

ANNUAL REPORT
OF THE
Department of Agriculture
BARODA STATE

FOR THE YEAR 1927-28 .

PRINTED AT
The Baroda State Press
1929

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ANNUAL REPORT
OF THE
Department of Agriculture
for the year 1927-28.

The Department continued to be in charge of Mr. C. V. Sane, B. Ag. (Bombay), B. Sc. (Kansas), M. Sc. (Wisconsin) U. S. A.

Charge and personnel.

(a) Mr. Gulabbhai Desai who was working as Agricultural Inspector and Cotton Officer at Navsari was transferred to the Co-operative Department as Organizer of Cotton Sale Societies for a year and Mr. Nawathe has been posted to the Navsari District in place of Mr. Gulabbhai Desai.

(b) The Agricultural Engineer's post still continues to be filled in by an acting adjustment.

(c) Annexure A. will show the important posts in the departmental cadre and incumbents holding the same at the end of the year.

2. The working of the department falls into two main groups :—
Administrative and technical functions.

I. Administrative.

II. Technical.

I. ADMINISTRATIVE.

3. During the year under report the following institutions have been critically examined and defects in the working brought to the notice of the officers in charge and suitable action taken where necessary.

Inspection of institutions.

- (1) The Veterinary Dispensary at Vijapur.
- (2) " " Petlad.
- (3) " " Bhadran.
- (4) " " Sankheda.
- (5) The Model Farm, Jagudan.
- (6) The Palace Dairy, Makerpura.

4. Nearly all the institutions in charge of the department such as the Agricultural stations at Baroda, Jagudan and Amreli, most of the Veterinary Dispensaries and the Palace Dairy were paid frequent visits by the Director and suggestions regarding working made from time to time by visit-notes.

Personal visits of the Director to the institutions.

5. The Director toured extensively in the district for propaganda and inspection purposes and visited Bombay, Poona, Surat, Ahmedabad and Chharodi on special duty. Details of the touring done are given in Annexure B.

Touring in the district by the Director.

6. There were 73 papers pending at the beginning of the year. To these were added 6,812 fresh cases during the year under report totalling 6,885. Of these, 6,809 cases were disposed off leaving a balance of 76 at the end of the year. Annexure C. gives details of the papers dealt with.

Details of correspondence received and disposed off.

7. The number of proposals submitted in the form of tippans to Government came to 64. Tippans and their disposal. Orders on 59 of these have been passed and are shown below; figures of the last year are also given for comparison :—

Year.	Sanctioned.	Not sanctioned.	Sanctioned with modifications.	Pending at the end of the year.	Total.
1	2	3	4	5	6
1926-27	32	22	15	7	76
1927-28	33	12	14	5	64

8. In addition to the routine work attached to the post of the Director of Agriculture, the Director also worked as member of other special committees. He has now been appointed to represent our Government on the Indian Central Cotton Committee in place of Mr. M. B. Nanavati and attended its monsoon meeting commencing from 30th July 1928.

(a) The Director has also been appointed as a member and Secretary of the Irrigation Committee appointed by Government.

(b) A special Dairy Committee was appointed by Government under the Chairmanship of Mr. R. H. Desai, with Col. Parab and the Director as members to report on the management of the Palace Dairy. In accordance with orders passed on the report of the committee, Mr. N. K. Jadhav, has been placed in charge of the dairy in place of Mr. Shashikant K. Desai.

(c) The Director also worked as member and Secretary of the Central Baroda Committee for the Ahmedabad Show, and attended the sittings of the Executive Committee at Ahmedabad as visitor.

9. A departmental conference of the Agricultural and Veterinary staff was convened in December 1927, under the chairmanship of the Pragati Adhikari, Mr. M. B. Nanavati, and the programme of work in the respective sections was discussed.

(a) The Director attended the meeting of the Bombay Provincial Board of Agriculture at Poona in September 1927, as member and took part in its proceedings.

(b) The Hon'ble Council met in conference to discuss the manurial problems of the Baroda State with Captain Frazer and Mr. Carroll as directed by H. O. No. 16/1 of 21-11-27, and the Director took part in the deliberations and arrangements are being made to give effect to the decisions arrived at.

10. Draft rules for the supply of breeding animals to agriculturists have been sanctioned by Government under D. O. No. 4/3 of 24-8-27. These have been duly published in the Adnya Patrika of 22-12-27 for information.

(a) Four breeding bulls of Gir type have been supplied from the Makerpura Palace Dairy to the Amreli Mahal Panchayat for service in four villages of the Amreli Taluka.

11. The unprecedented floods of July 1927, took every one by surprise and had caused considerable dis-organisation in every direction. Government immediately sanctioned a sum of Rs. 5,000 for seed purposes and placed it at the disposal of this Department for necessary action in that direction. About 16,000 lbs. of Sundhia and 5,600 lbs. of wheat was purchased and sold to agriculturists at a reasonable price involving a loss of Rs. 562-2-5 in the transaction. The seed stores however were very useful in keeping down the prices of these seeds.

(a) Necessary advice regarding crops to be sown under the conditions brought on by the flood and care and treat-

ment of animals was given by issuing notifications in the Adnya Patrika and also by issuing them as leaflets and freely distributing them.

(b) Many outbreaks of epidemics among cattle were reported from the flooded tracts and special arrangements were made to deal with these by deputation of two Veterinary Surgeons and a special Salotri for the purpose.

12 Five applications were received for a sum of Rs. 19,500 for installation of engines and pumps; Rs 18,500 were recommended. Another application for Tagavi loan for purchase of tractor was also recommended for a loan of Rs. 7,000. Details of applicants and loans recommended are given in Annexure D. None of these recommendations however have been acted upon since all the available sources were first needed for flood relief.

13. Special facilities were sanctioned by Government for co-operative cattle breeding by D. O. No. 28/23 of 13-6-28, which permits :

- (1) Tagavi loans to be advanced without interest to the co-operative society for purchase of breeding animals.
- (2) Exemption of instalments for first 3 years and recovery of the amount by four equal instalments from the 4th to the 7th year.
- (3) A breeding bull to be given free if the Society purchases more than 30 animals.

14. The notable event of the year was the visit of His Highness the Maharaja Saheb was graciously pleased to give to the Dairy. The Director showed His Highness round and explained several matters of importance concerning the Dairy.

15. The points that deserve particular attention in the year's work of the department are as follows :—
Special features of the year's work.

- (1) Four bulls of the Gir breed were issued from the Cattle Breeding Farm at Makerpura for service in four villages of the Amreli District.
- (2) Government announced special facilities to encourage co-operative cattle breeding.
- (3) The rust resistant power of the Pusa wheat as compared with the local Wajia was specially demonstrated.

16. The total expenditure and receipts of the department for the last five years are given in the following statement :—
Finances.

Year.	Expenditure.	Receipts.	Remarks.
1	2	3	4
1923-24	1,52,225-12-6	60,640- 9-5	
1924-25	1,29,281- 7-1	56,403-11-3	
1925-26	84,321- 3-9	25,152- 0-9	
1926-27	1,77,327-15-4	27,684- 4-7	
1927-28	1,51,434- 0-7	30,534-13-9	

Details are given in Annexure E.

17. The following statement shows figures of expenditure and receipts on the various sections in the Department :—
Expenditure by sections.

No.	Item.	Expenditure.	Income as receipts or contribution.
1	2	3	4
		Rs. As. Ps.	Rs. As. Ps.
1	Head Office.	36,275- 6- 6	1,804-10- 5
2	Agricultural Engineering including Boring ...	20,531-12- 9	1,857- 5- 0
3	Agricultural Farms ...	26,777-13- 9	13,309-10- 5
4	Palace Dairy	31,814- 1- 4	13,409-15- 9
5	Propaganda		
	(a) Extension ...	10,261- 1- 1	...
	(b) Education ...	2,903- 7- 4	...
6	Veterinary Relief ...	22,870- 5-10	153- 4- 2
	Total ...	1,51,434- 0- 7	30,534-13- 9

II TECHNICAL.

18. The technical working of the Department may be divided into three main sections:—

Working of the Department.

- (A) Agricultural.
- (B) Agricultural Engineering.
- (C) Animal Husbandry.

(A) *Agricultural.*

19. Before discussing the working of the agricultural section, it would not be out of place here to make a few general observations regarding the character of the season and crop conditions. As the official year however begins from

Season and crop conditions of 1927-28.

1st August, it divides the monsoon almost into half and makes it always difficult to give a self-contained account of the weather and crop conditions in the State of any particular year. As the report pertains to the season which was responsible for the harvest of 1927-28 this will be first described and monsoon conditions of 1928 will then be briefly referred to. Details of rainfall for 1927-28 by Talukas are given in Appendix. I.

(a) The monsoon of 1927, will long be remembered as the year of deluge owing to the unprecedented heavy rainfall from 24th July to 28 July 1927. In the following statement are given figures of rainfall for Kadi and Baroda Districts before, during and after the flood period as compared with the decennial average. The rain-fall figures refer to inches only.

Serial No.	Taluka.	Before flood	During 2 weeks of the flood.	End of the year.	Decennial average of last 10 years.
BARODA DISTRICT					
1	Baroda.	33	38	81	31
2	Padra.	23	28	62	27
3	Karjan.	21	21	50	33
4	Dabhoi.	31	27	73	33
5	Sankheda.	29	27	70	37
6	Tilakwada.	24	13	48	34
7	Sinor.	24	24	67	33
8	Petlad.	19	35	71	29
9	Bhadran.	21	41	77	27
10	Savli.	20	42	83	30
11	Vaghodia.	30	65	113	35

Serial No.	Taluka.	Before flood	During 2 weeks of the flood.	End of the year.	Decennial average of last 10 years.
KADI DISTRICT.					
1	Kadi.	6	36	51	26
2	Kalol.	7	31	49	26
3	Dehgam.	7	36	57	27
4	Attarsumba.	8	42	60	29
5	Visnagar.	6	28	49	24
6	Mehsana.	9	29	46	25
7	Kheralu.	2	24	47	25
8	Sidhpur.	2	23	42	24
9	Patan.	3	31	47	21
10	Harij.	7	28	36	21
11	Vijapur.	9	27	51	27
12	Chansma.	8	35	54	21

(b) It must be borne in mind however that had it not been for the general heavy and well distributed rains after the flood, the condition of agriculturists would have been still further aggravated.

(c) Rainfall conditions in Navsari and Amreli were below average and so the September rains were particularly useful in Amreli, where the situation would have been worse in their absence. These September rains were also useful in Navsari for a better paddy harvest, although it was at some sacrifice of the cotton crop in Navsari and a serious handicap in Amreli.

(d) No pest of any serious character was reported, although in parts the katra and the grass-hopper did do some damage.

(e) The season was again characterized as one of the worst for damage to wheat by rust. It was particularly deadly in Amreli and quite serious in Kadi and many a hope built on the earlier prospect of the crop was shattered into despair. It did at least one good thing and that was to bring the rust resistant nature of the Pusa wheat into lime-light.

20. The season commenced earlier than usual by about two weeks in Baroda. General heavy rain was recorded in Baroda District and lighter one in Navsari; Kadi and Amreli received only casual and local showers. In Baroda the monsoon kept up a good wave length, but Navsari although not dry has not received the usual quantity for a good paddy crop and many earlier sown seedlings had shrivelled up.

Season of 1928 and crop prospects.

(a) Conditions in Amreli had reached a stage of acute anxiety and only a shade less so in Kadi, when the storm in the last part of August saved the situation in these parts from becoming more critical.

(b) Heavy rains were also received in Baroda and Navsari and in the latter case have been of particular value to the paddy crop. The crop prospects at present are therefore excellent in Baroda, very good in Navsari, good in Kadi and fair in Amreli.

21. We may now turn to the technical part of the agricultural section. Under this section are included the following activities :

Activities of the Agricultural section.

- (1) Agricultural Farms.
- (2) Propaganda in the District.
- (3) Agricultural Education.

22. There are three agricultural stations in charge of the Department. These are situated at Baroda, Jagudan and Amreli for Baroda, Kadi and Amreli districts respectively. The Amreli Farm commenced working during the year under report.

Agricultural Stations.

(1) BARODA FARM.

23. The Baroda Farm is situated about a mile from the Railway Station on the Alembic Factory Road and represents the goradu soil tract of the Baroda District. The total area is about 84 acres out of which 66 acres were under cultivation during the year under report.

(a) The principal crops grown are cotton and cotton mixtures, Bajri, Sundhia, Castors, Ground-nut, Jowar, Tobacco, Lucerne, Onions, Wheat and English vegetables. A fairly large area of about 10 acres is under fruit trees, guavas forming the principal commercial crop.

Details of crop appear in Appendix II.

24. The memorable feature of the year's season was the extraordinarily heavy rain from 24th July to 28th July causing the disastrous floods. During this period alone more than 43 inches of rain was measured on the farm, which is in excess of the average of the year by 13 inches.

(a) The season commenced earlier than usual by about 10 days; the first useful rain amounted to nearly an inch and half having been recorded on 17th June. During the season a total rain of 86.80 inches was recorded, which is easily the highest on record.

(b) Including the 43 inches during the flood period in July, the total rain in that month measured 67 inches. August and September each contributed a little more than five inches and were specially valuable for the new sowings of crops after the floods. Rain in October was specially prejudicial to the already ready kharif crops, but in general these late rains have been of great value in making the late sown Rabi crops yield a fair harvest.

(c) The total number of rainy days was 74 and they were distributed as follows:—

No.	Month.	Number of rainy days.	Rain during the month.	Remarks.
1	2	3	4	5
1	June	11	8.29	
2	July	29	67.09	
3	August	17	5.05	
4	September	11	5.02	
5	October	1	0.75	
6	November	2	0.35	
7	December	3	0.25	
	Total	74	86.80	

(d) The rain-fall statement by months and days is given as Appendix. III.

(e) Considerable difficulty was experienced in getting a suitable stand of kharip crops owing to the wash-out during the flood, while lack of good cold weather prevented the harvest of the Rabi crops from being what it should have been.

25. Although considerable trouble from Katras was anticipated the floods have destroyed the caterpillars so completely that serious damage need not be apprehended from the pest for some time to come. There was no serious pest of any other kind.

Insect pests and crop diseases.

(a) Loss by wilt in cotton was noticeably less and Smut in Bajri was also less dominant; on the other hand there was considerable rust on wheat and it had distinctly affected the quality of the wheat crop.

26. Considering the difficulties of cultivation as consequence of the floods, the following yields of some crops on the Farm would not be considered as bad :—

No.	Crop.	Area sown A. G.	Average yield per acre in lbs.	Maximum obtained per acre in lbs.
1	2	3	4	5
1	Bajri	6-38	853	1215
2	May sown cotton	3-0	734	962
3	June sown	2-0	596	798
4	Castors	7-4	749	1225
5	Wheat	2-30	2108	2566

27. The principal work on the Farm consists of (1) Carrying out manurial trials on cotton, Bajri and onions; (2) Rotation of crop series; (3) May sowing of cotton (4) Trial of new crops like wheat and teazles; (5) Organizing the fruit culture section of the farm and (6) other miscellaneous tests like cultivation of ground-nut, late sowing of Bajri, silo etc.

(a) Statement of principal crops and other outturns is given in Appendix IV.

28. The use of bone-meal on May sown cotton at the rate of 150 lbs. per acre at a cost of Rs. 10 per acre has given the following yield :—

No.	Treatment.	Yield per acre lbs.	Increase lbs.	Remarks.
1	2	3	4	5
1	Without bone-meal.	628	...	
2	Bone-meal 150 lbs. per acre.	962	334	

(a) The cost of increase is therefore a little over one rupee per maund of seed cotton.

(b) The use of Sodium-Nitrate and castor cake have also given increased yields but the tests will have to be repeated before any definite conclusions could be drawn.

(c) The interference of wilt has often rendered the tests very difficult for interpretation and is proving a severe handicap in the various experiments dealing with this crop.

(d) Onions has been found to be one of the crops which responds well to manure. There have lately been placed on the market several types of complete fertilizers for different crops giving a guaranteed analysis of the fertilizers. It was decided to see how these ready-made mixtures compare with farm-made mixtures from the point of view of cost and manurial ingredients. A doze of 448 lbs. (4 cwts.) was used per acre, costing Rs. 35. Farm made mixture approximating the same composition cost only Rs. 21-5-0; for comparison were also used other fertilizer combinations approximating Rs. 35. The results were as follows :-

No.	Treatment.	Cost per acre.	Out-turn per acre.
1	2	3	4
1	Ready made fertilizer... ..	35- 0-0	20177 lbs.
2	Farm made mixture of approximately the same composition as above ...	20-13-9	19375
3	Farm made mixture	34-10-6	24542
4	Another type of farm made mixture ...	37- 2-7	24345

(e) A study of the above results brings out many interesting points. Firstly it shows, that a ready-made mixture is far more expensive than a farm-made one. Thus the same mixture compounded on the farm cost Rs. 15 less without

reducing the out-turn to any large extent ; conversely it shows that the same amount of money as expended on the ready made fertilizer if spent in making up a suitable mixture of manure on the farm, one gets an increased yield of about 4000 lbs of dry onions for the same amount of money. Both these are very important considerations for the farmer, who is thinking of using quick acting fertilizers. Details of this test are given in Appendix V.

29. The results of May sown cotton vary from 573 lbs. to 962 lbs. of seed cotton per acre with
 May-sown cotton, an average of 734 lbs. as against an average of 596 lbs. per acre for cotton sown at the usual time.

30. The season's results in connection with growing of wheat have been encouraging seeing
 New crops, that in spite of only a very moderate cold and an on-slaught of rust, an average yield of 2108 lbs. of wheat was harvested, the best yield having been 2561 lbs. per acre. Incidentally a test with the so called universal manure was also taken with this crop. The method of using the manure is somewhat peculiar in as much as the matter sold as manure is directed to be dissolved in sugar solution and the seed to be sown is to be steeped in this solution. The plot sown with wheat-seed treated in this manner did not show the slightest advantage in germination, growth, vigour, resistance to rust or yield as compared with the plot sown in the usual manner. It is necessary that the cultivators are warned against being carried away by the tall talks of the advantages of such stuff.

(a) A better crop of teazles was obtained this year as a result of selection and 1974 heads were sold to the Maharani Woollen Mills at the rate of Rs. 10 per thousand. The agents of the mill have sent some of these to Europe for further opinion.

31. Late sowing of Bajri has again proved a useful
 Late sowing of Bajri, innovation although during the year under report it was more or less forced since the floods had carried away the previously sown crops.

The previous experience in this connection enabled the Department to advise agriculturists to sow bajri even at that late stage with confidence. The average yield of the late sown bajri came to 823 lbs. per acre and in one case was as high as 1215 lbs. If the September rains are going to be a feature of the season as it has been during the last few years, the shifting of bajri sowing to a later date is absolutely necessary if the crop is to escape damage from these.

32. In the fruit culture section chickoo, figs, mangoes, oranges, guavas, mosambi and lime are being tried. 42 lbs. of figs were sold from 14 trees at the rate of Rs. 0-5-0. per lb., but the fruit is not of the normal size or taste as in Poona. This in the opinion of the Fruit Expert of the Bombay Agriculture Department is due to the fruit being of a different type than is generally grown in Poona and he has arranged to send cuttings of this type and these have now been planted.

(a) Number of well-known types of graft mangoes have been set but it is too early to opine on their suitability or characteristics yet.

(b) Although the Department has no special facilities for a nursery, fruit trees were disposed off as shown in the following statement during the year :—

No.	Name.	Material on hand.		Used on the farm.		Sold.		Remarks.
		Seedlings or rooted plants.	Graft.	Seed lings.	Grafts	Seed lings.	Graft.	
1	2	3	4	5	6	7	8	9
1	Guavas ...	540	2	53	2	2	...	All these have been sold now.
2	Sour lime ...	...	101	...	13	...	8
3	Seed-less guavas	...	11	...	3	...	3	
4	Rose ...	454	5	396	5	58	...	

33. Under the peculiar condition brought on by the flood, the spring-tooth-harrow again proved to be a most handy implement for dealing with the adverse soil conditions.

Implements tried and used.

(a) A. B. T. 2. plough, spring-tooth-harrow, cultivator and chain pump were taken on hire.

34. The silo filling was done as usual in pit, putting in 18,510 lbs. of sundhia and taking out nearly 60 % of this as the nett available fodder for feeding to cattle. The cost of silage worked at Rs. 1-6-3 per 100 lbs.

Miscellaneous work.

(a) Selection work of Bajri, Tur, Til, has been done as usual and special attention was paid to teazle and papaya.

(b) Enquiries for advice were received from 116 correspondents regarding seed supply, cultivation of crops, fruit trees, implements, manure etc., and these have been given suitable advice.

(c) A point that deserves special mention is the successful use of the spraying machine by a small crop grower for aphides.

35. The total expenditure of the Farm came to Rs. 14,348-1-5 and the receipts amounted to Rs. 9,672-10-11. The total farm contingencies came to Rs. 10,064-3-4.

Finances.

(a) Other statements giving prices of farm produce, manure rates and labour charges accompany as Appendices VI and VII.

(2) JAGUDAN FARM.

36. The Jagudan Farm is situated near the Railway Station of Jagudan about 7 miles from Mehsana on the Ahmedabad side and represents the light sandy soil of the Kadi District. The area 3 A. R.

Situation and area.

of the farm is about 30 bighas in two blocks, one of 25 and the other of 5, a little further away.

37. The dominating feature of the season has been the exceptionally heavy rains during the period that was associated with the floods in the Baroda District and resulted in considerable damage to property and crops. The season commenced earlier than usual by about 2 weeks, the first shower of 80 cents having been measured on 16th June. The monsoon kept up a vigorous progress upto nearly the end of August, but unlike other districts no rains were received during September and caused much loss to the Jowar crop. The total rain during the season came to 58.50 inches and was distributed as follows:—

Serial No.	Month.	Rainy days.	Rain during the month.	Remarks.
1	2	3	4	5
1	June	2	1.35	
2	July	21	37.69	
3	August	15	19.48	
	Total...	38	58.50	

Details are given in Appendix VIII.

(a) Until the heavy continuous rains of July 23rd and onwards, excellent crop prospects were looked forward to. With the heavy wet weather, the whole out-look changed. Bajri could not make much growth and sowing of Jowar was done largely under un-congenial conditions. The sudden cessation of rains during September further inhibited good growth of both Bajri and Jowar. The pulse mixtures of these cereals, however, more than made up for the poor harvest of both these crops.

(b) The agriculturists were cheated of their hopes of a good harvest of wheat, which is the most important commercial crop in this district on account of a severe attack of rust on wheat.

38. The chief item of work on the farm is with regard to the testing and demonstrating profitable types of wheat suited to the District. Different strains of Pusa wheat are found useful, their chief value lying in their rust resisting power. The season under report proved one of the best in focussing attention on this property of the Pusa wheats. A heavy outbreak of rust resulted in negligible outturns in late sown local Wajia wheat and barely 400 lbs. per bigha of the early sown Wajia as contrasted with 400 lbs. per bigha of the late sown Pusa types and more than 800 lbs. of early sown Pusa. The following table gives the yields of some of the Pusa types grown on the Jagudan Farm :—

Type.	Area sown. B. V.	Date of sowing.	Yield per bigha. lbs.	Remarks.
1	2	3	4	5
Pusa 52	0-15	6-11-27	1420	No local Wajia is grown on the farm for preventing admixture and keeping the types pure.
„ 52.	1- 5	17-11-27	1280	
„ 12.	1- 0	5-11-27	1352	
„ 12.	1- 0	20-11-27	746	
A-115.	0-10	6-11-27	1116	

(a) The season has been a bad one for Bajri in the whole country-side, but even so an average yield of 334 lbs. per bigha has been realized while the maximum came to nearly 600 lbs. per bigha. Few agriculturists could have realized these average or maximum returns.

(b) The fruit plantation on the farm and of papayas in particular is attracting considerable attention of the agriculturists. Fruit weighing 16,927 lbs. has been sold from 322 plants and brought an income of Rs. 893. The yield of fruit by months is as follows :--

Month.	Fruit sold in mds. srs.	Remarks.
1	2	3
	<u>1927</u>	
June	10-29	
July	4-38	
November	2-18	
December	15- 3	
	<u>1928</u>	
January...	60-27	
February	90-37	
March	137-27	
April	55- 2	
May	45-28	
Total...	423- 9	

(c) Chillies, Tobacco, Cotton, Jowar, and Gawar are other crops grown on the farm. General information regarding these is given in Appendices IX and X.

(d) A silo pit was filled as usual with 6,840 lbs. of Sundhia in the 3rd week of September and was opened on 5th May furnishing 4,200 lbs. of good silage, i. e. 61% of the fodder put in. Considering that it is only a pit silo the result is not at all bad.

39. The total expenditure of the farm during the year came to Rs. 4,384-7-11 and income to Rs. 2,480-4-3. Of the total expenditure Rs. 3,339-15-3 was for farm contingencies.

Income and expenditure.

(3) AMRELI FARM.

40. The Amreli Farm commenced working during the year under report although the area was acquired during the latter part of the last year. It is situated about a mile from the Station and the town and is flanked on its south and north by two important roads from the town namely Keria-Nagas and Lala-wadar roads respectively. The total area is B. 66-17 Vasas with revenue assessment amounting to Rs. 159-0-0. Of this area B. 54-14 Vasas are under cultivation.

Situation and area.

(a) The soil varies in depth from 6 inches to more than 2 feet and is typical of the soils met with in the district and wide variations can be seen even in small lots of a bigha.

(b) The area is protected by three wells, but only two on the northern and southern sides have capacity of about two koses. The well to the west has not enough water even for one kos and a boring of about 120 ft. below the bottom of the well has failed to locate any springs and further deepening has therefore been abandoned.

41. The cropping scheme has been drawn up with a view to obtain important preliminary information regarding the prevailing crops of the district and the trial of possible new crops of a remunerative character. Cotton, Bajri, Jowar, Wheat, Til, Gram, Sugar-cane are the principal crops grown. Among the new crops under trial may be mentioned Onion, Potatoes, Tobacco and Ground-nut.

Cropping scheme and the objects underlying.

(a) A fruit culture plantation has been started in four bighas with a variety of fruit trees like limes, santra, mosambi, papaya and figs and useful information is being collected on the suitability of these in the tract.

42. The season started with rains totalling 3·57 inches in the second fortnight of June and was enough for starting sowing operations. As rains of this type are usual in this tract it cannot be considered to be early. There was however shortage of rain in July and August, which inhibited crop growth and the unseasonable rains in September and November further spoiled the kharip harvest, although they did partly compensate the loss by aiding the rabi crops. September rains damaged the cotton crop in particular, having caused shedding of bolls and flowers. The total rain in the season came to 17·40 inches and was distributed as follows :—

Month.	Number of rainy days.	Rainfall recorded inches.	Remarks.
1	2	3	4
June	3	3·57	
July	19	8·34	
August	7	1·47	
September	6	3·71	
October	1	0·06	
November	2	0·25	
Total...	38	17·40	

Details are given in Appendix XI.

(a) An out-break of rust on wheat damaged wheat extensively. Instances were reported where the farmer did not think it worth while to undergo the cost of cutting the crop and escaped it by putting a match to the straw. It is said that such a serious out-break has not been experienced during the last 25 years at least.

43. The commercial crop in the district that is extensively grown is cotton. The local type
Principal items of work, grown goes by the name of Mathio and is a mixture of several types, mostly of short staple. The people are anxious to grow a better type of cotton but the climate seems to be un-suitable for such a type. Four types of cotton namely Local Mathio, Jalgaon-Mathio, Wagad and Latio were grown on the farm and the results are definitely in favour of the Jalgaon type, which gives 40% lint as compared with only 33 of the local type. Further tests in this connection will be continued.

(a) Of the four types of Bajri, the Baroda farm type seemed to have given the best results and specially selected heads have been collected for further work.

(b) The only other crop, results from which have been strikingly effective is wheat; since the only type that gave any yield was Pusa No. 4, seed of that type has been all reserved for sowing next season.

(c) Other crops regarding which trials are on hand are ground-nut, tobacco, potatoes and sugarcane but it would be some time before any conclusions can be drawn from their tests.

44. Reference has already been made to the fact that
Fruit culture. there are few plantations, if any, of fruit trees in Kathiawar, although the climate seems to be suitable for a large number of fruit trees to thrive. With this idea in view a plantation has been made consisting of guavas, limes, mosambi, santra, pomegranate, figs, vines and mangoes. An inter-crop of papaya has been planted and is doing very well.

45. In a tract which has not yet been despoiled of its
Scarcity of manure. rural atmosphere, it is surprising that there should be such a great scarcity for manure. It has not been possible to get the required quantity of manure for the farm and we have been driven to the use of concentrated manures more freely than would other-

wise have been the case. This would indicate a greater possibility in partly substituting the organic manure by artificial fertilizers.

46. An oil engine and pump has been erected on the best well on the farm but even this well furnishes only a two hours' supply for a 4"-3" pump.

Installation of Engine and pump.

(a) All the three wells on the farm are being properly repaired with a view to their full use in watering the area under command.

47. A block of 8 rooms has been completed and is being used by the field-man and other clerical staff. Contract has been given for the superintendent's quarters, implement and boring store and seed store. The work of fencing the area is also under way and would be soon completed.

Buildings.

48. This being the first year of the working of the farm and owing to the general impoverished condition of the soil, the income is naturally not very high being Rs. 1,156.

Income and expenditure.

Expenditure on various items was distributed as follows:—

No.	Item.	Amount Rs.
1	2	3
1	Farm contingencies	3,501-14- 3
2	Staff and office contingency	1,606- 8-10
3	Permanent improvement	1,792- 8-10
4	Dead stock	1,144- 4- 6
	Total...	8,045- 4- 5

(2) PROPAGANDA.

49. The propaganda work is carried on by three agencies, (1) Work of District staff, (2) Demonstration, and Shows. (3) Publications.

(1) WORK BY DISTRICT STAFF.

Navsari.

50. By far the most important crop in Navsari is cotton and work in this crop consisted in extending the area under pure 1027-A selected cotton seed and organizing cotton sales on co-operative lines. This latter work has now been allotted to a special officer in the Co-operative Department and so little information is now available in this office in that direction. The cotton seed extension work however must naturally remain a part of this Department's activity and 46,880 lbs. of seed has been distributed for sowing in the current growing season. A new departure for seed supply that has been made this year is the securing of 1,200 lbs. of the Surat Farm seed, which has been given to a special cotton grower in Mahuwa at Dhundesra. It is intended to sell the produce of this seed separately and have the seed available for distribution amongst our cultivators. Details of the seed supplied are given in the following statement :—

No.	Name of the person.	Place from which seed supplied.	Seed supplied in lbs.
1	2	3	4
1	Sheth Ratanji Edalji & Sons.	Surat.	26,400
2	Manager, Gwalior Jayaji Mills.	"	6,600
3	Patidar Kalidas Nanchand Kalyanpura, Kadi District.	"	12,000
4	Patidar Harivallabhdas Malukchand, Kalyanpura.	Navsari.	600
5	Vyara Vasatigraha Shala Farm.	"	80
6	Sheth Faramji Daboo, Dhundesra.	Surat.	1,200
Total...			46,800

(a) Considerable interest is being taken in the profitable manuring of cotton and the Department supplied necessary material for trial. While there is a general consensus of opinion that the manure used does give a better crop, results showing cost of manure and increased return by its use have not been generally available. One way to get these seems to be to have a large number of these trials on hand so that figures from some at least would be available. Trials have been arranged with this end in view in Mangrol, Kamrej, Palsana, Navsari and Mahuwa. Results so far reported are shown below :—

No.	Cultivator.	Village and Taluka.	Details of manure.	Yield of crop.	
				With manure.	Without manure.
1	2	3	4	5	6
1	Chhotubhai Dahyabhai.	Maroli (T. Navsari.)	120 lbs. of sodium nitrate for 2 bighas	lbs. 800	lbs. 640
2	Gulam Mahamad Saleji.	Mangrol.	80 lbs. of sodium-nitrate per 1 bigha.	First picking gave 40 lbs. more in manured plot.	

51. Work of extending the cultivation of early Kolam in place of Kada is going apace. 700 lbs. of selected seed were supplied to the growers of this type at Vyara on condition that they kept all the produce therefrom for seed purposes at a premium price. However out of a total crop of about 8,000 lbs. only about 1,600 lbs. were actually available while the demand exceeded 4,000 lbs. Other growers have been selected this season for this work and to them 410 lbs. of selected seed has been supplied. The results of trials during the year under report are as follows :—

No.	Name of cultivator.	Village.	Area in bighas.	Yield.		Remarks.
				Early Kolam.	Kada.	
1	2	3	4	5	6	7
1	Gulam Mahamad	Mangrol.	8	5,000	4,800	Satisfactory.
2	Vallabh Keshav.	Parab (T. Kamrej)	2.5	Same as Kada.	2,080	Ripens 10 days earlier than Kada.
3	Maganlal Bechar.	"	0.5	920	840	Good.
4	Magan Kuwerji.	"	0.5	1,120	840	Good.

52. Other crops for which the use of artificial fertilizer is suggested, are Rice, Onions and Sugar-cane. Good results have been obtained for both Rice and Onions but no comparative figures are available. Results on cane have been quite striking and are given below:—

No.	Name of cultivator.	Village and Taluka.	Details of manure.	Yield.		Remarks.
				With manure.	Without manure.	
1	2	3	4	5	6	7
1	Ratanji Nagarji Desai.	Mahuwar (T. Navsari.)	Ammonium Sulphate.	Standing crop Rs. 10 per vasa.	Standing crop Rs. 8 per vasa.	Gain Rs. 40 per bigha.
2	Durlabh-bhai Dahyabhai	"	"	Benefitted by manure.	...	Figures not available.
3	Chhaku Jesa.	"	"	2500 lbs. gul.	Information not kept.	Satisfied with manure.
4	Bhaga Jeram	"	"	3400 lbs. gul.	"	Vigorous growth.
5	Jagabhai Khushal-bhai.	Dhanori (T. Gandevi.)	B. 2 200 lbs.	4000 lbs. gul.	3400 lbs. gul.	600 lbs. gul more.
6	Ragha-nathaji Lalbhai.	"	B. 1 120 lbs.	in 15 vasa 2000 lbs. gul.	1400 lbs. gul.	"

53. Some other items that may be briefly touched here are in connection with the popularization of improved cultivators, cattle-breeding, ensiling and fruit culture. With regard to ensiling a permanent masonry tower-silo has been constructed at Antroli with a subsidy of Rs. 200 from the Union Agricultural Fund and has been found very useful by the owners.

(a) With regard to fruit culture the cultivation of figs has taken a hold in Popada in Navsari Taluka. A vineyard is vigorously growing at Kathor in Kamrej Taluka and the Department have given a subsidy for a trial of pomegranate, guavas and figs in Vyara.

Baroda.

54. The point from which the work in cotton can be launched with chances of success is the introduction of a superior seed which will not only give better staple, but more cotton also. A suitable type going by the name of nine-one-six has been obtained from the Broach Farm from the Bombay Department and has undergone trial now for three years in Sarar and has given entire satisfaction to the growers. A good deal of damage by wilt was noticed in the year as an aftermath of flood and caused a slight prejudice in the minds of some regarding the susceptibility of nine-one-six to that disease. The farmers however were convincingly shown that wilt incidence was largely a matter of soil situation and not at all of the type since some fields growing local cotton had been completely ruined by wilt while in other place not a single wilted plant was to be seen in the field sown with nine-one-six with intermediate degrees of infection in both types. As a result more than 1,500 bighas have been put under this type in Karjan, Sarar and round-about from seed grown in Sarar. In addition more than 4000 lbs. of seed has been distributed in other cotton growing centres like Savli, Vaghodia and Dabhoi. An important point in favour of this cotton can be seen from the following figures supplied by the grower at Sarar:—

Number of Dhadis required for 1 Candy of

Local.	45 to 47.
Nine-one-six type.	42.5 to 45.

(b) The growers are assured by cotton dealers that the lint from nine-one-six should receive a premium of Rs. 25 per candy on local price, so that if an organized sale is arranged, this should give from Rs. 10 to 15 more per bhar on account of the better ginning and better staple. Seed has now been given to the important cotton growing centres and further work will depend upon the results of these trials.

(c) Considerable interest is also being shown by cultivators in a suitable manure for cotton. Trials with Sodium-Nitrate supplied by the Department impressed the people favourably although they failed as usual to keep exact figures of out-turn. 720 lbs. of this manure has been indented for use in the next growing season by eight cultivators in five villages of Karjan at their cost and the results are awaited with interest.

55. The economic use of sodium-nitrate for tobacco as top-dressing has been now established beyond doubt and the growers are slowly but surely veering round to the use of this quick acting manure. In one village of Zarola alone in Bhadrn over 4000 lbs. of this manure was used by one cultivator at his expense and his example has impelled many others in trying it. The question has therefore now reached a stage where better organization for its supply is necessary and the co-operative agency has been already suggested.

(a) Selection No. 6 of tobacco has been given for trial to some societies in Petlad and further work will depend upon the success of the present trials.

56. The other crop which affords considerable opportunity for work is potatoes. A grant of Rs. 30,000 as tagavi by Government for potato seed purposes for Chhani as a part of the flood

relief measure was utilized to demonstrate what joint purchase of seed would mean. As a result of this move Rs. 1,000 have been saved to those who joined the purchase at the rate of Rs. 10 per 1000 lbs. of seed bought. The opportunity was also availed of in showing how quick acting manures like sodium-nitrate benefit crops like potatoes.

57. The revival of the Karjan Khedut Sabha has been largely responsible for the interest awakened there for better cotton and cotton manure. Similar effort is intended to be made for Dabhoi and organize the work there better. The flood relief work in providing a small seed store of Sundhia and wheat has already been referred to.

Kadi.

58. The prime of place in propaganda work must be given to wheat in the Kadi District because it is the commercial crop in the Gorat section of that District and useful material is at hand for propaganda in the Pusa wheats. One claim for Pusa wheats is that they are bred so as to be highly resistant to rust. We have been patiently waiting for an opportunity to demonstrate this faculty and the year under report provided such an opportunity and the claim made on behalf of the Pusa wheats was made good. The following table gives only a few typical experiences of people who grew both the local and Pusa wheats from the various Talukas:—

No.	Village.	Name of cultivator.	Pusa wheat.		Local Wajia.			Multiple of produce turned out to seed.	
			Seed mds.	Out-turn mds.	Seed mds.	Out-turn mds.	Pusa Wajia		
1	2	3	4	5	6	7	8	9	
		TALUKA VISNAGAR.							
1	Basna	Abheraj Mulji	26	290	1.5	4.5	11	3	
		TALUKA MEHSANA.							
2	Jagudan	Ranchhod Vahaldas.	3	38	2	11	12	5	
		TALUKA KHERALU.							
3	Kheralu	Becharbhai Desai.	5	85	2.5	21	17	8	
		TALUKA KADI.							
4	Kherpur.	Maghabhai Motibhai.	3	39	2	10	11	5	

More detailed information is given in Appendix XII.

(a) In this case also the stage of demonstration has reached a point when the Co-operative Department can make it its own for seed-store and intensive extension. All the pure seed on the Jagudan Farm has been reserved for seed centres in the important wheat growing sections and a more extensive cultivation is fore-shadowed.

(b) The Pusa wheats provide for different requirements as awn-less or awned wheat, hard and soft, suited to light soils and heavy ones as well as for dry and irrigated crops. Thus No. 52 Pusa is a bearded type and has shown even greater resistance to rust than Pusa No. 12. Pusa 4 and 12 are both beard-less but exhibit preference for certain type of soils or conditions. No. A-115 going by the trade name of Sarbatia is still another type that has met with popular favour elsewhere and all these types are being kept on the farm in case there is a demand for any particular type.

59. The Kadi District Agricultural Association apprehended high prices for Jowar seed in the sowing season and decided to have a seed store to keep the prices down with assistance of Government providing the necessary funds for purchase of seed. As a result 36,000 lbs. of Jowar seed was purchased and stored on the Jagudan Farm. When the season for sowing Jowar was actually at hand, it was found that the rates instead of going up as apprehended had gone down and but for the accident of the damage by floods, which created a demand for Jowar, the loss in the transaction would have been much more than it actually turned out to be. This was Rs. 497-6-6 and was met by the Khedut Sabha and from Prant Panchayat contribution.

(a) A similar effort was made for Wagad cotton seed from Dhrangandra as it has considerable reputation in the market. The seed was distributed largely through societies. There was no loss in the transaction but comparative figures regarding its out-turn as compared with the local seed have not been available from any source, so that no decision could be made regarding its profitability.

60. Interest in an increasing measure is being taken in fruit culture and Bor and Papaya tend to be more or less a standardized fruit in the District. Lemons and Santras have been under trial and if they do well, greater interest in these would also be taken.

Anreli.

61. The results of cotton types grown on the farm indicate a useful direction of propaganda in the use of Jalgaon seed of cotton as it gives 3 to 5 per cent more lint from the same quantity of seed cotton. Arrangements have been made for 800 lbs. of cotton seed imported from Khandesh to selected cotton growers and arrange to have the seed from the resulting crop for more extensive distribution.

62. The area under sugar-cane in the district is not very large but wherever the crop is grown it forms one of the most expensive ones. Possibilities of improvement are indicated in various directions like planting in rows and ridges, use of ammonium sulphate for manure, and of the Poona furnace in gul boiling. The following results are furnished by the cane grower who had used ammonium sulphate for top-dressing :—

No.	Crop.	Area B. V.	Manurial treatment.	Total yield mds.	% on cane.		Remarks.
					Jui ce.	Gul	
1	2	3	4	5	6	7	8
1	Pundia cane	2-0	Ordinary manure + 400 lbs. Ammonium-sulphate.	240	72	13.5	All this area was grown by the ridge method.
2	" "	"	Only F. Y. Manure.	200	67	12.20	

63. Amreli District is the one place where the iron mould board plough has field for considerable extension. A subsidy of Rs. 15 per plough has been granted by Government and as a result 13 ploughs of this type have been purchased by people. (Annexure F.) A power cane crusher was given as a loan for demonstration at Jalia and the cultivator says that had it not been for this facility it would have been next to impossible for him to deal with his large area of cane. He was going in for it himself next season after trial, but the rate of gul had gone down so much that he has not risked even one bigha of cane in place of the 12 he had this season. The Poona furnace was also demonstrated here and has given a saving of nearly 50% of fuel. The area however under cane in this tract is so scattered that a successful demonstra-

tion almost comes to field to field trials; when the low price of gul is added on to this, the propaganda work in improved methods becomes still more difficult.

(2) DEMONSTRATION AND SHOWS.

64. After a lapse of nearly 15 years an agricultural show was organized at Amreli and was held from 27th to 29th January 1928. The Agricultural and cattle show at Amreli. Show had also a Live Stock Section and if we are to judge of the cattle of the country from the specimens entered for the show, the state to which these have been reduced is very poor indeed.

(a) The agricultural section was particularly well represented, more than 600 exhibits having been received. 69 prizes totalling Rs. 187 were awarded for this section, and 20 prizes totalling Rs. 261 were awarded for the Live Stock Section, where the entries totalled 110. The total expenditure of the Show came to Rs. 2,219 to which Government contributed Rs. 700.

(b) This occasion was utilized for having a practical demonstration on the newly opened Government Farm regarding what are intended to be the special points of investigation.

65. A similar show was held at Vijapur on 14th, 15th and 16th of May 1928, and was declared open by His Excellency the Dewan Saheb. Over 200 agricultural exhibits were received and of these 43 were awarded prizes of the value of Rs. 273. The entries in the Live Stock Section totalled 158 and 95 prizes of the total value of Rs. 600 were awarded in this Section.

(a) The total expenditure of the Show came to Rs. 3,630 to which the department contributed Rs. 700.

(b) The occasion was utilized for demonstration of power cultivation, power chaff cutter, Burdizzo method of castration and the value of Pusa wheat in withstanding rust.

(3) PUBLICATIONS.

66. The agricultural calendar and agricultural and co-operative quarterly was published as usual. Agricultural calendar and quarterly.

(a) Leaflets giving technical advice with regard to the situation caused by the floods and other agricultural improvements were freely distributed.

(b) A Gujarati version based on the booklet 'The Cow' mother of prosperity and named "गौपालन" was got approved for publication and will soon be available for distribution.

Agricultural Education.

67. The response to a short course having proved encouraging last year, the same facilities were continued during the year under report. The school commenced work on 15th June but the period was extended upto January 1928, to make up for the disorganization of the work due to flood scare. 18 students took the benefit of the course. Their distribution by district was as follows:—

Baroda	...	...	...	7
Kadi	...	...	..	6
Navsari	...	...	...	5
				18

The total expenditure came to Rs. 2,903-7-4.

(B) Agricultural Engineering.

68. The charge of the section remained with Mr. H. C. Gandhi, as acting Agricultural Engineer. The question of permanent appointment is pending on the report of the Royal Commission on Agriculture.

69. In the following statement is shown the machinery of various types on hand and used during the year :—

Machinery on hand and used during the year.

District.	Cawnpore hand-power.	Musto--power.	Calyx power
1	2	3	4
Baroda.	4	...	...
Navsari.	1	...	1
Kadi.	2	1	...
Amreli.	...	1	...
Flood relief.	...	...	1
Un-used.	12	...	...
Total ...	19	2	2

70. Owing to the heavy rains of the season the inquiry for boring sets by the people was less spontaneous and less insistent. Considerable canvassing was therefore necessary in keeping the sets at work. The work done is shown in the following statement :—

Wells bored and water tapped.

No.	Item.	Particulars.
1	2	3
1	Applications on hand from last year	...
2	Applications during the year	...
3	Total number of applications	...
4	Wells undertaken	...
5	Successful bores	...
6	Un-successful	...
7	Abandoned at the request of the well-owner	...
8	In-complete	...
9	Water equivalent tapped in successful wells	...
10	Total depth bored of 2'', 3'' & 4''	...
		54 koses.
		2913 feet.

Details of work done are given in Appendices XIII to XVII.

71. The same difficulty of lack of spontaneous demand as in boring was experienced in this work. The work was further handicapped owing to lack of labour for drilling holes for receiving the dynamite charge and clearing away the debris caused by the explosion. Particulars of work done are given in the following statement :--

No.	Item.	Particulars.
1	2	3
1	Number of wells blasted	13
2	Number of wells in which increase of water was obtained..	8
3	Total quantity of material excavated... ..	3598 cubic feet.
4	Number of cart-ridges used	787
5	Number of detonators used	254

Details of work appear in Appendix XVIII.

(a) A demonstration regarding the economic use of this explosive as compared with the ordinary gun-powder was given at the suggestion of a quarry owner in our State at Timba in Savli Taluka and was found useful in reducing the number of holes necessary for blasting a certain area by both the methods. It was of course useful in keeping up the work going even under water where ordinary gun-powder is of no use.

(b) The material was also used for cutting of some of the projections in the river at Dhari in order to make a flood water-way so that the drinking water-supply enclosures may remain unaffected by the rising flood water. Only a small amount, viz. Rs. 100 having been sanctioned by the Dhari Mahal Panchayat for the purpose, part of the necessary blast-

ing could be undertaken. More work would be done on ascertaining the effect this blasting has had on the flood level.

72. A portable power pump to check water tapped and test water capacities for installation of power pump has been purchased and would enable the department to advise the well owners more definitely regarding the sufficiency of water supply in the wells for power pumping.

Purchase of portable pump.

73. The tractor on the Baroda Farm is being increasingly associated with the farm cultivation work. The intention is to develop this side of the farm equipment and see how far power operations were feasible. A cultipacker and a Rotary Hoe were added to the power machinery equipment with the same object. A power drill and cultivators would be added as soon as really efficient implements for the purpose could be obtained and as experience in power farming accumulates. The departmental tractor was demonstrated in both the agricultural shows at Amreli and Vijapur and worked tillage machinery and a power chaff-cutter.

Tractor work.

(a) A new tractor was purchased at Borkhadi at Vyara by a progressive agriculturist who has taken to farming after having gone through the full course of instruction at the Poona Agricultural College.

(b) Timely services for tractor owners have been made available and are much appreciated. A tractor in Kosamba was completely overhauled and another at Santej marooned under the flood set in working order.

(c) A demonstration of digging soil in the tank bed of Timbi for material to repair the bund was given to the contractor at the suggestion of the P.W. Department.

(d) A Tractor and Oil Engine Class was organized as usual, but consequent on the disorganization caused by the flood only 13 out of the 34 applicants could avail of the facilities offered.

74. The power cane-crusher was lent for work to a big cane grower at Jalia who worked it with his own engine. Work accomplished is given in the following statement :—

Other power machinery demonstrated.

No.	Item.	Particulars.
1	2	3
1	Number of days power-crusher was worked...	24
2	Cane crushed	8,550 mds. of 40 lbs.
3	Juice extracted... ..	480 kundis of 12 mds.
4	Gul obtained	1,008 mds. of 40 lbs.

The cane grower appreciated the fact that but for the loan of this power crusher, he could not have been able to crush the cane in the ordinary way. He was going to buy a power-crusher but for the fact of the gul prices having gone so low that he got discouraged and has given up sugar-cane cultivation altogether.

(a) Power chaff cutter was demonstrated at the shows.

(b) A portable pump was demonstrated in operation with the tractor in the river bed near Kosamba and the tractor owner decided to go in for a portable pumping set as a result.

(c) The installation of a power pump on the Amreli Farm has induced two cultivators to go in for a similar plant. One has already been set in work with the assistance of the Engineer's services of this department and another has been ordered and would be set up next year.

(c) Animal Husbandry.

75. The work in this section may be further sub-divided into :--

Breeding and Veterinary Relief.

- (1) Breeding.
- (2) Veterinary Dispensaries.

*(1) BREEDING.**(a) Palace Dairy and Makerpura Cattle Breeding Farm.*

76. The institution is located in the suburb of Baroda at Makerpura about 4 miles from the city.

Location and object. When started in 1922, its main object was to build up a pedigree herd of Gir cows and Kathiawar buffaloes. The climate of Baroda however was found uncongenial to the buffaloes and the object has by recent order of Government undergone considerable change. The main object of the institution would now be to provide dairy produce for the Palace and as a corollary take up the breeding of Kankrej cows and Charotar type of buffaloes. A farm of about 42 bighas is attached to the institution for purposes of fodder supply.

77. The Live Stock on hand at the end of the year was 130 against 150 of the last year. The Strength of herd and health of stock. The milch stock comprised of 25 cows and 21 buffaloes, the average number actually milking being 16 cows and 15 buffaloes.

Details appear in Appendix XIX.

(a) The health of the stock on the whole has been good. There was an outbreak of rinder-pest in November 1927, but timely prophylactic measures soon brought it under control and no casualty on that account has been sustained. There were 95 cases of illness in the herd during the year and the mortality was as follows :--

No.	Class of animal.	Number of deaths.
1	2	3
1	Cow	1
2	M. C. Calves	2
3	Buffalo	1
4	F. B. Calves	4
5	M. B. Calves	2
	Total	10

78. Milk produced in the year is shown in the following table with last year's figures for comparison:—

Milk produce and supply.

Milk from.	1927-28. lbs.	1926-27. lbs.
1	2	3
Cows	49,964½	59,171
Buffaloes	48,384	30,839
Total	98,348½	90,010

(a) This works out the following averages:—

Average yeild per milking animal.	1927-28. lbs.	1926-27. lbs.
1	2	3
Average yield per cow during the year ...	3122·8	3114·2
Average yield per buffalo during the year.	3225·6	3083·8
The average per cow in the herd ...	1998·5	1590·6
The average per buffalo in the herd ...	2304·0	1541·9

(b) The disposal of the produce is given in the following statement:—

No.	Particulars.	Milk supplied in lbs.	Remarks.
1	2	3	4
1	Supplied to Palace	10,246½	
2	Hospital	51,969½	
3	Other customers	15,461	
4	Separated... ..	17,396½	
5	Fed to calves	2,689½	
6	Loss on handling... ..	567½	
	Total ...	98,348½	

79. The total fodder consumed during the year came to 8,08,175 lbs. Of this 4,42,535 lbs. were Ration and cost. raised on the farm at a cost of Rs. 3,070-11-0. The rest was purchased from the contractor at a cost of Rs. 3,412-7-0.

(a) Concentrates fed came to mds. 3,162-14½ lbs. costing Rs. 8,579-2-4. Appendix No. XX.

80. Three pits were filled with 78,120 lbs. of sundhia and 50,685 lbs. of silage were fed to Silo pits cattle from the same. This works out at 64·8 of feedable silage which is satisfactory considering that the silage is made only in ordinary pits.

81. Four bulls have been supplied to Amreli from the stock raised on the farm for this purpose. Supply of breeding bulls.

82. The total expenditure on the institution came to Rs. 31,814-1-4 and the income to Rs. 13,409-15-9. Of the receipts Rs. 2,530-15-10 were on account of the balance of Rs. 2,731-10-10 of the last year. Appendix No. XXI shows details.

Finances.

(b) *Breeding Stock.*

83. Four bulls were given last year and were stationed for service at Kapura, Kalkva (Vyara),
Bulls given for breeding. Ranat, Amchak and Ghadoi (Mahuwa).
These have been inspected and are reported to be in good condition. Four bulls from the Palace Dairy were given to Amreli Mahal Panchayat and are stationed at Chandgad, Vakia, Nana-machiala and Keria-nagas in Amreli Taluka and have commenced serving.

84. A stallion is maintained at the Patan Veterinary Dispensary and continues to give useful service.
Stallion at Patan.

85. The cross merino rams that were given in the villages of Patan have not been able to withstand the change except in two cases and further extension of this activity has been dropped.
Merino rams.

(2) VETERINARY DISPENSARIES.

86. Veterinary Dispensaries continued to be under the management and control. of the Panchayats with the usual difficulties.

87. The total number of dispensaries working at the end of the year were 15 and were distributed as follows:—
Number of Veterinary Dispensaries and distribution.

Baroda District.	Navsari District.	Kadi District.	Amreli District.
1	2	3	4
1 Petlad.	7 Kathor. (T : Kamrej)	11 Patan.	15 Amreli.
2 Bhadran.	8 Vesma. (T : Navsari)	12 Mehsana.	
3 Sankheda.	9 Vyara.	13 Sidhpur.	
4 Dabhoi.	10 Karchelia (T : Mahuwa)	14 Vijapur.	
5 Baroda.			
6 Sinor.			

Sanction for two more at Kadi and Chanasma has been obtained and arrangements are being made to have these opened soon.

88. The total number of fresh cases receiving medical aid during the year come to 20,663. This total was made up as follows :—

1. Treated at the dispensary	17,360
2. Treated on tour	1,990
3. Inoculations	1,313

Total. 20,663

(a) The total number of out-door patients came to 17,048 and in-door patients came to 312.

(b) The average daily attendance of all the dispensaries put together came to 361.0; for out-door patients 348.53 and for in-door ones 12.47.

Details are given in Appendix XXII.

89. The number treated at the dispensary was made up of the following class of patients; 9,824 of these represent mofussil cases.

No.	Class of animal.	Cases treated.
1	2	3
1	Horses	2,205
2	Cattle	11,786
3	Others	3,369
	Total ...	17,360

90. In the following statement is given the analysis of the important diseases treated at the dispensaries :—
 Classification of diseases and operations.

No.	Classification of disease.	Cases treated.
1	2	3
1	Skin diseases	3,013
2	Disorder of the digestive system ...	2,890
3	Specific diseases	902
4	Eye and ear diseases	822
5	Affecting the skeleton	704

Details are given in Appendix XXIII

(a) The total number of operations came to 1,776, of which 768 were major and 1,008 minor ones.

91. The work of castration although not yet exactly popular, is going apace, 463 animals having been castrated during the year under report.
 Burdizzo method of castration.

92. A large number of outbreak reports numbering 48 were received during the year, a good many being an aftermath of the flood; they fall into the following classes:—

No.	Epidemics.	Reports.
1	2	3
1	Haemorrhagic Septicæmia... ..	26
2	Rinderpest	6
3	Foot and mouth disease	5
4	Surra... ..	1
5	Acute gastritis in epidemic form	1
6	Anthrax	1

The total number of animals inoculated in the affected area came to 1,313. Details are given in Appendices XXIV and XXV.

93. 385 villages have been paid a visit by the Veterinary staff; in their round of duty they explained the facilities offered by Government for veterinary aid.

94. Mr. Vasawada has been in charge of the technical inspection of the dispensaries and has rendered useful assistance in this connection as well as other technical matters concerning the dispensaries. He inspected all the dispensaries and due action has been taken on reports submitted.

95. As a result of flood conditions, outbreaks of rinderpest and H. S. were feared amongst animals and many reports were received. A special man was therefore appointed to attend to these outbreaks for six months. He visited 34 villages and inoculated

338 animals and visited Baroda, Waghodia, Karjan, Savli and Attarsumba Mahals in connection with this special duty.

(a) In addition to the special appointment the Veterinary Surgeons at Dabhoi and Sankheda were deputed to Petlad to help the local Veterinary Surgeon in dealing with the outbreak situation in the respective talukas as a consequence of the flood. Appendix No. XXVI gives details.

96. The total expenditure of the various dispensaries came to Rs. 36,821-12-0. Half of this will be borne by Government. The contribution from which this will be met comes to Rs. 22,750. The excess is refunded in the usual course. Appendix No. XXVII gives details.

97. The staff both technical and administrative have all rendered me the best help they can in the work entrusted to my care and I am glad to take note of it here.

Baroda,
Dated 31st October 1928.

C. V. SANE,
Director of Agriculture,
Baroda State.

ANNEXURE A.

Important posts in the Department of Agriculture on July 31st 1928.

FARM SUPERINTENDENTS AND INSPECTORS.

Mr. P. P. Patel, B. Ag.	...	...	Agricultural Inspector, Amreli District and Superintendent, Amreli Farm.
Mr. R. G. Patel, B. Ag	...	...	Agricultural Inspector, Kadi District and Superintendent, Jagudan Farm.
Mr. D. S. Medatkar, B. Ag.	...	...	Agricultural Inspector, Baroda District.
Mr. V. M. Kathavate, B. Ag.	...	...	Superintendent, Baroda Farm.
Mr. G. G. Navathe, B. Ag.	...	...	Agricultural Inspector, Navsari District and Cotton Officer (from 1st May 1928).

AGRICULTURAL ENGINEERING.

Mr. H. C. Gandhi.	...	...	Agricultural Engineer.
Mr. N. L. Desai	...	...	Boring Overseer.

VETERINARY BRANCH.

Mr. S. M. Vasawada, G. B. V. C	...	...	Veterinary Inspector.
Mr. D. B. Pandya, G. B. V. C.	...	...	Patan Veterinary Surgeon.
Mr. H. V. Save, G. B. V. C.	...	...	Kathor Veterinary Surgeon.
Mr. C. V. Mankodi	...	...	Petlad Veterinary Surgeon.
Mr. R. K. Pathak, G. B. V. C.	...	...	Baroda Veterinary Surgeon.

CATTLE BREEDING AND DAIRY.

Mr. N. K. Jadhav.	Superintendent, Cattle Breeding and Dairy (from 26th June 1928).
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ANNEXURE B.

Statement showing detail of touring work of the Director of Agriculture in the year 1927-28.

7 A. R.

Serial No.	Item.	Baroda District.	Kadi District.	Navsari District.	Amreli District.	Bombay.	Poona.	Surat.	Ahmedabad.	Total.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12
1	Number of days.	17	30	21	34	7	4	3	2	118	+ The sign shows direct touring from one district to another.
2	Number of journeys.	12	4 +4	7	5 +1	1 +1	1	1 +1	2	33 + 7	

ANNEXURE C.

Statement showing the number of papers received and disposed of in the Agriculture Department during the year 1927-28.

Serial No.	Item.	Last year's pending papers.	No. of papers received during the year.				Total No. of papers.	No. of papers disposed of.				Total No. of papers disposed of.	Remained pending at the end of the year.	Remarks.
			1st quarterly.	2nd quarterly.	3rd quarterly.	4th quarterly.		1st quarterly.	2nd quarterly.	3rd quarterly.	4th quarterly.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Papers re: Agriculture.	11	209	197	221	251	889	215	196	222	251	884	5	
2	" " Farms.	12	317	219	307	307	1162	321	218	308	309	1156	6	
3	" " Agricultural Engineering & Boring.	4	121	193	192	182	692	118	191	194	188	691	1	
4	" " Veterinary Dispensaries.	14	364	282	384	311	1355	364	279	392	312	1347	8	
5	" " Government servants	5	212	229	279	249	974	208	227	284	251	970	4	
6	" " Miscellaneous	10	328	386	239	186	1149	327	379	250	188	1144	5	
7	" " Applications.	...	7	18	34	116	175	7	14	18	104	143	32	
8	" " Cattle Breeding & Dairy.	17	86	152	131	103	489	83	142	146	103	474	15	
	Total.	73	1644	1676	1787	1705	6885	1643	1646	1814	1706	6809	76	

ANNEXURE D.

Statement showing Tagavi advances recommended and given to the cultivators in the year 1927-28.

Serial No	Name of the cultivator.	Village.	Taluka.	Amount recommended.	Amount granted.	For the purchase of.	Remarks.
1	2	3	4	5	6	7	8
1	Nathubhai Vasanji.	Pardi	Kamrej	7,000	...	Tractor.	
2	Navroji Palanji.	Bhatha	Gandevi	3,500	...	Oil Engine and Pump.	
3	Dayalji Lallubhai Mehta.	Gadat	Gandevi	2,500	...	"	
4	Dajibhai Ranchhodbhai.	Sarar	Baroda	2,500	...	"	
5	Lallubhai Gordhanbhai.	Kural	Padra	5,000	...	"	
6	Rambhai Dayabhai Amin.	Dehgam	Dehgam	5,000	...	"	
7	Madhavrao Eknath Nikam.	Verakui.	Mangrol	...	...	For sinking & making pukka well and for erection of engine.	
				25,500			

No Tagavi loan has been granted during the year under report owing to heavy flood.

ANNEXURE

Statement showing expenditure and receipts of the

Serial No.	Branch.	Pay.	Travelling allowance.	Experiments and demonstrations.	Other charges.
1	2	3	4	5	6
1	Head Office ...	14,099-12- 4	1,593-15- 0	1,994-14- 4	18,586-12-10
2	Agricultural Engineering ...	8,540- 0- 9	1,856-10- 6	460- 3- 6	9,674-14- 0
3	Baroda Farm ...	4,104- 9- 4	34-11- 6	144- 9- 3	10,064- 3- 4
4	Jagudan Farm ...	859- 5- 8	185- 3- 0	...	3,339-15- 3
5	Amreli Farm ...	1,369-11-11	36- 7- 0	211- 7- 0	6,427-10- 8
6	Inspectors ...	7,924- 2- 0	1,243- 7- 3	346-14- 6	207- 0- 0
7	Cotton Branch ...	468- 0- 0	2-12- 0	...	68-13- 4
8	Agricultural School ...	...	...	...	2,903- 7- 4
9	Makerpura Dairy.	7,038- 4- 3	344- 7- 6	...	24,431- 5- 7
10	Veterinary Dispensaries ...	...	...	...	22,870- 5-10
	Total ...	44,403-14- 3	5,297- 9- 9	3,158- 0- 7	98,574- 8- 0

E.

Department of Agriculture for the year 1927-28.

Total expenditure.	Receipts.	For the year 1926-27.		Remarks.
		Expenditure.	Receipts.	
7	8	9	10	11
36,275- 6- 5	1,804-10- 5	24,563- 6- 9	2,646- 7-10	
20,531-12- 9	1,857- 5- 0	21,156- 9-11	3,438-14- 8	
14,348- 1- 5	9,672-10-11	13,864-15- 7	9,690- 9- 5	
4,384- 7-11	2,480- 4- 3	4,468-15- 5	2,977- 9- 9	
8,045- 4- 5	1,156-11- 3	14,953- 5- 5	104-15- 6	
9,721- 7- 9	...	9,509-10- 8	21- 8- 0	
539- 9- 4	...	2,311- 7- 1	...	
2,903- 7- 4	...	2,350-11- 7	...	
31,814- 1- 4	13,409-15- 9	68,348-12-11	8,804- 3- 5	
22,870- 5-10	153- 4- 2	15,800- 0- 0	...	
1,51,434- 0- 7	30,534-13- 9	1,77,327-15- 4	27,684- 4- 7	

ANNEXURE F.

Statement showing names of cultivators to whom help was accorded for the purchase of improved ploughs in the Amreli District upto the end of 1927-28.

Serial No.	Name of the person.	Village.	Taluka.	Sum accorded.	No. of ploughs.	Remarks.
1	2	3	4	5	6	7
	1926-27.					
1	Patidar Madhav Govind.	Kerianagas.	Amreli.	15-0-0	1	
2	Patidar Mohan Bhagvan.	Jalia.	"	15-0-0	1	
3	Patidar Premji Mulji.	Savlia.	"	15-0-0	1	
4	Patidar Mulji Vira.	Mota Akadia.	"	15-0-0	1	
5	Kanbi Rama Bhima.	Fatepur.	"	15-0-0	1	
6	Kanbi Gangadas Dhana.	Kundli.	Dhari.	15-0-0	1	
7	Kanbi Hirji Vishram.	"	"	15-0-0	1	
8	Kanbi Dahya Dhana.	"	"	15-0-0	1	
9	Patidar Virji jutha.	Ingorala.	Khamba.	15-0-0	1	
10	Kavishwar Nandlal Narshiram	Amreli.	Amreli.	15-0-0	1	
11	Patidar Manji Meghji.	Sajiavadar.	"	15-0-0	1	
12	Patidar Karsan Narsing.	"	"	15-0-0	1	
13	Patidar Laxman Bhima.	Vithalpur.	"	15-0-0	1	
14	Patidar Khoda Vasta.	Kami.	Dhari.	15-0-0	1	
15	Sheth Madhavji Motichand.	Chhatadia.	"	15-0-0	1	
16	Patidar Naran Devji.	Mota Bhandaria.	Amreli.	15-0-0	1	
17	Patidar Bhimji Ramji.	Vithalpur.	"	15-0-0	1	
18	Patidar Manda Giga.	Targa- Talav.	"	15-0-0	1	

ANNEXURE F.—(concl'd)

Serial No.	Name of the person.	Village.	Taluka.	Sum accorded.	No. of ploughs.	Remarks.
1	2	3	4	5	6	7
19	Patidar Popat Bhimji.	Rajthali.	Amreli.	15-0-0	1	
20	Patidar Bhola Ramji.	"	"	15-0-0	1	
21	Patidar Bhura Rana.	"	"	15-0-0	1	
22	Patidar Bhimji Karamsi.	Devraja.	"	15-0-0	1	
23	Patidar Vagha Hadha.	Ishwaria.	"	15-0-0	1	
24	Patidar Jutha Ratna.	"	"	15-0-0	1	
				360-0-0	24	
	1927-28.					
1	Khoja Jamal Abhram.	Khamba.	Dhari.	15-0-0	1	
2	Sheth Jagjivan Jhaverchand.	"	Khamba.	15-0-0	1	
3	Patel Savji Ramji.	"	Amreli.	15-0-0	1	
4	Patel Khimji Velji.	"	"	15-0-0	1	
5	Kanji Ravji.	Khamba.	Khamba.	15-0-0	1	
6	Jiva Rayji.	"	"	15-0-0	1	
7	Chhaganlal Shamji.	Pipalva.	"	15-0-0	1	
8	Ahir Jasa Vibha.	Machiala.	Amreli.	15-0-0	1	
			Total.	120-0-0	8	

APPENDIX No. I.

Statement showing rain-fall in different Talukas of the State
during the year 1927-28.

Name of the Taluka.	Rain-fall of 1927-28.	Normal of last 10 years.	Name of the Taluka.	Rain-fall of 1927-28.	Normal of the last 10 years.	Remarks.
1	2	3	4	5	6	7
	Baroda District.			Kadi District.		
Baroda City ...	81.52	32.36	Kadi Mahal.	51.11	26.20	
Baroda Taluka.	77.66	31.01	Kalol "	49.98	26.51	
Padra "	62.29	27.50	Dehgam "	57.47	27.25	
Karjan "	50.04	33.65	Attarsumba "	60.21	29.17	
Dabhoi "	75.03	33.83	Visnagar "	49.21	24.35	
Sankheda "	70.65	37.93	Mehsana "	47.18	25.78	
Tilakwada "	49.73	34.55	Kheralu "	47.05	25.16	
Sinor "	70.03	33.32	Sidhpur "	42.04	24.09	
Chandod "	47.00	26.57	Patan "	47.68	21.16	
Petlad "	71.24	29.10	Harij "	36.34	21.56	
Bhadran "	77.76	27.84	Vijapur "	52.21	27.73	
Savli "	83.75	30.16	Chansma "	54.90	21.66	
Vaghodia "	114.53	35.57				
	Navsari District.			Amreli District.		
Navsari Mahal.	34.59	50.86	Amreli Mahal.	20.02	18.92	
Gandevi "	44.00	59.40	Bhimkatta "	17.28	23.73	
Palsana "	44.44	49.13	Dhari "	14.67	20.40	
Mangrol "	38.74	36.59	Khamba "	17.73	19.12	
Kamrej "	43.44	38.83	Damnagar "	21.37	18.04	
Vyara "	46.72	56.94	Ratanpur "	24.90	19.07	
Songadh "	57.22	55.22	Kodinar "	23.13	30.47	
Mahuwa "	49.36	40.34	Okhamandal "	13.96	10.84	
			Byet "	12.69	11.66	

APPENDIX No. II.

Statement showing the area and value of crops grown on the
Baroda Farm in the year 1927-28.

Serial No.	Name of the crop.	Area.		Yield.		Value.	Remarks.
		A.	G.	Grain or other principal product.	Fodder.		
1	2	3	4	5	6	7	8
				Mds. Srs.	Mds. Srs.	Rs. As. P.	
1	Cotton	2	...	29-32	...	197- 5-11	
2	Cotton till mixture...	4	9	37-32	Til, 5-19 $\frac{1}{2}$ + Castors 8-36	314- 8- 9	
3	Cotton May sown.	3	...	55-4	5-17	382- 3- 7	
4	Tuer Til mixture.	1	...	21-35	24-0 + 1-6 Til.	66-13- 0	
5	Ground-nut dry ...	1	21	61-10 5-29 green.	9-0	149- 8- 1	
6	Bajri	6	38	147-31	6026	583-15- 6	
7	Tobacco	1	20	...	...	200- 0- 0	} Stand- ing crop was sold.
8	Sundhia	8	27	11-11	4854 462-30 green.	391- 5- 0	
9	Castors	7	4	141-11	11-20	349- 8- 9	
10	Juwar	4	30	34-6	17-0 Castors 3-33	112- 2- 5	
11	Lucerne grass ...	2	20	2682-20+ 1-0 gram.	...	1227- 9- 0	

APPENDIX II.—concl'd.

Serial No.	Name of the crop.	Area.		Yield.		Value.	Remarks.
		A.	G.	Grain or other principal product.	Fodder.		
1	2	3	4	5	6	7	8
12	Wheat	2	30	144-39	6165 + 60-10 gotar.	493- 8-8	
13	Onions	1	30	835-18	..	645-10-6	
14	Fruit trees & vegetables	10	15	122-16½ vegetables 1263-15 lucerne grass.	..	2777-10-7	
15	Nursery	0	30	...	...	131-10-7	
16	Cabbage	1	0	421-6	...	405-12-9	
17	Outside chaidi	2	20	...	...	91- 0-0	} Given on lease.
18	Fallow	0	20	...	...	...
19	Grams	0	5	2-12	1-0	4- 5-6	
20	Uncultivated	3	8	...	...	...

APPENDIX No. III.

Statement showing the rain-fall measured on the Baroda Farm during the year 1927-28.

Date.	June.	July.	August.	September.	October.	November.	December.	Remarks.
1	2	3	4	5	6	7	8	9
	In. C.	In. C.	In. C.	In. C.	In. C.	In. C.	In. C.	
1	...	...	...	0-31	...	...	...
2	...	...	...	0-34	0-75	..	...
3	...	1-52	...	...	...	...	...
4	...	1- 0	...	...	...	...	...
5	...	0-45	0-32	...	...	...	...
6	...	0-85	...	...	...	...	...
7	...	0-52	...	...	...	...	...
8	...	1-85	...	0-25	...	...	...
9	...	0- 8	0- 3	...	...	...	...
10	0-18	0-27	...	...	...	...	...
11	0- 3	0-39	0-21	...	...	0-27	...	
12	...	0- 2	...	...	...	0- 8	...	
13	...	7-30	...	...	...	...	...
14	0-23	0-42	...	...	...	...	...
15	...	0-10	1- 2	...	...	...	...
16	0-19	1-60	0-11	...	...	...	...
17	1-46	0-33	0- 7	...	...	...	...
18	1-64	0- 4	0- 9	...	...	...	...

APPENDIX No. III.—Concluded.

Date.	June.	July.	August.	September.	October.	November.	December.	Remarks.
1	2	3	4	5	6	7	8	9
	In. C.	In. C.	In. C.	In. C.	In. C.	In. C.	In. C.	
19	0-12	0-21	0- 5	...	..	...	0- 2	
20	4- 1	1-38	...	...	...	...	0-20	
21	...	0-76	0- 6	0- 6	...	...	...
22	...	2-96	0- 2	0- 4	...	...	...
23	0- 4	0-37	0- 5	0-11	...	...	...
24	...	2-63	...	...	...	...	...
25	0- 1	10-12	0- 2	...	...	...	...
26	0-33	14- 9	0- 3	1- 5	...	...	...
27	...	8-70	...	0-98	...	...	...
28	...	8-14	0-53	1-13	...	...	...
29	...	0-82	0- 3	0-40	...	...	...
30	...	0- 8	0- 8	0-35	...	...	0- 3	
31	...	0- 9	2-33	...	...	...	...
Total.	8-29	67- 9	5- 5	5- 2	0-75	0-35	0-25	

APPENDIX No. IV.

Statement showing the acreage, total yields and average minimum and maximum out-turns per acre of principal crops on the Baroda Farm during the year 1927-28.

Crop.	Area A. G.	Total yield lbs.	Out-turn per acre.		
			Average.	Maximum.	Minimum.
1	2	3	4	5	6
Bajri.	6-38	5,971	853	1,215	543
Cotton June sown.	2- 0	1,192	596	798	474
Cotton Tali mixture.	4-29	1,512	356	748	114
Cotton May sown.	3- 0	2,204	734	962	573
Castors.	7- 4	5,317	749	1,225	44
Wheat.	2-30	5,799	2,108	2,566	1,616
Lucerne grass.	2-20	1,04,100	41,640	43,023	39,565
Ground-nut.	1-20	2,450	1,633	...	...

APPENDIX No. V.

Statement showing the effects of fertilizers on Onion crop on the Baroda Farm during the year 1927-28.

Serial No.	Name of fertilizer.	Per acre lbs.	Composition lbs.	Cost per acre lbs.	Yield per acre lbs.	Remarks
1	2	3	4	5	6	7
1	Ammonium-Sulphate + Muriate of Potash + Super-phosphate.	300 + 56 + 112	61-8 N. 28· K 2·0 20·16 Phos-acid.	24- 1-9 4- 4-9 6- 4-0 34-10-6	24,542	Ammonium Sulphate $\frac{1}{2}$ and other manures before sowing, and the remaining $\frac{1}{2}$ of Ammonium-Sulphate one month after sowing.
2	Cross fertilizer.	448	12·94 N. + 14·5 k 2·0 + 44·8 Phos acid.	35- 0-0	20,330	Before sowing.
3	Cross fertilizer.	"	"	"	20,024	"
4	Ammonium-Sulphate + Super-phosphate + Muriate of Potash.	62· 8 + 246· 0 + 28·96	12·9 N. 44·8 Phos-acid. 14·8 k 2·0	5- 1-3 + 13- 9-3 + 2- 3-3 20-13-9	19,375	"
5	Sodium-Nitrate + Ammonium-Sulphate.	200 185	30· N. 38· N.	20- 7-6 + 16-11-1	24,345	Within one month after sowing.

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APPENDIX No. VI.

Statement showing the prices for the Baroda Farm products and average cost of manures purchased during the year 1927-28.

Serial No.	Name.	Average price per md. of 40 lbs.			Kind of manure.	Cost per maund			Remarks.
		Rs.	As.	P.		Rs.	As.	P.	
1	2	3			4	5			6
1	Bajri ...	2-	7-6		Sulphate of Ammonia	3-10-1			
2	Cotton ...	6-11-3			Muriate of Potash.	4-13-9			
3	Castors ...	2-	6-0						
4	Wheat ...	3-	0-4		Cross fertilizer	3-11-2			
5	Ground-nut ...	2-	3-9		Super - Phosphate.				
6	Tuer ...	2-	7-1		Soda Nitrate.	4-	1-6		
7	Sundhia ...	4-	0-0		Bone-meal.	2-	9-3		
8	Til ...	5-	0-0		Bone - Supper Phosphate.	2-	9-3		
9	Lucerne seeds.	40-	0-0		Ground - nut cakes.	1-15-0			
10	Tobacco seeds.	80-	0-0		Castor cakes.	1-	6-0		
11	Guwar ...	2-13-9			Basic - Bone Super-phosphate	2-	3-0		
12	Mug ...	2-	4-0		Farm Yard.	1-	4-0	per cart.	
13	Gram ...	1-	12-0						
14	Gotar ...	0-	5-1						
15	Sundhia fodder.	4-11-0							
16	Bajri fodder ...	per 100 bundles.	4-	0-0					
17	Wheat fodder..	0-	8-0						
18	Bajri ears ...	per md.	0-	6-0					

APPENDIX No. VII.

Statement showing rate of labour etc. on the Baroda Farm
during the year 1927-28.

Item.	Charges.						Remarks.
	1925-26		1926-27		1927-28		
	Rs.	As. P.	Rs.	As. P.	Rs.	As. P.	
1	2		3		4		5
LABOUR.							
Farm-men, prisoners.	0-	7-4	0-	6-9	0-	6-10	
Daily labour ...	0-	6-0	0-	5-5	0-	5-0	
OTHER CHARGES.							
Engine	0-	11-9	0-	10-8	0-	10-4½	Per one hour.
Bullocks	1-	13-3	1-	14-6	1-	8-7	Per one bullock.
MISCELLANEOUS.							
Including watching general cleaning &c.	18-	13-1	18-	8-0	19-	4-6	Per acre.

APPENDIX No. VIII.

Statement showing the rain-fall measured on the Jagudan Farm during the year 1927--28.

Date	June	July	August	September	Re- marks.
1	2	3	4	5	6
	Inches. Cents.	Inches. Cents.	Inches. Cents.	Inches. Cents.	
1	0.65	...	
2	0.48	...	
3	...	0.42	0.17	...	
4	...	0.40	0.12	...	
5	
6	
7	
8	...	0.25	...	...
9	...	0.22	0.40	...	
10	
11	
12	0.70	...	
13	...	1.30	...	...
14	...	0.55	...	...
15	...	0.16	7.52	...	
16	0.85	...	
17	0.80	0.21	...	...
18	...	0.28	0.7	...	
19	0.55	0.8	...	...
20	...	0.3	5.48	...	
21	...	0.68	1.90	...	
22	0.10	...	
23	...	1.12	...	...
24	...	3.25	...	...
25	...	1.92	0.12	...	
26	...	4.18	...	...
27	...	8.00	...	...
28	...	7.12	...	...
29	...	4.68	0.84	...	
30	...	1.70	...	...
31	...	1.12	0.8	...	
Total ...	1.35	37.67	19.48	...	

Total rain-fall 58.50

Statement showing the produce and value of the produce per plot of the Jagudan Farm during the year 1927-28.

Serial No.	Plot No.	Area		Crop.	Produce.		Value of produce.	Remarks.
		B.	V.		Grain or fruits.	Bundles.		
1	2	3	4	5	6	7	8	9
					Mds. Srs.			
1	1-10	3	...	Papaya.	423-10	...	893- 0-0	
2	11-12	1	...	Bajri.	15-25	428	36-10-0	
3	"	1	...	Wheat.	33-32	...	84- 8-0	
4	13-15	1	10	Cotton.	24-6	...	96- 9-6	
5	16-18	1	10	Chillies.	33-29	...	139- 6-6	
6	19-20	1	...	Bajri.	6-1	280	18- 9-0	
7	"	1	...	Wheat.	18-26	...	46-10-0	
8	21-25	2	10	Juwar.	...	1797	74- 3-0	
9	26-30	1	5	Bajri.	6-4	...	17- 0-0	
10	"	1	5	Wheat.	41-10	...	103- 2-0	
11	<u>26-30</u> 1	1	5	Bajri.	9-34	355	28- 1-6	
12	"	1	5	Wheat	39-13	...	98- 5-0	
13	31	0	15	Sundhia.	3-9	...	14-13-0	
14	"	0	15	Wheat.	21-31	...	53-11-0	
15	<u>31</u> 1	0	15	Bajri.	11-12	380	31- 9-0	
16	"	0	15	Lucerne.	...	232mds.	45- 0-0	
17	32-34	1	10	Gawar.	5-13	545	40- 8-0	

APPENDIX No. IX.—(concluded.)

Serial No.	Plot No.	Area		Crop.	Produce.		Value of produce.	Remarks.
		B.	V.		Grain or fruits.	Bundles.		
1	2	3	4	5	6	7	8	9
					Mds. Srs.			
18	32-34	1	10	Wheat.	15-1	...	28- 2-9	
19	35	1	17	Tobacco.	22-7	...	177- 0-0	
20	36	1	5	Cotton.	15-37	...	64-11-0	
21	37	...	5	Castors.	2-16	...	7- 1-3	
22	$\frac{37}{1}$	...	5	Til.	0-9	...	1- 2-0	
23	„	...	5	Wheat.	5-8	...	13- 0-0	
24	38	1	0	Papaya.	128-14	...	104- 2-0	
25	39	0	9	Wheat.	2-8	...	5- 8-0	
26	Nursery.	4	10	Gawar. Sundhia.	27-15	...	54-12-0	

APPENDIX NO. X.

Statement showing some average figures of expenditure incurred per Bigha on the Jagudan Farm for the year 1927-28.

Serial No.	Item.	Average rate of expense per bigha.	Remarks.
1	2	3	4
1	Depreciation for general Dead-stock.	2- 0- 0	
2	Depreciation on watering facilities per watering	0- 8- 0	
3	Land assessment	3- 1- 3	
4	Miscellaneous expenses like cleaning field boundaries etc.	10- 0- 0	
5	Permanent labourer	0- 6- 3	per day.
6	Daily labourer	0- 4- 3	"
7	Bullock charge including depreciation.	0-10- 6	"

APPENDIX NO. XI.

Statement showing the rain-fall measured on the Amreli Farm during the year 1927-28.

Date.	June.	July.	August.	Septem-ber.	October.	Novem-ber.	Re-marks.
1	2	3	4	5	6	7	8
	In. cts.	In. cts.	In. cts.	In. cts.	In cts.	In. cts.	
1	0·6	...	
2	
3	...	0·17	...	...	...	...
4	
5	
6	...	0·80	...	...	...	...
7	...	0·2	...	...	...	...
8	...	0·2	...	...	...	...
9	0·5	...	...	...
10	
11	...	0·10	...	...	...	0·16	
12	0·9	
13	...	0·39	0·12	...	...	...
14	...	0·96	...	1·14	...	...
15	...	0·1	0·52	...	...	...
16	0·14	...	...	...
17	2·91	0·1	...	...	...	...
18	0·3	0·1	...	...	...	...
19	...	0·20	...	...	...	...
20	
21	0·24	...	...
22	
23	...	0·1	0·24	...	...	...
24	...	0·28	...	0·17	...	...
25	0·63	0·4	...	...	...	...
26	...	0·14	...	...	...	...
27	...	3·32	...	1·56	...	...
28	...	1·75	0·10	0·51	...	...
29	...	0·9	...	0·9	...	...
30	...	0·2	...	...	...	...
31	0·30	...	...	...
Total	3·57	8·34	1·47	3·71	0·6	0·25	

Total rain-fall 17·40

APPENDIX. No. XII.

Statement showing comparative trials of Pusa wheat with Wajia during the year 1927-28.

Number.	Name of village.	Name of cultivator.	Pusa.		Wajia.		Produce per md. of seed.		Remarks.
			Seed.	Pro-duce.	Seed.	Pro-duce.	Pusa.	Wajia.	
1	2	3	4	5	6	7	8	9	10
TALUKA:-VISNAGAR.									
1	Basana.	Abheraj Mulji Patel.	25	290	1-20	4½	11	3	
		Velji Savji Patel.	6	90	4	30	15	7½	
		Govindji Vahalji	2	40	5	50	20	10	
2	Bhandu.	Parshottam Jivannam	2	30	2	20	15	20	
		Moti Shiva	5	70	9	15	14	1½	
TALUKA:-MEHSANA									
3	Ambliyan	Mohanlal Ramdas.	1½	16	3	10	10	3	
		Ganesh Ramdas.	1½	19	2	12	12	6	
4	Gadha.	Khuma Savjidas	5	75	0	0	15	0	
		Ramji Ganeshji	0	0	5	35	0	7	
		Mana Jesang.	0	0	4	5	0	1¼	
5	Kadvasan	Harji Dajibhai.	3	48	4	52	16	13	
6	Landhanaj	Virchand Gulabdas.	2	25	2	15	12½	7½	
7	Mevad.	Ganesh Lalji,	6	65	0	0	10	0	
		Moti Sardar.	0	0	6	30	0	5	
8	Jagudan.	Mehta Bhajgovind Umedram.	1½	22	4	35	14	8	
		Ranchod Vahal- das.	3	38	2	11	12	5	

APPENDIX. No. XII :—Continued.

Number.	Name of village.	Name of cultivator.	Pusa.		Wajia.		Produce per md. of seed.		Remarks.
			Seed.	Pro-duce.	Seed.	Pro-duce.	Pusa.	Wajia.	
1	2	3	4	5	6	7	8	9	10
9	Kheralu.	Kashi Bechardas.	0	0	5	10	0	2	
		Maganlal Mancharam.	2½	50	0	0	20	0	
TALUKA :—KHERALU.									
		Becharbhai Desai	5	85	2½	21	17	8	
TALUKA :—PATAN.									
10	Anamada.	Patel Mansang Jivabhai.	10	150	0	0	15	0	
		Jethabhai Rai-chand.	6	80	0	0	13	0	
TALUKA :—KADI.									
11	Jasalpur	Ramdas Kaku-bhai.	2	18	4	18	9	4½	
		Revandas Ran-choddas.	2	14	2½	11	7	4	
12	Sarsav.	Ishwardas Jesang das.	3	27	2	9	9	4½	
		Khodabhai Jivi das.	4	35	2	9	8¾	4½	
		Punjabhai Amichand.	1	10	2	5	10	2½	
		Fataji Kaluji.	0	0	5½	11	0	2	
13	Kherpur.	Joita Gordhandas	4	38	3	13	9¾	4½	
		Madhabhai Moti-bhai	3	39	2	10	11	5	
TALUKA :—VIJAPUR.									
14	Pilwai.	Mangaldas Shiv-das.	2	32	0	0	16	0	
		Vardhaji Dhami-chand.	0	0	4	40	0	10	

APPENDIX No. XIII.

List of applications received for Boring during the year 1927-28.

Serial No.	Name of Taluka.	Last year's balance.	Received this year.	Total.	Boring done.	Applications cancelled.	Owners un-willing.	Balance at the end of the year.	Remarks.
1	2	3	4	5	6	7	8	9	10
BARODA DISTRICT.									
1	Baroda.	6	5	11	8	0	3	0	
2	Sankheda.	1	5	6	4	0	1	1	
3	Petlad.	2	1	3	2	0	0	1	
4	Savli.	1	0	1	0	0	0	1	
5	Karjan.	0	12	12	12	0	0	0	
	Total.	10	23	33	26	0	4	3	
NAVSARI DISTRICT.									
1	Mahuwa.	1	4	5	3	0	0	2	
2	Vyara.	2	4	6	5	0	0	1	
3	Mangrol.	0	1	1	1	0	0	0	
4	Palsana.	0	1	1	0	0	0	1	
5	Kamrej.	0	2	2	2	0	0	0	
6	Gandevi.	0	1	1	0	0	0	1	
	Total.	3	13	16	11	0	0	5	
KADI DISTRICT.									
1	Mehsana.	1	0	0	1	0	0	0	
2	Visnagar.	1	0	0	1	0	0	0	
3	Vijapur.	1	0	0	1	0	0	0	

APPENDIX No. XIII—concluded.

Serial No.	Name of Taluka.	Last year's balance.	Received this year.	Total.	Boring done.	Applications cancelled.	Owners un- willing.	Balance at the end of the year.	Remarks.
1	2	3	4	5	6	7	8	9	10
4	Kadi.	1	0	0	1	0	0	0	
5	Dehgam.	0	4	4	4	0	0	0	
	Total.	4	4	4	8	0	0	0	
AMRELI DISTRICT.									
1	Amreli.	1	0	1	1	0	0	0	
	Total.	1	0	1	1	0	0	0	
	Grand Total.	18	40	58	46	0	4	8	

APPENDIX

Statement showing the number of wells bored in

Serial No.	Name of District and Taluka.	From 1911-12 to 1926-27.				
		Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.
1	2	3	4	5	6	7
BARODA DISTRICT.						
1	Petlad	197	673½	22	3	222
2	Bhadran	110	472	14	1	125
3	Padra... ..	72	210½	12	1	85
4	Baroda	114	254	22	5	141
5	Vaghodia	11	15	5	...	16
6	Savli	14	22	8	...	22
7	Karjan	10	27	1	...	11
8	Sinor	5	12	...	...	5
9	Dabhoi	1	1	5	...	6
10	Sankheda	1	1	...	...	1
	Total ...	535	1,688	89	10	634
KADI DISTRICT.						
11	Visnagar	132	237	40	4	176
12	Dehgam	97	194½	20	...	117
13	Mehsana	39	69½	9	3	51
14	Vijapur	25	59½	4	2	31
15	Kalol	16	25	2	1	19

No. XIV.

different Talukas till the end of 1927-28.

For 1927-28.					Total to the end of 27-28.					Remarks.
Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	
8	9	10	11	12	13	14	15	16	17		18
1	1	1	...	2	198	674½	23	3	224	
...	...	...	...	...	110	472	14	1	125	
...	...	...	...	...	72	210½	12	1	85	
4	6	2	2	8	118	260	24	7	148	
...	...	...	...	...	11	15	5	...	16	
...	...	...	...	...	14	22	8	...	22	
10	23½	1	1	12	20	50½	2	1	23	
...	...	...	...	...	5	12	...	...	5	
...	...	...	...	...	1	1	5	...	6	
4	4	...	...	4	5	5	...	...	5	
19	34½	4	3	26	554	1722½	93	13	660	
...	...	1	...	1	132	237	41	4	177	
4	13	...	...	4	101	207¼	20	...	121	
...	...	...	1	1	39	69½	9	4	52	
...	½	1	...	1	25	60	5	2	32	
...	...	...	...	...	16	25	2	1	19	

APPENDIX

Serial No.	Name of District and Taluka.	From 1911-12 to 1926-27.				
		Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.
1	2	3	4	5	6	7
16	Sidhpur	9	20	7	...	16
17	Attarsumba	9	13	1	...	10
18	Kadi	44	60½	13	2	59
19	Chansma	14	19½	8	5	27
20	Pattan	12	16	7	2	21
21	Kheralu	1	1	10	1	12
22	Harij... ..	...	...	1	1	2
	Total ...	398	716	122	21	541
	NAVSARI DISTRICT.					
23	Navsari	56	77	8	3	67
24	Gandevi	26	46½	3	...	29
25	Kamrej	13	15½	3	...	16
26	Mahuwa	8	14	2	...	10
27	Palsana	15	33	...	...	15
28	Vyara... ..	3	8½	2	4	9
29	Kataswel (Bansda State) ...	1	1	1	...	2
30	Mangrol ... ..	...	...	1	...	1
	Total ...	122	196	20	7	149

No. XIV. (Continued).

For 1927-28.					Total to the end of 27-28.					Remarks.
Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	
8	9	10	11	12	13	14	15	16	17	
...	...	...	...	...	9	20	7	...	16	
...	...	...	...	...	9	13	1	...	10	
...	...	...	1	1	44	60½	13	3	60	
...	...	...	...	...	14	19½	8	5	27	
...	...	...	...	...	12	16	7	2	21	
...	...	...	...	...	1	1	10	1	12	
...	...	...	...	...	...	...	1	1	2	
4	13½	2	2	8	402	729½	124	23	549	
...	...	...	...	...	56	77	8	3	67	
...	...	...	...	...	26	46¼	3	...	29	
2	2	...	...	2	15	17¼	3	...	18	
2	2	...	1	3	10	16	2	1	13	
...	...	...	...	...	15	33	...	...	15	
4	1	1	...	5	7	9½	3	4	14	
...	...	...	...	...	1	1	1	...	2	
1	1	...	...	1	1	1	1	...	2	
9	6	1	1	11	131	202	21	8	160	

APPENDIX

Serial No.	Name of District and Taluka.	From 1911-12 to 1926-27.				
		Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.
1	2	3	4	5	6	7
	AMRELI DISTRICT.					
31	Okhamandal	13	9½	6	...	19
32	Amreli	7	11	2	3	12
33	Kodinar	2	...	...	...	2
34	Byet	2	1	...	...	2
	Total ...	24	21½	8	3	35
	Grand Total ...	1079	2621½	239	41	1359

No. XIV.—(Continued.)

For 1927-28					Total to the end of 27-28.					
Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	Successful.	Water in koses.	Unsuccessful.	Incomplete.	Total.	Remarks.
8	9	10	11	12	13	14	15	16	17	18
...	13	9½	6	...	19	
...	...	1	...	1	7	11	3	3	13	
...	2	...	...	...	2	
...	2	1	...	...	2	
...	...	1	...	1	24	21½	9	3	36	
32	54	8	6	46	1111	2675½	247	47	1405	

APPENDIX

Statement showing Boring-work done

Serial No.	Name of well-owner.	Name of village.	Name of Taluka.	Depth of well.
1	2	3	4	5
	BARODA DISTRICT.			
1	Patel Bhikhabhai Kashibhai ...	Malataj.	Petlad.	72'-0''
2	Patel Desaibhai Khushalbhai ...	Sama.	Baroda.	60'-0''
3	Amin Chhotabhai Lallubhai ...	Koyli.	„	40'-0''
4	Patel Naranbhai Mandas ...	Ankodia.	„	80'-0''
5	Patel Lallubhai Vahalabhai ...	Karamdi.	Karjan.	54'-0''
6	Mahant Raghavprasad Radhikadas	Sherkhi.	Baroda.	75'-0''
7	Becharbhai Rajibhai	Karamdi.	Karjan.	60'-0''
8	Lallubhai Javerbhai Bin Dwarkadas	Tarmowad.	Petlad.	50'-0''
9	Patel Madhaobhai Garbadbhai.	Kambola.	Karjan.	45'-0''
10	Do.	„	„	45'-0''
11	Amin Chimanbhai Dabhai ...	Chhani.	Baroda.	45'-0''
12	Patel Ranchhodbhai Desaibhai.	Kambola.	Karjan.	...
13	Motibhai Laxmidas	„	„	50'-0''
14	Sheth Balubhai Keshavlal ...	Chhani.	Baroda.	...
15	Patel Ranchhodbhai Kashibhai.	Kosindra.	Sankheda.	...
16	Patel Trikambhai Govindbhai.	Kosindra.	„	...
17	Patel Jadhavbhai Desaibhai ...	Kambola.	Karjan.	...
18	Patel Mathurbhai Narsibhai ...	Kosindra.	Sankheda.	...

No. XV.

during the year 1927-28.

Depth of Boring.	Water before Boring in Koses.	Water after Boring in Koses.	No. of working days.	Diameter of Bore.	Departmental charges.
6	7	8	9	10	11
36'- 0''	1	...	27	3''	53-15- 3
101'- 4''	5	...	73	4''	57- 1- 1
91'- 0''	2	...	40	3''	56-14- 0
78'- 0''	1	1	42	4''	69- 2- 0
76'-10''	1	2	27	4''	...
62'- 0''	1	2	20	4''	...
80'- 7''	$\frac{1}{2}$	...	55	4''	116-10- 0 *38- 9- 8
60'- 0''	1	1	19	2 $\frac{1}{2}$ ''	21-14- 0
31'- 0''	2	3	7	4''	10- 0- 0
69'- 0''	5	3	17	4''	22- 0- 0
125'- 6''	$\frac{1}{2}$	2	51	4''	20- 8- 0
100'- 0''	...	1	17	4''	52- 0- 0
88'- 0''	1	2 $\frac{1}{2}$	22	4''	75- 0- 0
57'- 0''	...	1	12	4''	18- 0- 0
58'- 0''	...	1	15	4''	30- 0- 0
54'- 6''	...	1	7	4''	14- 0- 0
125'- 0''	...	3	17	4''	54- 0- 0
64'- 0''	...	1	8	4''	14- 0- 0

APPENDIX

Statement showing Boring-work done

Serial No.	Name of well-owner.	Name of village.	Name of Taluka.	Labour charges.
1	2	3	4	12
	BARODA DISTRICT.			
1	Patel Bhikhabhai Kashibhai ...	Malataj.	Petlad.	124-14- 0
2	Patel Desaibhai Khushalbhai ...	Sama.	Baroda.	377- 8- 0
3	Amin Chhotabhai Lallubhai ...	Koyli.	„	360- 0- 0
4	Patel Naranbhai Mandas ...	Ankodia.	„	310- 8- 0
5	Patel Lallubhai Vahalabhai ...	Karamdi.	Karjan.	136- 0- 0
6	Mahant Raghavprasad Radhikadas	Sherkhi.	Baroda.	132- 8- 0
7	Becharbhai Raijibhai	Karamdi.	Karjan.	327- 0- 0
8	Lallubhai Javerbhai Bin Dwarkadas	Tarmowad.	Petlad.	52- 0- 0
9	Patel Madhaobhai Garbaddbhai.	Kambola.	Karjan	45- 0- 0
10	Do.	„	„	119- 0- 0
11	Amin Chimabhai Dabhai ...	Chhani.	Baroda.	269-12- 0
12	Patel Ranchhodbhai Desaibhai.	Kambola.	Karjan.	98- 0- 0
13	Motibhai Laxmidas	„	„	142- 0- 0
14	Sheth Balubhai Keshavlal ...	Chhani.	Baroda.	110- 0- 0
15	Patel Ranchhodbhai Kashibhai.	Kosindra.	Sankheda.	77- 0- 0
16	Patel Trikambhai Govindbhai.	„	„	53- 0- 0
17	Patel Jadhavbhai Desaibhai ...	Kambola.	Karjan.	107- 0- 0
18	Patel Mathurbhai Narsibhai ...	Kosindra.	Sankheda.	55- 0- 0

No. XV.--(Continued.)

during the year 1927-28.

Total cost.	Cost per foot.	Purpose of Boring.	Result.	Remarks.
13	14	15	16	17
178-13- 3	4-15- 6	Agriculture.	abandoned at the request of well owner.	
434- 9- 1	4- 4-10	"	"	
416-14- 0	4- 9- 3	"	"	
379-10- 0	4-13-11	"	Successful.	
136- 0- 0	1-13- 5	"	"	
132- 8- 0	2- 2- 2	"	"	
482- 3- 8	6- 0- 5	Public well	Unsuccessful.	*Written off.
73-14- 0	1- 3- 8	Agriculture.	Successful.	
55- 0- 0	2- 0- 8	"	"	
141- 0- 0	1- 9- 2	"	"	
290- 4- 0	2- 5- 1	"	"	
150- 0- 0	1- 8- 0	Private.	"	Tube well Boring.
217- 0- 0	2- 7- 6	"	"	
128- 0- 0	2- 3-11	"	"	"
107- 0- 0	1-13- 9	"	"	"
67- 0- 0	1- 3-10	"	"	"
161- 0- 0	1- 4- 9	"	"	"
69- 0- 0	1- 1- 3	"	"	"

APPENDIX

Statement showing Boring work done

Serial No.	Name of well-owner.	Name of village.	Name of Taluka.	Depth of well.
1	2	3	4	5
19	Patel Haribhai Vasanji ...	Kambola.	Karjan.	...
20	Thakor Ramsinhji Khuman- sinhji	Miyagam.	„	75'-0''
21	Patel Desaiabhai Jivabhai ...	Chikhodra.	Sankheda.	...
22	Thakor Shri Kesarsinhji Ran- malsinhji	Miyagam.	Karjan.	60'-0''
23	Motibhai Laxmidas	Kambola.	„	...
24	Thakor Ramsinhji Khuman- sinhji	Miyagam.	„	75'-0''
25	Shrimant Krishnarao Shankar- rao Kathiawar Dewanji ...	Akota.	Baroda.	35'-0''
NAOSARI DISTRICT.				
1	Patel Sukhabhai Kuberdas ...	Kalakva.	Vyara.	30'-0''
2	Bhagubhai Dwarkadas ...	Antroli.	Kamrej.	50'-0''
3	Do.	Akhakhhol.	„	40'-0''
4	Bhulabhai Gokalbhai	Kalakva.	Vyara.	32'-0''
5	Ibrahim Ismail	Kosamba.	Mangrol.	...
6	Bhulabhai Gokalbhai	Kalakva.	Vyara.	32'-0''
7	Do.	„	„	32'-0''
8	Do.	„	„	32'-0''
9	Patel Lallubhai Kuvarji ...	Kharabut- wada.	Mahuva.	60'-0''

No. XV.—(continued.)

during the year 1927-28.

Depth of Boring.	Water before Boring in Koses.	Water after Boring in Koses.	No. of working days.	Diameter of Bore.	Departmental charges.
6	7	8	9	10	11
88'-0''	...	2	12	2½''	12- 0- 0
40'-0''	1	2	25	4''	...
40'-0''	...	1	1	4''	2- 0- 0
26'-0''	1	...	4	2½''	...
125'-0''	...	3	15	3''	43- 0- 0
20'-0''	3	2	4	3''	...
174'-0''	...	...	...	...	...
125'-3''	½	...	121	3''	186- 7- 9 23-11- 9
16'-0''	1	1	15	3''	...
39'-0''	½	1	19	3''	...
53'-0''	½	¼	21	3''	36- 6-11
76'-6''	...	1	32	4''	...
34'-0''	¾	¼	8	3''	10-10- 8
35'-0''	1	¼	6	3''	8- 0- 0
33'-0''	1½	¼	6	3''	8- 0- 0
26'-0''	1	1	14	3''	18- 3- 1

APPENDIX

Statement showing Boring-work done

Serial No.	Name of well-owner.	Name of village.	Name of Taluka.	Labour charges.
1	2	3	4	12
19	Patel Haribhai Vasanji ...	Kambola.	Karjan.	88- 0- 0
20	Thakor Ramsinhji Khuman- sinhji	Miyagam.	„	124- 0- 0
21	Patel Desaibhai Jivabhai ...	Chikhodra.	Sankheda.	13- 0- 0
22	Thakor Shri Kesarsinhji Ran- malsinhji	Miyagam.	Karjan.	20- 0- 0
23	Motibhai Laxmidas	Kambola.	„	87-12- 0
24	Thakor Ramsinhji Khuman- sinhji	Miyagam.	„	23- 0- 0
25	Shrimant Krishnarao Shankar- rao Kathiawar Dewanji ...	Akota.	Baroda.	
NAOSARI DISTRICT.				
1	Patel Sukhabhai Kuberdas ...	Kalakva.	Vyara.	198- 3- 0
2	Bhagubhai Dwarkadas ...	Antroli.	Kamrej.	47- 8- 0
3	Do.	Akhakhhol.	„	43- 0- 0
4	Bhulabhai Gokalbhai	Kalakva.	Vyara.	28-14- 0
5	Ibrahim Ismail... ..	Kosamba.	Mangrol.	154- 0- 0
6	Bhulabhai Gokalbhai	Kalakva.	Vyara.	15- 0- 0
7	Do.	„	„	11- 4- 0
8	Do.	„	„	9- 0- 0
9	Patel Lallubhai Kuvarji ...	Kharabut- wada.	Mahuva.	16- 0- 0

No. XV.—(Continued.)

during the year 1927-28.

Total cost.	Cost per foot.	Purpose of Boring.	Result.	Remarks.
13	14	15	16	17
100- 0- 0	1- 2- 2	Agriculture.	Successful.	Tube-well Boring.
124- 0- 0	3- 1- 7	"	"	"
15- 0- 0	0- 6- 0	Private.	"	"
20- 0- 0	0-12- 4	Agriculture.	Incomplete.	
130-12- 0	1- 0- 9	Private.	Successful.	"
23- 0- 0	1- 2- 5	Agriculture.	"	Work on hand.
408- 6- 6	3- 4- 3	Agriculture.	Unsuccessful.	
47- 8- 0	2-15- 6	"	Successful.	
43- 0- 0	1- 1- 7	"	"	
65- 4-11	1- 3- 8	"	"	
154- 0- 0	2 -0- 5	"	"	Tube-well Boring.
25-10- 8	0-12- 1	"	"	
19- 4- 0	0- 8- 9	"	"	
17- 0- 0	0- 8- 3	"	"	
34- 3- 1	1- 5- 0	"	"	

12 A. R.

APPENDIX

Statement showing Boring-work done

Serial No.	Name of well-owner.	Name of village.	Name of Taluka.	Depth of well.
1	2	3	4	5
10	Patel Lallubhai Kuvarji ...	Kharabut-wada.	Mahuva.	60'-0''
11	Patel Parbhudas Govindbhai ...	..	..	60'-0''
KADI DISTRICT.				
1	Government Farm ...	Jagudan.	Mehsana.	33'-0''
2	Patel Jetha Amulakh ...	Kansarakui.	Visnagar.	36'-0''
3	Patel Umed Kishor ...	Kharod.	Vijapur.	42'-0''
4	Motibhai Govindbhai ...	Khoraj.	Kadi.	30'-0''
5	Patel Parshottam Mulji ...	Mota-Isanpura.	Dehgam.	80'-0''
6	Amin Nathabhai Motibhai ...	Ranodra.	..	75'-0''
7	Do. ...	..	..	75'-0''
8	Do. ...	..	..	75'-0''
AMRELI DISTRICT.				
1	Government Farm ...	Amreli.	Amreli.	...

No. XV.—(continued.)

during the year 1927-28.

Depth of Boring.	Water before Boring in Koses.	Water after Boring in Koses.	No. of working days.	Diameter of Bore.	Departmental charges.
6	7	8	9	10	11
27'-0''	2	1	7	3''	9- 0- 6'
36'-0''	1	...	18	3''	...
206'-0''	2	...	169	4''	...
96'-10''	$\frac{1}{2}$	...	64	2 $\frac{1}{2}$ ''	56- 0- 0
98'-0''	$\frac{1}{2}$	$\frac{1}{2}$	36	4''	...
40'-0''	...	...	77	4''	...
25'-0''	$\frac{1}{2}$	4	14	4''	12- 0- 0
40'-6''	$\frac{1}{2}$	4	14	4''	12- 4- 0
38'-10''	4 $\frac{1}{2}$	2	15	4''	13- 2- 0
44'-6''	6 $\frac{1}{2}$	3	23	4''	20- 2- 0
123'-0''	1	...	44	4''	...

APPENDIX

Statement showing Boring-work done

Serial No.	Name of Well-owner.	Name of villige.	Name of Taluka.	Labour charges.
1	2	3	4	12
10	Patel Lallubhai Kuvarji ...	Kharabut-wada.	Mahuva.	10- 8- 0
11	Patel Parbhudas Govindbhai ...	„	„	28- 0- 0
KADI DISTRICT.				
1	Government farm ...	Jagudan.	Mehsana.	439-11- 6
2	Patel Jetha Amulakh ...	Kansarakui.	Visnagar.	196- 8- 0
3	Patel Umed Kishor ...	Kbarod.	Vijapur.	169- 8- 0
4	Motibhai Govindbhai ...	Khoraj.	Kadi.	125-10- 0
5	Patel Parshottam Mulji ...	Mota-Isanpura.	Dehgam.	36- 0- 0
5	Amin Nathabhai Motibhai ...	Ranodra.	„	80- 0- 0
7	Do. ...	„	„	106- 0- 0
8	Do. ...	„	„	210- 0- 0
AMRELI DISTRICT.				
1	Government farm ...	Amreli.	Amreli.	397- 5- 0

No. XV.—(concluded.)

during the year 1927-28.

Total cost.	Cost per foot.	Purpose of Boring.	Result.	Remarks.
13	14	15	16	17
19- 8- 6	0-11- 8	Agriculture.	Successful.	
28- 0- 0	0-12- 5	„	Incomplete.	
439-11- 6	2- 9- 7	Agriculture.	„	
252- 8- 0	2-10- 1	„	Unsuccessful.	
169- 8- 0	4-11- 4	„	„	
125-10- 0	1-10- 1	„	Incomplete.	
48- 0- 0	3- 7- 0	„	Successful.	
92- 4- 0	6- 9- 5	„	„	
119- 2- 0	7-15- 1	„	„	
230- 2- 0	10- 0- 0	„	„	
397- 5- 0	3- 3- 8			

APPENDIX No. XVI.

Statement showing the number of bore-holes made during
the year 1927-28.

Serial No.	Village.	Taluka.	Successful.	Un-successful.	Abandoned at the request of well-owner.	In-complete.	Total.	Water in Koses.	Remarks.
1	2	3	4	5	6	7	8	9	10
BARODA DISTRICT.									
<i>With Clayx Drill.</i>									
1	Sama ...	Baroda.	...	...	1	...	1	...	
2	Akota ...	"	...	...	...	2	2	...	
3	Koyli ...	"	...	...	1	...	1	...	
4	Ankodia ...	"	1	...	...	...	1	1	
5	Sherkhi ...	"	1	...	...	...	1	2	
6	Chhani ...	"	2	...	...	...	2	3	
7	Malataj ...	Petlad.	...	...	1	...	1	...	
8	Tarmowad ...	"	1	...	...	...	1	1	
9	Karamdi ...	Karjan.	1	1	...	...	2	2	
10	Kambola ...	"	7	...	...	...	7	17½	
11	Miyagam ...	"	2	...	...	1	3	4	
12	Kosindra ...	Sankheda	3	...	...	...	3	3	
13	Chikhodra ...	"	1	...	...	...	1	1	
	Total...		19	1	3	3	26	34½	
NAVSARI DISTRICT.									
<i>With Clayx Drill.</i>									
1	Kalakva ...	Vyara.	4	1	...	...	5	1	

APPENDIX No. XVI.—concluded.

Serial No.	Village.	Taluka.	Successful.	Un-successful.	Abandoned at the request of well-owner.	In-complete.	Total.	Water in Koses.	Remarks.
1	2	3	4	5	6	7	8	9	10
2	Khara, Bhuta-wada ... <i>With Cawnpore set.</i>	Mahuwa.	2	...	...	1	3	2	
3	Antroli ...	Kamrej.	1	...	...	...	1	1	
4	Akhakhol ...	„	1	...	...	...	1	1	
5	Kosamba ...	Mangrol.	1	...	...	...	1	1	
	Total...		9	1	...	1	11	6	
KADI DISTRICT.									
	<i>With Musto Patent.</i>								
1	Jagudan Farm... <i>With Cawnpore set.</i>	Mehsana.	...	...	...	1	1	...	
2	Kansarakui ...	Visnagar.	...	1	...	...	1	...	
3	Kharod ...	Vijapur,	...	1	...	...	1	1	
4	Mota Isanpur ...	Dehgam.	1	...	...	...	1	4	
5	Ranodra ...	„	3	...	...	...	3	9	
6	Khoraj ...	Kadi.	...	...	...	1	1	...	
	Total...		4	2	...	2	8	13½	
AMRELI DISTRICT.									
	<i>With Musto Patent.</i>								
1	Amreli Farm ...	Amreli.	...	1	...	...	1	...	
	Total...		...	1	...	...	1	...	
	Grand Total...		32	5	3	6	46	54	

APPENDIX No. XVII.

Abstract of Boring work done during the year 1927-28.

Serial No.	Particulars.	District.				Total.
		Baroda	Navsari.	Kadi.	Amreli.	
1	2	3	4	5	6	7
1	Bores made ...	26	11	8	1	46
2	Bores successful...	19	9	4	...	32
3	Bores unsuccessful.	1	1	2	1	5
4	Bores abandoned at the request of the well-owner.	3	...	...	...	3
5	Bores in-complete.	3	1	2	...	6
6	Total depth bored.					
	2½'' ...	174'-0''	...	96'-10''	...	270'-10''
	3'' ...	272'-0''	424'-3''	...	...	696'-3''
	4'' ..	1254'-0''	76'-6''	492'-10''	123'-0''	1946'-4''
7	Percentage of success.	76—0	81—9	50—0	...	71—1
8	Water in koses ...	34½	6	13½	...	54
9	Number of applications.	22	13	4	...	39
10	Average number of working days per each bore.	21½	24	51½	47	...
11	Number of accidents	4	1	8	...	13
12	Accidents removed.	4	1	8	...	13
13	Average number of feet bored in one day.	3'-0''	1'-9''	1'-6''	2'-8''	...

13 A. R.

APPENDIX No. XVIII.

Statement showing the number of wells exploded by Dynamite in the year 1927-28.

Serial No.	Name of Taluka.	No. of wells exploded.	No. of cart ridges used.	No. of detonators used.	Depth sunk.	Water in koses.	Amount of the bill.	Expense per cubic feet.	Remarks.
1	2	3	4	5	6	7	8	9	10
					BARODA DISTRICT.				
1	Savli Panchayet. * Timba Road. * " "	... ... ...	182 24	62 6	... ...	... ...	Rs. 92- 0-0 10- 8-0	Rs. 0- 1-1	* Sinking wells in a stone quarry.
					NAVSARI DISTRICT.				
2	Mangrol Panchayet. Zankhavav. Kevdi.	1 1	68 76	17 1* 20	1'-0'' 1'-6''	1 1	29-12-0 34- 0-0	0-12-4 0- 7-3	* This was used for testing the machine.
3	Vyara. Agricultural well at Beda.	1	47	16	...	...	13-13-0	...	

		AMRELI DISTRICT.						
4	Amreli.							
	Agricultural well at Varasda.	1	26	8	0'-6''	...	4- 4-0	0- 2- 8
	Agricultural well at Amreli.	3	314	106	35'-0''	2	52- 8-0	0- 0- 4
	Amreli Exhibition.	...	13	3	...	...	...	...
5	Dhari.							
	Agricultural well at Dhari.	1	31	10	4'-0''	1	5- 2-0	0- 1- 3
	Agricultural well at Khicha.	1	15	5	...	...	2- 8-0	...
	Dhari Panchayet. Dhari. *	2	144	48	5'-6''	1	72- 0-0	0- 4-10
		...	...	4	...	...	...	...
6	Khamba.							
	Agricultural well at Tatania.	1	113	39	7'-0''	1	19- 0-0	0- 0-10
7	Ratanpur.							
	Agricultural well at Shia-nagar.	1	1	1	...	...	0- 4-0	...
8	Damnagar.							
	Agricultural well at Ambardi.	1	69	23	3'-6''	1	11- 8-0	0- 1- 0
	Total ...	14	1,123	369	58'-0''	8	Rs. 347- 3-0	...

* These were used for testing the machine.

APPENDIX No. XIX.

Statement showing strength of the herd of the Palace Dairy
on 31st July 1928.

Serial No.	Description.	Strength on 1st Aug. 1927.	Changes during the year.					Total.
			Sold.	Dead.	Born.	Bought.	Transferred.	
1	2	3	4	5	6	7	8	9
1	Cows.	27	2	1	1	...	...	25
2	Heifers.	8	1	...	...	...	1	6
3	Cows—female youngs.	21	8	...	7	...	...	20
4	Cows—male youngs.	29	14	2	11	...	...	24
5	Stud bulls.	6	5	...	...	...	...	1
6	Buffaloes.	19	2	1	...	5	...	21
7	B. Heifers.	5	2	...	...	...	...	3
8	B. F. Calves.	14	4	4	7	3	...	16
9	B. M. Calves.	12	10	2	3	2	...	5
10	Stud bulls.	2	...	...	...	...	...	2
11	Bullocks.	7	...	...	...	...	...	7
	Total...	150	48	10	29	10	1	130

APPENDIX No. XX.

Statement showing the articles of food stuffs, weight and total price of concentrates fed to the Dairy cattle during the year 1927-28.

(From August 1927 to July 1928)

No. S.	Name of the food stuff.	Total weight fed.	Total price.	Remarks.
1	2	3	4	5
		Mds. Srs. T.	Rupees.	
1	Cotton seed.	580-13- 2	1,201-13- 8	.
2	Dhal Karai.	580-35- 0	1,597- 4- 7	
3	Bran.	939-26- 0	2,411- 6- 7	
4	Gawar.	502-35 0	1,418- 2- 3	
5	Udid.	16- 0- 0	60- 3-11	
6	Oil Cake.	468- 0-20	1,219- 1- 6	
7	Gram.	74-24- 0	238-10 -9	
8	Salt.	39- 2-10½	46- 7- 3	
9	Rock salt.	3- 0- 0	12-12- 0	
10	Castor Oil.	0- 5- 0	1- 5- 3	
11	Sweet Oil.	0-26- 0	9- 5- 0	
12	Trickle.	0-20- 0	3-11- 6	
13	Suva.	0-12- 0	1- 4- 2	
14	Methi.	0-15- 0	1- 9- 6	
15	Asalio.	0-20- 0	2-14- 8	
16	Dry Ginger.	0- 8- 0	4- 4- 0	
17	Black Pepper.	0- 1- 0	0-12- 9	
18	Bajari Flour.	2- 0- 0	7-11- 3	
	Total.	3,209-3-32½	8,238-12- 7	

APPENDIX No. XXI.

Statement showing figures of expenditure under different heads of the Makarpura Palace Dairy in the year 1927-28.

Serial No.	Fodder by contract.	Concentrates and water.	Medicinal.	Attendance.	Transport.	Supervision.	Cost of fodder production on the farm.	Bhatta Bhada.	Kirkol.	Stationery and Dead-stock.	Cattle purchase.
1	2	3	4	5	6	7	8	9	10	11	12
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	4,695-11-0	8,579-2-4 Water 1,182-14-10 <hr/> 9,762- 1-2	484-15-6 including pay.	2,359-1-10	1,933-0-0	4,244-2-5	3,070-11-0 including pay.	344-7-6	3,414-1-5	607-7-0	898-6-6

Total Rs. 31,814-1-4.

APPENDIX

Statement showing the number of patients treated in the Dispensary and

Serial No.	Name of the District and Dispensary.	Last year's cases remained on hand.	Out-door patients.					In-door patients.				
			Horses.	Cattle.	Dogs.	Others.	Total.	Horses.	Cattle.	Dogs.	Others.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13
BARODA.												
1	Baroda ...	25	428	743	259	263	1,693	14	22	2	1	39
2	Bhadran ...	17	64	863	6	101	1,034	2	...	...	...	2
3	Dabhoi ...	51	181	982	19	175	1,357	8	4	...	...	12
4	Petlad ...	16	80	687	8	378	1,153	...	17	...	...	17
5	Sankheda ...	17	120	1261	1	42	1,424	4	3	...	...	7
6	Sinor ...	...	57	164	3	43	267	...	1	1	...	2
	Total ...	126	930	4,700	296	1,002	6,928	28	47	3	1	79
NAVSARI.												
1	Kathor ...	10	121	569	6	75	771	...	1	...	...	1
2	Karchelia ...	21	110	1,112	3	465	1,690	...	...	...	...	...
3	Vesma ...	24	32	607	21	7	667	...	...	...	...	...
4	Vyara ...	19	126	535	37	662	1,360	1	2	2	...	5
	Total ...	74	389	2,823	67	1,209	4,488	1	3	2	...	6
KADI.												
1	Mehsana ...	10	117	676	52	110	955	2	12	...	2	16
2	Patan ...	13	261	1,301	128	206	1,896	10	130	...	6	146
3	Sidhpur ...	49	120	788	11	136	1,055	...	9	...	...	9
4	Vijapur ...	9	147	408	9	50	614	...	...	...	...	...
	Total ...	111	645	3,173	200	502	4,520	12	151	...	8	171
AMRELI.												
1	Amreli ...	8	194	839	33	46	1,112	6	50	...	...	56
	Total ...	8	194	839	33	46	1,112	6	50	...	...	56
	Grand total...	319	2,158	11,535	596	2,759	17,048	47	251	5	9	312

No. XXII.

Castration performed by the Burdizzo Method for the year 1927-28.

Grand Total.					Result.				
Horses.	Cattle.	Dogs.	Others.	Total.	Cured.	Relieved.	Died.	Disconti- nued.	Remained on hand.
14	15	16	17	18	19	20	21	22	23
442	765	261	264	1,732	1,529	106	27	27	68
66	863	6	101	1,036	935	6	7	75	30
189	986	19	175	1,369	1,288	80	9	...	43
80	704	8	378	1,170	906	175	2	80	23
124	1,264	1	42	1,431	1,334	39	2	...	23
57	165	4	43	269	200	11	4	32	22
958	4,747	299	1,003	7,007	6,242	417	57	214	209
121	570	6	75	772	657	59	17	36	13
110	1,112	3	455	1,690	1,539	42	14	77	39
32	607	21	7	667	481	82	1	97	30
127	537	39	662	1,365	1,317	48	...	...	19
390	2,826	69	1,209	4,494	3,994	231	32	170	101
119	688	52	112	971	781	79	16	79	26
271	1,431	128	212	2,042	1,923	102	4	7	49
120	797	11	136	1,064	987	95	10	4	17
147	408	9	50	614	484	18	2	110	9
657	3,324	200	510	4,691	4,175	294	32	200	101
200	889	33	46	1,168	1,028	129	6	8	5
200	889	33	46	1,168	1,028	129	6	8	5
2,205	11,786	601	2,768	17,360	15,439	1,071	127	592	416

APPENDIX

Statement showing the number of patients treated in the Dispensary and

Serial No.	Name of the District and Dispensary.	Castration performed by Burdizzo method.	Operations.		
			Major.	Minor.	Total.
1	2	24	25	26	27
BARODA.					
1	Baroda	22	66	91	157
2	Bhadran ... ..	...	5	43	48
3	Dabhoi	5	31	54	85
4	Petlad	1	39	104	143
5	Sankheda ... ..	...	57	36	93
6	Sinor ... ..	...	2	22	24
	Total...	28	200	350	550
NAVSARI.					
1	Kathor	22	27	39	66
2	Karchelia	118	61	57	118
3	Vesma	6	26	78	104
4	Vyara	87	74	54	128
	Total...	233	118	228	416
KADI.					
1	Mehsana	76	91	49	140
2	Patan ... ..	...	120	216	336
3	Sidhpur	95	112	90	202
4	Vijapur	9	32	48	80
	Total...	180	355	403	758
AMRELI.					
1	Amreli	18	25	27	52
	Total...	18	25	27	52
	Grand Total...	459	768	1,008	1,776

No. XXII.—(Continued.)

Castration performed by the Burdizzo Method for the year 1927-28.

Daily average.		Mofusal cases.	Post mortem examination performed.	Fees charged.			Remarks.
Out-door.	In-door.			Rupees.	Annas.	Pies.	
28	29	30	31	32	33	34	35
30·7	2·3	470	1	73	5	...	
15·56	2·0	414	...	...	...	...
25	1	538	...	...	...	...
20·6	0·91	535	...	...	...	...
21	1	1,269	...	43	9	...	
8	0·13	107	...	...	...	...
119·69	7·7	3,333	1	116	14	...	
19·5	0·37	451	1	13	9	...	
33	...	1,371	...	4	14	...	
16·27	...	507	...	4	3	...	
24·7	0·2	828	...	6	15	...	
92·39	0·27	3,157	1	29	9	...	
20·4	...	597	...	...	...	...
72·5	4·7	1,145	...	...	...	...
21	...	651	...	...	...	...
9·36	...	339	...	...	...	...
122·45	4·7	2,732	...	...	...	...
14	1·6	603	...	...	...	...
14	1·6	603	...	...	...	...
348·53	12·47	9,825	2	146	7	...	

APPENDIX No. XXIII.

Statement showing the classification of diseases of animals treated in the Dispensaries during the year 1927-28.

Serial No.	Name of the District & Dispensary.	Specific.	Nervous.	Circulatory.	Skeleton.	Eye, Ear &c.	Skin.	Lymphatic.	Digestive.	Respiratory.	Urinary.	Genetal.	Miscellaneous.	Total.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	BARODA.														
1	Baroda ...	96	246	1	23	102	94	4	568	1	21	5	571	1732	
2	Bhadran ...	39	4	4	...	36	20	1	171	13	11	33	704	1036	
3	Dabhoi ...	12	...	...	17	43	689	...	483	...	22	...	103	1369	
4	Petlad ...	40	6	17	23	81	17	2	244	5	21	9	705	1170	
5	Sankheda ...	...	3	51	54	23	1161	125	1	13	...	...	...	1431	
6	Sinor ...	6	8	3	6	10	5	...	42	3	7	3	176	269	
	Total ...	193	267	76	123	295	1986	132	1509	35	82	50	2259	7007	

NAVSARI.															
1	Kathor	...	8	5	...	13	39	16	...	66	23	14	10	578	772
2	Karchelia	...	33	1	9	56	107	25	5	165	30	17	14	1228	1690
3	Vesma	...	...	8	13	43	46	43	2	104	29	8	17	354	667
4	Vyara	...	85	12	25	68	119	478	2	155	10	13	27	371	1365
	Total	...	126	26	47	180	311	562	9	490	92	52	68	2531	4494
KADI.															
1	Mehsana	...	135	12	7	79	52	94	...	143	35	20	21	373	971
2	Patan	...	303	8	22	143	47	25	2	286	26	15	7	1158	2042
3	Sidbpur	...	12	6	85	157	39	225	34	186	23	31	19	247	1064
4	Vijapur	...	39	3	11	22	27	104	8	99	11	10	5	275	614
	Total	...	489	29	125	401	165	448	44	714	95	76	52	2053	4691
AMRELI.															
1	Amreli	...	94	5	18	...	51	17	4	177	61	35	57	649	1168
	Total	...	94	5	18	...	51	17	4	177	61	35	57	649	1168
	Grand Total	...	902	327	266	704	822	3013	189	2890	283	245	227	7492	17,360

APPENDIX

Statement showing the number of out-break reports received

Serial Number.	Name of the District and Dispensary.	Reports received.							Reports	
		Rinder pest.	Anthrax.	Foot and mouth disease.	Other diseases.	Hæmorrhagic Septicæmia.	Surra.	Total.	Rinder pest.	Anthrax.
1	2	3	4	5	6	7	8	9	10	11
	BARODA.									
1	Baroda,	1	...	...	...	3	1	5	1	...
2	Bhadran.	2	...	...	...	5	...	7	2	...
3	Dabhoi.	1	...	...	...	7	1	9	1	...
4	Petlad	...	...	...	...	1	...	1	...	...
5	Sankheda.	...	...	...	...	...	...	...	...	...
6	Sinor.	...	...	...	...	1	...	1	...	...
	Total...	4	...	...	...	17	2	23	4	...
	NAVSARI.									
1	Kathar,	...	...	...	...	...	1	1	...	...
2	Karchelia.	...	...	...	...	1	...	1	...	...
3	Vesma.	...	...	...	...	1	...	1	...	...
4	Vyara.	1	...	...	...	1	...	2	1	...
	Total...	1	...	...	...	3	1	5	1	...
	KADI.									
1	Mehsana.	...	...	...	...	...	...	...	...	...
2	Patan.	...	1	...	4	2	1	8	...	1
3	Sidhpur.	1	...	2	1	...	...	4	...	...
4	Vijapur.	...	...	...	...	4	1	5	...	...
	Total...	1	1	2	5	6	2	17	...	1
	AMRELI.									
1	Amreli.	...	...	3	...	...	...	3	...	...
	Total...	...	...	3	...	...	...	3	...	...
	Grand Total...	6	1	5	5	26	5	48	5	1

No. XXIV.

and attended during the year 1927-28.

attended.						Reports not attended.							Remarks.
Foot and mouth disease.	Other diseases.	Hæmorrhagic. Septicæmia.	Surra.	Total.	Rinder-pest.	Anthrax.	Foot and mouth disease.	Other diseases.	Hæmorrhagic. Septicæmia.	Surra.	Total.		
12	13	14	15	16	17	18	19	20	21	22	23	24	
..	..	3	1	5	..	..	..	..	..	..	..	..
..	..	5	..	7	..	..	..	..	..	..	..	..
..	..	7	1	9	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..
..	
..	..	1	..	1	..	..	..	..	..	..	..	..
..	
..	..	17	2	23	..	..	..	..	..	..	..	..
..	1	1	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..
..	..	1	..	2	..	..	..	..	..	..	..	..
..	..	3	1	5	..	..	..	..	..	..	..	..
..	
..	1	8	..	..	..	..	..	..	..	..
..	4	2	..	..	..	..	..	..	..	..	..	..
..	1	..	..	1	1	..	2	..	..	..	..	3	
..	..	4	1	5	..	..	..	..	..	..	..	..
..	5	6	2	14	1	..	2	..	..	..	3	..	
3	3	..	..	..	..	..	..	..	..
3	3	..	..	..	..	..	..	..	..
3	5	26	5	45	1	..	2	..	..	..	3	..	

APPENDIX No. XXV.

Statement showing the result of preventive inoculation carried by the Veterinary Surgeons during the year 1927-28.

Serial Number.	Name of the District and Dispensary.	Name of the disease against which inoculation was carried out.	Method of inoculation.	No. of out-breaks.	No. of animals which died uninoculated in course of out-break.				Number of animals inoculated.				Number of animals which died after inoculation.				Remarks.
					Equine.	Bovine.	Others.	Total.	Equine.	Bovine.	Others.	Total.	Equine.	Bovine.	Others.	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	BARODA.																
1	Baroda ...	Surra. H. S. Rinderpest.	Serum-method.	3	6	31	...	37	...	71	...	71	...	...	...	...
2	Bhadran ...	H. S. and Rinderpest.	„	2	...	52	...	52	...	148	...	148	...	...	...	...
3	Dabhoi ...	„	„	2	...	46	...	46	...	393	...	393	...	...	...	...
4	Petlad ...	H.S.	„	1	...	10	...	10	...	50	...	50	...	...	...	...
5	Sankheda ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	Sinor ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	...	...	8	6	139	...	145	...	662	...	662	...	...	...	...

NAVSARI.																
1	Kathor	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Karchelia	H. S.	...	1	...	6	...	6	...	...	...	...	...	...	...	...
3	Vesma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	Vyara	H. S. & Rinderpest	Serum- method.	2	...	...	...	...	...	113	...	113	...	...	...	...
	Total	...	...	3	...	6	...	6	...	113	...	113	...	...	...	...
KADI.																
1	Mehsana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Patan	H. S.	Serum- method.	1	...	20	...	20	...	100	...	100	...	...	...	...
3	Sidhpur	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	Vijapur	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total	...	...	1	...	20	...	20	...	100	...	100	...	...	...	...
AMRELI.																
1	Amreli	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Grand Total	...	...	12	6	165	...	171	...	875	...	875	...	...	...	...
	Cases inoculated by the veterinary Inspector and Extra salotri.	...	...	...	...	...	...	...	...	438	...	438	...	...	...	...
		...	...	...	...	...	...	...	...	1313	...	1313	...	...	...	...

APPENDIX No. XXVI.

Statement showing the number of animals treated by the Veterinary Surgeons on tour, villages visited and days spent on tour for the year 1927-28.

Serial No.	Name of the District and Dispensary.	Classification of diseases.								No. of villages visited.	Days spent on tour.	Remark.
		Rinderpest.	Anthrax.	Foot and mouth disease.	Pleuro Pneumonia	Hæmorrhagic Septicæmia.	Surra.	Other diseases.	Total.			
1	2	3	4	5	6	7	8	9	10	11	12	13
BARODA.												
1	Baroda ...	7	...	...	...	64	6	...	77	30	38	
2	Bhadran ...	...	...	...	...	...	...	...	...	56	59	
3	Dabhoi ...	...	...	...	...	...	...	86	86	5	3	
4	Petlad ...	...	...	...	...	218	...	...	218	28	28	
5	Sankheda ...	...	...	...	...	...	...	...	...	...	...
6	Sinor ...	...	...	...	...	...	...	11	11	1	1	
	Total ...	7	...	...	...	282	6	97	392	120	129	
NAVSARI.												
1	Kathor ...	...	...	...	...	...	1	47	48	17	21	
2	Karchelia ...	...	...	...	...	...	...	...	...	27	30	

3	Vesma	...	...	...	...	...	2	49	51	18	31
4	Vyara	...	...	...	...	...	...	...	...	10	13
	Total	...	...	...	...	...	3	96	99	72	95
	KADI.											
1	Mehsana	...	...	...	...	...	...	96	96	5	4
2	Patan	...	4	29	...	19	13	639	704	48	62	
3	Sidhpur	...	1	62	...	...	...	429	492	32	32
4	Vijapur	...	...	...	...	...	...	128	128	22	27
	Total	...	1	4	91	...	19	13	1292	1420	107	125
	AMRELI.											
1	Amreli	...	...	79	...	...	...	...	79	14	20
	Total	...	...	79	...	...	...	...	79	14	20
	Grand Total	...	8	4	170	...	301	22	2485	1990	313	369
	By the Veterinary Inspector & Extra Salotri.	...	...	...	...	...	...	...	...	72	237
										385	606	

APPENDIX

Statement showing the receipts and expenditure of the

Serial No.	Name of the District and Dispensary.	Budget			
		Pay.	Travelling allowance.	House rent.	Country Medicine.
1	2	3	4	5	6
BARODA.					
1	Baroda ...	2,048- 0- 0	17-10- 0	420- 0- 0	324-13-1
2	Bhadran ...	1,322- 9- 5	148- 7- 6	300- 0- 0	171-13-9
3	Dabhoi ...	14,44- 5- 4	93- 0- 3	300- 0- 0	191- 6-0
4	Petlad ...	1,437-13- 1	79- 2- 6	186-12- 5	176- 9-3
5	Sankheda ...	1,440-13- 9	51- 0- 0	300- 0- 0	226-13-9
6	Sinor ...	418- 1- 0	48- 5- 0	100- 0- 0	38-14-9
	Total ...	8,111-10- 7	437- 9- 3	1,606-12- 5	1,130- 6-7
NAVSARI.					
1	Kathor ...	2,149-11- 5	35- 2- 0	305- 6- 1	112- 2-9
2	Karchelia ...	1,703-14- 4	65- 5- 0	168- 0- 0	160-11-0
3	Vesma ...	1,755- 4- 7	163- 1- 0	156- 0- 0	194- 7-9
4	Vyara ...	1,351- 7- 3	76- 5- 0	180- 0- 0	74-10-0
	Total ...	6,960- 5- 7	340-13- 0	809- 6- 1	541-15-6
KADI.					
1	Mehsana ...	1,254- 1-11	86-15- 6	...	123- 4-3
2	Patan ...	1,922- 5- 3	119-14- 6	...	225- 0-0
3	Sidhpur ...	1,569- 6-10	264- 3- 0	252- 0- 0	299-10-6
4	Vijapur ...	1,360- 5-10	60- 7- 0	180- 0- 0	131-12-9
	Total ...	6,106- 3-10	531- 8- 0	432- 0- 0	779-11-6
AMRELI.					
1	Amreli ...	1,134- 1-10	36-12- 0	...	106-11-6
	Total ...	1,134- 1-10	36-12- 0	...	106-11-6
	Grand Total.	22,312- 5-10	1,346-10- 3	2,848- 2- 6	2,558-13-1

No. XXVII.

Veterinary Dispensaries in details in the year 1927-28.

expenditure.					Receipt during the year.
English medicine.	Instruments and Dead-stock.	Contingent and Dafter Bhada.	Miscella- neous.	Total.	
7	8	9	10	11	12
534-11-10	...	60- 0- 0	35-12-0	3,440-14-11	73-10-0
297- 3- 2	3- 0- 0	60- 0- 0	5- 4-0	2,308- 5-10	...
356-15- 9	...	54- 0- 0	4- 4-0	2,443-15- 4	...
215-13- 0	0- 4- 0	52-12- 0	23-14-0	2,173- 0- 3	...
241- 7-10	25- 0- 0	36- 0- 0	...	2,321- 3- 4	43- 9-0
280- 3- 3	1,615- 1-10	16-14-11	1- 4-0	2,518-12- 9	...
1,926- 6-10	1,643- 5-10	279-10-11	70- 6-0	15,206- 4- 5	117- 3-0
434- 9- 5	126- 6- 0	60- 0- 0	...	3,223- 5- 8	17- 5-0
347-10- 2	46-15- 0	36- 0- 0	...	2,529- 7- 6	...
238- 5- 6	25- 6- 0	60- 0- 0	8- 5-6	2,600-14- 4	...
224-12- 3	25- 0- 0	60- 0- 0	...	1,992- 2- 6	6-15-0
1,245- 5- 4	223-11- 0	216- 0- 0	8- 5-6	10,345-14- 0	24- 4-0
202- 5- 5	29- 7- 0	60- 9- 0	38-13-0	1,795- 8- 1	32- 0-9
375- 7- 5	49- 8- 0	96-15- 0	122- 1-6	2,911- 3- 8	95- 0-0
305- 6- 4	26-11- 0	60- 0- 0	...	2,777- 5- 8	...
250-11- 8	18- 2- 2	47- 9- 0	30- 0-0	2,079- 0- 3	...
1,133-14- 8	123-12- 2	265- 1- 0	190-14-6	9,563- 1- 8	127- 0-9
305- 2- 9	20- 0- 0	47-13-11	55-13-11	1,706- 7-11	97- 9-0
305- 2- 9	20- 0- 0	47-13-11	55-13-11	1,706- 7-11	97- 9-0
4,610-13- 7	2,010-13- 0	808- 9-10	325-7-11	36,821-12- 0	366- 0-9

Agriculture Department,
Dewan Order No. 28/20 dated 23-3-29.

REVIEW.

OF THE

Annual Report of the Agriculture Department

FOR 1927-28.

The report of the department is interesting and the Government appreciates the useful and valuable work that it has done during the year under review.

Report interesting.

2. The attention of the department is drawn to the comments made by the Pragati Adhikari on the touring of the Director of Agriculture and the Government hopes that he will arrange his touring programme on the lines suggested.

Attention of the department is drawn to remarks of the Pragati Adhikari.

3. Cattle breeding is a very important feature of agricultural life and good and prosperous cultivation depends upon strong and healthy type of cattle. The department ought to pay particular attention to creating interest in the people and encouraging their efforts in this direction. The Government sanctioned rules for the supply of breeding animals to agriculturists and under these rules four breeding bulls of Gir type have been supplied from the Makarpura Palace Dairy to the Amreli Mahal Panchayat for service in four villages of the taluka. The propaganda of this work should form an important item in the programme of the District Inspectors and should be insisted on them to show substantial results of their activities in this direction every year. Special facilities were sanctioned by Government for co-operative cattle breeding. The Co-operative and the Agriculture

Interest of the people in cattle breeding should be roused.

departments should by their combined efforts try to create a few such societies and the department should see that they work properly and systematically under their constant supervision.

4. There is no mention in the report as to the practical work that is done by the District Inspectors. Their activities should not be confined to touring in the district, visiting villages, doing some vague and diffuse talking with the people, but the department should draw up a definite programme of the propaganda work to be done by them about the labour-saving implements, manures, new types of seed to be sown, method of cultivation etc., and they should concentrate their efforts to demonstrate the feasibility and economic advantages of the methods to be introduced, in a village or two in each taluka so that people may be convinced of the results and unhesitatingly adopt them. The Director should assure himself of the practical work that they do during the year and their good work in this line should be the test of their eligibility for promotions, necessary steps being also taken to condignly punish those that fail to pass the required test.

Programme of work for District Inspectors should be drawn up.

5. The department rendered useful service by timely distribution of seeds to the cultivators whose crops had been damaged by the heavy rains that had visited the districts of Baroda and Kadi towards the end of July. This kept down the rise in prices of these seeds which would have deprived the cultivators of the opportunity to sow in time and take advantage of the timely rains that followed. Advice given by the department with regard to the crops to be sown under the conditions brought on by the flood proved also to be of great value to the cultivators. The department also rendered valuable help to the people in arranging to depute veterinary surgeons to places where there was an outbreak of diseases among the cattle as an aftermath of the floods and checked their spread by the adoption of timely measures of prevention and cure.

Department's services in the timely distribution of seeds and affording relief to diseased cattle appreciated.

6. Agriculturists have now begun to understand the economic advantages of the use of oil engines and pumps as the cheapest and the best means of irrigating their crops and to apply to the Government for loans to purchase them. Five such applications were received during the year under report. Unfortunately the flood situation did not allow the Government to grant them. The department should again seek an opportunity to submit them to the Government for favourable consideration.

Department should resubmit applications for loans for purchasing agricultural implements.

7. During the year under report the wheat crop in Kadi and Amreli districts suffered badly on account of rust. The department availed itself of this opportunity of establishing the superiority of Pusa wheat for its rust-resisting quality and convincing the cultivators of the same by the results of their demonstrations.

Superiority of Pusa wheat established.

8. The use of bone-meal, sodium nitrate and castor cake as manure for cotton crops has been found to yield greater yields. This useful result ought to be widely circulated in the form of leaflets giving detailed information as to how to use them, their prices and the places where they can be got. The inspectors in their tours should announce these results to the people and explain the details and try to convince them about their advantages. The ready made mixture has been found on experiment to be far more expensive than a farm made one, but, it is not shown how it would reach the actual cultivators. The results of the use of universal manure have been discovered to be unsatisfactory. The department should take timely steps to disabuse people of the idea of the advantages of this stuff.

Bone and other types of manure proved valuable to cotton crops.

9. During the last few years September rains were an usual occurrence. They spoiled the early grown Bajri crops. Late sowing of Bajri crop was tried and it proved success. But the innovation

Effect of September rains.

has to be used only to safeguard against September rains and not as a change to be normally practised.

10. Fruit cultivation is very valuable and paying. It

Fruit cultivation should be encouraged. seems to be rare in this part of the country. The reason does not appear to be the unsuitability of the soil and supply of water for even in tracts where these are not lacking, the people do not seem to resort to it. The ignorance and the monetary condition of the cultivators seem to be largely responsible for this. The department should take particular interest in this matter by cultivating it in their farms and acquainting people with the methods and its utility and advantages. The Government note with pleasure that the department have undertaken this work on the Baroda Farm and they have succeeded in persuading some people in Kathore, Vyara, Gandevi to resort to it by technical advice and monetary help. They should extend their activities in this direction with an ultimate goal to render our State to deserve the distinction of being the Garden of Gujarat.

11. The Government regrets that the ensilling or silo-filling work is done on a very limited

Silo-filling work should be pushed and made popular.

scale. The department does not specify any reasons why the people do not resort to it on a large scale. Considering its value the department ought to exert in making it popular.

12. Enquiries regarding seed supply, cultivation of

Information bureau of the Agricultural Department should be properly organised.

crops, fruit trees, implements were made in 116 cases and the correspondents were given satisfactory replies. The Government thinks that this branch of its work should be properly organised and developed. It should be so organised that any inquiry regarding agriculture should be directed to this branch and it should be supplied without delay. The department should give its best and mature consideration to this matter and inform the Government what it has done with regard to it.

13. No striking work has been done on Jagudun farm except testing and demonstrating profitable types of wheat suited to the district, where different strains of Pusa wheat are found useful for their rust-resisting power. To persuading the people to sow these types, the farm and the district inspectors should devote their chief attention and the Director should insist upon them the necessity of extending the area sown with these types every year. No appreciable work seems to have been done with regard to fruit cultivation. Amreli farm commenced working during the year and it is too early to speak about its work. A good beginning seems to have been made and the Government hopes that great improvement in the cultivation of food and commercial crops as also in plant culture will be brought about by the department in the near future.

14. As regards propaganda work of the department, an appreciable amount of good work was done in the distribution of pure cotton seed to the cotton growers. In Navsari District 1027-A selected cotton seed was largely distributed and cotton sale societies were organised on a co-operative basis. A special officer has been appointed for this work in the Co-operative Department. Some good work was also done in popularising the use of artificial manure for cotton, tobacco, rice, onion and sugar-cane, cultivation of early Kolum rice in place of the old Kada type was successfully introduced. In the Amreli District Jalgaon seed of cotton which gives 3 to 4 p. c. more lint than the indigenous cotton seed was introduced with successful results. New methods of planting in rows and ridges, use of ammonium sulphate for manure and Pona furnace for gul boiling were the new features introduced during the year for more profitable sugar cultivation and were met with success. A Government subsidy of Rs. 15 per plough was availed of by 13 cultivators for the purchase of ploughs.

15. During the year under review an agricultural show was held at Amreli with a live stock selection. A similar show was held at Amreli and Vijapur. Agricultural shows at Amreli and Vijapur. Vijapur in May and was opened by H. E. the Dewan Saheb. Government contributed Rs. 1,400 towards their expenses. A class was opened on the Baroda Farm to impart agricultural education to the sons of agriculturists. 18 students attended it during the year. The department ought to keep a note as to how this education is utilised by those who pass through this course.

16. On the whole, though the propaganda work done during the year was satisfactory, there is yet much scope for its rapid extension, for this is only important method by which certain improvements can be achieved in the old method of cultivation resulting in substantial profits to the agriculturists and raising their moral and economic status. The co-operation of the Agricultural, Co-operative and Revenue Departments is essential and no solid and extensive results will be possible without a hearty and earnest combination of these departments to co-operate with each other in their efforts.

There is scope for extension of propaganda work. Co-operation of Revenue and Co-operative departments essential.

17. The work done by the Engineering branch of this department is creditable. 46 wells were bored of which 36 were successful. 13 wells were blasted, in 5 of which water increased. Demonstrations were given showing the economic use of cartridge as compared with ordinary gunpowder for blasting purposes. A portable power pump to check water tapped and test water capacities for installation of water pump was purchased during the year. This will enable the department to advise well-owners more definitely regarding the sufficiency of water supply for power pumping. Experiments were made during the year by adding a cultipacker and a rotary hoe to the power machinery equipment to see how far power operations were feasible. This is a step in the right direction and a necessary one to demonstrate to the

Work done by the Engineering branch.

people the economic advantages of the use of machinery in agricultural operations. A tractor and oil engine class was opened; only 13 out of 34 applicants availed themselves of the facilities given. The main difficulty that stands in the way of the agriculturists buying tractors and other agricultural machines, and implements is that men are not easily available to repair them when they are out of order. A number of persons trained in working machines, repair them and prepare their parts may induce a large number of people to go in for these new machines and implements. The department is requested to think whether it would be feasible to open a class and workshop to train such men on an economic basis.

18. As regards cattle breeding nothing seems to have been done by the department except stationing 8 bulls for service at different places. Considering that bullocks form the main stay of good cultivation, the subject deserves more careful and serious consideration from the department. It is by the conjoint efforts of the Agricultural and Co-operative Departments that some good work is likely to be accomplished in this direction. The Government hopes that these departments will study this question and devise a scheme by which the existing breed will be greatly improved to the great benefit of the agricultural population.

19. During the year under report 463 animals were castrated. The work seems to be slow due to the prejudice of the people against castration. This work needs to be greatly extended as the castrated animals live longer and work harder than the uncastrated ones.

Baroda.
23rd March 1929.

N. K. Anoli.
Karma Sachiv.