56	0.4791	2.9
12. Jalpaiguri ..	325	..	325	18.81	0.3422	1.8
13. Darjeeling (Sili-guri sub-division only).	46	1	45	24.94	1.5674	6.3
14. Cooch Behar ..	291	..	291	14.67	0.3477	2.4
West Bengal..	8,030	82	7,948	17.46	0.0882	0.5

TABLE 8.3

Estimate of Yield rates per acre of Rabi Crops (green), 1952-53

District (1.1)	Wheat							Barley					
	No. of data cuts rejected		N	Yield per acre (in maunds)	±S.E.	Percent- age vari- ability	No. of data cuts rejected		N	Yield per acre in (maunds)	±S.E.	Percent- age vari- ability	
	(2)	(3)					(2.1)	(3.1)					(4.1)	(5.1)	(6.1)	(7.1)
1. Burdwan	18	..	18	13.18	1.89	14.34	..	..	..	..	..	..
2. Birbhum	22	..	22	12.40	0.87	7.02	1	..	1	11.36	0.00	0.00	
3. Bankura	33	..	33	13.20	1.22	9.24	6	..	6	9.49	4.30	45.31	
4. Midnapore	5	..	5	12.21	1.44	11.79	1	..	1	13.00	0.00	0.00	
5. Howrah .. ..	..	..	..	..	..	..	..	..	..	..	..	..
6. Hooghly .. ..	..	..	..	..	..	..	1	..	1	2.60	0.00	0.00
7. 24-Parganas	1	..	1	6.16	0.00	0.00	..	..	..	..	..	..
8. Nadia	22	..	22	15.49	1.33	8.59	10	..	10	13.44	2.23	16.59	
9. Murshidabad	47	..	47	14.98	1.32	8.81	51	..	51	13.71	0.74	5.40	
10. West Dinajpur	9	..	9	9.69	2.34	24.15	13	..	13	15.86	2.92	18.41	
11. Malda	17	..	17	18.70	2.08	11.12	82	1	81	14.51	0.83	5.72	
12. Jalpaiguri	3	..	3	7.25	3.63	50.07	5	..	5	4.96	1.35	27.22	
13. Darjeeling (Siliguri sub-division only) .. ..	..	..	..	..	..	..	..	..	..	..	..	..
14. Cooch Behar	20	..	20	14.46	1.54	10.65	1	..	1	16.29	0.00	0.00	
West Bengal	197	..	197	14.08	0.63	4.47	171	1	170	13.77	0.56	4.07	

District	Gram						Mug						
	No. of data cuts rejected		N	Yield per acre (in maunds)	±S.E.	Percentage variability	No. of data cuts rejected		N	Yield per acre (in maunds)	±S.E.	Percentage variability	
	(1-2)	(2-2)	(3-2)	(4-2)	(5-2)	(6-2)	(7-2)	(2-3)	(3-3)	(4-3)	(5-3)	(6-3)	(7-3)
1. Burdwan	34	..	34	13.11	1.11	8.47	6	..	6	11.09	0.80	7.21
2. Birbhum	67	..	67	16.54	1.25	7.56	6	..	6	12.64	1.92	15.19
3. Bankura	13	..	13	21.55	2.50	11.60	2	..	2	11.70	4.45	38.03
4. Midnapore	17	..	7	10.64	2.11	19.83	3	..	3	8.53	1.39	16.30
5. Howrah	2	..	2	7.19	0.89	12.38	6	..	6	6.50	0.83	12.77
6. Hooghly	12	..	12	12.73	1.39	10.92	3	..	3	15.79	3.74	23.69
7. 24-Parganas	42	..	42	14.96	1.41	9.43	1	..	1	5.34	0.00	..
8. Nadia	143	..	143	14.00	0.45	3.21	..	..	..	..	..	..
9. Murshidabad	107	2	105	12.83	0.51	3.98	1	..	1	4.52	0.00	0.00
10. West Dinajpur	13	..	13	16.83	3.40	20.20	..	..	..	..	..	..
11. Malda	32	..	32	15.66	1.43	9.13	..	..	..	..	..	..
12. Jalpaiguri
13. Darjeeling (Siliguri sub-division only)
14. Cooch Behar
West Bengal	472	2	470	14.41	0.30	2.08	28	..	28	10.27	0.90	8.7

TABLE 8-3—contd.

District (1-3)	Musur						Maskalai					
	No. of cuts (2-4)	No. of data rejected (3-4)	N (4-4)	Yield of acre (in maunds) (5-4)	±S.E. (6-4)	Percent- age vari- ability (7-4)	No. of cuts rejected (2-5)	No. of data (3-5)	N (4-5)	Yield per acre (in maunds) (5-5)	±S.E. (6-5)	Percent- tage vari- ability (7-5)
1. Burdwan	26	2	24	11-05	1-31	11-86	3	..	3	9-03	1-01	11-18
2. Birbhum	29	..	29	10-23	1-52	15-84	2	..	2	11-22	3-15	28-07
3. Bankura	6	..	6	6-75	0-51	7-56	..	..	..	..	..	..
4. Midnapore	5	..	5	10-46	1-24	11-85	5	..	5	7-26	1-20	16-53
5. Howrah	17	..	17	6-95	0-65	9-35	..	..	..	..	..	..
6. Hooghly	18	..	18	8-89	0-87	9-79	3	..	3	7-71	1-33	17-25
7. 24-Parganas	77	..	77	6-72	0-49	7-29	..	..	..	..	..	..
8. Nadia	53	..	53	7-89	0-92	11-66	..	..	..	..	..	..
9. Murshidabad	123	..	123	10-28	0-38	3-70	..	..	..	..	..	..
10. West Dinajpur	6	..	6	9-86	2-77	28-09	6	..	6	10-79	1-94	17-98
11. Malda	21	..	21	11-14	1-37	12-30	1	..	1	3-42	0-00	0-000
12. Jalpaiguri .. ..	..	..	..	..	..	..	7	..	7	8-18	1-36	16-63
13. Darjeeling (Siliguri sub-division only) .. ..	..	..	..	..	..	..	..	..	..	..	..	..
14. Cooch Behar	5	..	5	7-97	2-93	36-76	..	..	..	..	..	..
West Bengal	386	2	384	9-03	0-27	2-99	27	..	27	8-68	0-65	7-49

District	Matar						Khesari						
	No. of cuts	No. of data rejected	Yield per acre (in maunds)	±S.E.	Percentage variability		No. of cuts	No. of data rejected	Yield per acre (in maunds)	±S.E.	Percentage variability		
													(1-4)	(2-6)	(3-6)	(4-6)	(5-6)	(6-6)	(7-6)	(2-7)	(3-7)	(4-7)	(5-7)	(6-7)	(7-7)
1. Burdwan	2	..	2	7.80	0.27	3.46	6	..	6	12.98	2.36	18.18
2. Birbhum	31	..	31	13.74	1.11	8.08
3. Bankura	1	..	1	12.46	0.00	0.00	3	..	3	8.49	1.46	17.20
4. Midnapore	3	..	3	10.58	3.28	31.00	65	..	65	15.42	1.53	9.92
5. Howrah	8	..	8	4.41	1.49	33.79	52	..	52	8.28	0.38	4.59
6. Hooghly	3	..	3	6.52	3.18	48.77	22	..	22	9.49	1.18	12.43
7. 24-Parganas	16	..	16	6.60	1.41	21.36	38	..	38	12.89	1.10	8.53
8. Nadia	1	..	1	11.36	0.00	0.00	1	..	1	8.49	0.00	0.00
9. Murshidabad	18	..	18	16.10	1.48	9.19	49	..	49	14.54	0.81	5.57
10. West Dinajpur	4	..	4	9.34	5.42	58.03
11. Malda	5	..	5	9.47	3.13	33.05	20	..	20	16.27	2.47	15.14
12. Jalpaiguri
13. Darjeeling (Siliguri sub-division only)
14 Cooch Behar.	2	..	2	6.02	3.42	56.81	12	..	12	11.88	1.86	15.66
West Bengal	59	..	59	9.84	0.85	8.64	303	..	303	12.83	0.48	3.74

TABLE 8.3—contd.

District	Arhar						Linseed						
	No. of cuts	No. of data rejected	N.	Yield per acre (in mds.)	± S. E.	Percentage variability	No. of cuts	No. of data rejected	N.	Yield per acre (in mds.)	± S. E.	Percentage variability	
(1.5)	(2.8)	(3.8)	(4.8)	(5.8)	(6.8)	(7.8)	(2.9)	(3.9)	(4.9)	(5.9)	(6.9)	(7.9)	
1. Burdwan	
2. Birbhum	3	..	3	14.69	1.93	13.14	6	..	6	9.10	1.80	19.78
3. Bankura	3	..	3	5.06	1.46	28.85
4. Midnapore	4	..	4	13.75	2.71	19.71	..	..	..	..	..	..
5. Howrah
6. Hooghly
7. 24-Parganas	1	..	1	13.63	0.00	0.00	..	..	..	..	..	..
8. Nadia	39	..	39	13.11	0.63	4.80	23	..	23	7.40	0.44	5.95
9. Murshidabad	41	..	41	14.11	1.23	8.72	19	..	19	8.02	0.54	6.73
10. West Dinajpur
11. Malda	2	..	2	13.69	5.29	38.64	12	..	12	3.75	0.87	23.20
12. Jalpaiguri
13. Darjeeling (Siliguri sub-division only).
14. Cooch Behar
West Bengal	90	..	90	13.75	0.73	5.31	63	..	63	6.94	0.37	5.33

District (1-7)	Mustard						Potato					
	No. of cuts (2-10)	No. of data rejected (3-10)	N. (4-10)	Yield per acre (in mds.) (5-10)	± S. E. (6-10)	Percentage variability (7-10)	No. of cuts (2-11)	No. of data rejected (3-11)	N. (4-11)	Yield per acre (in mds.) (5-11)	± S. E. (6-11)	Percentage variability (7-11)
1. Burdwan ..	7	..	7	5.20	0.28	5.38	42	..	42	131.17	10.32	7.87
2. Birbhum ..	..	..	..	..	..	..	23	..	23	89.69	7.44	8.30
3. Bankura ..	1	..	1	7.80	0.00	0.00	10	..	10	102.00	14.26	13.98
4. Midnapore ..	8	..	8	4.94	1.74	35.22	28	..	28	86.94	9.03	10.39
5. Howrah ..	1	..	1	1.92	0.00	0.00	15	..	15	135.80	18.79	13.84
6. Hooghly ..	..	..	..	..	..	..	34	..	34	152.75	8.75	5.73
7. 24-Parganas ..	3	..	3	4.93	2.33	47.26	14	..	14	94.00	23.36	24.85
8. Nadia ..	2	..	2	4.45	0.89	20.00	..	..	..	..	..	..
9. Murshidabad ..	11	..	11	27.08	3.30	12.19	11	..	11	96.89	21.57	22.26
10. West Dinajpur ..	58	..	58	11.47	0.77	6.71	8	..	8	116.88	16.51	14.12
11. Malda ..	89	..	89	15.97	1.76	11.02	12	..	12	75.47	10.34	13.70
12. Jalpaiguri ..	65	..	65	8.89	0.70	7.87	5	..	5	58.26	17.48	30.00
13. Darjeeling (Siliguri sub-division only).	11	..	11	29.87	5.01	16.77	..	..	..	..	..	..
14. Cooch Behar ..	28	..	28	8.68	0.98	11.29	1	..	1	85.61	0.00	0.00
West Bengal ..	284	..	284	12.83	0.57	4.44	203	..	203	107.25	4.22	3.60

TABLE 8.3—concl'd.

District (1.8)	Sugarcane					
	No. of cuts (2.12)	No. of data rejected (3.12)	N. (4.12)	Yield per acre (in mds.) (5.12)	± S. E. (6.12)	Percentage variability (7.12)
1. Burdwan	21	..	21	513.25	46.17	9.00
2. Birbhum	42	..	42	616.60	32.36	5.25
3. Bankura	5	..	5	636.01	204.10	32.09
4. Midnapore	2	..	2	564.85	6.05	1.07
5. Howrah	1	..	1	566.07	0.00	0.00
6. Hooghly	2	..	2	565.01	58.68	10.38
7. 24 Parganas	4	..	4	630.38	34.91	5.54
8. Nadia	8	..	8	622.05	15.89	2.55
9. Murshidabad	14	..	14	503.81	47.98	9.52
10. West Dinajpur	2	..	2	564.77	117.98	20.89
11. Malda	8	..	8	400.51	63.32	15.81
12. Jalpaiguri .. .. .	..	..	..	..	..	..
13. Darjeeling (Siliguri sub-division only)	..	..	..	..	..	..
14. Cooch Behar .. .. .	..	..	..	..	..	..
West Bengal	109	..	109	540.48	24.41	4.52

TABLE 9.

Estimate of drriage factor for Aus, 1952-53.

N= Number of effective samples.

District	Number of cuts involving dry weight	Number of data rejected	N	Drriage factor	± S. E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	11	..	11	·8749	·0320	3·7
2. Birbhum ..	24	..	24	·9466	·0051	0·5
3. Bankura ..	48	..	48	·8945	·0063	0·7
4. Midnapore ..	39	..	39	·8873	·0157	1·8
5. Howrah ..	6	..	6	·8831	·0082	0·9
6. Hooghly ..	10	..	10	·9232	·0119	1·3
7. 24-Parganas ..	57	..	57	·8258	·0145	1·8
8. Nadia ..	76	..	76	·9309	·0060	0·6
9. Murshidabad ..	64	..	64	·9070	·0057	0·6
10. West Dinajpur ..	26	..	26	·8654	·0169	2·0
11. Malda ..	45	..	45	·9007	·0083	0·0
12. Jalpaiguri ..	44	..	44	·8823	·0080	0·9
13. Darjeeling (Siliguri sub-division only) ..	2	..	2	·8568	·0235	2·7
14. Cooch Behar ..	49	..	49	·8011	·0072	0·9
Total ..	501	..	501	·8919	·0029	0·3

TABLE 9.1.

Estimate of the ratio of the weights of dry Jute fibre and raw Jute plant,
1952-53.

N=Number of effective sample

District	Number of cuts involving dry weight	Number of data rejected	N	Driage factor	\pm S. E.	Percentage variability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	16	..	16	0.0464	0.0025	5.4
2. Birbhum ..						
3. Bankura ..						
4. Midnapore ..						
5. Howrah ..	48	..	48	0.0639	0.0017	2.7
6. Hooghly ..						
7. 24-Parganas ..						
8. Nadia ..	48	..	48	0.0671	0.0026	3.9
9. Murshidabad ..						
10. West Dinajpur ..	39	..	39	0.0594	0.0016	2.7
11. Malda ..						
12. Jalpaiguri ..	32	..	32	0.0628	0.0028	4.5
13. Darjeeling (Sili-guri sub-division only).						
14. Cooch Behar ..						
West Bengal ..	183	..	183	0.0621	0.0011	1.8

TABLE 9.2.

Estimate of the ratio of the weights of dry Jute fibre and raw Jute plant,
1952-53

N=Number of effective samples

District		Number of cuts involving dry weight	Number of data rejected	N	Driage factor	\pm S. F.	Percentage variability
(1)		(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan	..	176	..	176	0.9289	0.0085	0.9
2. Birbhum	..	223	..	223	0.9299	0.0129	1.4
3. Bankura	..	118	..	118	0.9097	0.0038	0.4
4. Midnapore	..	194	..	194	0.9243	0.0031	0.3
5. Howrah ..	..	29	..	29	0.9221	0.0092	1.0
6. Hooghly	..	32	..	32	0.9273	0.0095	1.0
7. 24-Parganas	..	186	..	186	0.8959	0.0041	0.5
8. Nadia ..	..	73	..	73	0.8826	0.0078	0.9
9. Murshidabad	..	213	..	213	0.9270	0.0049	0.5
10. West Dinajpur	..	61	..	61	0.9357	0.0072	0.8
11. Malda ..	..	53	..	53	0.9225	0.0058	0.6
12. Jalpaiguri	..	72	..	72	0.9362	0.0041	0.4
13. Darjeeling (Sili- guri sub-division only).	..	17	..	17	0.9383	0.0111	1.2
14. Cooch Behar	..	72	..	72	0.9163	0.0039	0.4
West Bengal	..	1,519	..	1,519	0.9261	0.0025	0.3

TABLE 9-3
Estimates of drriage factor of Rabi crop, 1952-53

District	Wheat						Barley					
	No. of cuts involving dry weight	No. of data rejected	N	Drriage factor	±S. E.	Percentage variability	No. of cuts involving dry weight	No. of data rejected	N	Drriage factor	±S. E.	Percentage variability
(1-1)	(2)	(3)	(4)	(5)	(6)	(7)	(2-1)	(3-1)	(4-1)	(5-1)	(6-1)	(7-1)
1. Burdwan	6	1	5	0.6730	0.0400	5.94	..	..	..	..	..	..
2. Birbhum	10	1	9	0.7003	0.0188	2.68	1	..	1	0.7229	0.0000	0.00
3. Bankura	21	..	21	0.5738	0.0256	4.46	5	..	5	0.7716	0.0293	3.80
4. Midnapore .. ..	..	..	..	..	..	..	..	..	..	..	..	..
5. Howrah .. ..	..	..	..	..	..	..	..	..	..	..	..	..
6. Hooghly .. ..	..	..	..	..	..	..	1	..	1	0.7368	0.0000	0.00
7. 24-Parganas	1	..	1	0.6444	0.0000	0.00	..	..	..	..	..	..
8. Nadia	6	1	5	0.5740	0.0826	14.39	4	..	4	0.6792	0.0693	10.20
9. Murshidabad	32	1	31	0.6162	0.0168	2.73	25	..	25	0.6568	0.0159	2.42
10. West Dinajpur	6	..	6	0.5115	0.0433	8.47	9	1	8	0.5815	0.0546	9.39
11. Malda	14	..	14	0.6118	0.0270	4.41	24	2	22	0.6533	0.0249	3.81
12. Jalpaiguri	2	..	2	0.7291	0.0240	3.29	4	..	4	0.7668	0.0651	8.49
13. Darjeeling (Siliguri sub-division only).	..	..	..	..	..	..	..	..	..	..	..	..
14. Cooch Behar	6	..	6	0.6830	0.0255	3.73	..	..	..	..	..	..
West Bengal	104	4	100	0.6164	0.0110	1.78	73	3	70	0.6639	0.0136	2.05

District	Gram						Mug						
	No. of cuts involving dry weight	No. of data rejected	N	Driage factor	±S. E.	Percentage variability	No. of cuts involving dry weight	No. of data rejected	N	Driage factor	±S. E.	Percentage variability	
(1-2)	(2-2)	(3-2)	(4-2)	(5-2)	(6-2)	(7-2)	(2-3)	(3-3)	(4-3)	(5-3)	(6-3)	(7-3)	
1. Burdwan	14	1	13	0.6625	0.0435	6.57	4	..	4	0.6261	0.0332	5.30
2. Birbhum	28	3	25	0.6321	0.0194	3.07	2	..	2	0.6252	0.3081	49.28
3. Bankura	5	..	5	0.4500	0.0293	6.51	3	1	1	0.5763	0.0000	0.00
4. Midnapore	5	..	5	0.6814	0.0229	3.36	1	..	1	0.6709	0.0000	0.00
5. Howrah	2	..	2	0.8018	0.0626	7.81	3	..	3	0.7783	0.0466	5.99
6. Hooghly	7	2	5	0.6182	0.0762	12.33	2	1	1	0.7302	0.0000	0.00
7. 24-Parganas	12	..	12	0.5405	0.0353	6.53	..	..	..	..	..	..
8. Nadia	38	3	35	0.8058	0.0085	1.05	..	..	..	..	..	..
9. Murshidabad	48	2	46	0.5955	0.0116	1.95	..	..	..	..	..	..
10. West Dinajpur	8	..	8	0.6085	0.0604	9.93	..	..	..	..	..	..
11. Malda	16	1	15	0.5140	0.0317	6.17	..	..	..	..	..	..
12. Jalpaiguri
13. Darjeeling (Siliguri-sub-division only):
14. Cooch Behar
West Bengal	183	12	171	0.6373	0.0136	2.13	14	2	12	0.6723	0.0457	6.80

TABLE 9.3—contd.

District	Musur						Maskalai					
	No. of cuts involving dry weight	No. of data rejected	N	Drilage factor	±S. E.	Percentage variability	No. of cuts involving dry weight	No. of data rejected	N	Drilage factor	±S. E.	Percentage variability
(1-3)	(2-4)	(3-4)	(4-4)	(5-4)	(6-4)	(7-4)	(2-5)	(3-5)	(4-5)	(5-5)	(6-5)	(7-5)
1. Burdwan ..	15	4	11	.7390	.0320	4.33	2	..	2	.8010	.0394	4.91
2. Birbhum ..	20	2	18	.5848	.0321	5.49	1	..	1	.7797	.0000	0.00
3. Bankura ..	5	2	3	.5060	.1300	25.69	..	..	..	..	..	..
4. Midnapore ..	3	..	3	.7395	.0107	1.45	3	..	3	.6015	.0535	8.89
5. Howrah ..	5	..	5	.7395	.0412	5.57	..	..	..	..	..	..
6. Hooghly ..	10	..	10	.6665	.0406	6.09	2	..	2	.7956	.0210	2.64
7. 24-Parganas ..	43	2	41	.5852	.0198	3.38	..	..	..	..	..	..
8. Nadia ..	15	1	14	.6253	.0321	5.13	..	..	..	..	..	..
9. Murshidabad ..	43	8	35	.6762	.0134	1.98	..	..	..	..	..	..
10. West Dinajpur ..	4	..	4	.5692	.0380	6.68	6	..	6	.4581	.0243	5.30
11. Malda ..	10	..	10	.6801	.0450	6.62	1	..	1	.6800	.0000	0.00
12. Jalpaiguri ..	..	..	..	..	..	..	3	..	3	.3074	.0318	10.34
13. Darjeeling (Siliguri sub-division only).	..	..	..	..	..	..	..	..	..	..	..	..
14. Cooch Behar ..	2	..	2	.7316	.0649	8.87	..	..	..	..	..	..
West Bengal	175	19	156	.6392	.0102	1.60	18	..	18	.5628	.0441	7.84

District	Matar						Khesari					
	No. of cuts involving dry weight	No. of data rejected	N	Drriage factor	±S. E.	Percentage variability	No. of cuts involving dry weight	No. of data rejected	N	Drriage factor	±S. E.	Percentage variability
(1-4)	(2-6)	(3-6)	(4-6)	(5-6)	(6-6)	(7-6)	(2-7)	(3-7)	(4-7)	(5-7)	(6-7)	(7-7)
1. Burdwan	2 ..	2	·5609	·0154	2·75	5	1	4	·5727	·1219	21·29
2. Birhum	19	3	16	·6025	·0243	4·03
3. Bankura	1 ..	1	·7912	·0000	0·00	3	1	2	·2478	·0430	17·35
4. Midnapore	2 ..	2	·7078	·0677	9·56	19	..	19	·5322	·0684	12·85
5. Howrah	4 ..	4	·7062	·0477	6·75	10	..	10	·7186	·0189	2·63
6. Hooghly	2 ..	2	·5320	·0134	2·52	8	..	8	·5709	·0522	9·14
7. 24-Parganas	14 ..	14	·5437	·0450	8·28	25	5	20	·4976	·0330	6·63
8. Nadia
9. Murshidabad	14 2	12	·5967	·0221	3·70	27	3	24	·5496	·0285	5·19
10. West Dinajpur	1	..	1	·5000	·0000	0·00
11. Malda	4 ..	4	·6947	·0396	5·70	11	2	9	·6043	·0337	5·58
12. Jalpaiguri
13. Darjeeling (Siliguri-sub-division only).
14. Cooch Behar	4	..	4	·6391	·0214	3·35
West Bengal	43 2	41	·6041	·0205	3·39	132	15	117	·5632	·0165	2·93

477.

TABLE 9.3—*contd.*

District	Arhar						Linseed						
	No. of cuts involving dry weight	No. of data rejected	N	Dringe factor	± S. E.	Percentage variability	No. of cuts involving dry weight	No. of data rejected	N	Dringe factor	± S. E.	Percentage variability	
(1-5)	(2-8)	(3-8)	(4-8)	(5-8)	(6-8)	(7-8)	(2-9)	(3-9)	(4-9)	(5-9)	(6-9)	(7-9)	
1. Burdwan	
2. Birbhum	2	..	2	·6934	·0674	9·72	
3. Bankura	2	..	2	·4073	·0437	10·73	
4. Midnapore	2	..	2	·2486	·0069	2·78	..	..	..	..	..
5. Howrah	
6. Hooghly	
7. 24-Parganas	
8. Nadia	4	..	4	·3241	·0381	11·76	6	2	4	·5212	·0584	11·20
9. Murshidabad	10	..	10	·4324	·0271	6·27	13	..	13	·5685	·0416	7·32
10. West Dinajpur	
11. Malda	2	..	2	·5469	·0762	13·93	9	1	8	·4219	·0526	12·47
12. Jalpaiguri	
13. Darjeeling (Siliguri sub-division only).	
14. Cooch Behar	
West Bengal	18	..	18	·4543	·0288	6·30	32	3	29	·5087	·0288	5·66

District	Mustard					
	No. of cuts involving dry weight	No. of data rejected	N	Driage factor	± S. E.	Percentage variability
	(1·6)	(2·10)	(3·10)	(4·10)	(5·10)	(6·10)	(7·10)
1. Burdwan	3	..	3	·6222	·0313	5·03
2. Birbhum .. .. .	..	..	..	..	..	..
3. Bankura .. .. .	..	..	..	..	..	..
4. Midnapore	4	2	2	·5920	·0747	12·62
5. Howrah	1	..	1	·6428	·0000	0·00
6. Hooghly .. .. .	..	..	..	..	..	..
7. 24-Parganas	3	1	2	·3095	·0238	7·69
8. Nadia .. .. .	..	..	..	..	..	..
9. Murshidabad	8	1	7	·4354	·0853	19·59
10. West Dinajpur	20	3	17	·2908	·0232	7·98
11. Malda	31	7	24	·4584	·0356	7·77
12. Jalpaiguri	22	1	21	·4861	·0272	5·60
13. Darjeeling (Siliguri sub-division only).	6	..	6	·2609	·0759	29·09
14. Cooch Behar	11	..	11	·6452	·0388	6·01
West Bengal	109	15	94	·3732	·0217	5·81

TABLE 10.

Estimate of total Production of Aus cleaned rice, 1952-53

District	Acreage (000) acres.*	Yield per acre in maunds			Total production of cleaned rice in (000) mds.
		Green paddy	Dry paddy	Cleaned rice. †	
(1)	(2)	(3)	(4)	(5)	(6)
1. Burdwan	59.52	19.80	17.32	11.55	687.46
2. Birbhum	74.52	23.39	22.14	14.76	1,099.92
3. Bankura	145.94	13.97	12.50	8.33	1,215.68
4. Midnapore	128.44	13.79	12.24	8.16	1,048.07
5. Howrah	2.29	21.25	18.77	12.51	28.65
6. Hooghly	18.59	17.17	15.85	10.57	196.50
7. 24-Parganas	86.19	17.30	14.29	9.53	821.39
8. Nadia	206.87	15.79	14.70	9.80	2,027.33
9. Murshidabad	224.35	14.09	12.78	8.52	1,911.46
10. West Dinajpur	95.72	11.18	9.68	6.45	617.39
11. Malda	136.95	15.99	14.40	9.60	1,314.72
12. Jalpaiguri	44.42	13.93	12.29	8.19	363.80
13. Darjeeling (Siliguri division only). sub-	1.69	7.12	6.10	4.07	6.88
14. Cooch Behar	131.27	11.83	9.48	6.32	829.63
West Bengal	1,356.76	15.08	13.45	8.97	12,168.88

*Calculated on the basis of total area under survey according to village records.

†Derived from column (4) by multiplying by 0.67.

TABLE 10-1.

Estimate of total production of dry jute fibre, 1952-53

District	'Acreage (000) acres	Yield rate per acre			Total production of dry fibre in (000) bales 400 lbs. each.
		Green plant in maunds	Dry fibre		
			In maunds	In bales of 400 lbs.	
(1)	(2)	(3)	(4)	(5)	(6)
1. Burdwan	27.06	235.89	10.95	2.25	60.95
2. Birbhum	1.84	235.89†	10.95†	2.25†	4.15
3. Bankura	5.48	272.22	12.63	2.60	14.24
4. Midnapore	44.25	243.99	11.32	2.33	103.04
5. Howrah	18.89	230.37	14.72	3.03	57.20
6. Hooghly	79.99	289.07	18.47	3.80	303.93
7. 24-Parganas	133.64	205.46	13.13	2.70	360.97
8. Nadia	115.41	189.59	12.72	2.62	301.99
9. Murshidabad	143.79	221.60	14.87	3.06	439.85
10. West Dinajpur	69.86	210.65	12.51	2.57	179.78
11. Malda	75.00	275.50	16.36	3.36	252.41
12. Jalpaiguri	44.37	197.31	12.39	2.55	113.09
13. Darjeeling (Siliguri sub- division only).	5.04	146.11	9.18	1.89	9.52
14. Cooch Behar	71.62	221.71	13.92	2.86	205.09
West Bengal	836.24	225.45	14.00	2.88	2,406.21

*Calculated on the basis of total area under survey according to village records.

†Yield rate of district Burdwan is used as no cut is available from the district.

TABLE 10-2.

Estimate of total production of Aman cleaned rice, 1952-53

District	*Acreage (000) acres	Yield per acre in maunds			Total production of cleaned rice in (000) maunds
		Green paddy	Dry paddy	Cleaned rice.†	
(1)	(2)	(3)	(4)	(5)	(6)
1. Burdwan	1,047.76	18.99	17.64	11.76	12,318.93
2. Birbhum	720.66	21.37	19.87	13.25	9,549.77
3. Bankura	736.67	19.89	18.09	12.06	8,885.08
4. Midnapore.. ..	1,983.72	17.20	15.90	10.60	21,021.18
5. Howrah	240.00	20.12	18.55	12.37	2,968.37
6. Hooghly	435.32	20.39	18.91	12.61	5,489.65
7. 24-Parganas	1,400.01	14.08	12.61	8.41	11,775.65
8. Nadia	197.06	12.58	11.10	7.40	1,457.53
9. Murshidabad	486.73	16.84	15.61	10.41	5,068.51
10. West Dinajpur	517.62	16.14	15.10	10.07	5,211.14
11. Malda	263.81	16.56	15.28	10.19	2,688.40
12. Jalpaiguri	398.76	18.81	17.61	11.74	4,682.63
13. Darjeeling (Siliguri division only). sub-	56.08	24.94	23.40	15.60	874.61
14. Cooch Behar	304.60	14.67	13.44	8.96	2,730.48
West Bengal	8,788.80	17.46	16.17	10.78	94,721.93

*Calculated on the basis of total area under survey according to village records.

†Derived from Column (4) by multiplying by 0.6.

TABLE 10.3.
Estimate of total production of Rabi Crops, 1952-53

District	Wheat				Barley			
	Acreage in (000) acres	Yield per acre in maunds		Total production in (000) mds.	Acreage in (000) acres	Yield per acre in maunds		Total production in (000) mds.
		Green	Dry			Green	Dry	
	(1-1)	(2)	(3)	(4)	(5)	(2-1)	(3-1)	(4-1)	(5-1)
1. Burdwan ..	3.20	13.18	8.87	28.38	1.78	..	*9.14	16.27
2. Birbhum ..	10.85	12.40	8.68	94.18	0.57	..	*9.14	5.27
3. Bankura ..	12.80	13.20	7.57	96.90	0.35	9.49	7.32	2.05
4. Midnapore..	0.85	12.21	7.53	6.40	0.10	..	*9.14	0.91
5. Howrah ..	0.02	..	*8.68	0.17	..	..	..	..
6. Hooghly ..	0.60	..	*6.68	5.21	0.13	..	*9.14	1.19
7. 24-Parganas	0.42	..	*8.68	3.65	0.26	..	*9.14	2.38
8. Nadia ..	10.94	15.49	8.89	97.26	2.99	13.44	9.13	27.30
9. Murshidabad	41.35	14.98	9.23	381.66	33.14	13.71	9.00	298.26
10. West Dinajpur.	2.22	9.69	4.96	11.01	4.85	15.86	9.22	44.72
11. Malda ..	6.89	18.70	11.44	78.82	60.33	14.51	9.48	571.93
12. Jalpaiguri ..	1.48	7.25	4.47	6.62	0.45	4.96	3.80	1.71
13. Darjeeling (Siliguri sub- division only).	0.00	..	..	..	0.04	..	*9.14	0.37
14. Cooch Behar	8.55	14.46	9.88	84.47	1.01	..	*9.14	9.23
West Bengal ..	100.17	14.08	8.93	894.73	106.00	13.77	9.26	982.04

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10-3—contd.

District	Gram			Total production in (000) mds.
	Acreage in (000) acres	Yield per acre (in maunds)		
		Green	Dry	
(1-2)	(2-2)	(3-2)	(4-2)	(5-2)
1. Burdwan	15.77	13.11	8.69	137.04
2. Birbhum	34.13	16.54	10.45	356.66
3. Bankura	5.95	21.55	9.70	57.72
4. Midnapore	8.47	10.64	7.25	61.41
5. Howrah	0.63	..	*9.18	5.78
6. Hooghly	9.26	12.73	8.11	75.10
7. 24-Parganas	25.29	14.96	*8.09	204.60
8. Nadia	130.94	14.00	11.28	1,477.00
9. Murshidabad	136.37	12.83	7.64	1,041.87
10. West Dinajpur	1.71	16.83	10.24	17.51
11. Malda	33.28	15.66	8.05	267.90
12. Jalpaiguri	0.66	..	*9.18	6.06
13. Darjeeling (Siliguri sub-division only).	..	..	..	..
14. Cooch Bebar	1.10	..	*9.18	10.10
West Bengal	403.56	14.41	9.21	3,718.75

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10-3.—*contd.*

District				Mug.			Total production (in 000 mds.)
				Acreage in (000) acres	Yield per acre in mds.		
					Green	Dry	
(1-3)				(2-3)	(3-3)	(4-3)	(5-3)
1. Burdwan				2.72	11.09	6.94	18.88
2. Birbhum				4.19	12.64	8.50	35.62
3. Bankura				1.54	..	*6.90	10.63
4. Midnapore				17.20	8.53	5.73	98.56
5. Howrah				1.30	6.50	5.06	6.58
6. Hooghly				2.55	15.79	10.62	27.08
7. 24-Parganas				4.95	..	*6.90	34.16
8. Nadia				0.59	..	*6.90	4.07
9. Murshidabad				0.71	..	*6.90	4.90
10. West Dinajpur				0.38	..	*6.90	2.62
11. Malda				0.04	..	*6.90	0.28
12. Jalpaiguri				0.59	..	*6.90	4.07
13. Darjeeling (Siliguri sub-division only).				..	..	..	..
14. Cooch Behar				0.80	..	*6.90	5.52
West Bengal				37.56	10.27	6.74	252.97

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10.3—*contd.*

District	Musur				Maskalai			
	Acreage in (000) acres	Yield per acre (in maunds)		Total pro- duction in (000) maunds	Acreage in (000) acres	Yield per acre (in maunds)		Total pro- duction in (000) maunds
		Green	Dry			Green	Dry	
(1.4)	(2.4)	(3.4)	(4.4)	(5.4)	(2.5)	(3.5)	(4.5)	(5.5)
1. Burdwan ..	16.14	11.05	8.17	131.86	10.91	9.03	5.08	55.42
2. Birbhum ..	12.74	10.23	5.98	76.19	3.08	..	*4.89	15.06
3. Bankura ..	2.28	6.75	3.42	7.80	11.58	..	*4.89	56.63
4. Midnapore	2.43	10.46	7.74	18.81	39.44	7.26	4.37	172.35
5. Howrah ..	5.17	6.95	5.14	26.57	3.71	..	*4.89	18.14
6. Hooghly ..	17.32	8.89	5.93	102.71	6.38	7.71	4.34	27.69
7. 24-Parganas	74.90	6.72	3.93	294.36	22.92	..	*4.89	112.08
8. Nadia ..	45.69	7.89	4.93	225.25	71.23	..	*4.89	348.31
9. Murshidabad	97.95	10.28	6.95	680.75	35.92	..	*4.89	175.65
10. West Dinaj- pur.	6.67	9.86	5.61	37.42	25.45	10.79	4.94	125.72
11. Malda ..	8.31	11.14	7.58	62.99	114.69	..	*4.89	560.83
12. Jalpaiguri ..	0.49	..	*5.77	2.83	7.74	8.18	2.51	19.43
13. Darjeeling .. (Siliguri sub-division only).	0.02	..	*5.77	0.12	0.30	..	*4.89	1.47
14. Cooch Behar	3.88	7.97	5.09	19.75	8.52	..	*4.89	41.66
West Bengal ..	293.99	9.03	5.74	1,687.41	361.87	8.68	4.78	1,730.44

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10-3—contd.

District	Matar			
	Acreage in (000) acres	Yield per acre (in mds.)		Total production in (000) maunds
		Green	Dry	
(1-5)	(2-6)	(3-6)	(4-6)	(5-6)
1. Burdwan	0.78	..	*5.94	4.63
2. Birbhum	0.40	..	*5.94	2.38
3. Bankura	0.53	..	*5.94	3.15
4. Midnapore	0.52	10.58	6.39	3.32
5. Howrah	2.14	4.41	3.11	6.66
6. Hooghly	1.34	6.52	3.94	5.28
7. 24-Parganas	17.82	6.60	3.59	63.97
8. Nadia	5.72	..	*5.94	33.98
9. Murshidabad	9.60	16.10	9.61	92.26
10. West Dinajpur	0.40	..	*5.94	2.38
11. Malda	0.93	9.47	6.58	6.12
12. Jalpaiguri	0.01	..	*5.94	0.06
13. Darjeeling (Siliguri sub-division only).	..	..	..	..
14. Cooch Behar	0.54	..	*5.94	3.21
West Bengal	40.73	9.84	5.58	227.40

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10.3—contd.

District	Khesari				Arhar			
	Acre- age in (000) acres	Yield per acre (in maunds)		Total pro- duction in (000) maunds	Acre- age in (000) acres	Yield per acre (in maunds)		Total produc- tion in (000) mds.
		Green	Dry			Green	Dry	
(1-6)	(2-7)	(3-7)	(4-7)	(5-7)	(2-8)	(3-8)	(4-8)	(5-8)
1. Burdwan ..	12.49	12.98	7.43	92.80	2.34	13.68	6.21	14.53
2. Birbhum ..	39.56	13.74	8.28	327.56	2.39	14.69	6.67	15.94
3. Bankura ..	3.57	8.49	4.78	17.06	4.33	13.67	6.21	26.89
4. Midnapore	70.19	15.42	8.21	576.26	5.18	13.75	6.25	32.38
5. Howrah ..	23.52	8.28	5.95	139.94	0.02	13.61	*6.18	0.12
6. Hooghly ..	31.19	9.49	5.42	169.05	0.13	13.61	*6.18	0.80
7. 24 Parganas	29.10	12.89	6.41	186.53	0.91	13.63	6.19	5.63
8. Nadia ..	3.69	..	*7.23	26.68	24.55	13.11	7.41	181.92
9. Murshidabad	68.37	14.54	7.99	546.28	22.84	14.11	6.10	139.32
10. West Dinaj- pur.	2.66	9.34	5.26	13.99	2.40	13.62	6.19	14.86
11. Malda ..	12.56	16.27	9.83	123.46	3.38	13.69	6.22	21.02
12. Jalpaiguri ..	1.69	..	*7.23	12.22	0.40	13.61	*6.18	2.47
13. Darjeeling (Siliguri sub- division only).	..	..	..	..	0.03	13.61	*6.18	0.19
14. Cooch Behar	7.32	11.88	7.59	55.56	0.57	13.61	*6.18	3.52
West Bengal ..	305.91	12.83	7.48	2,287.39	69.47	13.75	6.62	459.59

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10·3—contd.

District	Linseed			
	Acreage in (000) acres	Yield per acre (in mds.)		Total production in (000) mds.
		Green	Dry	
(1·7)	(2·9)	(3·9)	(4·9)	(5·9)
1. Burdwan	0·37	..	*3·53	1·31
2. Birbhum	0·99	9·10	4·63	4·58
3. Bankura	0·93	5·06	2·57	2·39
4. Midnapore	1·47	..	*3·53	5·19
5. Howrah .. ..	..	..	..	..
6. Hooghly	0·01	..	*3·53	0·04
7. 24-Parganas	0·11	..	*3·53	0·39
8. Nadia	14·30	7·40	3·86	55·20
9. Murshidabad	40·10	8·02	4·56	182·86
10. West Dinajpur	0·17	..	*3·53	0·60
11. Malda	5·26	3·75	1·58	8·31
12. Jalpaiguri	0·06	..	*3·53	0·21
13. Darjeeling (Siliguri sub-division only).	..	..	..	..
14. Cooch Behar	0·04	..	*3·53	0·14
West Bengal	63·81	6·94	4·09	261·22

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 10.3—*contd.*

District	Mustard				Potato			
	Acreage in(000) acres	Yield per acre (in mds)		Total pro- duction in (000) mds.	Acreage in (000) acres	Yield per acre (in mds)		Total pro- duction in (000) mds.
		Green	Dry			Green	Dry	
	(1-8)	(2-10)	(3-10)	(4-10)	(5-10)	(2-11)	(3-11)	(4-11)	(5-11)
1. Burdwan ..	4.26	5.20	3.24	13.80	13.71	131.17	..	1,798.34
2. Birbhum ..	2.21	..	*4.79	10.59	9.62	89.69	..	862.82
3. Bankura ..	2.90	..	*4.79	13.89	4.05	102.00	..	413.10
4. Midnapore	9.54	4.94	1.84	17.55	10.37	86.94	..	901.57
5. Howrah ..	0.48	..	*4.79	2.30	1.94	135.80	..	263.45
6. Hooghly ..	1.48	..	*4.79	7.09	30.13	152.75	..	4,602.36
7. 24-Parganas	10.23	4.93	1.84	18.82	5.06	94.00	..	465.64
8. Nadia ..	9.84	..	*4.79	47.13	1.60	85.61	..	136.98
9. Murshidabad	17.64	27.08	11.79	207.98	6.23	96.89	..	603.62
10. West Dinaj- pur.	56.78	11.57	3.34	189.65	4.39	116.88	..	513.10
11. Malda ..	45.12	15.97	7.32	330.28	2.18	75.47	..	164.52
12. Jalpaiguri ..	29.28	8.89	4.32	126.49	2.66	58.26	..	154.97
13. Darjeeling (Siliguri sub- division only).	2.61	29.87	7.79	20.33	0.82	85.61	..	70.20
14. Cooch Behar	31.53	8.68	5.60	176.57	2.67	85.61	..	228.58
West Bengal ..	223.90	12.83	5.28	1,182.47	95.43	117.25	..	11,189.25

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE [103] cont.

District (1-9)	Acreage in (000) acres (2-12)	Yield per acre (in mds.)		Total production in (000) mds. (5-12)
		Green (3-12)	Dry (4-12)	
		(1)		
1. Burdwan	9.26	513.25	..	4,752.70
2. Birbhum	7.52	616.60	..	4,636.83
3. Bankura	3.06	636.01	..	1,946.19
4. Midnapore	3.46	564.85	..	1,954.38
5. Howarah	0.43	566.07	..	243.41
6. Hooghly	1.74	565.01	..	983.12
7. 24 Parganas	1.61	630.38	..	1,014.91
8. Nadia	5.47	622.06	..	3,402.61
9. Murshidabad	10.39	503.81	..	5,234.59
10. West Dinajpur	1.26	564.77	..	711.61
11. Malda	7.20	400.51	..	2,883.67
12. Jalpaiguri	0.51	564.77	..	288.03
13. Darjeeling (Siliguri Sub-division only).	0.03	564.77	..	16.94
14. Cooch-Behar	0.15	564.77	..	84.72
West Bengal	52.98	540.48	..	28,153.71

*Number of cuts being less than 3, average of yield rates based on cuts of the districts having 3 or more cuts of the remaining districts has been used.

TABLE 11.

Correction for discrepancy in total areas under survey as between published figures and village records in respect of Aus, 1952-53.

Serial No.	District	Estimated acreage in (000) acres on the basis of			Estimated total Production in (000) mds.		
		Village records	Published figures	Differences	Village records	Published figures	Differences
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Burdwan	59.52	59.51	-0.01	687.46	687.34	-0.12
2.	Birbhum	74.52	74.52	..	1,099.92	1,099.92	..
3.	Bankura	145.94	145.93	-0.01	1,215.68	1,215.60	-0.8
4.	Midnapore	128.44	128.53	+0.09	1,048.07	1,048.80	+0.73
5.	Howrah	2.29	2.29	..	28.65	28.65	..
6.	Hooghly	18.59	18.59	..	196.50	196.50	..
7.	24-Parganas	86.19	87.69	+1.50	821.39	835.68	+14.29
8.	Nadia	206.87	207.10	+0.23	2,027.33	2,029.58	+2.25
9.	Murshidabad	224.35	224.47	+0.12	1,911.46	1,912.48	+1.02
10.	West Dinajpur	95.72	95.69	-0.03	617.39	617.20	-0.19
11.	Malda	136.95	146.95	..	1,314.72	1,314.72	..
12.	Jalpaiguri	44.42	44.41	-0.01	363.80	363.72	-0.08
13.	Darjeeling (Siliguri division only).	1.69	1.63	-0.06	6.88	6.64	-0.24
14.	Cooch Behar	131.27	130.88	-0.39	829.63	826.17	-2.46
West Bengal ..		1,356.76	1,358.19	+1.43	12,168.88	12,184.00	+15.12

TABLE 11-1.

Correction for discrepancy in total areas under survey as between published figures and village records in respect of Jute, 1952-53

Serial No.	District	Estimated acreage in (000) acres on the basis of			Estimated total Production in(000)bales of 400 lbs.each		
		Village records	Published figures	Differ-ences	Village records	Published figures	Differ-ences
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Burdwan	27.06	27.06	..	60.95	60.95	..
2	Birbhum	1.84	1.84	..	4.15	4.15	..
3	Bankura	5.48	5.48	..	14.24	14.24	..
4	Midnapore	44.25	44.28	+0.03	103.04	103.11	+0.07
5	Howrah	18.89	18.88	-0.01	57.20	57.17	-0.03
6	Hooghly	79.99	80.00	+0.01	303.93	303.97	+0.04
7	24-Parganas	133.64	135.97	+2.33	360.97	367.26	+6.29
8	Nadia	115.41	115.54	+0.13	301.99	302.33	+0.34
9	Murshidabad	143.79	143.87	+0.08	439.85	440.09	+0.24
10	West Dinajpur	69.86	69.84	-0.02	179.78	179.73	-0.05
11	Malda	75.00	75.00	..	252.41	252.41	..
12	Jalpaiguri	44.37	44.36	-0.01	113.09	113.06	-0.03
13	Darjeeling (Siliguri Sub-division only).	5.04	4.85	-0.19	9.52	9.16	-0.36
14	Cooch Behar.	71.62	71.41	-0.21	205.09	204.49	-0.60
West Bengal		836.24	838.38	+2.14	2,406.21	2,412.12	+5.91

TABLE 11-2.

Correction for discrepancy in total areas under survey as between published figures and village records in respect of Aman, 1952-53.

District	Estimated acreage in (000) acres on the basis of			Estimated total Production in (000) mds.		
	Village records	Published figures	Differences	Published records	Published figures	Differences
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan	1,047.80	1,047.60	-0.20	12,318.90	12,319.80	+0.90
2. Birbhum	720.70	720.70	..	9,549.80	9,549.80	..
3. Bankura	736.70	736.70	..	8,885.10	8,885.10	..
4. Midnapore	1,983.70	1,985.10	+1.40	21,021.20	21,042.10	+20.90
5. Howrah	240.00	239.90	-0.10	2,968.40	2,967.60	-0.80
6. Hooghly	435.30	435.40	+0.10	5,489.60	5,490.40	+0.80
7. 24-Parganas	1,400.00	1,424.40	+24.40	11,775.70	11,980.90	+205.20
8. Nadia	197.10	197.30	+0.20	1,457.60	1,460.00	+2.50
9. Murshidabad	486.70	487.00	+0.30	5,068.50	5,069.70	+1.20
10. West Dinajpur	517.60	517.40	-0.20	5,211.10	5,209.10	-2.00
11. Malda	263.80	263.80	..	2,688.40	2,688.40	..
12. Jalpaiguri	398.70	398.60	-0.10	4,682.60	4,679.60	-3.00
13. Darjeeling (Siliguri Sub-division only)	56.10	54.00	-2.10	874.60	842.40	-32.20
14. Cooch Behar	304.60	303.70	-0.90	2,730.50	2,721.20	-9.30
West Bengal	8,788.80	8,811.60	+22.80	94,721.99	94,906.10	+184.20

TABLE 12.

Acreeage, yield rate and total production of Aus in 1952-53 and the four preceding years.

District (1-1)	Acreeage in (000)					Yield rate of cleaned rice in md. per acre	
	1952-53	1951-52	1950-51	1949-50	1948-49	1952-53	1951-52
	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan	59.52	47.4	25.6	54.9	60.5	11.55	8.13
2. Birbhum	74.52	67.3	66.8	114.0	94.8	14.76	10.70
3. Bankura	145.94	156.4	168.0	171.1	184.7	8.33	7.42
4. Midnapore	128.44	142.7	120.7	110.2	162.2	8.16	8.18
5. Howrah	2.29	1.6	2.7	2.2	2.3	12.51	9.89
6. Hooghly	18.59	25.6	20.0	24.6	28.8	10.57	9.21
7. 24-Parganas	86.19	52.3	50.3	83.9	91.6	9.53	11.20
8. Nadia	206.87	174.8	180.9	228.5	225.4	9.80	9.20
9. Murshidabad	224.35	171.1	221.5	215.8	212.6	8.52	8.19
10. West Dinajpur	95.72	71.8	47.2	52.6	51.5	6.45	8.16
11. Malda	136.95	120.6	126.0	129.0	98.7	9.60	7.76
12. Jalpaiguri	44.42	45.4	30.6	28.8	25.8	8.19	8.18
13. Darjeeling	1.69(1)	0.4(1)	0.8	1.2	1.6(R)	4.07(1)	6.66(1)
14. Cooch Behar	131.27	101.1	63.2	69.5	*69.5	6.32	6.75
West Bengal	1,356.76	1,168.5	1,124.3	1,286.3	1,310.0(R)	8.97	8.38

(R) Revised.

*Figures for 1948 for the district of Cooch Behar not being available, figure for acreeage and yield rate for 1949 have been used.

(1) Siliguri Sub-division only.

TABLE 12—concl'd.

District	Yield rate of cleaned rice in and per acre			Total production of cleaned rice in (000) maunds				
	1950-51	1949-50	1948-49	1952-53	1951-52	1950-51	1949-50	1948-49
(1-2)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1. Burdwan ..	12.54	10.18	9.32	687.46	385.4	32.10	559.0	564.0
2. Birbhum ..	14.45	9.78	8.63	1,099.92	726.2	965.0	1,109.0	818.0
3. Bankura ..	11.06	6.37	8.96	1,215.68	1,160.5	1,858.0	1,107.0	1,655.0
4. Midnapore	8.33	7.23	7.75	1,048.07	1,167.3	1,005.0	797.0	1,257.0
5. Howrah ..	11.85	12.73	7.39	28.65	15.8	32.0	28.0	17.0
6. Hooghly ..	11.05	10.20	8.72	196.50	235.8	221.0	251.0	251.0
7. 24-Paraganas	7.91	9.71	9.83	821.39	595.2	398.0	815.0	900.0
8. Nadia ..	5.21	9.15	10.46	2,027.33	1,608.2	942.0	2,091.0	2,358.0
9. Murshidabad	6.80	8.60	8.45	1,911.46	1,401.3	1,506.0	1,856.0	1,796.0
10. West Dinajpur	8.69	8.82	7.25	617.39	585.9	410.0	464.0	374.0
11. Malda ..	8.48	7.62	7.43	1,314.72	935.9	1,068.0	983.0	733.0
12. Jalpaiguri	5.03	5.73	5.66	363.80	289.6	154.0	165.0	146.0
13. Darjeeling	5.00	7.50	7.50	(1)6.88	(1)2.7	4.0	9.0	12.0(R)
14. Cooch Behar	4.06	7.87	*7.87	829.63	682.4	257.0	547.0	*347.0
West Bengal ..	8.13	8.38	8.721	2,168.88	9,792.2	9,141.0	10,781.0	11,428.0 (R)

(R) Revised.

*Figures for 1948 for the district of Cooch Behar not being available, figure for acreage and yield rate for 1949 have been used.

(1) Siliguri Sub-division only.

TABLE 12.1

Acreeage, yield rate and total production of Jute in 1952-53 and the four preceding years.

District	Acreeage (000) in				
	1952-53	1951-52	1950-51	1949-50	1948-49
(1)	(2)	(3)	(4)	(5)	(6)
1. Burdwan ..	27.06	35.3	15.6	11.6	10.9
2. Birbhum ..	1.84	0.4	0.5	0.5	0.4
3. Bankura ..	5.48	2.7	2.1	1.8	0.2
4. Midnapore ..	44.25	44.1	43.2	31.2	17.5
5. Howrah	18.89	20.7	11.7	11.4	9.4
6. Hooghly ..	79.99	101.5	55.5	49.4	41.5
7. 24-Parganas ..	133.64	124.8	97.0	80.3	65.3
8. Nadia	115.41	129.8	77.0	56.9	37.7
9. Murshidabad ..	143.79	156.2	155.9	113.1	63.9
10. West Dinajpur	69.86	47.9	45.0	30.4	19.6
11. Malda	75.00	76.4	51.5	43.8	23.3
12. Jalpaiguri ..	44.37	41.8	34.4	24.4	24.5
13. Darjeeling ..	(1)5.04	3.6(1)	3.0	2.7	1.6
14. Cooch Behar ..	71.62	90.9	58.5	40.5	35.0
West Bengal..	836.24	876.1	650.9	498.0	349.9

(1) Sitiguri Sub-division only.

TABLE 12*1—concl'd.

District (1-2)	Yield rate (per acre) of dry fibre in bales of 400 lbs.				
	1952-53 (7)	1951-52 (8)	1950-51 (9)	1949-50 (10)	1948-49 (11)
1. Burdwan ..	2.25	3.71	2.50	3.76	3.21
2. Birbhum ..	2.25*	3.07	2.00	2.80	2.50
3. Bankura ..	2.60	1.35	1.52	2.94	2.00
4. Midnapore ..	2.83	3.70	2.20	3.59	2.39
5. Howrah ..	3.03	3.43	2.50	2.92	3.62
6. Hooghly ..	3.80	3.97	2.20	2.82	2.98
7. 24-Parganas ..	2.70	3.45	2.50	3.23	2.88
8. Nadia ..	2.62	2.44	2.00	2.43	3.19
9. Murshidabad ..	3.06	2.13	2.20	2.37	2.75
10. West Dinajpur ..	2.57	2.95	2.00	2.32	2.52
11. Malda ..	3.36	2.84	2.00	4.50	1.40
12. Jalpaiguri ..	2.53	3.71	2.60	2.81	2.38
13. Darjeeling ..	1.89(1)	2.73(1)	3.00	3.04	2.50(1)
14. Cooch Behar ..	2.86	3.56	3.00	2.65	1.34
West Bengal ..	2.88	3.08	2.30	2.92	2.59

District (1-3)	Total production of dry fibre in (000) bales of 400 lbs. each				
	1952-53 (12)	1951-52 (13)	1950-51 (14)	1949-50 (15)	1948-49 (16)
1. Burdwan ..	60.95	131.0	39.0	43.6	32.1
2. Birbhum ..	4.15	1.2	1.0	1.4	1.0
3. Bankura ..	14.24	3.6	3.2	5.3	0.4
4. Midnapore ..	103.04	163.2	95.2	111.9	41.9
5. Howrah ..	57.20	71.0	19.3	33.3	34.0
6. Hooghly ..	303.93	403.0	122.1	139.3	123.6
7. 24-Parganas ..	360.97	430.6	242.5	259.5	188.2
8. Nadia ..	301.99	316.7	154.0	138.5	120.4
9. Murshidabad ..	439.85	332.7	343.0	268.3	175.9
10. West Dinajpur ..	179.78	141.3	90.0	70.4	49.4
11. Malda ..	252.41	217.0	103.0	107.1	30.2
12. Jalpaiguri ..	113.09	155.1	89.4	86.5	58.2
13. Darjeeling ..	9.52(1)	9.8(1)	9.0	8.2	4.2
14. Cooch Behar ..	205.09	323.6	175.5	107.2	47.0
West Bengal ..	2,406.21	2,699.8	1,496.0	1,452.5	906.3

(1) Siliguri Sub-division only.

* Field rate of district Burdwan has been taken as no data is available.

TABLE 12.2.

Area, yield rate and total production of Aman in 1952-53 and the four preceding years.

District (1.1)	Acreage in (000) acres				
	1952-53 (2)	1951-52 (3)	1950-51 (4)	1949-50 (5)	1948-49 (6)
1. Burdwan ..	1,047.8	946.5	1,036.4	1,031.6	979.1
2. Birbhum ..	720.7	644.6	697.0	677.5	682.4
3. Bankura ..	736.7	610.2	688.6	646.2	660.5
4. Midnapore ..	1,983.7	1,899.3	2,029.0	2,023.9	1,906.7
5. Howrah ..	240.0	220.3	210.7	214.2	197.1
6. Hooghly ..	435.3	394.9	447.6	44.5	429.2
7. 24-Paraganas ..	1,400.0	1,350.4	1,249.4	1,213.2	1,174.8
8. Nadia ..	197.0	168.9	249.4	231.0	186.2
9. Murshidabad ..	486.7	470.3	449.8	444.7	439.4
10. West Dinajpur ..	517.6	473.9	505.0	521.9	496.5
11. Malda ..	263.8	268.3	285.6	277.8	244.9
12. Jalpaiguri ..	398.8	407.5	380.8	408.7	410.8
13. Darjeeling ..	(2)56.1	(2)55.1	63.4*	57.5*	58.7*
14. Cooch Behar ..	304.6	354.4	344.4	250.2	...
West Bengal ..	8,788.8	8,264.6	8,637.2	8,442.9	(1)7,866.3

District (1.2)	Yield rate of cleaned rice in maunds (per acre)				
	1952-53 (7)	1951-52 (8)	1950-51 (9)	1949-50 (10)	1948-49 (11)
1. Burdwan ..	11.76	11.65	13.13	10.53	10.15
2. Birbhum ..	13.25	12.36	13.22	10.25	10.83
3. Bankura ..	12.06	14.36	11.66	10.70	12.03
4. Midnapore ..	10.60	11.28	11.16	9.80	9.01
5. Howrah ..	12.37	10.00	12.04	10.78	10.32
6. Hooghly ..	12.61	8.92	12.39	12.79	9.28
7. 24-Paraganas ..	8.41	8.16	10.68	11.36	10.28
8. Nadia ..	7.30	5.93	7.73	10.92	3.50
9. Murshidabad ..	10.41	8.58	12.09	8.57	10.24
10. West Dinajpur ..	10.07	7.33	8.39	9.59	9.04
11. Malda ..	10.19	7.91	10.40	9.56	10.23
12. Jalpaiguri ..	11.74	9.58	8.90	11.23	10.10
13. Darjeeling ..	(2)25.60	(2)13.97	11.94*	12.39*	12.00*
14. Cooch Behar ..	8.96	8.77	9.39	13.46	..
West Bengal ..	10.78	10.20	11.22	10.54	(1)9.98

*Estimated by the Director of Agriculture.

(1) Excluding Cooch Behar.

(2) Siliguri Sub-division only.

TABLE 12·2—*concl.*

District	Production of cleaned rice in (000) maunds				
	1952-53	1951-52	1950-51	1949-50	1948-49
(1·3)	(12)	(13)	(14)	(15)	(16)
1. Burdwan ..	12,318·9	11,026·7	13,607·9	10,862·7	9,937·9
2. Birbhum ..	9,549·8	7,967·3	9,214·3	6,944·4	7,390·4
3. Bankura ..	8,885·0	8,762·5	8,029·1	6,914·3	7,945·8
4. Midnapore ..	21,021·2	21,424·1	22,643·6	19,834·2	17,179·4
5. Howrah ..	2,968·4	2,203·0	2,536·8	2,309·1	2,034·1
6. Hooghly ..	5,489·7	3,522·5	5,545·8	5,685·2	3,983·0
7. 24-Paraganas ..	11,775·7	11,019·3	13,343·6	13,782·0	12,076·9
8. Nadia	1,457·5	1,001·6	1,927·9	2,522·5	1,582·7
9. Murshidabad ..	5,068·5	4,035·2	5,438·1	3,811·1	4,499·5
10. West Dinajpur	5,211·1	3,473·7	4,237·0	5,005·0	4,488·4
11. Malda	2,688·4	2,122·3	2,970·2	2,655·8	2,505·3
12. Jalpaiguri ..	4,682·6	3,903·8	3,390·0	4,589·7	4,149·1
13. Darjeeling ..	(2)874·6	(2)769·7	757·0*	712·4*	704·4*
14. Cooch Behar ..	2,730·5	3,108·1	3,233·9	3,367·7	..
West Bengal	94,721·9	84,875·2	96,339·8	88,996·1	(1)78,476·9

*Estimated by the Director of Agriculture.

(1) Excluding Cooch Behar.

(2) Siliguri Sub-division only

TABLE 12.3.

Acreage, yield rate and production of Wheat in 1952-53 and the three preceding years.

District (1-1)	Acreage in (000) acres				Yield rate in mds. per acre	
	1952-53	1951-52	1950-51	1949-50	1952-53	1951-52
	(2-1)	(3-1)	(4-1)	(5-1)	(6-1)	(7-1)
1. Burdwan ..	3.20	6.10	6.40	5.60	8.87	11.90
2. Birbhum ..	10.85	16.03	14.40	6.30	8.68	6.93
3. Bankura ..	12.80	9.62	12.00	10.40	7.57	8.85
4. Midnapore ..	0.85	2.44	3.70	1.90	7.53	5.90
5. Howrah ..	0.02	0.02	..	..	8.68	8.23
6. Hooghly ..	0.60	1.00	2.00	0.60	8.68	8.23
7. 24-Parganas ..	0.42	1.00	..	..	8.68	5.13
8. Nadia ..	10.94	16.37	24.40	23.90	8.98	8.53
9. Murshidabad ..	41.35	44.42	45.50	27.80	9.23	9.76
10. West Dinajpur ..	2.22	5.38	1.40	0.60	4.96	6.05
11. Malda ..	6.89	19.63	8.50	9.00	11.44	8.32
12. Jalpaiguri ..	1.48	0.68	..	..	4.47	8.25
13. Darjeeling ..	0.00*	..*	1.20	1.10	..*	..*
14. Cooch Behar ..	8.55	6.46	5.10	1.50	9.88	4.41
West Bengal ..	100.17	129.15	124.60	88.70	8.93	8.52

District (2-1)	Yield rate in mds. per acre		Production in (000) mds.			
	1950-51	1949-50	1952-53	1951-52	1950-51	1949-50
	(8-1)	(9-1)	(10-1)	(11-1)	(12-1)	(13-1)
1. Burdwan ..	8.77	6.25	28.38	72.59	56.13	35.00
2. Birbhum ..	7.82	6.35	94.18	111.09	112.61	40.01
3. Bankura ..	9.92	6.35	96.90	85.14	119.04	66.04
4. Midnapore ..	8.76	6.32	6.40	14.40	32.41	12.01
5. Howrah ..	..	..	0.17	0.16	..	..
6. Hooghly ..	8.75	6.67	5.21	8.23	17.50	4.00
7. 24-Parganas ..	..	..	3.65	5.13	..	..
8. Nadia ..	8.81	6.32	97.26	139.64	214.96	151.05
9. Murshidabad ..	9.41	6.29	381.66	433.54	428.16	174.86
10. West Dinajpur ..	6.86	6.67	11.01	32.55	9.60	4.00
11. Malda ..	9.36	6.33	78.82	163.32	79.56	56.97
12. Jalpaiguri ..	..	..	6.62	5.60	..	..
13. Darjeeling ..	6.67	9.00	..*	..*	8.00	9.90
14. Cooch Behar ..	9.02	8.00	84.47	28.49	46.00	12.00
West Bengal ..	9.02	60.38	894.73	1,099.88	1,123.97	565.84

*Siliguri Sub-division only.

TABLE 12-3—*contd.*

Acreage, yield rate and production of Barley in 1952-53 and the past three years

District	Acreage in (000) acres				Yield rate in mds. per acre	
	1952-53	1951-52	1950-51	1949-50	1952-53	1951-52
	(1-2)	(2-2)	(3-2)	(4-2)	(5-2)	(6-2)	(7-2)
1. Burdwan ..	1.78	2.34	1.40	1.40	9.14	8.71
2. Birbhum ..	0.57	0.12	0.40	0.60	9.14	8.71
3. Bankura ..	0.35	0.45	1.60	1.40	7.32	12.88
4. Midnapore ..	0.10	0.28	..	0.20	9.14	8.71
5. Howrah ..	0.00	..	..	0.40	..	..
6. Hooghly ..	0.13	0.17	0.20	0.20	9.14	8.71
7. 24-Parganas ..	0.26	0.16	0.90	..	9.14	8.71
8. Nadia ..	2.99	9.68	6.00	5.00	9.13	9.20
9. Murshidabad ..	53.14	40.72	27.20	25.80	9.00	9.52
10. West Dinajpur ..	4.85	10.95	3.80	2.00	9.22	5.06
11. Malda ..	60.33	43.46	32.20	33.90	9.48	9.52
12. Jalpaiguri ..	0.45	0.36	0.10	0.20	3.80	7.54
13. Darjeeling ..	0.04*	0.01*	0.40	0.40	9.14*	8.71*
14. Cooch Behar ..	1.01	0.17	0.40	..	9.14	8.71
West Bengal ..	106.00	108.87	74.60	71.50	9.26	8.95

District	Yield rate in maunds per acre		Production in (000) maunds			
	1950-51	1949-50	1952-53	1951-52	1950-51	1949-50
	(2-2)	(8-2)	(9-2)	(10-2)	(11-2)	(12-2)
1. Burdwan ..	8.86	7.14	16.27	20.38	12.40	10.00
2. Birbhum ..	8.75	6.66	5.21	1.05	3.50	4.00
3. Bankura ..	7.75	7.14	2.56	5.80	12.40	10.00
4. Midnapore ..	..	5.00	0.91	2.44	..	1.00
5. Howrah ..	..	7.50	..	..	..	3.00
6. Hooghly ..	9.00	5.00	1.19	1.48	1.80	1.00
7. 24-Parganas ..	8.89	..	2.38	1.39	8.00	..
8. Nadia ..	8.87	6.80	27.30	89.06	53.22	34.00
9. Murshidabad ..	9.49	6.90	298.26	379.51	258.13	178.02
10. West Dinajpur ..	8.87	7.00	44.72	55.41	33.71	14.00
11. Malda ..	8.68	6.90	571.93	413.74	279.50	233.91
12. Jalpaiguri ..	9.00	5.00	1.71	2.71	0.90	1.00
13. Darjeeling ..	9.00	7.53	0.37*	0.09*	3.60	3.01
14. Cooch Behar ..	8.75	..	9.23	1.48	3.50	..
West Bengal ..	8.98	6.89	982.04	974.54	670.66	492.94

*Siliguri Sub-division only.

TABLE 12.3.—*contd.*

Area, yield rate and production of Gram in 1952-53 and the three preceding years.

District (1-3)	Acreage in (000) acres				Yield rate in maunds per acre	
	1952-53	1951-52	1950-51	1949-50	1952-53	1951-52
	(2-3)	(3-3)	(4-3)	(5-3)	(6-3)	(7-3)
1. Burdwan ..	15.77	33.55	16.80	17.00	8.69	9.91
2. Birbhum ..	34.13	25.28	23.40	11.00	10.45	10.03
3. Bankura ..	5.95	4.82	7.20	5.40	9.70	14.98
4. Midnapore ..	8.47	7.09	4.90	3.10	7.25	9.17
5. Howrah ..	0.63	0.59	1.60	1.00	9.18	2.34
6. Hooghly ..	9.26	10.05	6.20	6.20	8.11	7.21
7. 24-Parganas ..	25.29	23.31	12.40	9.30	8.09	9.42
8. Nadia ..	130.94	140.89	85.60	93.40	11.28	10.10
9. Murshidabad ..	136.37	179.75	133.60	105.90	7.64	9.39
10. West Dinajpur ..	1.71	20.32	4.40	1.60	10.24	4.38
11. Malda ..	33.28	41.46	19.80	19.50	8.05	6.09
12. Jalpaiguri ..	0.66	0.31	..	..	9.18	9.14
13. Darjeeling ..	0.00*	..*	..	..	..*	..*
14. Cooch Behar ..	1.10	0.07	0.10	0.50†	9.18	9.14
West Bengal ..	403.56	487.49	316.00	273.90	9.21	9.17

District (3-2)	Yield rate in maunds per acre		Production in (000) maunds			
	1950-51	1949-50	1952-53	1951-52	1950-51	1949-50
	(8-3)	(9-3)	(10-3)	(11-3)	(12-3)	(13-3)
1. Burdwan ..	7.73	7.59	137.04	332.48	129.86	129.03
2. Birbhum ..	11.17	7.64	356.66	253.56	261.38	84.04
3. Bankura ..	9.33	7.59	57.72	72.20	67.18	40.99
4. Midnapore ..	9.57	7.74	61.41	65.02	46.89	23.99
5. Howrah ..	9.31	8.00	5.78	1.38	14.90	8.00
6. Hooghly ..	7.56	7.58	75.10	72.46	46.87	47.00
7. 24-Parganas ..	9.29	7.63	204.60	219.58	115.20	70.96
8. Nadia ..	9.60	7.60	1,477.00	1,422.99	821.76	709.84
9. Murshidabad ..	9.63	7.60	1,041.87	1,687.85	1,286.57	804.84
10. West Dinajpur ..	9.50	7.50	17.51	89.00	41.80	12.00
11. Malda ..	8.73	7.59	267.90	252.49	172.85	148.01
12. Jalpaiguri ..	..	..	6.06	2.83	..	..
13. Darjeeling ..	..	..	..*	..*	..	..
14. Cooch Behar ..	9.00	..	10.10	0.64	0.90	..
West Bengal ..	9.51	7.60	3,718.75	4,472.48	3,006.16	2,078.70

*Siliguri Sub-division only.

†Estimated.

TABLE 12.3—contd.

Acreege, yield rate and production of Mustard in 1952-53 and the three preceding years.

District (1-4)	Acreege in (000) acres.				Yield rate in maunds per acre	
	1952-53 (2-4)	1951-52 (3-4)	1950-51 (4-4)	1949-50 (5-4)	1952-53 (6-4)	1951-52 (7-4)
1. Burdwan ..	4.26	3.72	1.50	2.30	3.24	4.22
2. Birbhum ..	2.21	1.48	1.00	0.60	4.79	4.91
3. Bankura ..	2.90	2.32	4.30	3.10	4.79	4.91
4. Midnapore ..	9.54	7.52	12.00	13.80	1.84	1.82
5. Howrah ..	0.48	0.35	0.80	0.20	4.79	4.91
6. Hooghly ..	1.48	1.77	2.20	1.60	4.79	4.91
7. 24-Parganas ..	10.23	7.75	4.80	5.50	1.84	4.91
8. Nadia ..	9.84	7.80	11.90	14.30	4.79	4.91
9. Murshidabad ..	17.64	24.96	21.60	11.40	11.79	7.80
10. West Dinajpur ..	56.78	50.95	62.80	48.30	3.34	3.96
11. Malda ..	45.12	32.53	27.40	27.20	7.32	5.44
12. Jalpaiguri ..	29.28	40.04	28.00	30.20	4.32	5.18
13. Darjeeling ..	2.61*	4.88*	2.20	2.40	7.79*	4.91*
14. Cooch Behar ..	31.53	31.62	40.60	40.60	5.60	3.76
West Bengal ..	223.90	217.69	221.10	201.50	5.28	4.86

District (4-2)	Yield rate in maunds per acre		Production in (000) maunds			
	1950-51 (8-4)	1949-50 (9-4)	1952-53 (10-4)	1951-52 (11-4)	1950-51 (12-4)	1949-50 (13-4)
1. Burdwan ..	4.93	4.78	13.80	15.70	7.40	10.99
2. Birbhum ..	5.00	5.00	10.59	7.27	5.00	3.00
3. Bankura ..	4.95	4.84	13.89	11.39	21.29	15.00
4. Midnapore ..	4.95	4.93	17.55	13.69	59.40	68.03
5. Howrah ..	5.00	5.00	2.30	1.72	4.00	1.00
6. Hooghly ..	4.95	5.00	7.09	8.69	10.89	8.00
7. 24-Parganas ..	4.96	4.91	18.82	38.05	23.81	27.01
8. Nadia ..	4.95	4.90	47.13	38.30	58.91	70.07
9. Murshidabad ..	7.54	4.92	207.98	194.69	162.86	56.09
10. West Dinajpur ..	4.97	4.91	189.65	201.76	312.12	237.15
11. Malda ..	4.95	4.89	330.28	176.96	135.63	133.01
12. Jalpaiguri ..	4.84	4.90	126.49	207.41	135.52	147.98
13. Darjeeling ..	4.95	5.00	20.33*	23.96*	10.89	12.00
14. Cooch Behar ..	4.33	4.33	176.57	118.89	175.80	175.80
West Bengal ..	5.08	4.79	1,182.47	1,058.48	1,123.52	965.13

*Siliguri Sub-division only.

TABLE 12-3—*contd.*

Acreage, yield rate and production of Potato in 1952-53 and the three preceding years

District (1-5)	Acreage in (000) acres				Yield rate in mds per acre	
	1952-53	1951-52	1950-51	1949-50	1952-53	1951-52
	(2-5)	(3-5)	(4-5)	(5-5)	(6-5)	(7-5)
1. Burdwan ..	13.71	18.43	13.00	22.80	131.17	89.84
2. Birbhum ..	9.62	8.23	9.90	6.40	89.69	92.56
3. Bankura ..	4.05	2.02	4.70	4.10	102.00	124.55
4. Midnapore ..	10.37	10.76	12.80	11.40	86.94	82.36
5. Howrah ..	1.94	4.30	2.10	3.20	135.80	146.33
6. Hooghly ..	30.13	32.32	21.40	25.60	152.75	167.43
7. 24-Parganas ..	5.06	6.58	3.60	5.80	94.00	89.16
8. Nadia ..	1.60	1.72	1.10	0.90	85.61	38.12
9. Murshidabad ..	6.23	4.47	5.20	5.20	96.89	90.52
10. West Dinajpur ..	4.39	2.86	3.80	4.00	116.88	57.85
11. Malda ..	2.18	1.74	2.40	2.40	75.47	94.61
12. Jalpaiguri ..	2.66	3.57	3.60	4.20	58.26	94.61
13. Darjeeling ..	0.82*	0.54*	1.00	0.40	85.61*	127.96*
14. Cooch Behar ..	2.67	2.26	3.00	3.00	85.61	127.96
West Bengal ..	95.43	99.80	87.60	99.40	117.25	117.02

District (5-2)	Yield rate in mds. per acre		Production in (000) mds.			
	1950-51	1949-50	1952-53	1951-52	1950-51	1949-50
	(8-5)	(9-5)	(10-5)	(11-5)	(12-5)	(13-5)
1. Burdwan ..	96.70	106.01	1,798.34	1,655.75	1,257.10	2,417.03
2. Birbhum ..	102.17	95.62	862.82	761.77	1,011.48	611.97
3. Bankura ..	109.15	76.59	413.10	251.59	513.01	314.02
4. Midnapore ..	91.57	86.23	901.57	886.19	1,172.10	983.02
5. Howrah ..	117.10	93.12	263.45	629.22	245.91	297.98
6. Hooghly ..	93.09	93.09	4,602.36	5,411.34	3,345.46	2,383.10
7. 24-Parganas ..	104.50	93.10	475.64	586.67	376.20	539.98
8. Nadia ..	103.36	93.35	136.98	65.57	113.70	84.00
9. Murshidabad ..	107.44	83.85	603.62	404.62	558.69	436.02
10. West Dinajpur ..	69.95	93.00	513.10	165.45	265.81	372.00
11. Malda ..	56.83	92.92	164.52	164.62	136.39	223.01
12. Jalpaiguri ..	88.78	94.52	154.97	337.76	319.61	396.98
13. Darjeeling ..	93.50	92.50	70.20*	69.10*	93.50	37.00
14. Cooch Behar ..	106.53	106.53	228.58	289.19	319.59	319.59
West Bengal ..	111.00	94.73	11,189.25	11,678.84	9,728.55	9,415.70

*Siliguri Sub-division only.

TABLE 12.3—concl'd.

Area, yield rate and production of Sugarcane in 1952-53 and the three preceding years

District (1-6)	Acreage in (000) acres				Yield rate in mds. per acre	
	1952-53	1951-52	1950-51	1949-50	1952-53	1951-52
	(2-6)	(3-6)	(4-6)	(5-6)	(6-6)	(7-6)
1. Burdwan ..	9.26	9.04	7.20	12.00	513.25	730.31
2. Birbhum ..	7.52	5.08	4.60	7.60	616.60	730.31
3. Bankura ..	3.06	3.03	3.00	3.50	636.01	730.31
4. Midnapore ..	3.46	4.35	6.70	4.40	564.85	730.31
5. Howrah ..	0.43	1.15	2.50	1.50	566.07	730.31
6. Hooghly ..	1.74	2.43	3.00	2.30	565.01	763.66
7. 24 Parganas ..	1.61	2.66	1.60	7.20	630.38	730.31
8. Nadia ..	5.47	4.70	5.20	3.40	622.05	446.49
9. Murshidabad ..	10.39	9.10	10.90	8.20	503.81	730.31
10. West Dinajpur ..	1.26	1.02	1.40	2.10	564.77	730.31
11. Malda ..	7.20	13.12	5.70	3.40	400.51	730.31
12. Jalpaiguri ..	0.51	0.38	0.40	1.50	564.77	730.31
13. Darjeeling ..	0.03*	0.09*	0.20	0.20	564.77*	730.31*
14. Cooch Behar ..	0.15	0.11	0.20	0.20	564.77	730.31
West Bengal ..	52.09	56.26	52.60	57.50	540.48	708.04

District (6-2)	Yield rate in mds. per acre		Production in (000) mds.			
	1950-51	1949-50	1952-53	1951-52	1950-51	1949-50
	(8-6)	(9-6)	(10-6)	(11-6)	(12-6)	(13-6)
1. Burdwan ..	393.47	474.00	4,752.70	6,602.00	2,832.98	5,688.00
2. Birbhum ..	474.57	216.40	4,636.83	3,709.97	2,183.02	1,644.64
3. Bankura ..	635.00	515.20	1,946.19	2,212.84	1,905.00	1,803.20
4. Midnapore ..	458.36	515.20	1,954.38	3,176.85	3,071.01	2,266.88
5. Howrah ..	440.00	515.20	243.41	839.86	1,100.00	772.80
6. Hooghly ..	323.00	400.00	983.12	1,855.69	969.00	920.00
7. 24 Parganas ..	440.00	427.62	1,014.91	1,942.62	704.00	3,078.86
8. Nadia ..	440.00	427.62	3,402.61	2,098.50	2,288.00	1,453.91
9. Murshidabad ..	440.00	400.00	5,234.59	6,645.82	4,796.09	3,280.00
10. West Dinajpur ..	440.00	508.00	711.61	744.92	616.00	1,066.80
11. Malda ..	440.00	400.00	2,883.67	9,581.67	2,508.00	1,360.00
12. Jalpaiguri ..	440.00	515.20	288.03	277.52	176.00	772.80
13. Darjeeling ..	480.00	500.00	16.94*	65.73*	96.00	100.00
14. Cooch Behar ..	265.00	350.00	84.72	80.33	53.00	70.00
West Bengal ..	442.93	422.22	28,153.71	39,834.32	23,298.01	24,277.89

*Siliguri Sub-division only.

TABLE 13.

Statement showing the distribution of 1952 Jute area under different categories in 1951

District	Number of plots for which date collected.	Area in acres of the plot		1952 Jute area of the plots as distributed in 1951			
		Total	Under Jute in 1952	Jute	Aus	Aman	Other crops
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan ..	27	7.99	6.65	5.11	0.63	..	0.29
2. Birbhum ..	..	..	..	..	..	..	..
3. Bankura ..	4	1.10	0.46	..	0.24	..	0.22
4. Midnapore ..	121	29.95	23.03	16.02	1.14	0.81	4.53
5. Howrah ..	46	7.48	5.72	4.27	1.20	0.04	0.19
6. Hooghly ..	44	8.78	6.34	4.20	0.62	1.32	0.06
7. 24-Parganas	147	36.68	26.34	18.79	1.91	1.49	3.05
8. Nadia ..	137	48.57	30.72	14.26	6.42	2.46	3.20
9. Murshidabad	157	41.14	24.75	10.68	9.53	0.18	2.57
10. West Dinajpur	98	29.21	13.01	6.36	3.94	0.35	0.96
11. Malda ..	69	25.67	10.53	3.92	4.65	0.02	0.94
12. Jalpaiguri ..	133	74.76	24.45	11.83	1.33	7.05	1.74
13. Darjeeling* ..	18	9.13	2.12	0.44	0.19	1.08	0.34
14. Cooch Behar	48	11.50	7.46	4.64	0.66	0.79	0.90
West Bengal	1,049	331.96	181.58	100.52	32.46	15.58	18.99

TABLE 13—cont.

District	1952 Jute area of the plots as distributed ^a in 1951			No. of plots shown with jute by the owners of the plots shown in column (2)			
	Current fallow	Old fallow	Other lands	1951	1952	Percentage	
						In- creased	De- creased
(1-2)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Burdwan		0.62	..	71	71	..	..
2. Birbhum .. .. .		..	..	..	..	..	..
3. Bankura .. .. .		..	..	3	13	333	..
4. Midnapore .. .. .		..	0.53	184	219	19	..
5. Howrah .. .. .		..	0.02	71	79	11	..
6. Hooghly	0.12	..	0.02	198	230	16	..
7. 24-Parganas	0.72	0.20	0.18	568	633	11	..
8. Nadia	2.06	2.15	0.18	490	484	..	1
9. Murshidabad	0.82	0.17	0.80	1,758	1,539	..	12
10. West Dinajpur	0.64	0.46	0.30	204	285	40	..
11. Malda	0.50	0.26	0.24	573	611	7	..
12. Jalpaiguri	1.14	0.41	0.95	486	514	6	..
13. Darjeeling*	0.01	0.02	0.04	55	56	2	..
14. Cooch Behar	0.09	0.22	0.16	232	283	22	..
West Bengal	6.10	4.51	3.42	4,893	5,017	3	..

*Siliguri Sub-division only.

TABLE 13—concl'd.

District (1-3)	Percentage of total 1952 Jute area as distributed in 1951						
	Jute	Aus.	Aman.	Other crops	Current fallow	Old fallow	Other lands
	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1. Burdwan	76.8	9.5	..	4.4	..	9.3	..
2. Birbhum .. ..	..	..	..	..	..	..	..
3. Bankura .. ..	..	52.2	..	47.8	..	..	..
4. Midnapore	69.5	4.9	3.4	19.9	..	..	2.3
5. Howrah	74.7	21.0	0.7	3.3	..	..	0.3
6. Hooghly	66.2	9.8	20.8	1.0	4.9	..	0.3
7. 24-Parganas	71.3	7.3	5.6	11.6	2.7	0.8	0.7
8. Nadia	46.4	20.9	8.0	10.4	6.7	7.0	0.6
9. Murshidabad	43.2	38.5	0.7	10.4	3.3	0.7	3.2
10. West Dinajpur	48.9	30.3	2.7	7.4	4.4	3.5	2.3
11. Malda	37.2	44.2	0.2	8.9	4.7	2.5	2.3
12. Jalpaiguri	48.4	5.4	28.8	7.1	4.7	1.7	3.9
13. Darjeeling*	20.8	9.0	50.9	16.0	0.5	0.9	1.9
14. Cooch Behar	62.2	8.9	10.6	12.1	1.2	2.9	2.1
West Bengal	55.4	17.9	8.6	10.4	3.3	2.5	1.9

*Siliguri Sub-division only.

TABLE 14.
't' test between Half Samples of Jute, 1952-53.

District (1)	Half sample A.				Half sample B.				
	N (2)	Acreage (3)	± S. E. (4)	P. V. (5)	N (6)	Acreage (7)	± S. E. (8)	±. V. (9)	't' (10)
1. Burdwan ..	2,498	29.58	2.85	9.6	1,970	24.44	2.38	9.7	1.39
2. Birbhum ..	1,604	2.45	0.15	6.1	1,597	1.27	0.32	25.2	3.37*
3. Bankura ..	2,256	5.35	1.01	18.9	2,446	5.55	1.01	18.2	0.14
4. Midnapore ..	3,298	52.53	3.77	7.2	3,079	36.25	2.66	7.3	3.53*
5. Howrah ..	517	26.69	2.52	9.4	441	11.03	1.75	15.9	5.10*
6. Hooghly ..	1,123	84.95	4.33	5.1	983	74.45	4.29	5.8	1.72
7. 24-Parganas ..	3,029	145.31	5.18	3.6	2,910	121.46	4.93	4.1	3.34*
8. Nadia ..	1,398	113.20	4.66	4.1	1,342	117.60	4.39	3.7	0.69
9. Murshidabad ..	1,796	142.89	5.47	3.8	1,661	144.54	5.16	3.6	0.22
10. West Dinajpur	1,279	72.26	3.97	5.5	1,226	67.20	3.95	5.9	0.90
11. Malda ..	1,238	84.20	4.15	4.9	1,062	65.58	3.87	5.9	3.28*
12. Jalpaiguri ..	1,539	51.99	3.11	6.0	1,437	36.28	2.45	6.8	3.97*
13. Darjeeling (Sili- guri sub-division only).	211	5.36	0.88	16.4	147	4.74	0.90	19.0	0.49
14. Cooch Behar ..	1,012	79.47	3.95	5.0	1,042	63.80	3.42	5.4	3.00*
West Bengal ..	22,798	896.23	13.64	1.5	21,343	774.19	12.46	1.6	6.61*

*Significant at 1 percent level.

TABLE 14.1.

't' test between Half Samples of Aus, 1952-53.

District (1)	Half sample A.				Half sample B.				
	N (2)	Acreage (3)	±S. E. (4)	P. V. (5)	N (6)	Acreage (7)	±S. E. (8)	P. V. (9)	't' (10)
1. Burdwan ..	2,498	51.69	3.97	7.7	1,970	67.27	4.57	6.8	2.58*
2. Birbhum ..	1,604	77.57	4.84	6.2	1,597	71.88	5.27	7.3	0.79
3. Bankura ..	2,256	139.00	6.84	4.9	2,446	153.06	7.34	4.8	1.40
4. Midnapore ..	3,298	136.89	8.28	6.1	3,079	119.65	7.77	6.5	1.52
5. Howrah ..	517	2.57	0.79	30.7	441	2.02	0.76	37.6	0.50
6. Hooghly ..	1,123	21.47	2.13	9.9	983	15.62	2.21	14.2	1.91
7. 24-Parganas ..	3,029	82.68	3.91	4.7	2,910	90.01	4.72	5.2	1.20
8. Nadia	1,398	209.59	6.95	3.3	1,342	205.24	7.01	3.4	0.44
9. Murshidabad ..	1,796	232.43	7.20	3.1	1,661	217.08	6.93	3.2	1.54
10. West Dinajpur	1,279	103.05	4.96	4.8	1,226	88.19	4.56	5.2	2.20*
11. Malda	1,238	144.55	6.28	4.3	1,062	129.98	6.32	4.9	1.64
12. Jalpaiguri ..	1,539	59.86	4.26	7.2	1,437	31.60	2.84	9.0	5.52**
13. Darjeeling (Sili- guri sub-division only).	211	1.69	0.63	37.3	147	1.69	0.65	38.5	0.00
14. Cooch Behar ..	1,012	140.74	5.73	4.1	1,042	121.55	5.32	4.4	2.45*
West Bengal ..	22,798	1,403.78	19.76	1.4	21,343	1,314.84	19.63	1.5	3.19*

*Significant at 5 per cent. level.

**Significant at 1 per cent. level.

TABLE 14.2.

't' test between Half Samples of Aman, 1952-53.

District (1)	Half sample A.				Half sample B.				
	N (2)	Acreage (3)	± S. E. (4)	P. V. (5)	N (6)	Acreage (7)	± S. E. (8)	P. V. (9)	't' (10)
1. Burdwan ..	2,600	1,060.57	13.58	1.8	2,582	1,034.33	13.59	1.3	1.37
2. Birbhum ..	1,621	710.61	10.87	1.5	1,624	730.64	10.45	1.4	1.33
3. Bankura ..	2,484	721.26	13.52	1.9	2,440	752.40	13.91	1.8	1.61
4. Midnapore ..	3,447	1,959.55	21.44	1.1	3,448	2,006.48	23.44	1.2	1.48
5. Howrah ..	523	234.57	5.19	2.2	513	245.47	5.14	2.1	1.49
6. Hooghly ..	1,134	434.05	8.94	2.1	1,104	437.08	9.03	2.1	0.24
7. 24-Parganas ..	3,031	1,394.24	13.36	1.0	3,044	1,406.26	13.59	1.0	0.63
8. Nadia ..	1,434	192.72	8.52	4.4	1,431	201.54	8.13	4.0	0.75
9. Murshidabad ..	1,854	492.51	10.85	2.2	1,861	481.66	10.88	2.3	0.71
10. West Dinajpur	1,304	514.11	9.30	1.8	1,286	521.10	9.40	1.8	0.53
11. Malda ..	1,254	263.75	7.93	3.0	1,247	263.76	7.75	2.9	0.00
12. Jalpaiguri ..	1,666	391.87	10.82	2.8	1,639	405.11	9.98	2.5	0.90
13. Darjeeling (Sili- guri sub-division : only).	216	54.36	3.67	6.8	214	57.89	3.94	6.8	0.67
14. Cooch Behar ..	1,079	313.03	9.25	3.0	1,048	296.19	9.48	3.2	1.27
West Bengal ..	23,647	8,737.20	42.26	0.5	23,481	8,839.91	43.21	0.5	1.70

None significant.

TABLE 15

Comparison of Area Survey : Jute and Aus, 1952-53, between Investigator and Assistant Investigator

District	N	Jute			Aus		
		Mean	S. E.	't'	Mean	S. E.	't'
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan (a) .. .. .	..	..	..	..	..	..	..
2. Birbhum	34	—0003	0003	1.00	0003	0033	0.09
3. Bankura	123	0002	0002	1.00	—0493	0193	2.53*
4. Midnapore	124	—0026	0046	0.57	—0036	0024	1.50
5. Howrah	32	—0078	0130	0.60	0269	0254	1.06
6. Hooghly	34	0182	0183	0.99	0224	0132	1.70
7. 24-Parganas	165	—0096	0096	1.00	0121	0067	1.81
8. Nadia (a) .. .. .	..	..	..	..	..	..	..
9. Murshidabad	86	0078	0194	0.40	0203	0252	0.81
10. West Dinajpur	65	—0052	0090	0.58	0069	0079	0.81
11. Malda	32	—0031	0173	0.18	0088	0299	0.29
12. Jalpaiguri	79	0030	0076	0.39	—0065	0037	1.76
13. Darjeeling (Siliguri sub- division only).	11	—0109	0056	1.95	0000	0000	0.00
14. Cooch Behar	21	0252	0238	1.06	1038	0550	1.89

(a) No Investigator was posted in the district.

*This mark denotes significant value at 5 per cent. level.

TABLE 15-1

Comparison of Area Survey : Jute and Aus., 1952-53, between Inspector and Assistant Investigator

District	N	Jute			Aus		
		Mean	S. E.	't'	Mean	S. E.	't'
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Burdwan	138	-0005	0009	0.56	-0030	0034	0.88
2. Birbhum	186	-0004	0005	0.80	-0072	0039	1.85
3. Bankura	240	-0007	0004	1.75	-0074	0041	1.80
4. Midnapore	447	-0003	0004	0.75	-0009	0007	1.29
5. Howrah	84	-0025	0097	0.26	-0004	0003	..
6. Hooghly	66	-0071	0053	1.34	-0008	0012	..
7. 24-Parganas ..	258	-0012	0024	0.50	-0015	0010	1.50
8. Nadia	226	-0046	0040	1.15	-0015	0078	0.19
9. Murshidabad ..	178	-0020	0040	0.50	-0161	0084	1.92
10. West Dinajpur ..	120	-0117	0056	2.09*	-0062	0066	0.94
11. Malda	143	-0084	0096	0.88	-0113	0095	1.19
12. Jalpaiguri	67	-0042	0044	0.95	-0251	0145	1.73
13. Darjeeling (Silliguri subdivision only).	36	-0081	0111	0.73	-0003	0002	1.50
14. Cooch Behar	28	-0025	0024	1.04	-0039	0046	0.85
West Bengal ..	2,217	-0005	0010	0.50	-0006	0051	0.04

*Significant at 5 per cent. level.

TABLE 16

Table showing area in thousand acres under cultivable and uncultivable wastes combined during Jute and Aus season, 1952-53, in the different districts for different Half Samples and the corresponding 't's.

District	Sub-Sample						Acreage difference A & B	S. E. of difference	't'
	A			B					
	Acreage	±S. E.	P. V.	Acreage	±S. E.	P. V.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Burdwan ..	145.38	6.48	4.5	161.61	6.89	4.3	16.23	9.46	1.72
2. Birbhum ..	79.84	4.60	5.8	75.69	4.45	5.9	4.15	6.40	0.65
3. Bankura ..	222.84	8.38	3.8	210.98	7.85	3.7	11.86	11.48	1.03
4. Midnapore ..	328.48	13.00	4.0	327.36	12.64	3.9	1.12	18.13	0.06
5. Howrah ..	3.77	0.59	15.6	3.21	0.61	19.0	0.56	0.85	0.66
6. Hooghly ..	26.31	2.29	8.7	21.17	1.88	8.9	5.14	2.96	1.74
7. 24-Parganas ..	34.13	2.87	8.4	30.42	2.95	9.7	3.71	4.12	0.90
8. Nadia ..	18.30	2.67	14.6	12.79	2.02	19.8	5.51	3.35	1.64
9. Murshidabad ..	35.01	3.17	9.1	33.67	2.99	8.9	1.34	4.36	0.31
10. West Dinajpur	26.93	2.54	9.4	29.51	1.82	6.2	2.58	3.12	0.83
11. Malda ..	15.70	1.92	12.2	14.54	1.15	7.9	1.16	2.24	0.52
12. Jalpaiguri ..	122.36	6.41	5.2	110.99	7.04	6.3	11.37	9.52	1.19
13. Darjeeling (Sili- guri sub-division only).	11.76	1.46	12.4	15.84	1.77	11.2	4.08	2.29	1.78
14. Cooch Behar ..	55.55	4.65	8.4	64.32	5.07	7.9	8.77	6.88	1.27
West Bengal ..	1,126.36	20.21	1.8	1,112.10	19.93	1.8	14.26	28.38	0.50

TABLE 16.1

Table showing area in thousand acres under culturable and unculturable wastes combined during Aman season, 1952-53, in different districts for different Half Samples and the corresponding 't's.

District	Sub-Sample						Acreage difference A & B	S. E. of difference	't'
	A			B					
	Acreage	±S. E.	P. V.	Acreage	±S. E.	P. V.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Burdwan ..	151.54	6.63	4.38	152.00	6.62	4.36	0.46	9.37	0.05
2. Birbhum ..	76.21	4.34	5.69	76.74	4.49	5.85	0.53	6.24	0.08
3. Bankura ..	230.02	8.52	3.70	211.40	7.88	3.73	18.62	11.61	1.60
4. Midnapore ..	317.84	12.62	3.97	309.26	12.67	4.10	8.85	17.88	0.48
5. Howrah ..	3.79	0.80	21.11	2.72	0.55	20.22	1.07	0.97	1.10
6. Hooghly ..	25.98	2.22	8.55	25.27	2.21	8.75	0.71	3.13	0.23
7. 24-Parganas ..	30.41	2.78	9.14	30.69	2.79	9.09	0.28	3.94	0.07
8. Nadia ..	22.85	2.84	12.43	14.23	2.18	15.32	8.62	3.58	2.41*
9. Murshidabad ..	33.63	2.93	8.71	43.26	4.04	9.34	9.63	4.98	1.93
10. West Dinajpur	29.17	2.37	8.12	31.88	2.60	8.16	2.71	3.52	0.77
11. Malda ..	13.24	1.52	11.48	16.12	1.89	11.72	2.88	2.43	1.18
12. Jalpaiguri ..	101.91	6.13	6.02	95.26	5.81	6.10	6.65	8.44	0.79
13. Darjeeling (Sili-guri subdivision only).	10.10	1.73	17.13	15.29	2.09	13.67	5.19	2.71	1.92
14. Cooch Behar ..	53.85	4.67	8.67	56.57	4.69	8.29	2.72	6.61	0.41
West Bengal ..	1,100.54	19.87	1.81	1,080.69	19.77	1.83	19.85	28.03	0.71

*Significant at 5 per cent.

TABLE 16.2

Table showing area in thousand acres under culturable and unculturable wastes combined during Rabi season, 1952-53, in different districts for different Half Sample and the corresponding 't's.

District	Sub-Sample						Acreage difference A & B	S. E. of difference	't'
	A			B					
	Acreage	±S. E.	P. V.	Acreage	±S. E.	P. V.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Burdwan ..	160.29	6.86	4.28	170.67	6.97	4.08	10.38	9.78	1.06
2. Birbhum ..	75.73	4.41	5.82	74.56	5.35	7.18	1.17	6.93	0.17
3. Bankura ..	237.40	8.69	3.66	218.14	9.48	4.35	19.26	12.86	1.50
4. Midnapore ..	327.46	12.32	3.76	303.62	12.35	4.07	23.84	17.44	1.37
5. Howrah ..	3.67	0.56	15.26	3.14	0.67	21.34	0.53	0.87	0.61
6. Hooghly ..	28.59	2.38	8.32	30.24	2.33	7.71	1.65	3.33	0.50
7. 24-Parganas ..	34.14	3.09	9.05	36.61	3.20	8.74	2.47	4.45	0.56
8. Nadia ..	19.11	2.50	13.08	17.47	2.41	13.80	1.64	3.47	0.47
9. Murshidabad ..	37.04	3.17	8.56	43.39	3.63	8.37	6.35	4.82	1.32
10. West Dinajpur	29.07	2.45	8.43	34.46	2.77	8.04	5.39	3.70	1.46
11. Malda ..	15.77	1.77	11.22	13.33	1.59	11.93	2.44	2.38	1.03
12. Jalpaiguri ..	103.56	6.09	5.88	98.02	8.02	8.18	5.54	10.07	0.55
13. Darjeeling (Sili- guri sub-division only).	11.64	1.84	15.81	15.92	2.17	13.63	4.28	2.85	1.50
14. Cooch Behar ..	61.77	4.64	7.51	61.54	4.78	7.77	0.23	6.66	0.03
West Bengal ..	1,145.24	19.92	1.74	1,121.11	21.37	1.91	24.13	29.21	0.83

TABLE 17

Estimated acreages of cultivable and uncultivable wastes land in three seasons of 1952-53 with their standard errors.

District	Season								
	June and Aug.			Amav.			Rabi.		
	Acreage (000).	±S.E.	P.V.	Acreage (000).	±S.E.	P.V.	Acreage (000).	±S.E.	P.V.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Burdwan ..	153.21	4.75	3.1	157.97	4.69	2.97	165.32	4.90	2.96
2. Birbhum ..	77.79	3.10	4.0	76.48	3.12	4.08	75.18	3.45	4.59
3. Bankura ..	217.01	5.75	2.7	220.33	5.83	2.65	227.90	6.44	2.83
4. Midnapore ..	328.04	9.07	2.6	314.14	8.92	2.84	316.41	8.70	2.75
5. Howrah ..	3.50	0.42	12.0	3.23	0.52	16.10	3.40	0.42	12.35
6. Hooghly ..	23.77	1.52	6.4	25.66	1.56	6.08	29.32	1.65	5.63
7. 24 Parganas ..	32.35	2.06	6.4	30.88	1.97	6.38	35.36	2.23	6.31
8. Nadia ..	15.62	1.78	11.4	18.52	1.94	10.48	18.30	1.92	10.49
9. Murshidabad ..	34.53	2.18	6.3	37.41	2.58	6.90	40.26	2.52	6.26
10. West Dinajpur	28.31	1.54	3.4	30.53	1.77	5.80	31.78	1.85	5.82
11. Malda ..	15.12	1.14	7.5	14.62	1.24	8.48	14.57	1.19	8.17
12. Jalpaiguri ..	115.37	4.74	4.1	97.92	4.23	4.52	100.80	5.10	5.06
13. Darjeeling (Sili- guri sub-division only).	13.81	1.19	6.6	12.68	1.43	11.28	13.78	1.42	10.30
14. Cochin Behar ..	60.06	3.47	5.8	55.23	3.31	5.99	61.61	3.35	5.44
West Bengal ..	1,118.49	14.18	1.3	1,095.60	14.04	1.28	1,135.99	14.67	1.29

TABLE 18

Proportion of full and part plots in the grid of size 2-25 acres in each district, West Bengal

District	Number of grids	Number of plots within the grid			Percentage to total	
		Full	Part	Total	Full	Part
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Burdwan ..	5,318	14,537	49,599	64,136	22.7	77.3
2. Birbhum ..	3,296	11,577	34,462	46,039	25.1	74.9
3. Bankura ..	4,985	14,292	44,216	58,508	24.4	75.6
4. Midnapore ..	7,732	17,530	63,373	80,903	21.7	78.3
5. Howrah ..	1,041	3,848	11,428	15,276	25.2	74.8
6. Hooghly ..	2,326	8,334	24,550	32,884	25.3	74.7
7. 24-Parganas ..	6,321	11,888	58,666	70,554	16.8	83.2
8. Nadia ..	2,885	3,564	26,289	29,853	11.9	88.2
9. Murshidabad ..	3,837	8,177	36,555	44,732	18.3	81.7
10. West Dinajpur ..	2,602	3,306	19,455	22,761	14.5	85.5
11. Malda ..	2,675	2,065	20,296	22,361	9.2	90.8
12. Jalpaiguri ..	3,409	1,697	16,678	18,375	9.2	90.8
13. Darjeeling (Sili-guri sub-division only).	437	222	2,311	2,533	8.8	91.1
14. Cooch Behar ..	2,357	6,772	23,055	29,827	22.7	77.3
West Bengal ..	49,221	107,809	430,933	538,742	20.0	80.0

TABLE 19

Average size of plots by district (10 Mouzas selected from each police station at random).

District	Number of police-stations taken	Number of Mouzas selected	Total area of the selected Mauzas (in acres)	Total plots in the selected Mauzas	Average size of plot (in acres)
(1)	(2)	(3)	(4)	(5)	(6)
1. Burdwan ..	23	230	136,834	358,538	0.38
2. Birbhum ..	14	140	56,375	173,159	0.33
3. Bankura ..	19	190	85,742	179,351	0.48
4. Midnapore ..	33	330	91,244	222,563	0.41
5. Howrah ..	11	110	45,343	175,961	0.26
6. Hooghly ..	18	180	77,328	279,135	0.28
7. 24-Parganas ..	36	360	184,681	421,374	0.44
8. Nadia ..	13	130	99,130	181,701	0.55
9. Murshidabad ..	21	210	146,880	324,575	0.45
10. West Dinajpur ..	10	100	37,611	70,877	0.53
11. Malda ..	10	100	50,192	64,920	0.77
12. Jalpaiguri ..	12	120	184,782	159,292	1.16
13. Darjeeling (Sili-guri sub-division only).	3	30	12,477	10,775	1.16
14. Cooch Behar ..	8	80	57,245	172,545	0.33
West Bengal ..	231	2,310	1,265,864	2,794,766	0.45

TABLE 20

Classification of plots in which enumeration was duplicated by Inspector and Assistant Investigators in the districts of West Bengal during Aman season, 1952-53.

District	Number of grids checked	Total number of plots	Average number of plots per grid	I. Cases requiring no eye estimation					
				Full plot under crop according to both Inspectors and Assistant Investigators		No crop according to both Inspectors and Assistant Investigators		Total	
				Number	Per cent	Number	Per cent	Number	Per cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Burdwan ..	290	3,325	11.5	2,580	77.5	606	18.2	3,186	95.7
2. Birbhum ..	268	3,476	13.0	2,651	76.3	648	18.6	3,299	94.9
3. Bankura ..	255	3,306	13.0	1,857	56.2	1,113	33.7	2,970	89.9
4. Midnapore ..	405	3,928	9.7	2,498	63.7	1,223	31.1	3,721	94.8
5. Howrah ..	106	1,422	13.4	868	61.0	462	32.5	1,330	93.5
6. Hooghly ..	118	1,670	14.2	922	55.3	647	38.7	1,569	94.0
7. 24-Parganas ..	497	5,254	10.6	3,139	59.7	1,852	35.3	4,991	95.0
8. Nadia ..	174	1,602	9.2	230	14.4	1,293	80.7	1,523	95.1
9. Murshidabad	222	2,649	11.9	943	35.6	1,535	58.0	2,478	93.6
10. West Dinajpur	411	3,274	8.0	1,472	45.0	1,496	45.7	2,968	90.7
11. Malda ..	122	884	7.2	227	25.7	589	66.6	816	92.3
12. Jalpaiguri ..	259	1,586	6.1	465	29.3	847	53.5	1,312	82.8
13. Darjeeling (Sili-guri sub-division only).	95	517	5.4	121	23.4	235	45.5	356	68.9
14. Cooch Behar ..	225	2,679	11.9	764	28.5	1,575	58.8	2,339	87.3
West Bengal ..	3,447	35,572	10.3	18,737	52.7	14,121	39.7	32,858	92.4

TABLE 20—contd.

Classification of plots in which enumeration was duplicated by Inspectors and Assistant Investigators in the districts of West Bengal during Aman season, 1952-53—cont.

District	II. Cases of wrong identification								III. Cases requiring eye estimation			
	Full plot according to Inspectors while part or no crop according to Assistant Investigators		No crop according to Inspectors while full or part plot under crop according to Assistant Investigators		Part under crop according to Inspectors while full or no crop according to Assistant Investigators		Total		Part plot under-crop according to both Inspectors and Assistant Investigators			
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
	(1)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
1. Burdwan	40	1.2	33	1.0	7	0.2	80	2.4	59	1.9		
2. Birbhum	47	1.3	24	0.7	7	0.2	78	2.2	99	2.9		
3. Bankura	42	1.3	71	2.1	50	1.5	163	4.9	173	5.2		
4. Midnapore	37	0.9	29	0.7	28	0.9	94	2.3	113	2.9		
5. Howrah	4	0.3	57	4.0	6	0.4	67	4.7	25	1.8		
6. Hooghly	23	1.4	28	1.7	19	1.1	70	4.2	31	1.8		
7. 24-Parganas	26	0.5	17	0.3	33	0.6	76	1.4	187	3.6		
8. Nadia	14	0.9	5	0.3	17	1.1	36	2.3	43	2.6		
9. Murshidabad	24	0.9	58	2.2	27	1.0	109	4.1	62	2.3		
10. West Dinajpur	25	0.8	24	0.7	37	1.1	86	2.6	220	6.7		
11. Malda .. .. .	..	..	8	0.9	9	1.0	17	1.9	51	5.8		
12. Jalpaiguri	25	1.6	17	1.0	36	2.3	78	4.9	196	12.3		
13. Darjeeling (Siliguri sub-division only)	21	4.1	14	2.7	41	7.9	76	14.7	85	16.4		
14. Cooch Behar	18	0.7	38	1.4	50	1.9	106	4.0	234	8.7		
West Bengal	346	1.0	423	1.2	367	1.0	1,136	3.2	1,578	4.4		

APPENDIX I.

Estimated acreage under Aus. by sub-division with errors, 1952-53

Name of sub-division	Area in (000) acres	Acreage (000)	± S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Burdwan				
1. Sadar	818.04	28.52	2.21	7.7
2. Katwa	257.79	17.31	1.71	9.9
3. Kalna	243.39	13.69	1.70	12.4
4. Asansole	395.64	0.00	0.00	0.0
Total Burdwan District	1,714.86	59.52	3.27	5.5
District Birbhum				
1. Sadar	721.09	58.52	3.22	5.5
2. Rampurhat	387.88	16.00	1.59	9.9
Total Birbhum District	1,108.97	74.52	3.59	4.8
District Bankura				
1. Sadar	1,233.14	115.38	4.82	4.2
2. Bishnupur	448.63	30.56	2.53	8.3
Total Bankura District	1,681.77	145.94	5.45	3.7
District Midnapore				
1. Sadar	1,301.37	43.98	3.24	7.4
2. Jhargram	758.51	78.35	4.20	5.4
3. Tamluk	434.98	0.62	0.30	48.4
4. Ghatal	221.56	5.49	1.36	24.8
5. Contai	539.39	0.00	0.00	0.0
Total Midnapore District	3,255.81	128.44	5.48	4.3

APPENDIX I—*contd.*

Name of sub-division	Area in (000) acres	Acreage (000)	± S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Howrah				
1. Sadar	101.76	0.00	0.00	0.0
2. Uluberia.. .. .	231.60	2.29	0.55	24.0
Total Howrah District	333.36	2.29	0.55	24.0
District Hooghly				
1. Sadar	275.20	9.34	0.88	9.4
2. Serampore	212.10	2.41	0.41	17.0
3. Arambagh	259.00	6.84	1.04	15.2
Total Hooghly District	746.30	18.59	1.42	7.6
District 24-Parganas				
1. Sadar	602.83	2.22	0.46	20.7
2. Barrackpore	33.49	1.55	0.42	27.1
3. Baraset	239.60	21.17	1.57	7.4
4. Bongaon	202.24	47.37	2.32	4.9
5. Basirhat	470.50	13.86	1.11	8.0
6. Diamond Harbour	600.34	0.02	0.01	50.0
Total 24-Parganas District	2,149.00	86.19	3.07	3.6
District Nadia				
1. Sadar	606.25	142.93	4.11	2.9
2. Ranaghat	331.23	63.94	2.72	4.3
Total Nadia District	937.48	206.87	4.92	2.4
District Murshidabad				
1. Sadar	412.32	99.11	3.61	3.6
2. Kandi	287.56	4.94	0.83	16.8
3. Jangipur	268.45	34.18	2.24	6.6
4. Lalbagh	322.77	86.12	2.93	3.4
Total Murshidabad District	1,291.10	224.35	5.22	2.3

APPENDIX I—*contd.*

Name of sub-division	Area in (000) acres	Acreage (000)	± S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District West Dinajpur				
1. Balurghat	374.75	22.15	1.85	8.4
2. Sadar	511.96	73.57	2.84	3.9
Total West Dinajpur District	886.71	95.82	3.39	3.5
District Malda				
1. Malda	888.91	136.95	4.45	3.2
District Jalpaiguri				
1. Sadar	735.75	32.21	2.95	9.2
2. Alipurduar	422.61	12.21	1.26	10.3
Total Jalpaiguri District	1,158.36	44.42	3.21	7.2
District Darjeeling				
1. Sadar		Not under Survey		
2. Kurseong		Not under Survey		
3. Siliguri	142.92	1.69	0.61	36.1
4. Kalimpong		Not under Survey.		
Total Darjeeling District	142.92	1.69	0.61	36.1
District Cooch Behar				
Total Cooch Behar District	814.89	131.27	3.91	3.0
Total West Bengal	17,110.44	1,356.76	14.27	1.1

APPENDIX II

Estimated acreage under Jute by sub-division with errors, 1952-53

Name of sub-division	Area in (000) acres	Acreage (000)	± S. E.	P V.
(1)	(2)	(3)	(4)	(5)
District Burdwan				
1. Sadar	818-04	9-14	1-15	12-5
2. Katwa	257-79	3-88	0-77	19-9
3. Kalna	243-39	14-04	1-86	13-3
4. Asansol	395-64	0-00	0-00	0-0
Total Burdwan District	1,714-86	27-06	2-32	8-6
District Birbhum				
1. Sadar	721-09	0-30	0-10	25-6
2. Rampurhat	387-88	1-45	0-26	17-9
Total Birbhum District	1,108-97	1-84	0-28	15-2
District Bankura				
1. Sadar	1,233-14	5-44	0-95	17-5
2. Bishnupur	448-63	0-04	0-02	50-0
Total Bankura District	1,681-77	5-48	0-95	17-3
District Midnapore				
1. Sadar	1,301-37	6-66	0-95	14-3
2. Jhargram	758-51	6-11	1-04	17-0
3. Tamluk	434-98	11-05	1-21	11-0
4. Ghatal	221-56	10-15	0-99	9-8
5. Contai	539-39	10-28	0-83	8-1
Total Midnapore District	3,255-81	44-25	2-27	5-1

APPENDIX II—*contd.*

Name of sub-division	Area in (000) acres	Acreage (000)	±S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Howrah				
1. Sadar	101.76	8.48	0.90	10.6
2. Uluberia	231.60	10.41	1.36	13.1
Total Howrah District	333.36	18.89	1.64	8.7
District Hooghly				
1. Sadar	275.20	31.52	2.00	6.4
2. Serampore	212.10	32.44	1.88	5.8
3. Arambagh	259.00	16.03	1.25	7.8
Total Hooghly District	746.30	79.99	3.02	3.8
District 24-Parganas				
1. Sadar	602.83	8.61	0.93	10.8
2. Barrackpore	33.49	3.65	0.60	16.4
3. Baraset	239.60	42.08	2.01	4.8
4. Bongaon	202.24	33.44	1.80	5.4
5. Basirhat	470.50	42.25	2.12	5.0
6. Diamond Harbour	600.34	3.61	0.53	14.7
Total 24-Parganas District	2,149.00	133.64	3.64	2.7
District Nadia				
1. Sadar	606.25	67.80	2.44	3.6
2. Ranaghat	331.23	47.61	2.26	4.8
Total Nadia District	937.48	115.41	3.33	2.9

APPENDIX II—contd.

Name of subdivision	Area in (000) acres	Acreage (000)	±S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Murshidabad				
1. Sadar	412.32	65.85	2.56	3.9
2. Kandi	287.56	4.87	0.97	19.9
3. Jangipur	268.45	30.36	2.00	6.6
4. Lalbagh	322.77	42.71	1.80	4.2
Total Murshidabad District	1,291.10	143.79	3.84	2.7
District West Dinajpur				
1. Balurghat	374.75	25.21	1.95	7.7
2. Sadar	511.96	44.65	1.98	4.4
Total West Dinajpur District	886.71	69.86	2.78	4.0
District Malda				
1. Malda	888.91	75.00	2.86	3.8
District Jalpaiguri				
1. Sadar	735.75	28.73	1.70	5.9
2. Alipurduar	422.61	15.64	1.15	7.4
Total Jalpaiguri District	1,158.36	44.37	2.05	4.6
District Darjeeling				
1. Sadar		Not under Survey		
2. Kurseong		Not under Survey		
3. Siliguri	142.92	5.04	0.78	15.5
4. Kalimpong		Not under Survey		
Total Darjeeling District	142.92	5.04	0.78	15.5
District Cooch Behar				
Total Cooch Behar District	814.89	71.62	2.67	3.7
Total West Bengal	17,110.44	836.24	9.50	1.1

APPENDIX III

Estimated acreage under Aman by Sub-division with errors, 1952-53

Name of sub-division	Area in (000) acres	Acreage (000)	±S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Burdwan				
1. Sadar	818.04	512.47	6.57	1.3
2. Katwa	257.79	165.51	3.67	2.2
3. Kalna	243.39	144.66	3.69	2.6
4. Asansol.. .. .	395.64	225.12	4.69	2.1
Total Burdwan District	1,714.86	1,047.76	9.60	0.9
District Birbhum				
1. Sadar	721.09	446.69	6.32	1.4
2. Rampurhat	387.88	273.97	4.34	1.5
Total Birbhum District	1,108.97	720.66	7.66	1.1
District Bankura				
1. Sadar	1,233.14	494.15	7.98	1.6
2. Bishnupur	448.63	242.52	5.61	2.3
Total Bankura District	1,681.77	736.67	9.70	1.3
District Midnapore				
1. Sadar	1,301.37	788.22	9.80	1.2
2. Jhargram	758.51	276.03	9.18	3.3
3. Tamluk	434.98	341.30	4.84	1.4
4. Ghatal	221.56	149.36	3.34	2.2
5. Contai	539.39	428.81	4.51	1.1
Total Midnapore District	3,255.81	1,983.72	15.43	0.8

APPENDIX III—*contd.*

Name of sub-division	Area in (000) acres	Acreage (000)	±S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Howrah				
1. Sadar	101.76	65.71	2.09	3.2
2. Uluberia	231.60	174.29	2.98	1.7
Total Howrah District	333.36	240.00	3.64	1.5
District Hooghly				
1. Sadar	275.20	149.32	3.94	2.6
2. Serampore	212.10	119.78	3.36	2.8
3. Arambagh	259.00	166.22	3.81	2.3
Total Hooghly District	746.30	435.32	6.42	1.5
District 24-Parganas				
1. Sadar	602.83	427.46	4.47	1.2
2. Barrackpore	33.49	11.05	1.30	11.8
3. Baraset	239.60	101.20	3.66	3.6
4. Bongaon	202.24	63.01	3.23	5.1
5. Basirhat	470.50	322.82	4.62	1.4
6. Diamond Harbour	600.34	474.47	4.35	0.9
Total 24-Parganas District	2,149.00	1,400.01	9.27	0.7
District Nadia				
1. Sadar	606.25	135.04	5.06	3.7
2. Ranaghat	331.23	62.02	3.40	5.5
Total Nadia District	937.48	197.06	5.96	3.0

APPENDIX III—*concl.*

Name of sub-division	Area in (000) acres	Acreage (000)	±S. E.	P. V.
(1)	(2)	(3)	(4)	(5)
District Murshidabad				
1. Sadar	412.32	119.91	4.68	3.9
2. Kandi	287.56	195.29	4.02	2.1
3. Jangipur	268.45	110.80	3.88	3.5
4. Lalbagh	322.77	60.73	2.74	4.5
Total Murshidabad District ..	1,291.10	486.73	7.74	1.6
District West Dinajpur				
1. Balurghat	374.75	256.09	4.42	1.7
2. Sadar	511.96	261.53	4.92	1.9
Total West Dinajpur District..	886.71	517.62	6.62	1.3
District Malda				
1. Malda	888.91	263.81	5.51	2.1
District Jalpaiguri				
1. Sadar	735.75	251.65	6.34	2.5
2. Alipurduar	422.61	147.11	4.44	3.0
Total Jalpaiguri District ..	1,158.36	398.76	7.80	2.0
District Darjeeling				
1. Sadar		Not under survey.		
2. Kurseong		Ditto.		
3. Siliguri	142.92	56.08	2.71	4.8
4. Kalimpong		Not under survey.		
Total Darjeeling District ..	142.92	56.08	2.71	4.8
District Cooch Behar				
	814.89	304.60	6.62	2.2
Total West Bengal	17,110.44	8,788.80	30.08	0.3

APPENDIX IV

Estimated acreage under Gram, Musur and Mustard by Sub-division with errors, 1952-53.

Name of sub-division	Area in (000) acres	Gram			Musur		
		Acreage (000)	±S.E.	P. V.	Acreage (000)	±S. E.	P. V.
(1-1)	(2-1)	(3-1)	(3-2)	(3-3)	(4-1)	(4-2)	(4-3)
District Burdwan							
1. Sadar	818.04	3.09	0.44	14.2	4.93	0.62	12.6
2. Katwa	257.79	5.99	0.80	13.4	3.80	0.56	14.7
3. Kalna	243.39	6.40	0.92	14.4	7.41	0.93	12.6
4. Asansol	395.64	0.29	0.18	62.1	0.00	0.00	0.0
Total Burdwan District	1,714.86	15.77	1.31	8.3	16.14	1.24	7.7
District Birbhum							
1. Sadar	721.09	14.18	1.27	9.0	5.89	0.69	11.7
2. Rampurhat	387.88	19.95	1.68	8.2	6.85	0.87	12.7
Total Birbhum District	1,108.97	34.13	2.06	6.0	12.74	1.11	8.7
District Bankura							
1. Sadar	1,233.14	5.31	0.73	13.7	1.24	0.34	27.4
2. Bishnupur	448.63	0.64	0.18	28.1	1.04	0.25	24.0
Total Bankura District	1,681.77	5.95	0.76	12.8	2.28	0.42	18.4
District Midnapore							
1. Sadar	1,301.37	0.54	0.22	40.7	0.90	0.27	30.0
2. Jhargram	758.51	6.38	1.41	22.1	0.11	0.11	100.0
3. Tamluk	434.98	0.06	0.04	66.7	0.01	0.01	100.0
4. Ghatal	221.56	1.49	0.25	16.8	1.41	0.32	22.7
5. Contai	539.39	0.00	0.00	0.0	0.00	0.00	0.0
Total Midnapore District	3,255.81	8.47	1.43	16.9	2.43	0.42	17.3

APPENDIX IV—contd.

Name of sub-division (1-1)	Area in (000) acres (2-1)	Gram			Musur		
		Acreage (000) (3-1)	±S.F. (3-2)	P.V. (3-3)	Acreage (000) (4-1)	±S.F. (4-2)	P.V. (4-3)
District Howrah							
1. Sadar	101.76	0.03	0.03	100.0	1.64	0.29	17.7
2. Uluberia	231.60	0.60	0.26	43.3	3.53	0.74	21.0
Total Howrah District ..	333.36	0.63	0.26	41.3	5.17	0.80	15.5
District Hooghly							
1. Sadar	275.20	6.14	0.65	10.6	6.33	0.83	13.1
2. Serampore	212.10	2.13	0.56	26.3	7.44	0.78	10.5
3. Arambagh	259.00	0.99	0.26	26.3	3.55	0.85	23.9
Total Hooghly District	746.30	9.26	0.70	7.6	17.32	1.42	8.2
District 24-Parganas							
1. Sadar	602.83	0.01	0.01	100.0	5.37	0.76	14.2
2. Barrackpur	33.49	0.86	0.28	32.6	2.09	0.41	19.6
3. Baraset	239.60	1.51	0.34	22.5	28.64	1.55	5.4
4. Bongaon	202.24	21.52	1.49	6.9	14.02	1.14	8.1
5. Basirhat	470.50	1.39	0.34	24.5	24.05	1.62	6.7
6. Diamond Harbour ..	600.34	0.00	0.00	0.0	0.73	0.17	23.3
Total 24-Parganas District.	2,149.00	25.29	1.59	6.3	74.90	2.17	2.9
District Nadia							
1. Sadar	606.25	104.68	3.43	3.3	28.69	0.17	0.04
2. Ranaghat	331.23	26.26	1.89	7.2	17.00	1.36	8.0
Total Nadia District	937.48	130.94	3.92	3.0	45.69	2.15	4.7

APPENDIX IV—contd.

Name of sub-division (1-1)	Area in (000) acres (2-1)	Gram			Musur		
		Acreage (000) (3-1)	± S.F. (3-2)	P.V. (3-3)	Acreage (000) (4-1)	± S.F. (4-2)	P.V. (4-3)
District Murshidabad							
1. Sadar	412.32	59.07	2.17	3.7	38.42	1.80	4.7
2. Kandi	287.56	16.84	1.54	9.1	8.23	1.07	13.0
3. Jangipur	268.45	15.97	1.29	8.1	25.65	1.58	6.2
4. Lalbagh	322.77	44.49	2.02	4.5	25.65	1.60	6.2
Total Murshidabad District.	1,291.10	136.37	3.58	2.6	97.95	3.08	3.1
District West Dinajpur							
1. Balurghat	374.75	1.11	0.24	21.6	3.17	0.55	17.4
2. Sadar	511.96	0.60	0.18	30.0	3.50	0.50	14.3
Total West Dinajpur District.	886.71	1.71	0.31	18.1	6.67	0.74	11.1
District Malda							
1. Malda	888.91	33.28	2.05	6.2	8.31	0.86	10.4
District Jalpaiguri							
1. Sadar	735.75	0.36	0.32	88.9	0.11	0.05	45.5
2. Alipurduar	422.61	0.30	0.17	56.7	0.38	0.22	57.9
Total Jalpaiguri District	1,158.36	0.66	0.36	54.5	0.49	0.22	44.9
District Darjeeling							
1. Sadar				Not under survey.			
2. Kurseong				Ditto.			
3. Silliguri	142.92	0.00	0.00	0.0	0.02	0.02	100.0
4. Kalimpong				Not under survey.			
Total Darjeeling District	142.92	0.00	0.00	0.0	0.02	0.02	100.0
District Cooch Behar							
Total Cooch Behar District.	814.89	1.10	0.49	44.5	3.88	0.54	13.9
Total West Bengal ..	17,110.44	403.56	6.67	1.7	293.99	5.12	1.7

APPENDIX IV—contd.

Name of sub-division	Area in (000) acres	Mustard		
		Acreage (000)	± S.E.	P.V.
(1·2)	(2·2)	(5·1)	(5·2)	(5·3)
District Burdwan				
1. Sadar	818·04	2·07	0·30	14·5
2. Katwa	257·79	0·36	0·08	22·2
3. Kalna	243·39	0·89	0·20	22·5
4. Asansol	395·64	0·94	0·28	29·8
Total Burdwan District	1,714·86	4·26	0·46	10·8
District Birbhum				
1. Sadar	721·09	1·66	0·34	20·5
2. Rampurhat	387·88	0·55	0·18	32·7
Total Birbhum District	1,108·97	2·21	0·38	17·2
District Bankura				
1. Sadar	1,233·14	1·77	0·45	25·4
2. Bishnupur	448·63	1·13	0·25	22·1
Total Bankura District	1,681·77	2·90	0·51	17·6
District Midnapore				
1. Sadar	1,301·37	1·75	0·32	18·3
2. Jhargram	758·51	3·39	0·74	21·8
3. Tamluk	434·98	1·46	0·25	17·1
4. Ghatal	221·56	1·14	0·18	15·8
5. Contai	539·39	1·80	0·26	14·4
Total Midnapore District	3,255·81	9·54	0·90	9·4

APPENDIX IV—contd.

Name of sub-division	Area in (000) acres	Mustard		
		Acreage (000)	±S. E.	P. V.
(1-2)	(2-2)	(5-1)	(5-2)	(5-3)
District Howrah				
1. Sadar	101-76	0-23	0-10	43-5
2. Uluberia	231-60	0-25	0-10	40-0
Total Howrah District	333-36	0-48	0-14	29-2
District Hooghly				
1. Sadar	275-20	0-19	0-06	31-6
2. Serampore	212-10	0-46	0-10	21-7
3. Arambagh	259-00	0-83	0-20	24-1
Total Hooghly District	746-30	1-48	0-23	15-5
District 24-Parganas				
1. Sadar	602-83	0-59	0-13	22-0
2. Barrackpore	33-49	0-18	0-05	27-8
3. Baraset	239-60	1-73	0-20	11-6
4. Bongaon	202-24	3-26	0-60	18-4
5. Basirhat	470-50	4-25	0-60	14-1
6. Diamond Harbour	600-34	0-22	0-09	40-9
Total 24-Parganas District	2,149-00	10-23	0-89	8-7
District Nadia				
1. Sadar	606-25	7-34	0-66	9-0
2. Ranaghat	331-23	2-50	0-54	21-6
Total Nadia District	937-48	9-84	0-85	8-6

APPENDIX IV—concl'd.

Name of sub-division (1-2)	Area in (000) acres (2-2)	Mustard		
		Acreage (000) (5-1)	± S.E. (5-2)	P.V. (5-3)
District Murshidabad				
1. Sadar	412.32	10.47	0.68	6.5
2. Kandi	287.56	0.71	0.21	29.6
3. Jangipur	268.45	1.86	0.24	12.9
4. Lalbagh	322.77	4.60	0.44	9.6
Total Murshidabad District ..	1,291.10	17.64	0.88	5.0
District West Dinajpur				
1. Balurghat	374.75	13.45	1.31	9.7
2. Sadar	511.96	43.33	2.39	5.5
Total West Dinajpur District ..	886.71	56.78	2.72	4.8
District Malda				
1. Malda	888.91	45.12	2.01	4.5
District Jalpaiguri				
1. Sadar	735.75	8.99	0.80	8.9
2. Alipurduar	422.61	20.29	1.38	6.8
Total Jalpaiguri District ..	1,158.36	29.28	1.60	5.5
District Darjeeling				
1. Sadar		Not under survey.		
2. Kurseong		Ditto.		
3. Siliguri	142.92	2.61	0.42	16.1
4. Kalimpong		Not under survey.		
Total Darjeeling District ..	142.92	2.61	0.42	16.1
District Cooch Behar				
Total Cooch Behar District ..	814.89	31.53	1.78	5.6
Total West Bengal	17,110.44	223.90	4.60	2.1

GOVERNMENT OF ANDHRA PRADESH
REVENUE DEPARTMENT

Letter No. 6533-N2/64-1

From

Shri C. Seshagiri Rao, I.A.S.,
Secretary to Government.

To

The Secretary to the Government of Maharashtra,
Education and Social Welfare Department,
Sachivalaya, Bombay-32 (with enclosures).

Hyderabad: Dated the 29th December 1964.

SUBJECT.—*Land Revenue—Making of crop annawari for regulating grant of suspension and remission of land revenue.*

REFERENCE.—(i) Your letter No. 358, dated 2nd January 1963:

(ii) From the Board of Revenue, Letter No. L. Dis. F. 580/63, dated 4th December 1964.

With reference to your letter first cited, I am directed to give a copy of the letter second cited containing the required information and also a copy of the rules issued in G. O.Ms. 231, Revenue, dated 12th February 1964, governing the suspension and remission of Land Revenue.

Yours faithfully,

(Sd.) Md. KHASIM.

for Secretary to Government.

Copy of Board's Ref. No. L.Dis.F/580/63, dated 4th December 1964, addressed to the Secretary to Government, Revenue Department, Andhra Pradesh, Hyderabad.

SUBJECT.—*Remissions—making of annawari outturn for suspension and remission of Land Revenue—Report—Submitted.*

- Read.*—(1) Govt. Endt. No. 61-N2/63-1, Rev., dated 9-1-63
 (2) Collector, Krishna, L.Dis.4274/63, dated 15-3-63.
 (3) Collector, Visakhapatnam, L.Dis.4718/63, dated 30-4-63.
 (4) Collector, Chittoor, L.Dis.6105/63, dated 7-5-63.
 (5) Collector, Nizamabad, A2/5055/63, dated 20-6-63.
 (6) Collector, Adilabad, 557/64, dated 6-6-64.

The Board submits that 12 anna crop is termed as normal crop. In respect of other categories, namely, fair crop, poor crop, etc., there appears to be no uniform procedure in the districts since the crop yielding 8 to 11 as. is termed as fair crop in Krishna district whereas the crop yielding 8 to 10 annas is stated to be fair crop in Visakhapatnam district. It further submits that the Government have recently issued instructions in G. O. Ms. No. 231, Revenue, dated 12th February 1964, about the suspension and remission of Land Revenue. This order is applicable to both Andhra and Telangana regions. Copies of the Collectors' reports read above are given for information.

(Sd.) × × ×

Assistant Secretary.
14th December 1964.

(True copy)

(Sd.) (Illegible),
Section Officer.

Copy of L.Dis.4274/63, dated 15th March 1963, from the Collector, Krishna, addressed to the Secretary, Board of Revenue, A.P., Hyderabad.

SUBJECT.—*Azmoish—Noting Annawari outturn—Regarding.*

REFERENCE.—Bd.'s Ref. F. 590/63, dated 2nd March 1963.

In this district, the following rotation is being used according to Collector's standing order No. 108 :—

1. Bomper crop	..	13 to 16 annas (81 nP. to 110 nP.)
2. Normal crop	..	12 annas (75 nP.)
3. Fair crop	..	8 to 11 annas (50 nP. to 69 nP.)
4. Poor crop	..	4 to 7 annas (25 nP. to 44 nP.)
5. Bad crop	..	0 to 3 annas (0 nP. to 19 nP.)

In this connection, I invite attention to the rules for the guidance of Karnams in the use of the Revised forms of village accounts under Enclosure to Statement. No. 1 in the Revised Manual of Village Accounts (General).

Yours faithfully,

(Sd.) × × ×
for Collector.

(True copy)

Copy of L.Dis. 4717/63, dated 30th April 1963, from the Collector, Visakhapatnam, addressed to the Secretary, Board of Revenue, A.P., Hyderabad.

SUBJECT.—*Same as above.*

REFERENCE.—Bd.'s Ref. F. 580/63, dated 2nd March 1963.

The information required is furnished below:—

1. There is no detailed procedure regarding the assessment of yields of the crops annawari. The yield of any crop in general is approximately determined in terms of annas by an eye-estimate of the crop, before its harvest. The estimate is noted in definite figures as 10 as. to 12 as., etc., but not in annas groups such as 12 to 16 or/and 8 to 12 annas, etc. It is also an age long practice in this district to note the outturn in two annas and its multiples such 2 annas, 4 annas, 6 annas, 8 annas, etc., but not as 3 annas, 5 annas, 7 annas, 6 annas, 8 annas, etc., but not as 3 annas, 5 annas, 7 annas, etc. The estimate is made generally for the entire survey field or a registered sub-division taking an average of the entire field. For example, if the outturn of the crop is 6 annas in one part of the field and 2 annas in the other, the average outturn for the entire field is noted.

2. There is no exact formula, for arriving at the estimate with arithmetical precision. The estimate is determined after examining the condition of the crop at harvest, whether it is good, normal, fair, poor or bad, etc. A copy with outturn of 14 annas or 16 annas is termed as full crop, or good crop or bumper crop. A normal crop

is of 12 annas outturn, it is that which past experience has shown to be the most generally recurring crop in a series of years, the typical crop of the local area, the crop with which the cultivator has a right to expect and with which he should be content. A fair crop is of 8 to 10 annas, a poor crop is of 4 to 6 annas, and a bad crop is shavi to 2 annas outturn. In the district a bumper crop of paddy is expected to yield 28 to 32 putties (approximately a grace) of paddy and it is said to be one rupee crop. The conversions of anna crop into local measures are noted below :—

Outturn in annas of paddy per acre (1)	Local measures (2)
2 annas	4 putties of 120 lbs. each.
4 annas	8 putties of 120 lbs. each.
6 annas	12 putties of 120 lbs. each.
8 annas	16 putties of 120 lbs. each.
10 annas	20 putties of 120 lbs. each.
12 annas	24 putties of 120 lbs. each.
14 annas	28 putties of 120 lbs. each.
16 annas	32 putties of 120 lbs. each.

3. Even this conversion is not uniform in all the talukas in this district. It varies from taluka to taluka. But the variation is not considerable.

(Sd.) × × ×
for Collector.

(True copy)

Copy of L.Dis. 6105/63, dated 7th May 1963, from the Collector, Chittoor, addressed to the Secretary to Board of Revenue, A.P., Hyderabad.

SUBJECT.—*Making of crop annawari for regulating grant of suspension and remission of land revenue—
Regarding.*

REFERENCE.—Bd.'s F. 580/63, dated 2nd March 1963.

No formula is being allowed for determining annawari of the crop.

In the first instance the outturn is estimated by the karniam in terms of annas by his experience with reference to the yield of the crop at the time of his azmoish. If the yield is

considered as normal the outturn will be put as 0-12-0 annas. If the yield is half the normal, the outturn will be put as 0-6-0 annas and if the yield is $\frac{1}{4}$ th, the outturn will be put as 0-3-0 annas and so on. If the yield is estimated above the normal it will be considered as bumper and the outturn will be put as 16 annas. The outturn noted by the karnam will be checked at the time of azmoish or over azmoish by the concerned officials and thus correctness of the outturn put by the karnam is ensured.

(Sd.) × × ×
for Collector.

(True copy)

Copy of No. A2/5055/63, dated 26th June 1963, from the Collector, Nizamabad, addressed to the Secretary, Board of Revenue, A.P., Hyderabad.

SUBJECT.—*Jamabandi making of crop Annewari for regulating grant of suspension and remission of land revenue—Submitted.*

REFERENCE.—Bd.'s Ref. F. 580/63, dated 2nd March 1963.

I submit hereunder the procedure in detail regarding the making of the crop Annewari and the formula generally used for the Annewari condition of the crop from the yield of a particular crop obtained in a field or from determining its estimated yield per acre, as desired in the Board's reference cited.

The estimated yield of principal crops in Telangana area is generally calculated on the basis of normal yield suggested by Dr. Maun, former Director of Agricultural Department (Nizam's Government). The normal yield is the yield of the crops and with which he is satisfied and is being considered as 12 annas.

A. Total outturn—

Normal yield per acre in lbs.	Seasonal factor Annewari	Total area under the crop
2240 to convert into tons ..	12	..

B. Annawari is worked out by the following formula:—

$$\frac{\text{Yield per acre} \times 12 \text{ annas}}{\text{Normal yield per acre.}}$$

It may be added here that the normal yield relates to the dried produce only and not the produce obtained soon after the harvest.

Yours faithfully,

(Sd.) × × ×
Collector.

(True copy)

Copy of Ref. No. 557/64, dated 6th June 1964, from the Collector, Adilabad, addressed to the Secretary to Board of Revenue, A.P., Hyderabad.

SUBJECT.—Same as above.

- REFERENCE.—1. This office Lr. No. 557/63, dated 28th September 1963.
2. This office Lr. No. 557/63, dated 2nd March 1964.
3. Bd.'s D. O. No. F2/58/63, dated 29th May 1964.

While acknowledging the receipt of the D. O. cited, I am to state that the final report on the subject has already been furnished to the Government through the reference first cited. A copy of the same was also furnished through the reference second cited.

However, I am again submitting herewith a copy of the report.

(Sd.) × × ×
Collector.

(True copy)

The detailed procedure regarding the making Annawari condition of crops.

Three types of fields of the crop for which annawari has to be determined are selected. There is no scientific method for selection of the fields, but the three types of fields are selected on the general condition of the crops, i.e., average,

above and below average. The weight of the produce is one gunta plot in all the three types of fields is obtained and estimated. With the help of these results the yield per acre is calculated. If it is equal to normal yield as fixed by Dr. Maun, it is said to be sixteen annas. If the yield per acre happens to be either less or more than the normal, then the annawari should be calculated on a simple arithmetical basis as follows, i.e.,—

The normal yield of paddy is 1,600 lbs. then annawari 16 annas. If the estimated yield is 900 lbs. then

$$\text{annawari} = \frac{16 \times 900}{1600} = p \text{ annas}$$

Similarly for all the crops.

The normal yield fixed for each crop is given below:—

1. Paddy	..	1,600
2. Wheat	..	400
3. Jawar	..	500
4. Maize	..	300
5. Gram	..	288
6. Tuar	..	450
7. Moong	..	222
8. Chillies	..	300
9. Turmeric	..	1,500
10. Kulthi	..	200
11. G. Nut	..	1,000
12. Mash	..	350
13. Castor	..	250
14. Linseed	..	240
15. Sesamum	..	200
16. Tobacco	..	750
17. Garlic	..	5,000
18. Ginger	..	750

(Sd.) x x x

for Collector.

(True copy)

(Sd.) x x x

Assistant Secretary.
14th December 1964.

(True copy)

(Illegible),
Section Officer.

RULES FOR REMISSION AND SUSPENSION OF LAND REVENUE IN THE TELANGANA AREA

[G. O. Ms. 231, Revenue, 12th February 1964.]

I. In exercise of the powers conferred by section 172 of the Andhra Pradesh (Telangana Area) Land Revenue Act, 1317 (Act VIII of 1317 F.), the Governor of Andhra Pradesh hereby makes the following Rules for Remission and Suspension of Land Revenue in the Telangana Area, in partial modification of the orders contained in Revenue Department's Notification No. 1, dated the 3rd January 1951, and in supersession of Finance Resolution No. 29, dated the 13th November 1316 Fasli and Circular No. 12 of 29-10-1346 F. :—

I. GENERAL

1. Remissions and suspensions of land revenue fall under two categories, namely :—

(i) seasonal remission ;

(ii) suspension and remission of land revenue under exceptional circumstances.

2. (1) These rules provide for concessions which will be granted as a matter of grace and are liable to be modified from time to time by Government.

(2) The Government shall also have the right to withdraw any concession granted after a year's notice either generally or in any particular locality.

SEASONAL REMISSIONS

3. The rules in this Chapter relate to the remission of assessment on wet lands consolidated double crop assessment in the case of registered double crop wet lands and compound double crop lands and of water cess on irrigated dry lands (hereinafter called the remission) and shall be applicable to seed beds also.

4. No remission shall be granted for any wet or bighat or irrigated dry land, if it is left fallow except for any one or more of the following grounds, namely:—

(a) scarcity of water in the source ;

(b) damage to crop due to plant disease ;

(c) cultivation is impossible, due to excess of water or slush ;

(d) due to rain, it is not possible in the first crop season for water to reach the cultivation through the channel ;

(e) it is dangerous to open the sluice under which the land is situated for the reason that the water is very deep ;

(f) any other reason which is beyond the control of the ryots such as hail-storms, locust, etc.

5. The remission shall be granted where, owing to the existence of any of the grounds aforesaid the land is left waste, the crop is totally lost.

Provided that such ground has not been occasioned by any act or neglect of the person to whom the land belongs, or is not due to the neglect on the part of the ryot concerned to carry out the customary repairs to the irrigation work, which waste, the crop is totally lost:

6. (1) On registered double crop lands if only one irrigated crop is secured only single crop wet assessment will be charged and the remaining assessment remitted subject of course of the proviso in rule 5.

(2) This concession will not apply to compounded double crop lands.

7. The remission shall be granted only when the entire survey field or the recognised sub-division (pot-number) thereof is left waste, or the crop on that entire area has failed and not merely some portions thereof.

8. *Constructive total loss.*—It will be left to the discretion of the Collector to determine with due regard to the principles underlying these rules whether in any particular case the loss over the field taken as a whole may reasonably be rated as total.

9. *Remission when dry crops are cultivated on wet lands.*—(1) Where dry crop are cultivated due to any one or more relevant grounds specified in rule 4 on wet land,

which must otherwise have remained waste, only dry assessment should subject to the provision in rule 5 be collected after remitting the remaining assessment.

Explanation.—“Dry assessment” for the purpose of this rule means the dry rate corresponding to the particular class and sort which the land bears as wet, the entire village having been taken into consideration and not any particular hamlet thereof in which the lands may situate.

(2) This dry assessment will be levied on the entire survey field or recognised sub-divisions thereof with respect to which remission is granted under this rule irrespective of the extent cultivated.

(3) If only a portion of a survey field or sub-division is cultivated with dry crops and another with wet crop the concession contemplated in this rule will apply only if the wet crop is totally lost.

10. *Charge for dry crop grown on wet land in certain cases.*—When a dry crop is grown on single crop wet land for scarcity of water in the source but water becomes available in the irrigation source during any portion of the year, when it can be used for growing a wet crop, the usual wet assessment shall be levied and no remission need be granted:

Provided that where the supply is insufficient for raising a wet crop, (i) only the dry assessment shall be charged if the crop is not irrigated; and (ii) if the dry crop is irrigated, the Revenue Divisional Officer may, at his discretion, charge either the full wet assessment on the entire field or the water-rate prescribed for the crop on the extent actually irrigated in addition to the dry assessment on the entire field which ever is less.

Explanation.—In the case of a wet field cultivated at the same time with more than one irrigated dry crop liable to different rates of water-cess, the rate of water-cess, prescribed for the crops which covers the largest extent shall be applied to the total extent irrigated.

11. *Remission on registered double crop wet lands.*—

(1) The concessions and restrictions specified in rules 9 and 10 shall also apply to compounded and other registered double crop wet lands, but the double crop wet lands must be charged dry assessment only if all the crops grown are dry and the water received in the irrigation source is not sufficient to raise a wet crop and where one or more dry crops are irrigated, the assessment chargeable under the proviso (ii) to rule 10 shall be the appropriate water-cess chargeable for each crop on the extent actually irrigated in addition to the dry assessment on the entire field, provided however that the combined charge does not exceed the following, namely:—

(1) in the case of compounded double crop wet lands—
The assessment of the compounded double crop rate;

(2) in the case of other registered double crop wet lands—

(a) when one crop is irrigated—Single wet assessment;

(b) when two crops are irrigated—The consolidated double-crop wet assessment.

Explanation to rule 10 applies.

(2) If the water received in the irrigation source is sufficient to raise a wet crop, wet-rate shall be charged as follows whether the dry crops grown are irrigated or not:—

(1) in the case of compounded double crop wet lands—
Assessment at the compounded double crop rate; and

(2) in the case of other registered double crop wet lands—

(a) when water is sufficient to raise one wet crop—
Single wet assessment;

(b) when water is sufficient to raise two wet crops—
The consolidated double crop wet assessment.

12. *Water-cess.*—The remission of ater-cess may be allowed under the above rules on dry land including the lands lying in the water spread of Government irrigation sources and assessed at special rates and also in respect of the second-crop charge on single crop wet lands.

13. *Water-cess in respect of fodder crops.*—(1) No water-cess shall be collected on crops grown for fodder on wet or irrigated dry land either immediately before the transplantation or immediately after the harvest of the principal wet crop, if the fodder crops are cut off or fed off before they ripen seed and are used for the *bona fide* agricultural requirements of the cultivator himself, the officer competent to charge water-cess having been satisfied that the crops are not grown for sale, should have decided that the concession should be granted in each case.

(2) The concession is liable to be withdrawn if its exercise proves to be detrimental to the second-crop revenue on single crop wet land or if water is irregularly taken for dry land.

(3) In the case of irrigation of fodder grown on dry lands and of the raising of fodder cholam as a second crop on wet land, the condition that the crops are not grown for sale shall not be applicable if the irrigation is not irregular, and no applications for remission of water-cess shall be required if the land is wet or if permission to irrigate any crop in the fasli has been given in the case of dry lands.

(4) The concession in respect of a fodder crop applies to cases where fodder jawar is irrigated as a first crop prior to a wet crop on single crop wet lands:

Provided that—

Green manure crops grown on wet or irrigated dry lands shall be subject to the following concessions, whether they are grown for the ryot's own use or for sale:—

(a) When they are raised in addition to other crops, they shall be exempt from water-cess;

(b) When they are raised on any land as a sole crop of the year, the charge shall be, as follows:—

(i) in the case of dry land water-cess shall not be charged, but no remission of assessment shall be granted:

(ii) in the case of single crop wet land no assessment was sufficient for only one wet crop, the full double crop the difference remitted:

(iii) in the case of registered double-crop wet lands or compounded double crop lands, if the supply of water was sufficient for only one wet crop, the full double crop wet assessment or compounded assessment shall be remitted; but if the supply was sufficient for two wet crops the single not wet assessment shall be charged and the difference remitted:

Provided further that the remission contemplated in clauses (ii) and (iii) above shall be granted only on the areas actually cultivated with the green manure crop and are not subject to the restrictions laid down in rule 7, and nothing in this shall affect in respect of the grant of remission on any portions of survey fields or registered sub-divisions, not under green manure crops, for being governed by rule 7.

14. *Mamul Waste*.—(1) No remission will be given in respect of 'mamul waste', that is to say, any occupied land which is not cultivated regularly in a normal year and which it may be presumed, would have been kept uncultivated even if the season and water-supply had been normal.

(2) When a survey field or a recognised sub-division contains small portions of mamul wastes, remission may be granted by the Government in respect of the extent of such survey field or a recognised sub-division excluding the mamul wastes.

15. *Suspension of the collection of charges which are likely to be remitted*.—By an order in writing recording the reasons upon which it is based, the Tahsildar may suspend temporarily the collection of charges which will most probably be remitted at Jamabandi under these rules, submitting forthwith copies of such order to the Deputy Collector.

16. *Scale of Remission*.—If a wet crop is sown in any wet land and the crop is destroyed on account of scarcity of water, or pests or any other cause beyond the control of ryots, full remission shall be granted, where the yield of paddy crop is 150 Kgs. and below; half remission shall be granted where the yield is 300 Kgs. and below but above 150 Kgs., and no remission shall be granted where the yield is above

300 Kgs. per acre. In the case of other irrigated crops, full remission shall be allowed where the yield is $\frac{1}{8}$ th and below, and half remission where it is $\frac{1}{4}$ th and less, but above $\frac{1}{8}$ th, and no remission where it is above $\frac{1}{4}$ th of the standard yield.

Explanation.—For the purpose of the above rule, the Collector shall in consultation with the Director of Agriculture fix standard yield of the different crops for each district in terms of bags of Kg.

17. *Procedure for remission.*—(1) Every ryot who wishes to claim remission under rule 16 must apply to the Tahsildar or Deputy Tahsildar or an officer not less than the rank of a Revenue Inspector of the firka, who has jurisdiction, sufficiently early, to allow time for the inspection of the crop.

(2) Every such application must be presented before a date to be specified by notification by the District Collector having regard to the harvest time and the local agricultural practices and seasonal conditions in respect of each crop (Abi and Tabi).

(3) If two or more applications are made on the same paper, each applicant shall specify the fields for which he prays for the remission and attach his signature or mark on the application.

(4) Ryots who omit to apply will do so at their own risk and it is open to the Revenue Divisional Officer to refuse remission in all cases in which the crop has been cut, removed or grazed by cattle before inspection:

Provided that in special cases the Revenue Divisional Officer or the Jamabandi Officer may, notwithstanding anything contained in sub-rules (1) to (4), at his discretion dispense with the submission of written application and he may also for sufficient reasons condone delays in submitting such applications and even the absence of application should not ordinarily be treated as disqualification for granting the remission by him where 'Azmoish' has established the existence of conditions required to make the land eligible for remission.

(5) Every endeavour should be made by the Collector to have field-inspections completed as promptly as possible, by the appropriate officers.

(6) As soon as an application is received, the Revenue Inspector shall, without any delay, inspect the crops in all the fields mentioned in the application and submit his report to the Tahsildar or Naib-Tahsildar concerned. The Tahsildar or the Naib-Tahsildar as the case may be, will inspect a fair portion of the affected fields, which should in no case, be less than 10 per cent of such fields in each village. The Deputy Collector should also inspect some fields in each village by adopting random method. Crop-cutting experiments should be arranged to be conducted by the Tahsildar wherever possible and compulsorily in any village where the area in respect of which applications are made for granting remission exceeds 50 acres.

(7) Inspection of affected field should invariably be done within 30 days from the date of receipt of application.

(8) The Tahsildar or Naib-Tahsildar shall submit his inspection report and recommendation to the Revenue Divisional Officer for sanction of remission. When such sanction is received it shall be communicated to the village officers and final accounts of such lands shall be settled in the Jamabandi.

(9) The orders of the Revenue Divisional Officer should be subject to revision by the Jamabandi officer. It shall also be open to the Jamabandi officer to consider any cases not previously considered by the Revenue Divisional Officer.

18. If a wet land covered by a whole survey or pot-number is left fallow for any of the grounds mentioned in rule 4, remission of assessment may be granted on an application by the parties, or on a report of the local patwaris and girdawar and the remission so granted shall be called kani eksala.

19. *Suspension or remission of land revenue under exceptional circumstances.*—(1) No remission of any kind shall ordinarily be granted for dry land. But in very

exceptional circumstances (*i.e.*) on the occurrence of either wide-spread calamities such as famine, drought and general failure of crops, or of local calamities caused by hail-storms, floods, locusts and the like, suspension or remission of assessment may be allowed according to the following rules.

(2) Notwithstanding anything in these rules, if owing to the operation of causes other than those contemplated in these rules, it should appear to the Collector that special measures of relief, whether by way of postponement of kists or otherwise are required he must at once submit a detailed report to the Board of Revenue in order that the orders of Government may be obtained.

A. WIDESPREAD CALAMITIES

20. *Grant of suspension or remission. Revenue Officers to take initiative and submit proposals for suspension or remission.*—In seasons of exceptional drought or famine when there has been general failure of crop, the Revenue Officers should take the initiative and make arrangements, as soon as the unfavourable character of the season has declared itself, for a thorough inspection of the crops and for the submission, if necessary, of proposals for suspension or remission of revenue on the lines indicated in rules 21 to 26 *infra* for the consideration and orders of the Board of Revenue and the Government. These inspections should be completed as far as possible six weeks before the commencement of the kist date.

21. *Circumstances to be considered in deciding whether any relief is necessary and whether it should take the shape of suspension or remissions.*—In submitting proposals for the grant of relief and as to the form it should take, Collector should be guided by the following considerations, namely:—

(a) The outturn for the year of the dry crops, both early and late, in the tract reported on ;

(b) The crop history of the tract during the two previous years ;

(c) The abundance or paucity of its irrigation sources including wells, the irrigation results of the year, and the question whether the dry cultivation is the main or a subordinate feature of the tract ;

(d) The prices of produce prevailing in the year and the probability of prices ruling high in the next season also ; and

(e) Any special local circumstances which may indicate the need or the absence of need for relief.

22. *Suspension of revenue.*—(1) Any suspension of the collection of revenue must relate to a definite kist and must be sanctioned by the Board of Revenue ordinarily for a specified period which cannot, without sanction of Government, extend beyond the current Fasli.

(2) If the sanction of the Board cannot be obtained before the date on which the collection of a kist should commence, the Collector may, by a formal order, postpone the collection of the kist till a date which should be within the Fasli, and the action reported to the Board.

(3) As soon as an order, whether of the Collector or of the Board, directing the postponement of the collection of a kist has been made, it shall be promptly published for the information of the ryots of the villages or tracts concerned by beat of drum and other means.

(4) If the period for which the collection of any kist has been postponed expires before definite orders as to the collection or remission of the kist have been received, the Collector should extend the period of suspension within the Fasli, immediately reporting his action to the Board.

(5) In all cases in which postponements of kists extend beyond the financial year in which the kists are due, the Board should forward copies of its own order or that of the Collector, as the case may be, immediately to the Government in the Revenue and Finance Departments with information as to the financial effect of such postponement on the revised estimate for the financial year in which the kist are due, as well as the budget estimate for the financial year to

which kists are postponed. Collectors should therefore invariably report to the Board the financial effect of their proposals whenever they recommended or sanction such postponements or suspensions of kists.

(6) Suspension of revenue beyond the Fasli and remission of revenue can be sanctioned only by Government. If, therefore, in exceptional circumstances, the Collector considers that suspension beyond the Fasli or remission of any kist, which has been suspended under this paragraph is absolutely necessary, he shall submit his recommendation to the Board sufficiently early so as to enable the Board and the Government to bestow their attention and pass orders before the sanctioned period of suspension has expired or before the end of Fasli.

23. *Remission of revenue on wet lands.*—(1) When the crop on wet lands is lost totally on account of any calamity remission may be granted as per the scale provided in rule 16 for seasonal remission.

(2) When the crop on wet lands is partially lost remission may, if sanctioned by Government, be granted with reference to the average loss in the whole tract in which such remission is granted. Where the calamity is so grave and of such magnitude as to warrant grant of remission on a scale higher than that provided for under rule 16, the Collector should submit proposals stating the extent of the land affected and the nature of remission to be granted.

(3) *Mamul waste.*—The District Collector, when submitting proposals for granting remission under sub-rules (1) and (2), may include wet mamul waste in the tract for which relief is proposed, provided that the land could not in any case have been cultivated owing to want of water :

Provided that his reasons for thinking that the holders of such land require special relief shall be fully explained.

Explanation 1.—Mamul waste means the occupied land which is not cultivated regularly in a normal year and which, it may be presumed, would have been kept uncultivated even if the season and water supply had been normal.

Explanation II.—When a survey field or a recognised sub-division contains small portions of mamul waste, the remission that may be granted by the Government from time to time, be made applicable to the extents of such survey field or a recognised sub-division excluding the mamul wastes.

(4) Where it is impossible to determine a uniform rate for any given tract, as in cases where the loss, though considerable, is confined to limited areas, such as the ayacut of a small tank, the District Collector may recommended for special sanction, in lieu of an all round percentage remission. the grant of remission on those portions of recognised fields on which the crop has been totally lost:

Provided that each such portion shall be not less than one acre in extent and there are circumstances that the jama-bandi officer will be in a position to satisfy himself in each case that the fields in respect of which remission is applied for have been properly inspected and the loss thereon duly verified.

24. *Remission of revenue on dry lands.*—(1) For loss of crop in dry lands, including those lying in the water-spread of Government irrigation sources and assessed at special rates, remission or suspension may be granted by Government at uniform rates calculated not with reference to individual losses but with reference to the average loss in the whole tract to which the relief is eligible.

(2) The scale of remission for dry crops shall be as follows:—

- (i) When the yield of crop is 4 annas
in a rupee and less ... Full remission.
- (ii) When the yield of crop is above 4
annas but not more than 6 annas ... Half remission.

Explanation.—In estimating the average outturn of an affected tract, the District Collector should exclude the crop on all protected bunds (*i.e.*) lands irrigated by wells, doruvus, etc., all lands occupied by permanent topes but include the crop on other fields which have yielded fairly as well as land which has been left uncultivated owing to failure of rain.

25. *Relief on land left waste.*—For occupied dry lands within the tract, the same rate of relief will be given as for land on which the crop has failed.

26. *Lands cultivated without permission.*—(1) Any concession allowed to ordinary ryotwari lands may be allowed to lands cultivated without permission if the Collector is satisfied that the cultivation is otherwise unobjectionable.

(2) Such concession may also be granted in the case of minor inam lands in special cases for which full reasons must be given by the Collector.

27. *Methods of collecting suspended revenue.*—(1) The revenue suspended should be collected only after one fair harvest subsequent to the failure, has been reaped.

(2) Collectors should, about two months before the commencement of the kist bandi of the year following that in which revenue was suspended, submit for the consideration and orders of the Board of Revenue and Government, a report as to how the early crops of that year have fared, and whether the whole of the suspended revenue, and if not what portion thereof, can be collected with the current kist. Similar reports as to the portion of the suspended revenue to be collected with subsequent kists should be submitted in succeeding years until the whole of the suspended revenue is either realised or written off.

28. *Circumstances justifying remission of suspended kist.*—

(1) Revenue which has been under suspension for three years should ordinarily, and as a matter of course, be remitted and should for that purpose, be included in the quarterly statement of irrecoverable arrears.

(2) In the case of fully assessed tracts with a fairly constant outturn the amount of revenue under suspension at any given time should not, as a rule, exceed the revenue demand of an ordinary year. When the amount suspended exceeds this limit, remission of the excess may ordinarily be recommended in the manner indicated above.

B. LOCAL CALAMITIES

29. *Rules in regard to the relief to be granted.*—The rules in regard to the relief to be granted on occasions of widespread calamity will also apply, generally, to the relief of
A-10-37-A.

distress caused by local calamities subject to the following modifications :

(i) such relief, instead of being given on the same scale throughout the tract affected, should as a rule, be based on a field-to-field inspection directed to the determination of the actual damage suffered by each individual ;

(ii) the degree of relief to be granted will be determined by Government with reference to the circumstances of each particular case ;

(iii) in deciding whether relief is necessary or not regard should be had not merely to the field affected but to the entire holding of the landlord or ryot to whom the field belongs and by whom relief is applied for.

MISCELLANEOUS

30. *Refunds*.—In all cases, where remission is granted, amounts already paid may be adjusted towards the next instalment of the kist.

31. *Cesses*.—Suspension and remissions of land revenue will not ordinarily carry with them, suspension and remission of cesses. Collector should bear this in mind when recommending proposals for remission and suspension. But when an assessment of land revenue of any village is entirely suspended or remitted, the demand on account of cesses should temporarily be suspended and realised with the next instalment of land revenue that is actually collected in order to save the individual revenue payers from being harassed by pretty demands in time of distress.

II. The Governor of Andhra Pradesh hereby makes the following Rules for Remission, and Suspension of Land Revenue in the Andhra Area :—

I. GENERAL

1. Remissions and suspensions of land revenue fall under two categories, namely,—

(i) Seasonal remission ;

(ii) Suspension and remission of land revenue under exceptional circumstances.

2. (1) These rules provide for concessions which will be granted as a matter of grace and are liable to be modified from time to time by Government.

(2) The Government shall also have the right to withdraw any concession granted after a year's notice either generally or in any particular locality.

SEASONAL REMISSIONS

3. The rules in this chapter relate to the remission of assessment on wet lands consolidated double crop assessment in the case of registered double crop wet lands and compound double crop lands and of water cess on irrigated dry land (hereinafter called the remission) and shall be applicable to seed beds also.

4. No remission shall be granted for any wet or bighat or irrigated dry land, if it is left fallow except for any one or more of the following grounds, namely,—

- (a) scarcity of water in the source ;
- (b) damage to crop due to plant diseases ;
- (c) cultivation is impossible, due to excess of water or slush ;
- (d) due to rain, it is not possible in the first crop season for water to reach the cultivation through the channel ;
- (e) it is dangerous to open the sluice under which the land is situated for the reason that the water is very deep ;
- (f) any other reason which is beyond the control of the ryots such as, hail-storms, locust, etc.

5. The remission shall be granted where, owing to the existence of any of the grounds aforesaid the land is left waste, or the crop is totally lost :

Provided that such ground has not been occasioned by any act or neglect of the person to whom the land belongs, or is not due to the neglect on the part of the ryot concerned to carry out the customary repairs to the irrigation work, which forms the source of supply.

6. (1) On registered double crop lands if only one irrigated crop is secured only single crop wet assessment will be charged and the remaining assessment remitted subject of course to the proviso in rule 5.

(2) This concession will not apply to compounded double crop lands.

7. The remission shall be granted only when the entire survey field or the recognised sub-division thereof is left waste, or the crop on that entire area, has failed and not merely some portions thereof.

8. *Constructive total loss.*—It will be left to the discretion of the Collector to determine with due regard to the principles underlying these rules whether in any particular case the loss over the field taken as a whole may reasonably be rated as total.

9. *Remission when dry crops are cultivated on wet lands.*—

(1) Where dry crops are cultivated due to any one or more relevant grounds specified in rule 4 on wet land, which must otherwise have remained waste, only dry assessment should subject to the provision in rule 5 be collected after remitting the remaining assessment.

Explanation.—“dry assessment” for the purpose of this rule means the dry rate corresponding to the particular class and sort which the land bears as wet, the entire village having been taken into consideration and not any particular hamlet thereof in which the lands may situate.

(2) This dry assessment will be levied on the entire survey field or recognised sub-divisions thereof with respect to which remission is granted under this rule respective of the extent cultivated.

(3) If only a portion of a survey field (or sub-division) is cultivated with dry crops and another with wet crop the concession contemplated in this rule will apply only if the wet crop is totally lost.

10. *Charge for dry crop grown on wet land in certain cases.*—When a dry crop is grown on single crop wet land for scarcity of water in the source but water becomes available

in the irrigation source during any portion of the year, when it can be used for growing a wet crop, the usual wet assessment shall be levied and no remission need be granted :

Provided that where the supply is insufficient for raising a wet crop (i) only the dry assessment shall be charged if the crop is not irrigated ; and (ii) if the dry crop is irrigated, the Revenue Divisional Officer may, at his discretion, charge either the full wet assessment on the entire field or the water-rate prescribed for the crop on the extent actually irrigated in addition to the dry assessment on the entire field whichever is less.

Explanation.—In the case of a wet field cultivated at the same time with more than one irrigated dry crop liable to different rates of water-cess, the rate of water-cess, prescribed for the crops which covers the largest extent shall be applied to the total extent irrigated.

11. *Remission on registered double crop wet lands.*—(1) The concessions and restrictions specified in rules 9 and 10 shall also apply to compounded and other registered double crop wet lands, but the double crop wet lands must be charged dry assessment only if all the crops grown are dry and the water received in the irrigation source is not sufficient to raise a wet crop and where one or more dry crops are irrigated, the assessment chargeable under the proviso (ii) to rule 10 shall be the appropriate water-cess chargeable for each crop on the extent actually irrigated in addition to the dry assessment on the entire field, provided however that the combined charge does not exceed the following, namely,—

- | | |
|--|--|
| (1) in the case of compounded double crop wet lands. | The assessment of the compounded double crop rate. |
| (2) in the case of other registered double crop wet lands— | |
| (a) when one crop is irrigated | .. Single wet assessment. |
| (b) when two crops are irrigated | .. The consolidated double crop wet assessment. |

Explanation to rule 10 applies.

(2) If the water received in the irrigation source is sufficient to raise a wet crop, wet-rate shall be charged as follows whether the dry crops grown are irrigated or not :—

- | | |
|---|--|
| (1) in the case of compounded double crop lands ; and | Assessment at the compounded double crop rate. |
|---|--|

(2) in the case of other registered double crop wet lands —

(a) when water is sufficient to raise one wet crop. Single wet assessment.

(b) when water is sufficient to raise two wet crops. The consolidated double crop wet assessment.

12. *Wet lands under precarious sources.*—In the case of wet lands under precarious sources of irrigation in the districts of Kurnool, Cuddapah, Anantapur and in the Madanapalli and Vayalpad taluks of the Chittoor district, all inquiry into the supply received in the sources in question will be dispensed with and the ryots allowed free option in all years of growing wet or dry crops, or none at all. Charge shall be made according to the crops actually raised, the appropriate wet or dry assessment for wet or unirrigated dry crops and for irrigated dry crops the appropriate dry assessment and water-cess. The unit for such charge shall be the entire survey field or a recognised sub-division thereof except in the case of water-cess which will be charged only on the actual area irrigated. The Revenue Divisional Officer (subject to the appeal to the Collector) may withdraw the concession of remission under this rule temporarily from any particular source, when he is satisfied that a considerable portion of the wet ayacut has been intentionally allowed to lie waste in order that sugarcane, betel or other highly remunerative crops may be grown on the remainder. For purpose of these concessions, all sources of irrigation affording a supply for three months and above but less than five months and all minor sources affording supply for less than three months, except river and spring channels tanks which are river fed or connected with irrigation project, and tanks having a capacity of five months, shall be deemed to be precarious sources of irrigation.

13. *Water-cess.*—The remission of water-cess may be allowed under the above rules on dry land including the lands lying in the water-spread of Government irrigation sources and assessed at special rates and also in respect of the second-crop charge on single crop wet lands.

14. *Water-cess in respect of fodder crops.*—(1) No water-cess shall be collected on crops grown for fodder on wet or

irrigated dry land either immediately before the transplantation or immediately after the harvest of the principal wet crop, if the fodder crops are cut off or fed off before they ripen seed and are used for the *bona fide* agricultural requirements of the cultivator himself, the officer competent to charge water-cess having been satisfied that the crops are not grown for sale, should have decided that the concession should be granted in each case.

(2) The concession is liable to be withdrawn if its exercise proves to be detrimental to the second-crop revenue on single crop wet land or if water is irregularly taken for dry land.

(3) In the case of irrigation of fodder grown on dry lands and of the raising of fodder cholam as a second-crop on wet land, the condition that the crops are not grown for sale shall not be applicable if the irrigation is not irregular, and no application for remission of water-cess shall be required if the land is wet or if permission to irrigate any crop in the fasli has been given in the case of dry lands.

(4) The concession in respect of a fodder crop applies to cases where fodder jawar is irrigated as a first crop prior to a wet crop on single crop wet lands:

Provided that—

Green manure crops grown on wet or irrigated dry lands shall be subject to the following concessions, whether they are grown for the ryot's own use or for sale:—

(a) When they are raised in addition to other crops, they shall be exempt from water-cess ;

(b) When they are raised on any land as a sole crop of the year, the charge shall be as follows:—

(i) in the case of dry land water-cess shall not be charged, but no remission of assessment shall be granted;

(ii) in the case of single-crop wet land no assessment shall be charged whether there was a possibility of raising another crop or not ;

(iii) in the case of registered double-crop wet lands or compounded double-crop lands, if the supply of water was sufficient for only one wet crop, the full double-crop wet assessment or compounded assessment shall be remitted; but if the supply was sufficient for two wet crops the single wet assessment shall be charged and the difference remitted:

Provided further that the remission contemplated in clauses (ii) and (iii) above shall be granted only on the areas actually cultivated with the green manure crop and are not subject to the restrictions laid down in rule 7, and nothing in this shall affect in respect of the grant of remission on any portions of survey fields or registered sub-divisions, not under green manure crops, for being governed by rule 7.

15. *Mamul waste*.—(1) No remission will be given in respect of 'mamul waste', that is to say any occupied land which is not cultivated regularly in a normal year and which it may be presumed, would have been kept uncultivated even if the season and water-supply had been normal.

(2) When a survey field or a recognised sub-division contains small portions of mamul wastes, remission may be granted by the Government in respect of the extent of such survey field or a recognised sub-division excluding the mamul wastes.

16. *Suspension of the collection of charges which are likely to be remitted*.—By an order in writing recording the reasons upon which it is based, the Tahsildar may suspend temporarily the collection of charges which will most probably be remitted under these rules, submitting forthwith copies of such order to the Revenue Divisional Officer.

17. *Scale of remissions*.—If a wet crop is sown in any wet land and the crop is destroyed on account of scarcity of water, or pests or any other cause beyond the control of ryots, full remission shall be granted, where the yield of paddy crop is 150 Kgs. and below; half remission shall be granted where the yield is 300 Kgs. and below but above 150 Kgs., and no remission shall be granted where the yield is above 300 Kgs. per acre. In the case of other irrigated crops, full remission

shall be allowed where the yield is $\frac{1}{8}$ th and below, and half remission where it is $\frac{1}{4}$ th and less, but above $\frac{1}{8}$ th, and no remission where it is above $\frac{1}{4}$ th and less, but above $\frac{1}{8}$ th, and no remission where it is above $\frac{1}{4}$ th of the standard yield.

Explanation.—For the purpose of the above rule, the Collector shall in consultation with the Director of Agriculture fix standard yield of the different crops for each district in terms of bags of Kg.

18. *Procedure for remission.*—(1) Every ryot who wishes to claim remission under rule 17 must apply to the Tahsildar or Deputy Tahsildar or an officer not less than the rank of a Revenue Inspector of the firka, who has jurisdiction, sufficiently early, to allow time for the inspection of the crop.

(2) Every such application must be presented before a date to be specified by notification by the District Collector having regard to the harvest time and the local agricultural practices and seasonal conditions in respect of each crop (first crop and second crop).

(3) If two or more applications are made on the same paper, each applicant shall specify the fields for which he prays for the remission and attach his signature or mark on the application.

(4) Ryots who omit to apply will do so at their own risk and it is open to the Revenue Divisional Officer to refuse remission in all cases in which the crop has been cut, removed or grazed by cattle before inspection:

Provided that in special cases the Revenue Divisional Officer or the Jamabandi Officer may, notwithstanding anything contained in sub-rules (1) to (4), at his discretion dispense with the submission of written application and he may also for sufficient reasons condone delays in submitting such applications and even the absence of application should not ordinarily be treated as disqualification for granting the remission by him where 'Azmoish' has established the existence of conditions required to make the land eligible for remission.

(5) Every endeavour should be made by the Collector to have field-inspections completed as promptly as possible, by the appropriate officers.

(6) As soon as an application is received, the Revenue Inspector shall, without any delay, inspect the crops in all the fields mentioned in the application and submit his report to the Tahsildar or Deputy Tahsildar concerned. The Tahsildar or the Deputy Tahsildar as the case may be, will inspect a fair portion of the affected fields, which should in no case be less than 10 per cent of such fields in each village. The Deputy Collector should also inspect some fields in each village by adopting random method. Crop-cutting experiments should be arranged to be conducted by the Tahsildar wherever possible and compulsorily in any village where the area in respect of which applications are made for granting remission exceeds 50 acres.

(7) Inspection of affected field should invariably be done within 30 days from the date of receipt of application.

(8) The Tahsildar or Deputy Tahsildar shall submit his inspection report and recommendation to the Revenue Divisional Officer for sanction of remission. When such sanction is received it shall be communicated to the village officers and final accounts of such lands shall be settled in the Jamabandi.

(9) The orders of the Revenue Divisional Officer should be subject to revision by the jamabandi officer. It shall also be open to the jamabandi officer to consider any cases not previously considered by the Revenue Divisional Officer.

19. If a wet land covered by a whole survey or sub-division number is left fallow for any of the grounds mentioned in rule 4, remission of assessment may be granted on an application by the parties, or on a report of the local village officers and Revenue Inspector.

20. *Suspension or remission of land revenue under exceptional circumstances.*—(1) No remission of any kind shall ordinarily be granted for dry land. But in very exceptional circumstances (*i.e.*) on the occurrence of either wide-spread calamities such as famine, drought and general failure of

crops, or of local calamities caused by hail-storms, floods, locusts and the like, suspension or remission of assessment may be allowed according to the following rules.

(2) Notwithstanding anything in these rules, if owing to the operation of causes other than those contemplated in these rules, it should appear to the Collector that special measures of relief, whether by way of postponement of kists or otherwise are required he must at once submit a detailed report to the Board of Revenue in order that the orders of Government may be obtained.

A. WIDE-SPREAD CALAMITIES

21. *Grant of suspension or remission. Revenue Officers to take initiative and submit proposals for suspension or remission.*—In seasons of exceptional drought or famine when there has been general failure of crop, the Revenue Officers should take the initiative and make arrangements, as soon as the unfavourable character of the season has declared itself, for a thorough inspection of the crops and for the submission, if necessary, of proposals for suspension or remission of revenue on the lines indicated in rules 22 to 27 *infra* for the consideration and orders of the Board of Revenue and the Government. These inspections should be completed as far as possible six weeks before the commencement of the kist date.

22. *Circumstances to be considered in deciding whether any relief is necessary and whether it should take the shape of suspension or remissions.*—In submitting proposals for the grant of relief and as to the form it should take, Collector should be guided by the following considerations, namely:—

(a) The outturn for the year of the dry crops, both early and late, in the tract reported on ;

(b) the crop history of the tract during the two previous years ;

(a) the outturn for the year of the dry crops, both early including wells, the irrigation results of the year, and the question whether the dry cultivation is the main or a subordinate feature of the tract ;

(d) the prices of produce prevailing in the year and the probability of price ruling high in the next season also; and

(e) any special local circumstances which may indicate the need or the absence of need for relief.

23. *Suspension of revenue.*—(1) Any suspension of the collection of revenue must relate to a definite kist and must be sanctioned by the Board of Revenue ordinarily for a specified period which cannot, without sanction of Government, extend beyond the current fasli.

(2) If the sanction of the Board cannot be obtained before the date on which the collection of a kist should commence, the Collector may, by a formal order, postpone the collection of the kist till a date which should be within the Fasli, and the action reported to the Board.

(3) As soon as an order, whether of the Collector or of the Board, directing the postponement of the collection of a kist has been made, it shall be promptly published for the information of the ryots of the villages or tracts concerned by beat of drum and other means.

(4) If the period for which the collection of any kist has been postponed expires before definite orders as to the collection or remission of the kist have been received, the Collector should extend the period of suspension within the Fasli, immediately reporting his action to the Board.

(5) In all cases in which postponements of kists extend beyond the financial year in which the kists are due, the Board should forward copies of its own order or that of the Collector, as the case may be, immediately to the Government in the Revenue and Finance Departments with information as to the financial effect of such postponement on the revised estimate for the financial year in which the kists are due, as well as the budget estimate for the financial year to which kists are postponed. Collectors should therefore invariably report to the Board the financial effect of their proposals whenever they recommend or sanction such postponements or suspensions of kists.

(6) Suspension of revenue beyond the Fasli and remission of revenue can be sanctioned only by Government. If, therefore, in exceptional circumstances, the Collector considers that suspension beyond the fasli or remission of any kist, which has been suspended under this paragraph is absolutely necessary, he shall submit his recommendation to the Board sufficiently early so as to enable the Board and the Government to bestow their attention and pass orders before the sanctioned period of suspension has expired or before the end of Fasli.

24. *Remission of revenue on wet lands.*—(1) When the crop on wet lands is lost totally on account of any calamity remission may be granted as per the scale provided in rule 17 for seasonal remission.

(2) When the crop on wet lands is partially lost remission may, if sanctioned by Government, be granted with reference to the average loss in the whole tract in which such remission is granted. Where the calamity is so grave and of such magnitude as to warrant grant of remission on a scale higher than that provided for under rule 17, the Collector should submit proposals stating the extent of the land affected and the nature of remission to be granted.

(3) *Mamul waste.*—The District Collector, when submitting proposals for granting remission under sub-rules (1) and (2), may include wet mamul waste in the tract for which relief is proposed, provided that the land could not in any case have been cultivated owing to want of water:

Provided that his reasons for thinking that the holders of such land require special relief shall be fully explained.

Explanation I.—Mamul waste means the occupied land which is not cultivated regularly in a normal year and which, it may be presumed, would have been kept uncultivated even if the season and water supply had been normal.

Explanation II.—When a survey field or a recognised sub-division contains small portions of mamul waste, the remission that may be granted by the Government from time to time, be made applicable to the extents of such survey field or a recognised sub-division excluding the mamul wastes.

(4) Where it is impossible to determine a uniform rate for any given tract, as in cases where the loss, though considerable, is confined to limited areas, such as the ayacut of a small tank, the District Collector may recommend for special sanction, in lieu of an allround percentage remission, the grant of remission on those portions of recognised fields on which the crop has been totally lost:

Provided that each such portion shall be not less than one acre in extent and there are circumstances that the jamabandi officer will be in a position to satisfy himself in each case that the fields in respect of which remission is applied for have been properly inspected and the loss thereon duly verified.

25. *Remission of revenue on dry lands.*—(1) For loss of crop in dry lands, including those lying in the water-spread of Government irrigation sources and assessed at special rates, remission or suspension may be granted by Government at uniform rates calculated not with reference to individual losses but with reference to the average loss in the whole tract to which the relief is eligible.

(2) The scale of remission for dry crops shall be as follows:—

(i) When the yield of crop is 4 annas in a rupee and less. Full remission.

(ii) When the yield of crop is above 4 annas but not more than 6 annas. Half remission.

Explanation.—In estimating the average outturn of an affected tract, the District Collector should exclude the crop on all protected bunds (*i.e.*) lands irrigated by wells, doruvus, etc., all lands occupied by permanent topes but include the crop on other fields which have yielded fairly as well as land which has been left uncultivated owing to failure of rain.

26. *Relief on land left waste.*—For occupied dry lands within the tract, the same rate of relief will be given as for land on which the crop has failed.

27. *Lands cultivated without permission.*—(1) Any concession allowed to ordinary ryotwari lands may be allowed to lands cultivated without permission if the Collector is satisfied that the cultivation is otherwise unobjectionable.

(2) Such concession may also be granted in the case of minor inam lands in special cases for which full reasons must be given by the Collector.

28. *Method of collecting suspended revenue.*—(1) The revenue suspended should be collected only after one fair harvest subsequent to the failure, has been reaped.

(2) Collectors should, about two months before the commencement of the kist bandi of the year following that in which revenue was suspended, submit for the consideration and orders of the Board of Revenue and Government, a report as to how the early crops of that year have fared, and whether the whole of the suspended revenue, and if not what portion thereof, can be collected with the current kist. Similar reports as to the portion of the suspended revenue to be collected with subsequent kists should be submitted in succeeding years until the whole of the suspended revenue is either realised or written off.

29. *Circumstances justifying remission of suspended kist.*—(1) Revenue which has been under suspension for three years should ordinarily, and as a matter of course, be remitted and should for that purpose, be included in the quarterly statement of irrecoverable arrears.

(2) In the case of fully assessed tracts with a fairly constant outturn, the amount of revenue under suspension at any given time should not, as a rule, exceed the revenue demand of an ordinary year. When the amount suspended exceeds this limit, remission of the excess may ordinarily be recommended in the manner indicated above.

B. LOCAL CALAMITIES

30. *Rules in regard to the relief to be granted.*—The rules in regard to the relief to be granted on occasions of widespread calamity will also apply, generally, to the relief of

distress caused by local calamities. subject to the following modifications:—

(i) such relief, instead of being given on the same scale throughout the tract affected, should as a rule, be based on a field-to-field inspection directed to the determination of the actual damage suffered by each individual;

(ii) the degree of relief to be granted will be determined by Government with reference to the circumstances of each particular case;

(iii) in deciding whether relief is necessary or not regard should be had not merely to the field affected but to the entire holding of the landlord or ryot to whom the field belongs and by whom relief is applied for.

MISCELLANEOUS

Refunds

31. *Refunds.*—In all cases, where remission is granted, amounts already paid may be adjusted towards the next instalment of the kist.

32. *Cesses.*—Suspensions and remissions of land revenue will not ordinarily carry with them, suspension and remission of cesses. Collector should bear this in mind when recommending proposals for remission and suspension. But when an assessment of land revenue of any village is entirely suspended or remitted, the demand on account of cesses should temporarily be suspended and realised with the next instalment of land revenue that is actually collected in order to save the individual revenue payers from being harassed by petty demands in time of distress.

C. SESHAGIRI RAO,
Secretary to Government.

***Maharashtra Government Publications
can be obtained from—***

THE DIRECTOR

Government Printing and Stationery
Publication Branch, Charni Road Gardens
Netaji Subhash Road - - - BOMBAY-4

THE SUPERVISOR

Maharashtra Government Publications
Sales Branch, Majestic Hotel,
Ground Floor, Opp. Regal Cinema,
Museum - - - - - BOMBAY-1
(Sale on Counter only)

THE MANAGER

Government Photozinc Press
and Book Depot - - - - POONA-1

THE MANAGER

Government Press and Book Depot
Civil Lines - - - - - NAGPUR-1

THE ASSISTANT DIRECTOR

Govt. Stationery Stores and Book Depot
AURANGABAD

THE HIGH COMMISSIONER FOR INDIA

India House
Aldwych - - - - LONDON, W C-2
AND

THE RECOGNISED BOOK SELLERS
