

# FERTILISER STATISTICS 1961-62



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**Prepared in the Statistical Division of The Fertiliser Association of India**

**by**

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## PREFACE

This is the seventh edition of Fertiliser Statistics revised for 1961-62 (July-June). The object of the publication is to keep those engaged in the fertiliser industry and in the propagation of fertiliser use informed of the various factors relating to fertilisers in India.

The data presented in this publication have been drawn from different sources and, therefore, do not conform to the same standard of accuracy. This has to be kept in view when utilising the data.

The publication of Fertiliser Statistics has been made possible by the co-operation of Central Ministries of Food and Agriculture and Commerce and Industry, State Departments of Agriculture, Fertiliser Manufacturers and Importers and various other agencies. The assistance rendered by them is gratefully acknowledged.

The present edition has some new features which are referred to in the introduction. Members of the Association and those interested in the improvement of Indian agriculture will, I am sure, find this publication useful. The Association would welcome suggestions to make it more complete and comprehensive so as to make future editions an improvement on the present one.

New Delhi,  
October 31, 1962.

C. R. RANGANATHAN,  
Executive Director,  
The Fertiliser Association of India.

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## INTRODUCTION

Statistics of fertilisers are generally found in the records of Government and Industry and are mostly unpublished. Even the published information is scattered through a large number of publications and is not readily available for use. This booklet is brought out in order to bring together all these data, both published and un-published, with a view to giving an objective presentation of information available with the Government and the Industry. It is hoped this publication will meet the needs of all those who are interested in fertilisers.

The book is divided into two parts. Part I consists of Fertiliser Statistics and Part II of Related Statistics. Part I gives details regarding the industries concerned with the manufacture of straight and mixed fertilisers, installed capacity, production, consumption, imports, prices and subsidy, targets of production and consumption of N, P, K in the Third Five-Year Plan and world statistics. Certain useful information such as fertiliser recommendations for different crops in the various States, statistics of urban and rural compost production and area green-manured, plant nutrients removed by crops, nutrient content of fertilisers, etc., is also included in this part. Part II deals with land utilisation statistics, area and production of crops, imports of cereals, targets of agricultural production in the Third Five-Year Plan and world statistics. In addition certain other useful information is also given in this part.

The book has been rearranged by grouping together certain tables and topics which were allied in nature so as to present information under a single main heading. The mode of presentation of data in some tables has also been revised, in order to facilitate reference and use of the statistics.

Some new tables and charts have been included. They are :

### Part I

1. Distribution of ammonium phosphate
2. Programme of fertiliser production in different States—installed capacity
3. Subsidy on superphosphate

4. Targets of consumption of nitrogenous, phosphatic and potassic fertilisers
5. Targets of production of nitrogenous and phosphatic fertilisers
6. Statewise targets of consumption of fertilisers
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12. Analysis of various rock phosphates imported for superphosphate manufacture
13. Packing conditions for fertilisers for carriage by rail

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14. Cropwise distribution of gross cropped area and gross irrigated area
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Some tables, which have become obsolete have been omitted. A few other tables have also been omitted to keep the size of the book reasonably small.

#### **Notes, abbreviations and signs**

The source from which the data have been derived is indicated at the bottom of each table. Where no source is given for a particular table, it should be understood that the data have been collected and tabulated by F. A. I.

Unless otherwise stated, the annual figures are for calendar years or for agricultural years ending 30th June, as the case may be.

Owing to rounding off, the total of columns may not, in every case, tally with the sum of their constituent items.

The latest available data, derived from official sources, have been used, though they are subject to revision in some cases. In the tables giving area, production and yield per acre of crops, the figures for 1960-61 refer to final estimates and the figures for 1959-60 refer to partially revised estimates.

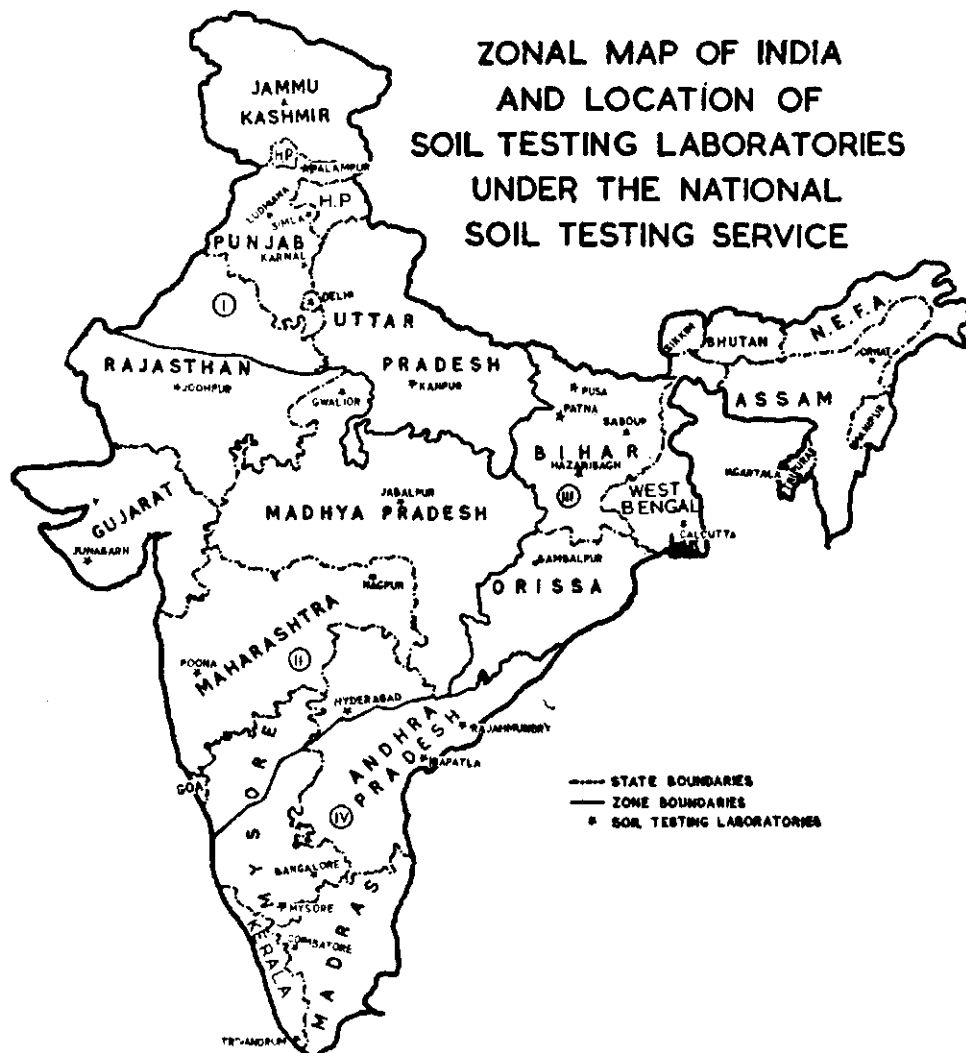
The data have been presented in metric units of measurements, though in some tables British units have been used as before.

Wherever special notes are required with reference to a particular table, they are given at the bottom of the table. The following abbreviations and symbols are used :

- a less than 500 acres
- b less than 500 tons
- @ estimated
- + unofficial
- negligible or nil or entry not applicable
- \* incomplete data
- \*\* data for the preceding or the following year have been repeated
- ... not available

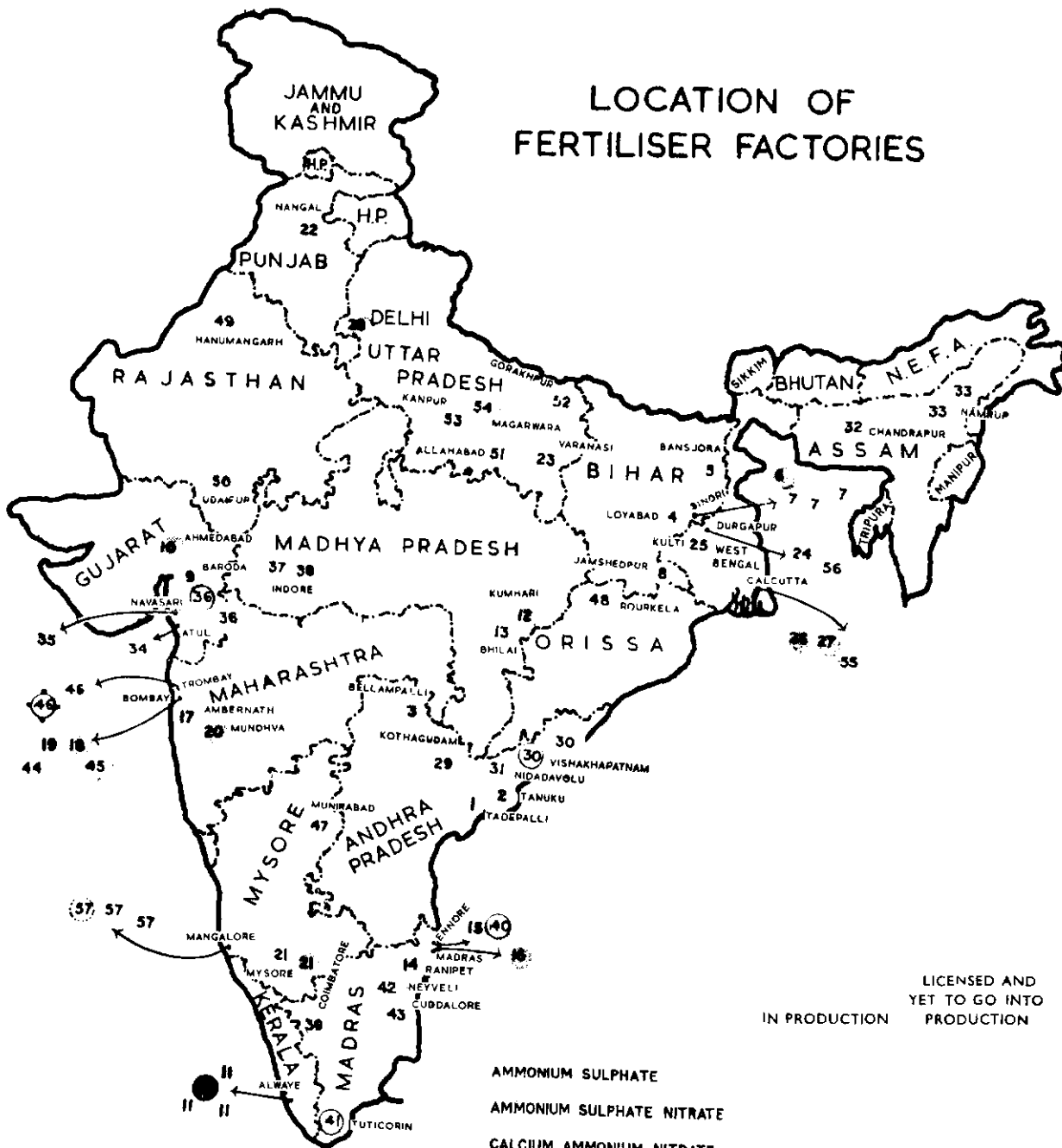
PART I

Fertiliser Statistics



- Zone I** Punjab, North Rajasthan, Uttar Pradesh, Jammu & Kashmir, Delhi and Himachal Pradesh.
- Zone II** Andhra Pradesh, (Telangaan area), Gujarat, Maharashtra, Madhya Pradesh, North Mysore and South Rajasthan.
- Zone III** Assam, Bihar, Orissa, W. Bengal, Manipur and Tripura.
- Zone IV** Andhra Pradesh, (Andhra area), Kerala, Madras and South Mysore.

# LOCATION OF FERTILISER FACTORIES



LICENSED AND  
 YET TO GO INTO  
 PRODUCTION  
 TO BE LICENSED

- AMMONIUM SULPHATE
- AMMONIUM SULPHATE NITRATE
- CALCIUM AMMONIUM NITRATE
- UREA
- AMMONIUM CHLORIDE
- AMMONIUM PHOSPHATE
- NITROPHOSPHATE
- SUPERPHOSPHATE
- TRIPLE SUPERPHOSPHATE
- DI-CALCIUM PHOSPHATE



SERIAL  
NO.                      NAME OF THE FACTORY

**In production**

1. Andhra Fertilisers
2. Andhra Sugars
3. Hyderabad Chemicals and Fertilisers
4. Bararee Coke Co.
5. Barrakur Coal Co.
6. Bihar Govt. Superphosphate Factory
7. Fertilizer Corporation of India
8. Tata Iron & Steel Co.
9. Alembic Chemical Works
10. Anil Starch Products
11. Fertilisers and Chemicals Travancore
12. Dharamsi Morarji Chemical Co.
13. Hindustan Steel
14. E.I.D. & Sugar Factories
15. Blue Mountain Estate & Industries
16. Shaw Wallace & Co.
17. Dharamsi Morarji Chemical Co.
18. Eastern Chemical Co.
19. Western Chemical Industries
20. West India Chemicals
21. Mysore Chemicals & Fertilisers
22. Fertilizer Corporation of India
23. New Central Jute Mills Co.
24. Hindustan Steel
25. Indian Iron & Steel Co.
26. Jay Shree Chemicals & Fertilisers
27. Phosphate Co.
28. D.C.M. Chemical Works

**Licensed and yet to go into production**

29. Andhra Sugars

SERIAL  
NO.                      NAME OF THE FACTORY

30. Coromandal Fertilisers
31. Krishna Industrial Corporation
32. Associated Industries (Assam)
33. Fertilizer Corporation of India
34. Atul Products
35. Adarsh Chemicals & Fertilisers
36. Gujarat State Fertiliser Co.
37. Agro-Chemicals & Fertilisers
38. Madhya Pradesh Chemicals & Fertilisers
39. Coimbatore Pioneer Fertilisers
40. E.I.D. & Sugar Factories
41. Kothari & Sons
42. Nayveli Fertilisers
43. Premier Fertilisers
44. Century Rayon
45. J. K. Chemicals
46. Fertilizer Corporation of India
47. Chamundi Chemicals & Fertilisers
48. Rourkela Fertilisers
49. B. L. Jalan & Co.
50. Metal Corporation of India
51. D.C.M. Chemical Works
52. Fertilizer Corporation of India
53. J. K. Cotton Spg. Wvg. Mills Co.
54. Ralli Chemicals
55. Kanoria Chemicals & Industries
56. West Bengal Fertiliser Project

**To be licensed**

57. Mysore Fertiliser Project

(as on 31st August 1962)

## I. NITROGENOUS FERTILISERS

### I.1 MANUFACTURERS AND INSTALLED CAPACITY OF NITROGENOUS FERTILISERS (as on 31st August, 1962)

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient (N)
<b>1) IN PRODUCTION</b>		
<b>a) Ammonium sulphate</b>		
<i>Bihar</i>		
1. Bararee Coke Co. Ltd., Loyabad <sup>(1)</sup>	1,170	240
2. Barrakur Coal Co. Ltd., Bansjora <sup>(1)</sup>	1,340	280
3. Fertilizer Corporation of India, Ltd., Unit : Sindri	355,620	73,260
4. Tata Iron & Steel Co. Ltd., Jamshedpur <sup>(1)</sup>	21,900	4,510
<i>Kerala</i>		
5. Fertilisers And Chemicals, Travancore Ltd., Alwaye	67,060	13,810
<i>Madhya Pradesh</i>		
6. Hindustan Steel Ltd., Bhilai <sup>(1)</sup>	20,120	4,140
<i>Mysore</i>		
7. Mysore Chemicals & Fertilisers, Ltd., Mysore	6,710	1,380
<i>West Bengal</i>		
8. Hindustan Steel Ltd., Durgapur <sup>(1)</sup>	7,010	1,440
9. Indian Iron & Steel Co. Ltd., Burnpur—Kulti <sup>(1)</sup>	21,120	4,350
Total :	502,050	103,410
<b>b) Ammonium sulphate nitrate</b>		
<i>Bihar</i>		
1. Fertilizer Corporation of India, Ltd., Unit : Sindri	140,210	36,450
Total :	140,210	36,450
<b>c) Calcium ammonium nitrate</b>		
<i>Punjab</i>		
1. Fertilizer Corporation of India, Ltd., Unit : Nangal	394,230	80,820
Total :	394,230	80,820
<b>d) Urea</b>		
<i>Bihar</i>		
1. Fertilizer Corporation of India, Ltd., Unit : Sindri	24,390	10,730
Total :	24,390	10,730

(Continued)



**I.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
NITROGENOUS FERTILISERS (as on 31st August, 1962)**  
(Continued)

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient (N)
<b>e) Ammonium chloride</b>		
<i>Kerala</i>		
1. Fertilisers And Chemicals, Travancore Ltd., Alwaye	8,130	2,030
<i>Uttar Pradesh</i>		
2. New Central Jute Mills Co. Ltd., Varanasi	40,640	10,160
<b>Total :</b>	<b>48,770</b>	<b>12,190</b>
<b>Grand total for (I)</b>	—	<b>243,600</b>
<b>II) LICENSED AND YET TO GO INTO PRODUCTION</b>		
<b>a) Ammonium sulphate</b>		
<i>Assam</i>		
1. Fertilizer Corporation of India, Ltd., Unit : Namrup	101,600	20,930
<i>Kerala</i>		
2. Fertilisers And Chemicals, Travancore Ltd., Alwaye (3)	136,100	28,050
<i>Rajasthan</i>		
3. B.L. Jalan & Co., Hanumangarh	396,000	81,580
<b>Total :</b>	<b>633,750</b>	<b>130,560</b>
<b>b) Calcium ammonium nitrate</b>		
<i>Orissa</i>		
1. Rourkela Fertilisers, Rourkela	594,780	121,930
<b>Total :</b>	<b>594,780</b>	<b>121,930</b>
<b>c) Urea</b>		
<i>Andhra Pradesh</i>		
1. Andhra Sugars Ltd., Kothagudem	182,890	80,470
2. Coromandel Fertilisers Private Ltd., Vishakhapatnam	16,500	7,260
<i>Assam</i>		
3. Fertilizer Corporation of India, Ltd.; Unit : Namrup	55,880	24,590
<i>Gujarat</i>		
4. Gujarat State Fertiliser Co. Ltd., Baroda	92,360	40,640
<i>Madras</i>		
5. Neyveli Fertilisers, Neyveli	152,000	66,880

(Continued)

**I.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
NITROGENOUS FERTILISERS (as on 31st August, 1962)  
(Concluded)**

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient (N)
<i>Maharashtra</i>		
6. Fertilizer Corporation of India, Ltd., Unit : Trombay	97,500	42,900
<i>Uttar Pradesh</i>		
7. Fertilizer Corporation of India, Ltd., Unit : Gorakhpur	182,890	80,470
<i>West Bengal</i>		
8. West Bengal Fertiliser Project, Durgapur	134,120	59,010
<b>Total :</b>	<b>914,140</b>	<b>402,220</b>
<b>d) Ammonium chloride</b>		
<i>Kerala</i>		
1. Fertilisers And Chemicals, Travancore Ltd., Alwaye <sup>(2)</sup>	17,270	4,320
<i>Uttar Pradesh</i>		
2. New Central Jute Mills Co. Ltd., Varanasi <sup>(2)</sup>	40,640	10,160
<b>Total :</b>	<b>57,910</b>	<b>14,480</b>
<b>Grand total for (ii)</b>	<b>—</b>	<b>669,190</b>
<b>(iii) TO BE LICENSED</b>		
<b>a) Ammonium sulphate</b>		
<i>Mysore</i>		
1. Mysore Fertiliser Project, Mangalore	...	22,000 <sup>(3)</sup>
<b>Total :</b>	<b>...</b>	<b>22,000 <sup>(3)</sup></b>
<b>b) Urea</b>		
<i>Mysore</i>		
1. Mysore Fertiliser Project, Mangalore	...	52,000 <sup>(3)</sup>
<b>Total :</b>	<b>...</b>	<b>52,000 <sup>(3)</sup></b>
<b>Grand total for (iii)</b>	<b>—</b>	<b>74,000</b>
<b>Grand total for (i), (ii) &amp; (iii)</b>	<b>—</b>	<b>986,790</b>

(1) By-product

(2) Expansion programme

(3) Provisional

Note :—The analysis of the fertilisers given in table 9.3 have been used to calculate the capacity in terms of the nutrient.

## 1.2 MONTHLY STOCKS, PRODUCTION AND DESPATCHES

Month	Ammonium sulphate				Ammonium sulphate nitrate			
	Opening stock	Production	Despatches	Closing stock	Opening stock	Production	Despatches	Closing stock
July	50,004	34,608	29,542	55,072	9,330	4,735	7,776	6,289
August	55,072	36,855	32,759	59,168	6,289	5,307	2,696	8,900
September	59,168	33,881	33,127	59,922	8,900	4,350	4,786	8,464
October	59,922	27,493	36,791	50,624	8,464	5,277	7,359	6,382
November	50,624	30,391	36,247	44,768	6,382	4,945	7,822	3,505
December	44,768	32,278	34,364	39,886	3,505	5,435	5,138	3,802
January	40,180	35,377	41,365	34,192	3,802	3,256	3,899	3,159
February	34,192	34,423	36,731	31,884	3,159	4,001	3,317	3,843
March	31,884	38,269	43,398	26,755	3,843	4,026	4,306	3,563
April	27,273	30,265	38,250	19,288	231	4,568	4,341	458
May	19,288	33,696	35,122	17,786	458	2,468	1,750	1,176
June	17,786	34,767	21,917	30,636	1,176	4,826	4,830	1,172
Total:	—	402,303	419,613	—	—	53,194	58,020	—

Note : Certain differences between closing and opening stocks are due to stock

## OF NITROGENOUS FERTILISERS, 1961-62

(metric tonnes)

Urea				Calcium ammonium nitrate				Month
Opening stock	Production	Despatches	Closing stock	Opening stock	Production	Despatches	Closing stock	
3,620	1,022	532	4,110	8,102	14,266	5,195	17,173	July
4,110	1,370	389	5,091	17,173	20,990	15,788	22,375	August
5,091	1,073	2,190	3,974	22,375	19,602	10,177	31,800	September
3,974	736	1,391	3,319	31,800	10,130	11,926	30,004	October
3,319	1,264	2,459	2,124	30,004	20,626	17,791	32,839	November
2,124	1,226	2,378	972	32,839	17,515	9,977	40,377	December
972	1,212	1,606	578	40,377	18,505	12,471	46,811	January
578	1,335	340	1,573	46,811	18,396	19,561	45,646	February
1,573	1,111	240	2,444	45,646	24,260	29,289	40,617	March
1,875	844	259	2,460	40,617	22,478	18,607	44,488	April
2,460	802	1,499	1,763	44,488	21,259	23,775	41,972	May
1,763	1,540	1,684	1,619	41,972	19,682	12,794	48,860	June
—	13,535	14,967	—	—	228,109	187,351	—	Total

taking adjustments.

**1.3 SYNTHETIC AND BY-PRODUCT PRODUCTION OF  
AMMONIUM SULPHATE, 1961-62 (Monthwise)**

(metric tonnes)

Month	By-product	Synthetic	Total	
			Material	Nutrient (N)
July	4,974	29,634	34,608	7,095
August	5,182	31,673	36,855	7,555
September	4,071	29,810	33,881	6,946
October	4,694	22,799	24,793	5,636
November	4,235	26,156	30,391	6,233
December	5,619	26,659	32,278	6,617
January	5,067	30,310	35,377	7,252
February	4,616	29,807	34,423	7,057
March	5,351	32,918	38,269	7,845
April	5,333	24,932	30,265	6,204
May	5,684	28,012	33,696	6,908
June	4,999	29,768	34,767	7,127
<b>Total :</b>	<b>59,825</b>	<b>342,478</b>	<b>402,303</b>	<b>82,472</b>

**I.4 PRODUCTION OF NITROGENOUS FERTILISERS**  
1952-53 to 1961-62

(metric tonnes)

Year	Material				Nutrient (N)				Total <sup>1</sup>
	A/S	ASN	Urea	CAN	A/S	ASN	Urea	CAN	
1952-53	257,609	—	—	—	52,810	—	—	—	52,810
1953-54	256,819	—	—	—	52,648	—	—	—	52,648
1954-55	332,417	—	—	—	68,145	—	—	—	68,145
1955-56	373,103	—	—	—	76,486	—	—	—	76,486
1956-57	382,466	—	—	—	78,406	—	—	—	78,406
1957-58	393,905	—	—	—	80,751	—	—	—	80,751
1958-59	392,069	—	—	—	80,374	—	—	—	80,374
1959-60	367,016	21,301	3,839	—	75,238	5,538	1,689	—	82,465
1960-61	399,270	40,005	11,765	51,306	81,850	10,410	5,177	10,518	107,955
1961-62	402,303	53,194	13,535	228,109	82,472	13,830	5,955	46,762	149,019

<sup>1</sup>Excludes production of ammonium chloride for which data are not available.

A/S—Ammonium sulphate

ASN—Ammonium sulphate nitrate

CAN—Calcium ammonium nitrate

Note : Production of ASN and urea started in November 1959.

Production of CAN started in February 1961.

**1.5 DISTRIBUTION OF NITROGENOUS FERTILISERS  
1959-60**

(metric tonnes)

Distributed to	Ammonium sulphate*1	Urea*1	Ammonium sulphate nitrate*1	Calcium ammonium nitrate*1	Chilean natural nitrate of soda <sup>2</sup>
Andhra Pradesh	80,776	16,281	12,252	8,193	300
Assam	5,791	—	—	—	150
Bihar	58,423	4,956	875	1,985	(c)
Gujarat	(a)	(a)	(a)	(a)	(a)
Jammu & Kashmir	4,475	—	—	—	—
Kerala	17,659	2,256	902	1,719	950
Madhya Pradesh	42,369	1,778	698	102	—
Madras	85,043	21,766	10,289	4,293	500
Maharashtra	83,234 (b)	32,737 (b)	18,441 (b)	9,144 (b)	4,050 (b)
Mysore	19,488	7,954	1,500	5,298	100
Orissa	21,007	—	465	4,061	—
Punjab	7,316	—	—	15,241	—
Rajasthan	3,414	1,715	1,891	4,166	—
Uttar Pradesh	155,760	13,692	11,166	9,652	400 (d)
West Bengal	38,153	1,175	1,380	—	2,850
Delhi	1,402	81	—	—	—
Himachal Pradesh	701	—	—	—	—
Manipur	62	—	—	—	—
Tripura	—	—	—	—	—
Pondicherry	1,910	203	41	—	100
Andamans	1	—	—	—	—
Laccadives	—	—	—	—	—
Coffee Board	11,865	5,933	7,511	6,428	3,600
U.P.A.S.I.	17,832	2,962	7,827	2,332	—
Rubber Board	5,334	305	—	—	—
Tea Manure Mixtures	52,293	1,843	1,390	—	—
Industrial users	2,615	—	—	—	—
<b>Total :</b>	<b>716,922</b>	<b>115,637</b>	<b>76,228</b>	<b>72,614</b>	<b>13,000</b>

76 628

(Continued)

**1.5 DISTRIBUTION OF NITROGENOUS FERTILISERS  
1960-61 (Continued)**

(metric tonnes)

Distributed to	Ammonium sulphate*1	Urea*1	Ammonium sulphate nitrate*1	Calcium ammonium nitrate*1	Chilean natural nitrate of soda <sup>2</sup>
Andhra Pradesh	82,856	4,300	13,000	15,230	450
Assam	—	—	—	—	—
Bihar	52,696	500	1,000	70	(c)
Gujarat	27,724	1,380	4,950	1,500	2,460
Jammu & Kashmir	4,200	—	—	—	—
Kerala	21,815	2,500	1,000	500	900
Madhya Pradesh	24,555	—	2,000	—	—
Madras	85,000	8,000	9,000	2,000	1,000
Maharashtra	83,416	7,120	7,450	9,200	3,540
Mysore	53,720	5,500	2,000	3,500	300
Orissa	17,458	—	1,500	2,000	—
Punjab	17,800	—	—	14,540	—
Rajasthan	10,821	—	500	500	—
Uttar Pradesh	124,268	5,896	13,000	24,900	100 (d)
West Bengal	31,425	1,576	1,500	—	3,050
Delhi	1,333	—	—	—	—
Himachal Pradesh	608	—	—	—	—
Manipur	44	20	—	—	—
Tripura	—	—	—	—	—
Pondicherry	2,085	—	—	—	50
Andamans	—	—	—	—	—
Laccadives	—	—	—	—	—
Coffee Board	34,010	2,750	7,250	2,000	2,800
U.P.A.S.I.	28,505	2,750	7,250	1,000	—
Rubber Board	3,315	—	—	—	—
Tea Manure Mixtures	52,516	2,000	16,847	—	—
Industrial users	5,437	202	—	—	—
Dairy Research Inst., Karnal	44	—	—	—	—
Demonstration	137	—	—	—	—
<b>Total :</b>	<b>765,788</b>	<b>44,494</b>	<b>88,247</b>	<b>76,940</b>	<b>14,650</b>

(Continued)



**1.5 DISTRIBUTION OF NITROGENOUS FERTILISERS  
1961-62 (Concluded)**

(metric tonnes)

Distributed to	Ammonium sulphate*1	Urea*1	Ammonium sulphate nitrate*1	Calcium ammonium nitrate*1	Chilean natural nitrate of soda*2
Andhra Pradesh	92,350	40,639	14,000	55,020	160
Assam	1,504	—	—	—	300
Bihar	59,450	5,000	1,880	2,000	—
Gujarat	27,812	7,000	5,050	2,346	300
Jammu & Kashmir	3,900	—	—	100	—
Kerala	19,658	6,500	1,000	8,135	772
Madhya Pradesh	25,300	2,000	600	1,500	—
Madras	76,000	30,095	5,000	35,750	670
Maharashtra	98,000	17,000	14,081	11,357	3,085
Mysore	54,500	17,000	5,000	13,000	—
Orissa	23,800	250	2,000	5,974	—
Punjab	20,300	—	—	54,858	—
Rajasthan	7,421	1,617	1,000	13,000	—
Uttar Pradesh	90,384	20,840	5,910	25,000	200
West Bengal	62,000	5,060	3,535	928	—
Delhi	820	42	—	—	—
Himachal Pradesh	550	—	—	450	—
Manipur	63	20	—	—	—
Pondicherry	1,450	350	200	120	—
Andamans	2	9	10	—	—
Laccadives	12	—	—	—	—
Coffee Board	25,760	6,049	5,000	11,618	2,672
U.P.A.S.I.	27,385	3,744	5,000	5,020	—
Rubber Board	5,470	90	—	—	—
Tea Manure Mixtures	75,008	1,528	15,885	—	244
Industrial users	3,916	184	—	—	—
Sikkim	10	—	—	—	—
<b>Total</b>	<b>802,825</b>	<b>165,017</b>	<b>85,151</b>	<b>246,176</b>	<b>8,403</b>

(a) Included in Maharashtra

(b) These figures are for the composite State of Bombay

(c) Included in Uttar Pradesh

(d) The figures are for U.P. and Bihar

\*The quantity shown as distributed actually refers to the allotment under the Fertiliser Pool and are based on financial year (April-March)

Source : (1) Ministry of Food &amp; Agriculture

(2) Rallis India Ltd., Bombay.

## I.6 IMPORTS OF NITROGENOUS FERTILISERS

(metric tonnes)

Articles and country from which imported	1959-60	1960-61	1961-62
<b>Ammonium sulphate (1)</b>			
Austria		6,663	
Belgium	51,456	29,471	24,911
France		10,000	—
Germany East	75,929	69,765	59,782
Germany West	7,687	19,179	39,884
Holland	15,825	—	—
Italy	78,389	91,288	79,483
United Kingdom	—	—	17,482
U.S.S.R.	20,686	54,859	88,414
Canada	34,676	61,287	—
U.S.A.	—	10,121	18,652
Japan	10,306	47,879	47,697
Korea North	9,007	—	10,823
Australia	—	16483	—
<b>Total :</b>	<b>303,961</b>	<b>416,995</b>	<b>387,128</b>
<b>Ammonium sulphate nitrate(1)</b>			
Germany West	82,661	49,511	160
<b>Total :</b>	<b>82,661</b>	<b>49,511</b>	<b>160</b>
<b>Calcium ammonium nitrate(1)</b>			
Austria Germany West & Norway	42,945	13,542	—
Austria	20,748	95,12	27,375
France	18,367	23,728	—
Germany West	—	—	21,400
Italy	—	33,476	—
<b>Total :</b>	<b>82,060</b>	<b>80,258</b>	<b>48,775</b>

(Continued)

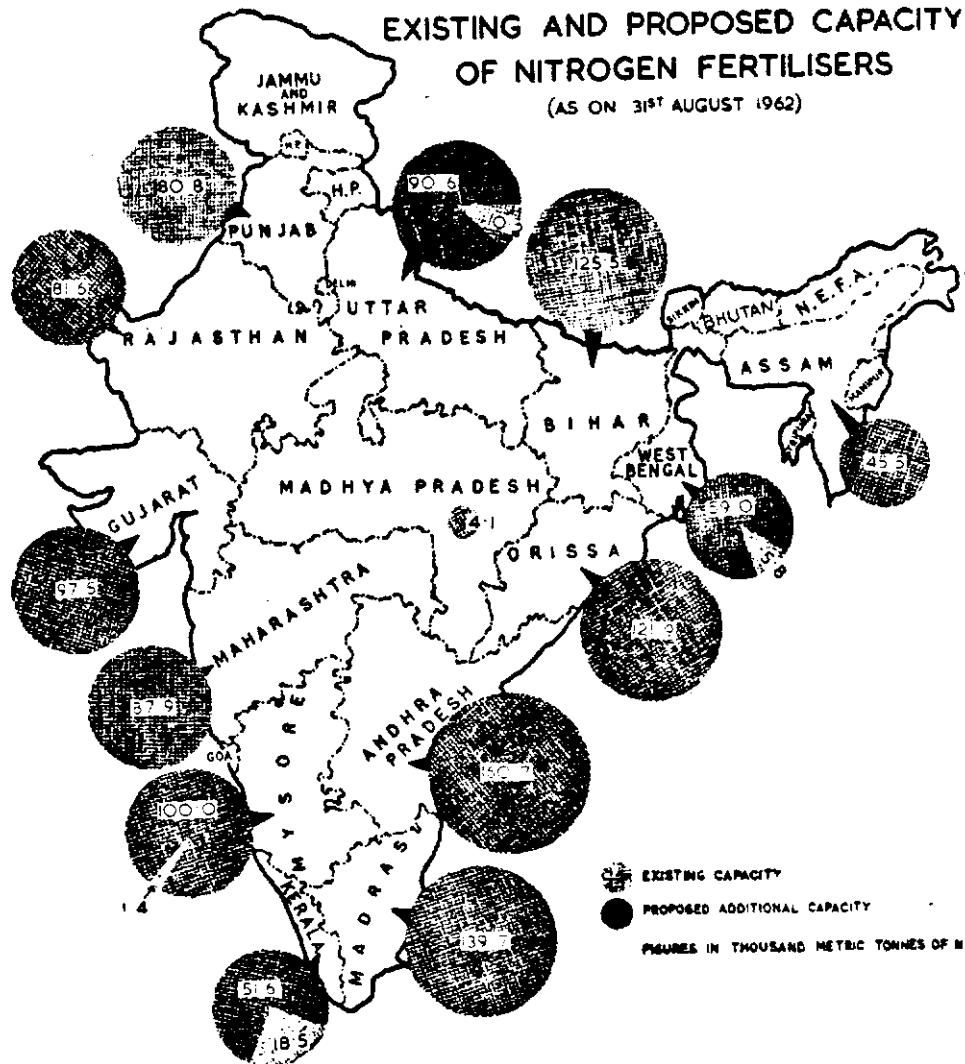
**1.6 IMPORTS OF NITROGENOUS FERTILISERS (Concluded)**

(metric tonnes)

Article and country from which imported	1959-60	1960-61	1961-62
<b>Urea<sup>(1)</sup></b>			
Austria	—	2,000	—
Belgium	—	7,100	1,500
France	—	5,907	7,500
Germany West	—	19,675	20,827
Holland	8,760	15,131	30,626
Italy	—	19,778	17,612
Norway	—	7,881	1,521
Japan	72,220	45,771	35,599
<b>Total :</b>	<b>80,980</b>	<b>123,243</b>	<b>115,185</b>
<b>Chilean natural nitrate of soda<sup>(2)</sup></b>			
(For agricultural purposes only)			
Chile	13,000	14,650	11,281
<b>Total :</b>	<b>13,000</b>	<b>14,650</b>	<b>11,281</b>

Source: (1) Ministry of Food & Agriculture.  
(2) Rallis India Ltd., Bombay.

**EXISTING AND PROPOSED CAPACITY  
OF NITROGEN FERTILISERS**  
(AS ON 31<sup>ST</sup> AUGUST 1962)



## 2. PHOSPHATIC FERTILISERS AND PHOSPHATIC FERTILISER MATERIALS

### 2.1 MANUFACTURERS AND INSTALLED CAPACITY OF PHOSPHATIC FERTILISERS (as on 31st August, 1962)

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient P <sub>2</sub> O <sub>5</sub>
<b>1) IN PRODUCTION</b>		
<b>Superphosphate</b>		
<i>Andhra Pradesh</i>		
1. Andhra Fertilisers Pvt. Ltd., Tadepalli	50,820	8,130
2. Andhra Sugars Ltd., Tanuku	33,530	5,360
3. Hyderabad Chemicals & Fertilizers Ltd., Bellampalli <sup>(1)</sup>	16,770	2,680
<i>Bihar</i>		
4. Bihar Govt. Superphosphate Factory, Sindri <sup>(1)</sup>	23,480	3,760
<i>Gujarat</i>		
5. Alembic Chemical Works Co. Ltd., Baroda <sup>(1)</sup>	23,480	3,760
6. Anil Starch Products Ltd., Ahmedabad <sup>(1)</sup>	11,180	1,790
<i>Kerala</i>		
7. Fertilisers And Chemicals, Travancore Ltd., Alwaye	44,710	7,150
<i>Madhya Pradesh</i>		
8. Dharamsi Morarji Chemical Co. Ltd., Kumhari	40,640	6,500
<i>Madras</i>		
9. East India Distilleries & Sugar Factories Ltd., Ranipet, Madras	50,820	8,130
10. Blue Mountain Estate And Industries Ltd., Ennore, Madras	44,710	7,150
11. Shaw Wallace & Co. Ltd., Avadi, Madras <sup>(2)</sup>	76,200	12,190
<i>Maharashtra</i>		
12. Dharamsi Morarji Chemical Co. Ltd., Ambarnath <sup>(2)</sup>	73,160	11,710
13. Eastern Chemical Co. Ltd., Bombay	5,590	890
14. Western Chemical Industries, Bombay	3,350	540
15. West India Chemicals Ltd., Mundhva, Poona. <sup>(1)</sup>	2,350	380
<i>Mysore</i>		
16. Mysore Chemicals & Fertilisers Ltd., Mysore <sup>(1)</sup>	6,710	1,070

(Continued)

**2.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
PHOSPHATIC FERTILISERS (as on 31st August, 1962)  
(Continued)**

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient P <sub>2</sub> O <sub>5</sub>
<i>West Bengal</i>		
17. Jay Shree Chemicals & Fertilisers, Calcutta	33,530	5,360
18. Phosphate Co. Ltd., Calcutta	35,210	5,630
<i>Delhi</i>		
19. D.C.M. Chemical Works, Delhi <sup>(2)</sup>	73,160	11,710
Total :	<u>649,400</u>	<u>103,890</u>
<b>ii) LICENSED AND YET TO GO INTO PRODUCTION</b>		
<b>(a) Superphosphate</b>		
<i>Andhra Pradesh</i>		
1. Hyderabad Chemicals & Fertilizers Ltd., Bellampalli <sup>(3)</sup>	16,760	2,680
2. Krishna Industrial Corporation Ltd., Nidadavolu	50,800	8,130
<i>Assam</i>		
3. Associated Industries (Assam) Ltd., Chandrapur, Kamrup	36,580	5,850
<i>Gujarat</i>		
4. Adarsh Chemicals & Fertilisers Ltd., Navasari, Surat	33,530	5,360
5. Alembic Chemical Works Co. Ltd., Baroda <sup>(3)</sup>	10,060	1,610
6. Anil Starch Products Ltd., Ahmedabad <sup>(3)</sup>	22,350	3,580
<i>Madhya Pradesh</i>		
7. Agro-Chemicals & Fertilisers Ltd., Indore	30,480	4,880
8. Madhya Pradesh Chemicals & Fertilisers (P) Ltd., Indore	40,640	6,500
<i>Madras</i>		
9. Coimbatore Pioneer Fertilisers Ltd., Coimbatore	41,660	6,670
10. Premier Fertilisers Ltd., Cuddalore, Madras	40,640	6,500
<i>Maharashtra</i>		
11. West India Chemicals Ltd., Mundhva, Poona <sup>(3)</sup>	31,180	4,990

(Continued)

**2.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
PHOSPHATIC FERTILISERS (as on 31st August, 1962)  
(Continued)**

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient P <sub>2</sub> O <sub>5</sub>
<i>Mysore</i>		
12. Chamundi Chemicals & Fertilisers Ltd., Munirabad, Raichur	40,640	6,500
13. Mysore Chemicals & Fertilisers Ltd., Mysore (3)	26,820	4,290
<i>Rajasthan</i>		
14. Metal Corporation of India Ltd., Udaipur	66,040	10,570
<i>Uttar Pradesh</i>		
15. D.C.M. Chemical Works, Allahabad	67,060	10,730
16. J.K. Cotton Spg. Wvg. Mills Co. Ltd., Kanpur	40,640	6,500
17. Ralli Chemicals Ltd., Magarwara, Unnao	60,960	9,750
<b>Total</b>	<b>656,840</b>	<b>105,090</b>
<b>(b) Triple superphosphate</b>		
<i>Maharashtra</i>		
1. J.K. Chemicals Ltd., Bombay	33,530	13,410
<b>Total</b>	<b>33,530</b>	<b>13,410</b>
<b>(c) Di-calcium phosphate</b>		
<i>Gujarat</i>		
1. Atul Products Ltd., Atul, Surat	8,230	2,800
<i>Maharashtra</i>		
2. Century Rayon Ltd., Bombay	11,130	3,780
<i>West Bengal</i>		
3. Kanoria Chemicals & Industries Ltd., Calcutta	13,410	4,560
<b>Total</b>	<b>32,770</b>	<b>11,140</b>
<b>Grand total for (ii)</b>	<b>—</b>	<b>129,640</b>

(Continued)

**2.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
PHOSPHATIC FERTILISERS (as on 31st August, 1962)  
(Concluded)**

Name of the factory	Installed capacity (metric tonnes)	
	Material	Nutrient P <sub>2</sub> O <sub>5</sub>
<b>iii) TO BE LICENSED</b>		
<b>Superphosphate</b>		
<i>Bihar</i>		
1. Bihar Govt. Superphosphate Factory, Sindri <sup>(1)</sup>	43,590	6,970
Total :	43,590	6,970
Grand total for (i), (ii) & (iii) :	—	240,500

(1) Also for expansion, the programme of which is furnished separately under item (ii).

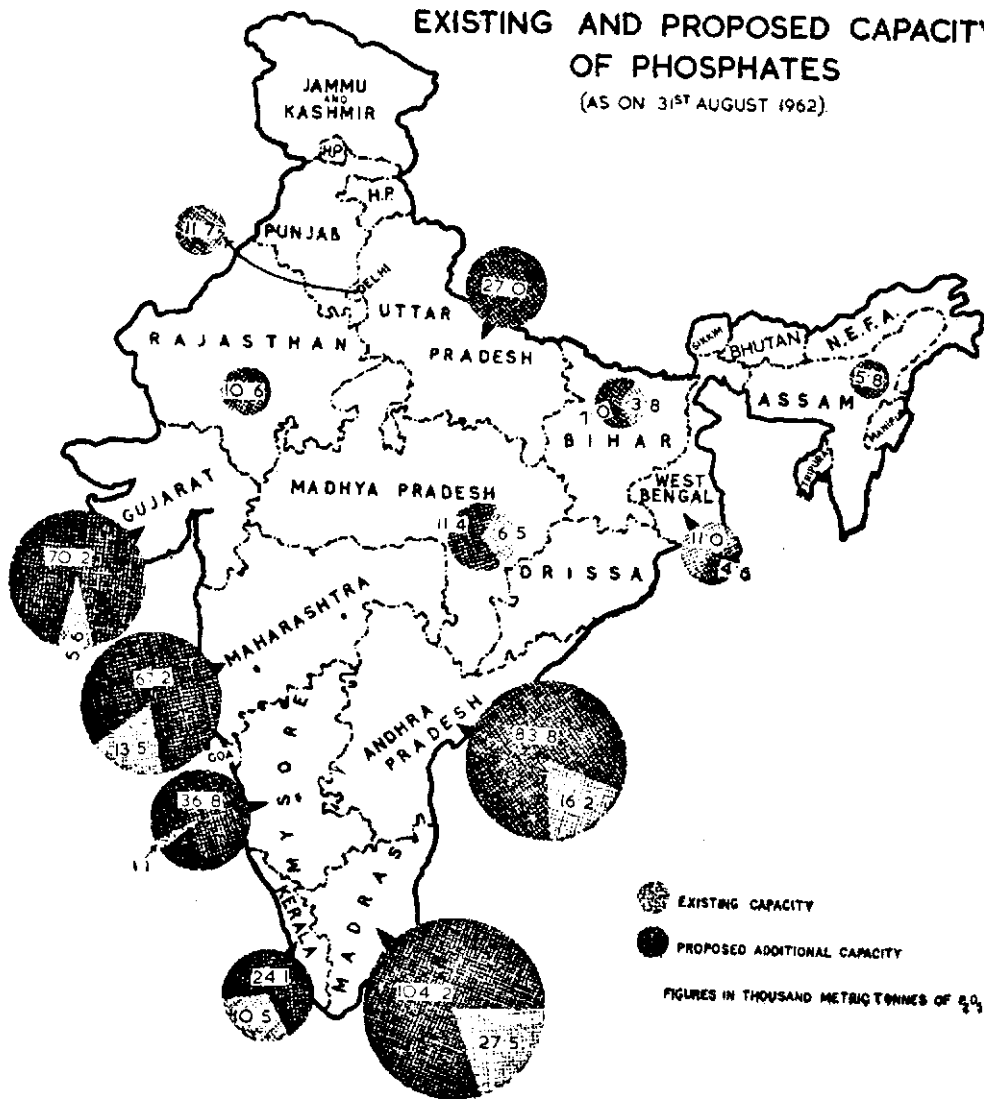
(2) 3 shift basis

(3) Expansion

Note : The analysis of the fertilisers given in Table 9.3 have been used to calculate the capacity in terms of the nutrient.



**EXISTING AND PROPOSED CAPACITY OF PHOSPHATES**  
(AS ON 31<sup>ST</sup> AUGUST 1962)



**2.2 MONTHLY STOCKS, PRODUCTION AND DESPACHES  
OF SUPERPHOSPHATE (16%P<sub>2</sub>O<sub>5</sub>) 1961-62**

(metric tonnes)

Month	Opening stock	Production	Despatches	Closing stock
July	38,073	33,199	40,727	30,545
August	30,545	33,166	31,579	32,132
September	32,132	33,490	34,326	31,296
October	31,196	29,124	26,899	33,421
November	33,421	33,362	28,709	37,949
December	37,949	36,459	22,526	51,882
January	51,233	37,664	24,613	64,176
February	64,176	31,179	21,344	74,011
March	74,011	27,847	23,552	78,306
April	78,306	30,143	30,917	77,532
May	77,532	31,047	43,838	64,741
June	64,741	35,289	51,460	48,545
<b>Total</b>		<b>391,969</b>	<b>380,490</b>	

Note : Certain differences between closing and opening stocks are due to stock taking adjustments.

**2.3 PRODUCTION OF SUPERPHOSPHATE (16% P<sub>2</sub>O<sub>5</sub>)  
1952-53 to 1961-62**

(metric tonnes)

Year / Month	Material	Nutrient P <sub>2</sub> O <sub>5</sub>
1952-53	46,534	17,445
1953-54	86,384	13,821
1954-55	89,659	14,345
1955-56	77,279	12,365
1956-57	109,907	17,585
1957-58	161,156	25,785
1958-59	193,699	30,987
1959-60	321,296	51,407
1960-61	327,441	52,391
1961-62 July	33,199	5,312
August	33,166	5,307
September	33,490	5,358
October	29,124	4,660
November	33,362	5,338
December	36,459	5,833
January	37,664	6,026
February	31,179	4,989
March	27,847	4,456
April	30,143	4,823
May	31,047	4,968
June	35,289	5,646
1961-62 Total :	391,969	62,715

## 2.4 DISTRIBUTION OF SUPERPHOSPHATE

(a) Quarterwise during 1961-62

(metric tonnes)

State	July '61 to Sept. '61	Oct. '61 to Dec. '61	Jan. '62 to March '62	April '62 to June '62	Total
Andhra Pradesh	32,267	16,334	17,849	40,943	107,403
Assam	95	177	383	61	716
Bihar	5,388	3,500	4,928	5,435	19,251
Gujarat	9,255	8,582	10,184	21,001	49,022
Jammu & Kashmir	1	8	—	94	103
Kerala	3,297	3,816	1,376	2,311	10,800
Madhya Pradesh	441	861	8,576	4,985	14,863
Madras	16,880	7,908	4,456	8,954	38,198
Maharashtra	8,593	8,172	4,859	14,903	36,527
Mysore	8,152	4,277	5,023	10,807	28,259
Orissa	1,144	242	584	1,552	3,522
Punjab	564	2,797	697	2,533	6,591
Rajasthan	919	773	84	1,922	3,698
Uttar Pradesh	355	1,132	631	1,672	3,790
West Bengal	8,915	12,123	3,696	2,475	27,209
Delhi	15	60	51	51	177
Himachal Pradesh	4	91	303	178	576
Manipur	—	—	—	—	—
Tripura	—	—	—	—	—
Pondicherry	—	—	180	62	242
Goa	—	—	66	23	89
Andamans	—	—	—	4	4
Total :	96,285	70,863	63,926	119,966	351,040
Used in mixtures	8,846	7,200	5,336	5,963	27,345
Wastages	1,496	23	218	277	2,014
Free supply	—	28	25	10	63
Nepal	4	20	4	—	28
Grand Total :	106,631	78,134	69,509	126,216	380,490

(Continued)

**2.4 DISTRIBUTION OF SUPERPHOSPHATE (Concluded)**

(b) Year-wise from 1959-60 to 1961-62

(metric tonnes)

State	1959-60	1960-61	1961-62
Andhra Pradesh	87,659	87,840	107,403
Assam	803	1,018	716
Bihar	12,446	15,676	19,251
Gujarat	(a)	(a)	49,022
Jammu & Kashmir	8	—	103
Kerala	5,633	7,642	10,800
Madhya Pradesh	7,291	5,309	14,863
Madras	39,815	46,062	38,198
Maharashtra	68,625 (b)	73,918 (b)	36,527
Mysore	18,799	27,005	28,259
Orissa	1,322	2,405	3,522
Punjab	1,129	3,075	6,591
Rajasthan	3,396	1,628	3,698
Uttar Pradesh	23,526	5,768	3,790
West Bengal	14,033	20,957	27,209
Delhi	204	118	177
Himachal Pradesh	450	432	576
Manipur	57	100	—
Tripura	—	3	—
Pondicherry	352	593	242
Goa	—	—	89
Andamans	3	—	4
Total :	285,551	299,549	351,040
Used in mixtures	27,494	26,375	27,345
Wastages	—	2,239	2,014
Free supply	—	—	63
G.O.I. purchases	148	—	—
Nepal	—	—	28
Grand Total :	313,193	328,163	380,490

(a) Included in Maharashtra.

(b) These figures are for the composite State of Bombay.

Note : Figures of superphosphate used in mixtures represent only the quantity utilised by superphosphate manufacturers.

**2.5 MANUFACTURERS AND INSTALLED CAPACITY OF  
SULPHURIC ACID (as on 31st August, 1962)**

Name of the factory	Installed capacity (metric tonnes)
<b>(I) IN PRODUCTION</b>	
<i>Andhra Pradesh</i>	
1. Andhra Fertilisers Pvt. Ltd., Tadepalli	16,760
2. Andhra Sugars Ltd., Tanuku	16,760
3. Hyderabad Chemicals & Fertilizers Ltd., Bellampalli	3,020
<i>Assam</i>	
4. Assam Oil Company, Digboi	6,700
<i>Bihar</i>	
5. Bararee Coke Co., Ltd., Loyabad	3,350
6. Bihar Government Superphosphate Factory, Sindri	8,380
7. Indian Steel & Wire Products Ltd., Indernagar	3,350
8. Rohtas Industries Ltd., Dalmianagar	3,350
9. Tata Iron & Steel Co., Ltd., Jamshedpur	40,150
10. Tinplate Co. of India (P) Ltd., Calcutta	2,680
<i>Gujarat</i>	
11. Alembic Chemical Works Co., Ltd., Baroda	4,200
12. Anil Starch Products Ltd., Ahmedabad	12,500
13. Atul Products Ltd., Atul, Surat	8,380
14. Petlad Turkey Red Dye Works Co., Ltd., Petlad	750
<i>Kerala</i>	
15. Fertilisers And Chemicals, Travancore Ltd., Alwaye	105,900
16. Travancore Rayon Ltd., Rayonpuram	16,760
17. Travancore Titanium Products Ltd., Trivandrum	16,760
<i>Madhya Pradesh</i>	
18. Dharamsi Morarji Chemical Co., Ltd., Kumhari	16,760
19. Gwalior Rayon Silk Mfg. (Wvg.) Co., Ltd., Nagda	28,500
20. Hindustan Steel Ltd., Bhilai Steel Project, Bhilai	20,120
<i>Madras</i>	
21. East India Distilleries & Sugar Factories Ltd., Ranipet	20,120
22. Shaw Wallace & Co., Ltd., Avadi, Madras	25,150
23. South India Viscose Ltd., Coimbatore	12,800
24. Blue Mountain Estate and Industries Ltd., Ennore	16,760
25. Premier Fertilisers Ltd., Cuddalore, Madras	16,760

(Continued)

**2.5 MANUFACTURERS AND INSTALLED CAPACITY OF  
SULPHURIC ACID (as on 31st August, 1962) (Continued)**

Name of the factory	Installed capacity (metric tonnes)
<i>Maharashtra</i>	
26. Cawnpore Chemical Works (P) Ltd., Bombay	5,600
27. Century Spinning & Manufacturing Co., Ltd., Bombay	7,250
28. Dharamsi Morarji Chemical Co., Ltd., Ambarnath	38,610
29. Eastern Chemical Co., Ltd., Bombay	3,520
30. National Rayon Corporation Ltd., Bombay	15,100
31. Sonawala Industries Pvt., Ltd., Bombay	3,350
32. Western Chemical Industries, Bombay	670
33. West India Chemicals Ltd., Mundhva Poona	3,350
<i>Mysore</i>	
34. Mysore Chemicals & Fertilisers Ltd., Mysore	8,380
<i>Punjab</i>	
35. Shambu Nath & Sons Ltd., Shahabad—Markanda	3,350
<i>Uttar Pradesh</i>	
36. Ajodhya Prasad Chemical Works, Ghaziabad	1,010
37. Cawnpore Chemical Works (P) Ltd., Anwarganj	5,030
38. J. K. Rayon, Kanpur	8,380
39. Krishna Chemical Works, Varanasi	170
<i>West Bengal</i>	
40. Bengal Chemical & Pharmaceutical Works Ltd., Calcutta	11,740
41. Hindustan Heavy Chemicals Ltd., Calcutta	3,350
42. Hindustan Steel Ltd., Durgapur Steel Project, Durgapur	20,120
43. Indian Explosives Ltd., Calcutta	3,350
44. Indian Iron & Steel Co., Ltd., Calcutta	15,500
45. Jay Shree Chemicals & Fertilisers Ltd., Calcutta	16,760
46. Kesoram Rayon, Calcutta	8,380
47. Phosphate Co., Ltd., Calcutta	8,380
<i>Delhi</i>	
48. D. C. M. Chemical Works, Delhi	25,150
Total	643,220

(Continued)

**2.5 MANUFACTURERS AND INSTALLED CAPACITY  
OF SULPHURIC ACID (as on 31st August, 1962) (Continued)**

Name of the factory	Installed capacity (metric tonnes)
<b>(ii) LICENSED AND YET TO GO INTO PRODUCTION</b>	
<i>Andhra Pradesh</i>	
1. Hyderabad Chemicals & Fertilizers Ltd., Bellampalli*	13,750
2. Krishna Industrial Corporation Ltd., Nidadavolu	16,760
<i>Assam</i>	
3. Associated Industries (Assam) Ltd., Chandrapur, Kamrup	18,290
4. Fertilizer Corporation of India Ltd., Unit : Namrup	80,470
<i>Bihar</i>	
5. Rohtas Industries Ltd., Dalmianagar*	16,760
<i>Gujarat</i>	
6. Adarsh Chemicals & Fertilisers Ltd., Navasari, Surat	16,760
7. Alembic Chemical Works Co. Ltd., Baroda*	16,760
8. Anil Starch Products Ltd., Ahmedabad*	9,140
9. Atul Products Ltd., Atul, Surat	5,030
<i>Kerala</i>	
10. Fertilisers And Chemicals, Travancore Ltd., Alwaye*	136,150
11. Travancore Titanium Products Ltd., Trivandrum*	16,760
<i>Madhya Pradesh</i>	
12. Agro-chemicals & Fertiliser Ltd., Indore	15,240
13. Madhya Pradesh Chemicals & Fertilisers (P) Ltd., Indore	16,760
<i>Madras</i>	
14. East India Distilleries & Sugar Factories Ltd., Ennore	50,290
15. Kothari Fertilisers & Chemicals Ltd., Madras	301,770
16. Coimbatore Pioneer Fertilisers Ltd., Coimbatore	16,760
<i>Maharashtra</i>	
17. Babu Bhai M. Chinai, Bombay	13,410
18. Cawnpore Chemical Works (P) Ltd., Bombay*	1,520
19. Century Rayon Ltd., Bombay	16,760
20. Dharamsi Morarji Chemical Co. Ltd., Bombay*	100,590
21. Hindustan Organic Chemicals Ltd., Bombay	16,760
22. Indian Dyestuffs Industries Ltd., Bombay	16,760

(Continued)



**1.5 MANUFACTURERS AND INSTALLED CAPACITY OF  
SULPHURIC ACID (as on 31st August, 1962) (Continued)**

Name of the factory	Installed capacity (metric tonnes)
23. Indian Rayon Corporation, Bombay	8,380
24. J. K. Chemicals Ltd., Bombay	50,290
25. J. K. Cotton Spg. Wvg. Mills Co. Ltd., Bombay	16,760
26. National Rayon Corporation Ltd., Bombay*	33,530
27. Nowresji Wadia & Sons (P) Ltd., Bombay	33,530
28. Tata Chemicals Ltd., Bombay	9,140
29. West India Chemicals Ltd., Mundhva, Poona*	16,760
30. Western Chemical Industries, Bombay*	8,380
<i>Mysore</i>	
31. Chamundi Chemicals & Fertilisers, Munirabad, Raichur	16,760
32. Mysore Chemicals & Fertilisers Ltd., Mysore*	16,760
33. Mysore Chemical Manufacturers Co. Ltd., Bangalore	8,380
34. Swadeshi Cotton Mills, Bangalore	8,380
<i>Orissa</i>	
35. Kalinga Tubes Ltd., Calcutta	8,380
<i>Punjab</i>	
36. Shambu Nath & Sons Ltd., Amritsar	8,380
<i>Rajasthan</i>	
37. Metal Corporation of India Ltd., Udaipur	28,450
<i>Uttar Pradesh</i>	
38. D.C.M. Chemical Works, Allahabad	41,910
39. J. K. Cotton Spg. Wvg. Mills Co. Ltd., Kanpur	16,760
40. Ralli Chemicals Ltd., Magarwara, Unnao	24,390
<i>West Bengal</i>	
41. Bengal Chemicals & Pharmaceuticals, Calcutta	16,760
42. C. D. Thakkar & Co., Calcutta	9,140
43. Hindustan Gas Co. Ltd., Calcutta	12,190
44. Phosphate Co. Ltd., Calcutta*	16,760

(Continued)

**2.5 MANUFACTURERS AND INSTALLED CAPACITY OF  
SULPHURIC ACID (as on 31st August, 1962) (Concluded)**

Name of the factory	Installed capacity (metric tonnes)
<i>Delhi</i>	
45. D. C. M. Chemical Works, Delhi*	41,910
<b>Total :</b>	<b>1,365,330</b>
<b>Grand Total :</b>	<b>2,008,550</b>

\* Expansion

**2.6 PRODUCTION OF SULPHURIC ACID**  
(1956-57 to 1960-61)

		(metric tonnes)
Year/month		Production
1956-57		1,77,609
1957-58		2,13,270
1958-59		2,50,679
1959-60		3,46,163
1960-61	July	31,020
	August	31,010
	September	28,965
	October	23,753
	November	28,103
	December	30,633
	January	31,000
	February	30,622
	March	32,000
	April	34,018
	May	33,543
	June	34,000
1960-61 Total :		3,68,667

### 2.7 IMPORTS OF PHOSPHATIC FERTILISERS AND PHOSPHATIC FERTILISER MATERIALS

Material & origin of import	Quantity (metric tonnes)			Value (Rupees)		
	1959-60	1960-61	1961-62	1959-60	1960-61	1961-62
<b>Superphosphate</b>						
United Kingdom	—	—	—	144	—	—
Netherlands	382	638	204	233,485	245,236	81,287
Belgium	626	30	584	256,268	13,219	229,683
Italy	24	—	—	9,546	—	—
<b>Total :</b>	<b>1,032</b>	<b>668</b>	<b>788</b>	<b>499,443</b>	<b>258,455</b>	<b>310,970</b>
<b>Others</b>						
United Kingdom	—	6	—	40	11,573	22
Germany West	1	—	1	1,658	—	2,078
France	2	—	1	4,065	—	1,171
Netherlands	—	—	16	—	—	20,301
Egypt	4,065	—	500	376,275	—	174,323
Tunis	—	2,032	102	—	335,033	16,200
Sm. Val. Tran.	—	3	—	—	2,030	121
<b>Total :</b>	<b>4,068</b>	<b>2,041</b>	<b>620</b>	<b>382,038</b>	<b>348,636</b>	<b>214,216</b>
<b>Natural Phosphates (ground and unground)</b>						
Czechoslovakia	—	—	250	—	—	21,913
Netherlands	—	150	—	—	15,263	...

(Continued)

**2.7 IMPORTS OF PHOSPHATIC FERTILISERS AND  
PHOSPHATIC FERTILISER MATERIALS (Continued)**

Material & origin of import	Quantity (metric tonnes)			Value (Rupees)		
	1959-60	1960-61	1961-62	1959-60	1960-61	1961-62
United Kingdom	1	—	—	150	—	—
U. S. A.	15,503	22,142	—	1,381,387	1,950,545	—
Japan	—	3,048	—	—	279,055	—
Jordan	27,120	61,923	82,933	1,877,337	5,858,048	7,950,115
Lebanon	—	—	—	124	—	—
Egypt	71,744	116,678	53,310	6,016,394	9,387,972	4,842,270
Kenya	—	—	4,752	—	—	473,840
Morocco	87,372	32,774	32,723	8,516,289	2,744,544	2,955,284
Tunis	—	21,656	69,530	—	1,934,804	5,774,255
Sm. Va. Tran.	—	3	10	—	534	802
<b>Total :</b>	<b>201,740</b>	<b>258,370</b>	<b>243,508</b>	<b>17,791,681</b>	<b>22,170,675</b>	<b>22,018,479</b>
<b>Other Mineral Phosphates</b>						
France	1	—	—	1,160	—	—
Germany West	—	—	—	529	—	—
Netherlands	30	542	379	31,441	129,973	43,771
United Kingdom	—	—	—	—	1,009	—
Egypt	4,065	387	—	312,761	31,192	—
Tunis	—	1422	51	—	227,523	8,100
Sm. Val. Tran.	—	1	—	—	610	—
<b>Total :</b>	<b>4,096</b>	<b>2,352</b>	<b>430</b>	<b>345,891</b>	<b>390,307</b>	<b>51,871</b>

(Continued)

**2.7 IMPORTS OF PHOSPHATIC FERTILISERS AND  
PHOPHATIC FERTILISER MATERIALS (Concluded)**

Material & origin of import	Quantity (metric tonnes)			Value (Rupees)		
	1959-60	1960-61	1961-62	1959-60	1960-61	1961-62
<b>Sulphur</b>						
United Kingdom	1,990	539	288	425,613	227,660	136,224
U. S. S. R.	53	400	981	8,823	67,430	131,297
Sweden	24	47	—	9,025	17,929	—
Germany West	183	278	306	65,853	109,610	108,693
Italy	12	—	—	4,874	—	—
Canada	—	—	3,952	20	—	566,274
U. S. A.	127,105	171,655	165,920	19,769,681	25,720,034	29,106,763
Mexico	26,325	22,512	13,446	3,928,930	4,373,814	2,015,020
France	—	5,714	24,359	—	853,273	3,732,416
Belgium	—	120	13	—	40,200	11,358
Sm. Val. Tran.	—	6	12	—	2,322	4,025
<b>Total :</b>	<b>155,692</b>	<b>201,281</b>	<b>209,265</b>	<b>24,212,819</b>	<b>31,412,272</b>	<b>35,812,070</b>

Source : Monthly Statistics of the Foreign Trade of India.

### 3. COMPLEX FERTILISERS

#### 3.1 MANUFACTURERS AND INSTALLED CAPACITY OF COMPLEX FERTILISERS (as on 31st August, 1962)

Name of the factory	Installed capacity (metric tonnes)		
	Material	Nutrients	
		N	P <sub>2</sub> O <sub>5</sub>
<b>(I) IN PRODUCTION</b>			
<b>Ammonium Phosphate</b>			
<i>Kerala</i>			
1. Fertilisers And Chemicals, Travancore Ltd., Alwaye	16,760	2,680	3,350
Total :	16,760	2,680	3,350
<b>(II) LICENSED AND YET TO GO INTO PRODUCTION</b>			
<b>(a) Ammonium phosphate</b>			
<i>Andhra Pradesh</i>			
1. Coromandel Fertilisers Private Ltd., Vishakhapatnam	365,000	73,000	73,000
<i>Gujarat</i>			
2. Gujarat State Fertiliser Co., Ltd., Baroda	284,500	56,900	56,900
<i>Kerala</i>			
3. Fertilisers And Chemicals, Travancore Ltd., Alwaye†	120,400	19,260	24,080
<i>Madras</i>			
4. East India Distilleries & Sugar Factories Ltd., Ennore	52,830	8,450	10,570
5. Kothari & Sons, Tuticorin	402,360	64,380	80,470
Total :	1,225,090	221,990	245,020

(Continued)

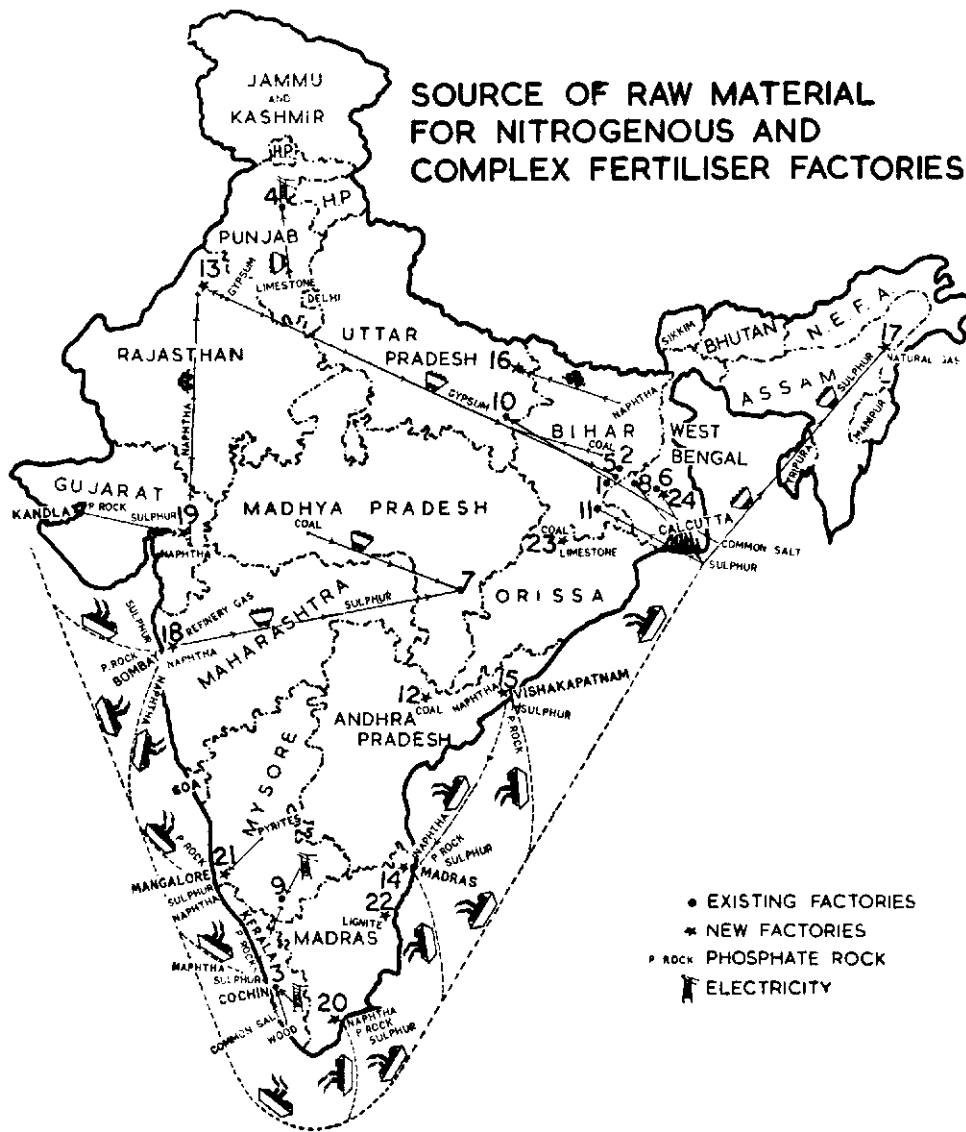
**3.1 MANUFACTURERS AND INSTALLED CAPACITY OF  
COMPLEX FERTILISERS (as on 31st August, 1962)  
(Concluded)**

Name of the factory	Installed capacity (metric tonnes)		
	Material	Nutrients	
		N	P <sub>2</sub> O <sub>5</sub>
<b>b) Nitrophosphate</b>			
<i>Maharashtra</i>			
1. Fertilizer Corporation of India Ltd., Unit : Trombay	330,000	45,000	45,000
Total :	330,000	45,000	45,000
<b>(III) TO BE LICENSED</b>			
<b>Ammonium phosphate</b>			
<i>Mysore</i>			
1. Mysore Fertiliser Project, Mangalore	—	26,000*	26,000*
Total :	—	26,000*	26,000*
Grand Total for (i), (ii) and (iii)	—	295,670*	319,370*

\* Provisional

† Expansion





**LEGEND TO MAP ON PAGE 38****Existing Factories (as on 31st August 1962)**

## Serial No.

1. Bararee Coke Co. Ltd., Loyabad  
(by-product : ammonium sulphate)
2. Barrakur Coal Co. Ltd., Bansjora  
(by-product : ammonium sulphate)
3. Fertilisers and Chemicals, Travancore Ltd., Alwaye  
(ammonium sulphate, ammonium chloride and ammonium phosphate)
4. Fertilizer Corporation of India Ltd., Unit : Nangal  
(calcium ammonium nitrate)
5. Fertilizer Corporation of India Ltd., Unit : Sindri  
(ammonium sulphate, urea and ammonium sulphate nitrate)
6. Hindustan Steel Ltd., Durgapur  
(by-product : ammonium sulphate)
7. Hindustan Steel Ltd., Bhilai  
(by-product : ammonium sulphate)
8. Indian Iron & Steel Co. Ltd., Burnpur-Kulti  
(by-product : ammonium sulphate)
9. Mysore Chemicals & Fertilisers Ltd., Mysore  
(ammonium sulphate)
10. New Central Jute Mills Co. Ltd., Varanasi  
(ammonium chloride)
11. Tata Iron & Steel Co. Ltd., Jamshedpur  
(by-product : ammonium sulphate)

**New Factories**

12. Andhra Sugars Ltd., Kothagudem (urea)
13. B.L. Jalan & Co., Hanumangarh  
(ammonium sulphate)
14. East India Distilleries & Sugar Factories Ltd., Ennore  
(ammonium phosphate)
15. Coromandel Fertilisers Private Ltd., Vishakhapatnam  
(urea and ammonium phosphate)
16. Fertilizer Corporation of India Ltd., Unit : Gorakhpur (urea)
17. Fertilizer Corporation of India Ltd., Unit : Namrup  
(ammonium sulphate and urea)

(Continued)

**LEGEND TO MAP ON PAGE 38 (Concluded)****Serial No.**

18. Fertilizer Corporation of India Ltd., Unit : Trombay  
(urea and nitrophosphate)
19. Gujarat State Fertiliser Co. Ltd., Baroda  
(urea and ammonium phosphate)
20. Kothari & Sons, Tuticorin (ammonium phosphate)
21. Mysore Fertiliser Project, Mangalore  
(ammonium sulphate, urea and ammonium phosphate)
22. Neyveli Fertilisers, Neyveli (urea)
23. Rourkela Fertilisers, Rourkela  
(calcium ammonium nitrate)
24. West Bengal Fertiliser Project., Durgapur (urea)

**3.2 MONTHLY STOCKS, PRODUCTION AND DESPATCHES  
OF AMMONIUM PHOSPHATE  
1960-61 & 1961-62**

(metric tonnes)

Year/Month	(16-20-0) Ammonium phosphate			
	Opening stock	Production	Despatches	Closing stock
<b>1960-61</b>				
December	—	126	60	66
January	66	844	529	381
February	381	985	1,149	217
March	217	748	759	206
April	206	1,159	854	511
May	511	881	1,068	324
June	324	1,910	1,428	806
Total :	—	6,653	5,847	—
<b>1961-62</b>				
July	806	918	1,204	520
August	520	1,071	1,208	383
September	383	1,451	1,280	554
October	554	1,216	1,608	162
November	162	625	696	91
December	91	1,107	1,087	111
January	111	1,644	667	1,088
February	1,088	1,369	398	2,059
March	2,059	761	546	2,274
April	2,274	845	479	2,640
May	2,640	921	251	3,310
June	3,310	1,295	858	3,747
Total :	—	13,223	10,282	—

**Note :** Production started in December, 1960.

**3.3 DISTRIBUTION OF AMMONIUM PHOSPHATE (16-20-0)  
1960-61 & 1961-62**

(metric tonnes)

Year	Madras	Mysore	Andhra Pradesh	Kerala	Total
1960-61	2,992	42	1,574	1,239	5,847
1961-62	4,655	349	3,858	1,420	10,282

## 3.4 IMPORTS OF COMPLEX FERTILISERS

(metric tonnes)

Article and country from which imported	1959-60	1960-61	1961-62
<b>Ammonium phosphate</b>			
Canada	11,834	—	—
<b>Total :</b>	<b>11,834</b>	<b>—</b>	<b>—</b>
<b>Nitrophosphate</b>			
Holland	11,257	—	—
Italy	—	994	—
Germany West	—	—	5,000
<b>Total :</b>	<b>11,257</b>	<b>994</b>	<b>5,000</b>

Source : Ministry of Food and Agriculture.

## 4. POTASSIC FERTILISERS

### 4.1 DISTRIBUTION OF MURIATE OF POTASH

(metric tonnes)

Region	1959-60	1960-61	1961-62
North zone	—	—	27
West zone	5,027	3,841	4,204
East zone	2,756	6,072	9,987
South zone	21,419	38,120	32,055
ALL INDIA	29,202	48,033	46,273

*North zone* : Punjab, Rajasthan, Uttar Pradesh, Jammu & Kashmir, Delhi and Himachal Pradesh.

*West zone* : Gujarat, Maharashtra and Madhya Pradesh.

*East zone* : Assam, Bihar, Orissa, West Bengal, Manipur and Tripura.

*South zone* : Andhra Pradesh, Kerala, Madras and Mysore.

Source : Indian Potash Supply Agency Ltd., Madras.

**4.2 IMPORTS OF POTASSIC FERTILISERS**

(metric tonnes)

Year	Muriate of potash <sup>1</sup>	Sulphate of potash <sup>2</sup>
1959-60	48,803	7,642
1960-61	30,946	12,555
1961-62	46,388*	6,146

\*Includes 5,251 metric tonnes of low analysis (50% K<sub>2</sub>O) muriate of potash

Source : (1) Indian Potash Supply Agency Limited, Madras.

(2) Monthly Statistics of the Foreign Trade of India.



## 5. MIXED FERTILISERS

### 5.1 LIST OF MIXED FERTILISER MANUFACTURERS

#### (a) Private Manufacturers

##### *Andhra Pradesh*

1. Abdul Sattar Abdul Gani, Nizamabad.
2. Andhra Agricultural Industries (P) Ltd., Ongole.
3. Andhra Bone Meal Fertilizers & Glue Manufacturers, Nellore.
4. Andhra Fertiliser Co., Nandyal.
5. Arrow Brand Manurial Mixtures Co., Samalkot.
6. Asoka Fertilizer Co., Tenali.
7. Balkishan Gopikishan, Nizamabad.
8. Bharat Fertilizers, Guntur.
9. Bharat Manures Development Co., Chirala.
10. Bhaskara Fertiliser Co., Tapeswaram.
11. Boda Satyanarayana Murthy, Kakinada.
12. Boda Subramanyam & Co.,  
Lessee : The Jupiter Manure & Bone Mills (P) Ltd., Tapeswaram.
13. Deccan Fertilisers & Glue Products Co., Warangal.
14. Dechiraju Ramrao & Co., Ongole.
15. Durga Fertiliser Co. Nizamabad.
16. D.V. M & Co., Narsapur.
17. Eastern Trades and Industrial Corporation, Samalkot.
18. East India Distilleries & Sugar Factories Ltd., Tadepalli.
19. Fertilizers & Industrial Corporation, Nidadavole.
20. Galla Bangaraiah, Proddatur.
21. Gopala Krishna Fertilizers Co., Tennali.
22. Shri P. Gopala Krishna Murty, Bapatla.
23. Gopal Manures & Bone Mills, Pentapadu.
24. B.P. Gurvi Reddy & Co., Mamillapalle, Cuddaph.
25. Hind Agricultural Corporation, Guntur.
26. Hindustan Fertilizers & Bone Mills, Vijayawada.
27. Hyderabad Chemicals & Fertilizers Ltd., Hyderabad.
28. Hyderabad Manures, Vijayawada.
29. Inturi Abbayya, Moon Brand Manure Mixing Dept., Chilakalurpet.
30. Sri Jai Ganesh Chemical Fertilisers Works, Nizamabad.
31. Jaya Lakshmi Fertilisers, Tanuku.
32. Jyoti & Co., Hyderabad.
33. Kancharala China Satyanarayana Murthy, Alamuru.
34. Kisan Fertilizers Co., Ongole.

(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

**(a) Private Manufacturers (Continued)**

35. Kisan Fertilizer, Tenali.
36. Sri Krishna Fertilizer Co., Tenali.
37. Kurnool Fertilizer Co., Kurnool.
38. T.G. Lakshmiah Chetty & Sons., Adoni.
39. Mandava Jagannadham Sons, Narsaraopet.
40. Mysore Fertilizer Co., Vijayawada.
41. Nagarjuna Manure Works, Mangalagiri.
42. Sri Namburi Pithciah Choudhary, Bapatla.
43. P. Narasinha Reddy & Co., Chittoor.
44. Nava Bharat Fertilizers, Kovvur.
45. Parameshwara Fertilizers, Tenali.
46. Pioneer Fertilizers Co., Vijayawada.
47. Potini Venkaiah & Co., Karamchedu.
48. Raju & Co., Bhimavara.
49. Rallis India Ltd., Vijayawada.
50. Rangalal & Co., Nizamabad.
51. Sanjeevi Fertilisers Co., Tenali.
52. C. Satyanarayana Murthy & Co., Kakinada.
53. Satyanarayana Srinivas Bang, Nizamabad.
54. Scientific Fertilizers Co. (P) Ltd., Guntur.
55. Shaw Wallace & Co. Ltd., Tadepalli.
56. Sri Siddam Subbanna, Cuddapah.
57. S.P. Subba Reddy Bros., Proddatur.
58. Sun Fertilizers Co., Tenali.
59. Super Fertilizers Co., Sullarpet.
60. Swadeshi Fertilizers, Nizamabad.
61. C. Venkataramana, Kurnool.
62. B. Venkata Reddy & Co., Tenali.
63. Sri Venkateshwara Agencies, Vijayawada.
64. Sri Venkateshwara Fertilizers, Guntur.
65. Sri Venkateshwara Fertilisers, Tenali.
66. Victory Fertilisers, Bapatla.

*Assam*

1. Brahmaputra Fertiliser & Distributors (P) Ltd., Gauhati.
2. Cachar Fertiliser Industry, Silchar.

(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Continued)**

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**(a) Private Manufacturers (Continued)**

3. Eastern Assam Chemical Industries (P) Ltd., Dibrugarh.

*Bihar*

1. B.N. Elias & Co. Private Ltd.
2. Jardine Henderson Ltd.
3. Phosphate Co. Ltd.
4. Rallis India Ltd.
5. Shaw Wallace & Co. Ltd.

*Gujarat*

1. Adarsh Chemicals & Fertilisers Ltd., Navasari.
2. Agri-India Fertilizers, Navasari.
3. Agri-Union Services Private Ltd., Baroda.
4. Alembic Chemical Works Co. Ltd., Baroda.
5. Anil Starch Products Ltd., Ahmedabad.
6. Asian Commercial Co., Baroda
7. Bharat Fertilizer Industries Private Ltd., Anand.
8. Bharat Pulverising Mills Private Ltd., Bhavnagar.
9. Chembur Bone & Fertiliser Co. Private Ltd., Bhavnagar.
10. Chemfert Traders, Baroda.
11. Deccan Sales Corporation Private Ltd., Rajkot.
12. C. Dhanvantrai & Co., Anand.
13. East India Distilleries and Sugar Factories Ltd., Baroda.
14. Hirjibhai Vithaldas & Co., Halvad.
15. Gujarat Fertilisers, Baroda.
16. International Training Agencies, Bhavnagar.
17. Kaira District Fertilizers Merchants Association, Nadiad.
18. Mulchand M. Choksey & Co., Baroda.
19. V. Parshuram & Co., Borsad.
20. Rallis India Ltd., Bhavnagar.
21. Shah Moteejee Meghajee, Bhavnagar.
22. Shaw Wallace & Co. Ltd., Baroda.

*Kerala*

1. Coimbatore Chemicals & Fertilisers Ltd., Palghat.
2. East India Distilleries & Sugar Factories Ltd., Cochin.

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(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS****(Continued)****(a) Private Manufacturers (Continued)**

3. B. N. Elias & Co. (P) Ltd., Cochin.
4. Fertilisers And Chemicals, Travancore Ltd., Alwaye.
5. Indian Commercial Syndicate, Palghat.
6. Kerala Chemicals & Fertilisers, Calicut.
7. Kerala Commercial Fertilisers & Agencies, Ernakulam.
8. Malabar Fertilisers & Industries Ltd., Kottayam.
9. Mysore Fertiliser Co., Cochin.
10. Peirce Leslie & Co. Ltd., Cochin.
11. Rallis India Ltd., Cochin.
12. Scientific Fertiliser Co., Palghat.
13. Shaw Wallace & Co. Ltd., Cochin.
14. South India Chemicals & Fertilisers Ltd., Kottayam.
15. T. Stanes & Co. Ltd., Cochin.

**Madhya Pradesh**

1. Balkrishna Shah & Co. Private Ltd., Indore.

**Madras**

1. Agro-Chemicals & Fertilisers, Coimbatore.
2. A. K. Ranganatham & Sons (P) Ltd., Madras-4.
3. A. P. V. & Sons, Madurai.
4. Arasan Fertilisers Private Ltd., Tirunelveli.
5. Arasi Fertiliser Co., Dindigul.
6. Annur Chemical Fertiliser Co., Coimbatore.
7. Avanashi Fertiliser Co., Coimbatore.
8. Blue Mountain Estates and Industries Ltd., Madras.
9. Chemicals and Fertiliser Pvt. Ltd., Mettupalayam.
10. Coimbatore Chemicals and Fertilisers Ltd. Coimbatore-1.
11. Coimbatore Fertiliser, Coimbatore-1.
12. Coorg and Mysore Coffee Co. Ltd., Madras-2.
13. Deccan Fertiliser Co., Coimbatore-1.
14. East India Distilleries & Sugar Factories Ltd., Madras.
15. B. N. Elias & Co., Ltd., Madras-4.
16. Gopuram Fertiliser Co., Tirunelveli.
17. Hindustan Fertiliser and Bone Mills Ltd., Madras-1.
18. Imperial Fertiliser Company, Madras-21.

**(Continued)**

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

**(a) Private Manufacturers (Continued)**

19. Indian Commercial Syndicate, Coimbatore-1.
20. International Import Corporation Ltd., Madras.
21. Krishna Trading (Fertiliser) Company, Tirunelveli.
22. Kerala Commercial Fertilisers & Agencies, Coimbatore.
23. Kumar Manure Mixing Works, Cuddalore.
24. Madras Oils and Fertilisers (P) Ltd., Madras-10.
25. Murugan Manure Works, Tirunelveli.
26. Mettur Fertiliser Co., Coimbatore.
27. Mysore Fertiliser Company, Madras-1.
28. M. S. P. Nadar Works, Salem.
29. New Premier Chemical Industries Ltd., Madras-1.
30. Nilgiris Fertiliser Ltd., Coonoor.
31. Oils & Fertilisers, Coimbatore.
32. Pandian Fertiliser Co., Tiruppuvanam.
33. Peveke Scientific Fertilisers, Salem.
34. Peirce Leslie & Co. Ltd., Coimbatore.
35. Premier Fertilisers Ltd., Madras-2.
36. Premier Fertilisers, Coimbatore.
37. Raghava and Veera Oil and Fertiliser Industries, Madras-4.
38. Rallis India Ltd., Madras-1.
39. Raja Oils and Fertilisers, Vellore N. A.
40. Samraj Oils & Fertilisers, Madras-21.
41. S. K. Samy & Sons, Erode.
42. Scientific Fertiliser Co. (P) Ltd., Madras-1.
43. Shaw Wallace & Co., Ltd., Madras-1.
44. T. Stanes & Co. Ltd., Coimbatore-1.
45. Shanmuga Manure Mixing Company, Pollachi.
46. Sri S. G. R. Subramaniam Melacheval, Tirunelveli.
47. Suriya Fertilisers, Guindy, Madras-15.
48. Sundaram Fertiliser Co., Dindigul.
49. M. R. Thiravianatha Nadar & Sons, Virudhunagar.
50. V. Venugopal Pillai & Co., Madras-1.
51. Yercaud Coffee Curing Works, Ltd., Kannankurichi.

*Maharashtra*

1. Agro Allied Industries, Thana.

(Continued)

## 5.1 LIST OF MIXED FERTILISER MANUFACTURERS

(Continued)

### (a) Private Manufacturers (Continued)

2. Asian Commercial Co., Bombay-1.
3. Agri. India Fertilisers, Bombay-1.
4. Agri. Union Services Pvt. Ltd., Bombay-1.
5. Aurangabad Chemical Industries, Aurangabad.
6. Bharat Fertiliser Industries Pvt. Ltd., Bombay-1.
7. Bharat Pulverising Mills Pvt. Ltd., Bombay-28.
8. Berar Fertilisers, Murtizapur.
9. Chandra Fertilisers & Co., Nanded.
10. Chamundi Fertilisers, Prabhani.
11. Chembur Bone & Fertiliser Co. Pvt. Ltd., Bombay-1.
12. Chemfert Traders, Bombay-1.
13. Dayal Fertilisers, Bombay-41.
14. Deccan Sales Corporation Pvt. Ltd., Poona-5.
15. C. Dhanvantrai & Co., Bombay-1.
16. Dharamsi Morarji Chemical Co. Ltd., Bombay-1.
17. Feeds and Fertilisers, Nanded.
18. Fertiliser & Manures Corporation, Poona-5.
19. R. D. Khurana & Co., Bombay-1.
20. R. K. Industries, Poona-2.
21. International Trading Agencies, Bombay-1.
22. Jaysingpur Oil Mills, Jaysingpur.
23. Kachardas Nansukh, Junnar.
24. Kamdhenu Industries, Poona-2.
25. R. D. Khurana & Co., Bombay-1.
26. Kolhapur Sugar Mills Pvt. Ltd., Kolhapur.
27. Krishak Udyog Pvt. Ltd., Nagpur.
28. Laxmi Syndicate Lentin Chambers, Bombay-1.
29. Laxmi Trading Corporation, Latur.
30. Maharashtra Chemical & Fertilisers, Parbhani.
31. Maharashtra Trading, Losalgaon.
32. Mahavir Bhupal Desai, Kolhapur.
33. Mulchand M. Choksey & Co., Bombay-1.
34. Malu Brothers, Kalam.
35. Manjal Hirachand Kothari, Poona.
36. V. G. Pangavane, Losalgaon.
37. Paras Fertiliser & Co., Vijapur.

(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

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**(a) Private Manufacturers (Continued)**

38. Parry & Co. Pvt. Ltd., Bombay-1.
39. Parekh Modi & Co., Poona-2.
40. V. Parshuram & Co., Bombay.
41. Poornima Agricultural & Industrial Corporation Pvt. Ltd., Kolhapur.
42. Phade Doshi & Co. Latur.
43. Rajendra Gopal & Co., Hingoli.
44. Rallis India Ltd., Bombay-1.
45. Ramchandra Ramadaya Jaju, Poona-2.
46. Ramnarayan Poddar & Co., Bombay 1.
47. M. K. Raval Oil Mills & Ginning Factory, Pachora.
48. Sarvodaya Oil Mills, Akola.
49. Shah Moteejee Meghajee, Poona-2.
50. Shah Arvindlal Mohanlal Pabl, District Poona.
51. Shamsundar Miniyar & Co., Moram.
52. Shantilal Dhondiram Shelot, Khurad.
53. Shantilal Maganlal Mehta, Baramati.
54. Shaw Wallace & Co. Ltd., Poona-1.
55. B. S. Shete, Akluji.
56. Shriram General Stores, Yawat.
57. Standard Farm Supplies Co., Kolhapur.
58. Sunrise Manures & Chemicals, Poona.
59. J. V. Tamhankar & Sons, 22, Sangali.
60. Vaishnav Bros., Bombay-1.
61. Western Chemical Co. Industries, Bombay-44.

*Mysore*

1. Agri. Union Service (P) Ltd., Hubli.
  2. Balaji Trading Co., Bellary.
  3. G. P. Balannpar Prop. Karnatak Fertiliser Co., Hubli.
  4. Bangalore Chemicals & Fertilisers, Bangalore.
  5. M. C. Bellulli, Davangere.
  6. Bharati Trading & Industrial Co., Hassan.
  7. Sri S. B. Bailwad & K. S. Autni, Bailhongal.
  8. V. R. Chandran & Sons, Bangalore.
  9. Chandrakanth Thapidars & Co., Mangalore.
  10. T. Chandrashekharaiiah & Sons, Mysore.
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(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Continued)****(a) Private Manufacturers (Continued)**

11. Coorg Chemical Co., Mercara.
12. Coorg & Mysore Coffee Co., Mysore.
13. Desai & Co., Hubli.
14. Desai & Sons, Belgaum.
15. Deccan Sales Corporation Pvt. Ltd., Bombay.
16. East India Distilleries & Sugar Factories, Ltd., Mysore.
17. B. N. Elias & Co. (P) Ltd., Mysore.
18. Ganga Fertiliser Co., Bangalore.
19. Hassan Fertiliser Co., Hassan.
20. Hindustan Coffee Fertilizer, Mysore.
21. Hindustan Fertiliser & Bonemeals (P) Ltd., Bangalore.
22. Laxmi Trading Corporation, Hubli.
23. Kanka Fertiliser Co., Belgaum.
24. Karnatak Fertiliser Co. Gurusiddappa Sons, Bangalore.
25. S. T. Katti, Mudhol.
26. Kisan Fertiliser Corporation, Mandya.
27. Kothari Coffee Curing Works, Hassan.
28. P. H. Krishnamurthy Fair Price and Manure Dealer, Koratagera.
29. G. N. S. Kumar, Mysore.
30. M. S. Madhava Rao, Mysore.
31. T. Mallappa T. Nangappa, Merchants, Mysore.
32. Modern Scientific Fertilisers, Mysore.
33. Mysore Chemicals & Fertilisers Ltd., Mysore.
34. Mysore Chemical Manufacturers Ltd., Bangalore.
35. Mysore Coffee Curing Works, Chickmagalur.
36. Mysore Fertiliser Co., Bangalore.
37. Mysore Scientific Fertiliser Co., Kolar.
38. Mysore Swastik Industries, Belgaum.
39. M. Nagarajiah & Sons., Hassan.
40. New Premier Chemical Industries, Bangalore.
41. Nitromix (P) Ltd., Bangalore.
42. M. Palaniyappan, Bangalore.
43. A. B. Patil, Kagwad.
44. Phade Doshi & Co., Sholapur.
45. Poornima Agricultural & Industrial Corporation (P) Ltd. Kolhapur.

(Continued)



**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

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**(a) Private Manufacturers (Continued)**

46. Pradeep Vasant Desai, Balgaum.
47. Prakash Cottage Industries, Bangalore.
48. Premier Chemicals Industries, Mysore.
49. Rallis India Ltd., Mysore.
50. M. C. Ramaswamy, The Mysore-Bone Meals and Fertilisers, Mysore-2.
51. S. Satyanarayana Setty, Bangalore.
52. Scientific Fertiliser (P) Ltd., Madras.
53. Shankersheth Oil Mills, Chandaragi.
54. Shaw Wallace & Co. Ltd., Bangalore.
55. Siddaramanna, Channagiri.
56. Srinivas Fertilisers, Bangalore-2.
57. T. Stanes & Co. Ltd., Coimbatore.
58. Sundatta Foods & Fibres Ltd., Hubli.
59. Tungabhadra Fertiliser Co., Munirabad.
60. C. Venkatappa, Mysore.

*Orissa*

1. Jaypore Sugar Co., Rayagada, Dt. Koraput.

*Rajasthan*

1. Rallis India Ltd., Sri Ganganagar.

*Uttar Pradesh*

1. D.C.M. Chemical Works, Kanpur.
2. R. K. Gelatine Bone Mills, Hapur.
3. Govind & Co., Kanpur.
4. Hapur Bone Mills, Hapur.
5. Hindustan Bone Mills (Private) Ltd., Moradabad.
6. Jai Bharat Traders Fertiliser Co., Gaziabad.
7. Khatauli Manure Mills, Khatauli, Dist., Muzaffarnager.
8. J.K. Oil Mills Co. Ltd., Cooperganj, Kanpur.
9. Omrao Industrial Corporation Pvt. Ltd., Kanpur.
10. Rallis India Ltd., Kanpur.
11. Shaw Wallace & Co. Ltd., Kanpur.
12. Universal Traders, Kanpur.

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(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

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(a) Private Manufacturers (Continued)

*West Bengal*

1. P. C. Chatterjee & Co. Ltd., Calcutta.
2. R. N. Chatterjee & Co. Ltd., Calcutta.
3. Imperial Chemical Industries (India) Ltd., Calcutta.
4. Jardine Henderson Ltd., Calcutta.
5. Khaitan Sons & Co. (Manure) Ltd., Calcutta-12.
6. Manure Supplying Agency, Calcutta.
7. R. C. Mitter & Sons, Calcutta.
8. Phosphate Co. Ltd., Calcutta-1.
9. Shaw Wallace & Co. Ltd., Calcutta.
10. A. Talukdar & Co. (Fertilisers), Private Ltd., Calcutta-1.

*Delhi*

1. D.C.M. Chemical Works, Delhi.
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Note: In Punjab, Himachal Pradesh, Manipur and Tripura there are no private dealers who manufacture mixed fertilisers.

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Continued)**

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**(b) Co-operative manufacturers**

*Andhra Pradesh*

- (1) The East Godavari Co-operative Marketing Society Ltd.,  
Kakinada.
- (2) The Krishna District Co-operative Marketing Society Ltd.,  
Vijayawada.
- (3) The West Godavari District Co-operative Marketing Federation Ltd.,  
Eluru.
- (4) The Zahirabad Potato Growers Co-operative Society Ltd.,  
Zahirabad.

*Bihar*

1. The Bihar State Co-operative Marketing Union Ltd.,  
Patna.

*Kerala*

1. The Kuttanad Agricultural Co-operative Society Ltd.,  
Alleppy.
2. Mannam Sugar Mills Co-operative Society Ltd.,  
Pandalam.

*Gujarat*

- (1) Kaira District Co-operative Fruit & Vegetables Growers Association Ltd.,  
Nadiad.
- (2) Kaira District Co-operative Purchase and Sale Union Ltd.,  
Nadiad.

*Madhya Pradesh*

1. The Madhya Pradesh State Co-operative Marketing Society Ltd.,  
Jabalpur.

*Madras*

1. The Coimbatore Co-operative Marketing Society, Sulur.
  2. The Chingleput District Co-operative Supply & Marketing Society, Madras.
  3. The Gobi chettipalayam Co-operative Sale Society, Gobichettipalayam.
  4. The Madras State Co-operative Supply & Marketing Society, Madras.
  5. Madurai District Co-operative Supply and Marketing Society, Ooty.
  6. The Mettupalayam Co-operative Sale Society, Mettupalayam.
  7. The Nilgiris District Co-operative Supply and Marketing Society, Ooty.
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(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Continued)**

**(b) Cooperative Manufacturers (Continued)**

8. The Nilgiris Potato Growers' Co-operative Marketing Society, Ooty.
9. The North Arcot District Co-operative Supply and Marketing Society, Vellore.
10. Saidapet Co-operative Marketing Society, Saidapet.
11. Salem Co-operative Marketing Society, Salem.
12. Salem District Co-operative Supply And Marketing Society, Salem.
13. Srivilliputhur Uganda Cotton Growers' Co-operative Society, Srivilliputhur.
14. The Thanjavur Co-operative Marketing Federation, Tiruvarur.
15. The Tiruppur Co-operative Sale Society, Tiruppur..
16. The Tudyalur Co-operative Rural Bank, Tudyalur.

*Maharashtra*

1. Ambegaon Taluka Sahakari Kharedi Vikri Sangh Ltd.,  
Manchar.
2. Aurangabad District Co-operative Marketing Society Ltd.,  
Aurangabad.
3. The Bassein Pan Marketing Sahakari Society Ltd.,  
Holi.
4. The Chakan Vividh Karyakari Sahakari Society Ltd.,  
Chakan.
5. The Chopda Taluka Shetkari Sahakari Kharedi Vikari Sangh Ltd.,  
Chopada.
6. The Datta Gram Vividh Karyakari Sahakari Society Ltd.,  
Sarvade.
7. Ganpati Co-operative Kharedi Vikri Society Ltd.,  
Sangli.
8. Godavari Pravara Canal Co-operative Purchase and Sale Union Ltd.,  
Kopargaon.
9. Janata Consumers Co-operative Society, Ltd.,  
Sangli.
10. The Karvir Taluka Shetkari Sahakari Sangh Ltd.,  
Kolhapur.
11. Khed Taluka Shetkari Mal Kharedi Vikri Karnari Society Ltd.,  
Khed.
12. Maharashtra State Co-operative Marketing Society Ltd.,  
Bombay-I.
13. Malshiras Tal. Societies Co-op. Purchase and Sale Union Ltd.,  
Akluj.

(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS**  
(Continued)

**(b) Cooperative Manufacturers (Continued)**

14. The Manjarde Vividh Karyakari Sahakari Society Ltd.,  
Manjarde.
15. Nasik Dist. Potato & Onion Growers Co-op. Association Ltd.,  
Nasik.
16. Nimbhora Station Falbagayatdar Fal Vikri Karnari Co-operative Society Ltd.,  
Nimbhora.
17. Nira Canals Societies Co-op. Purchase and Sale Union Ltd.,  
Baramati.
18. The Paisa Fund Shetkari Sahakari Bank Ltd.,  
Hupari.
19. The Panhala Bawada Shetkari Sahakari Sangh Ltd.,  
Panhala.
20. Pathardi Taluka Purchase and Sale Society Ltd.,  
Pathardi.
21. The Poona District Co-operative Purchase and Sale Union Ltd.,  
Poona-2.
22. The Radhanagari Taluka Shetkari Sahakari Sangh Ltd.,  
Radhanagari.
23. The Sadoli Khalsa V. K. S. Society Ltd.,  
Sadoli.
24. Shetkari Sahakari Sangh,  
Bhadgaon.
25. Shetkari Sahakari Sangh Ltd.,  
Chalisgaon.
26. Shetkari Sahakari Sangh Ltd.,  
Malegaon.
27. Shetkari Sahakari Sangh Ltd., Shahapuri,  
Kolhapur.
28. Shirol Taluka Sahakari Kharedi Vikri Sangh Ltd.,  
Jaysingpur.
29. The Shrirampur Taluka Co-operative Purchase and Sale Union, Ltd.,  
Shrirampur.
30. The Solankur Shri Vithal Gram V.K.S. Society Ltd.,  
Solankur.
31. Sugarcane Producers Vividh Karyakari Sahakari Society, Ltd.,  
Malinagar.
32. South Sholapur Taluka Development Board,  
Sholapur.

(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Continued)**

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**(b) Cooperative Manufacturers (Continued)**

33. Taluka Development Board,  
Kopergaon.
34. Taluka Development Board, Pachora.
35. The Yawal Taluka Purchase and Sale and Ginning Pressing Society Ltd.,  
Yawal.

*Mysore*

1. The Belgaum District Co-operative Manure Production and Supply Society,  
Belgaum.
2. Bellary Central Co-operative Stores,  
Bellary.
3. The Coorg Provincial Co-operative Marketing Federation Ltd.,  
Virajpet.
4. The Gardners Co-operative Production, Supply and Sales Society,  
Belgaum.
5. Kempli Co-operative Marketing Society Ltd.,  
Kempli.
6. Maddur Taluk Agricultural Produce Co-operative Marketing Society Ltd.,  
Maddur.
7. Mandya Ryots Produce Co-operative Marketing Society Ltd.,  
Mandya.
8. The Mysore State Co-operative Marketing Society,  
Bangalore.

*Punjab*

1. The Punjab State Co-operative Supply and Marketing Federation Ltd.,  
Jullundur.

*Uttar Pradesh*

1. District Cooperative Federation Ltd., Allahabad.
  2. District Cooperative Federation Ltd., Azamgarh.
  3. District Cooperative Federation Ltd., Ballia.
  4. District Cooperative Federation Ltd., Bulandshahr.
  5. District Cooperative Federation Ltd., Etawah.
  6. District Cooperative Federation Ltd., Farrukhabad.
  7. District Cooperative Federation Ltd., Ghazipur.
  8. District Cooperative Federation Ltd., Jalaun.
  9. District Cooperative Federation Ltd., Jaunpur.
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(Continued)

**5.1 LIST OF MIXED FERTILISER MANUFACTURERS  
(Concluded)**

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**(b) Cooperative Manufacturers (Concluded)**

10. District Cooperative Development Federation, Kanpur.
11. District Cooperative Federation, Lucknow.
12. District Cooperative Federation, Mathura.
13. District Cooperative Federation, Meerut.
14. District Cooperative Federation, Moradabad.
15. The Modern Cooperative Farms Ltd., Kanpur.
16. Prantiya Cooperative Federation, Lucknow.
17. PCF. Fert. Mixing Centre, Varanasi.

*West Bengal*

1. Burdwan Central Cooperative Agricultural Production and Marketing Society Ltd.,  
Memari.
  2. Burdwan Zonal Cooperative Multipurpose & Marketing Society Ltd.,  
Burdwan.
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Note : In Assam, Jammu & Kashmir, Orissa, Rajasthan, Himachal Pradesh, Delhi, Tripura, Manipur and Pondicherry there are no co-operatives who manufacture mixed fertilisers.

**5.2 PRODUCTION AND DISTRIBUTION OF MIXED FERTILISERS\***

(metric tonnes)

Year	Production	Consumption
1956-57	163,450	161,579
1957-58	193,166	191,424
1958-59	284,554	285,272
1959-60	340,962	339,346
1960-61	349,185	345,861

\* Based on data furnished by 48 manufacturers. In respect of other manufacturers, it is estimated that both production and consumption in 1960-61 was about 100,000 metric tonnes.



## 6. SUMMARY TABLES

### 6.1 INSTALLED CAPACITY OF FERTILISERS

(as on 31st

Material	Andhra Pradesh	Assam	Bihar	Gujarat	Kerala	Madhya Pradesh	Madras
<b>In production</b>							
Ammonium Sulphate N	—	—	78,290	—	13,810	4,140	—
Ammonium Sulphate Nitrate N	—	—	36,450	—	—	—	—
Calcium Ammonium Nitrate N	—	—	—	—	—	—	—
Urea N	—	—	10,730	—	—	—	—
Ammonium Chloride N	—	—	—	—	2,030	—	—
Superphosphate P <sub>2</sub> O <sub>5</sub>	16,170	—	3,760	5,550	7,150	6,500	27,470
Ammonium Phosphate N	—	—	—	—	2,680	—	—
P <sub>2</sub> O <sub>5</sub>	—	—	—	—	3,350	—	—
Total : N	—	—	125,470	—	18,520	4,140	—
P <sub>2</sub> O <sub>5</sub>	16,170	—	3,760	5,550	10,500	6,500	27,470
<b>Licensed and yet to go into production</b>							
Ammonium Sulphate N	—	20,930	—	—	28,050	—	—
Ammonium Sulphate Nitrate N	—	—	—	—	—	—	—
Calcium Ammonium Nitrate N	—	—	—	—	—	—	—
Urea N	87,730	24,590	—	40,640	—	—	66,880
Ammonium Chloride N	—	—	—	—	4,320	—	—
Superphosphate P <sub>2</sub> O <sub>5</sub>	10,810	5,850	—	10,550	—	11,380	13,170
Triple Superphosphate P <sub>2</sub> O <sub>5</sub>	—	—	—	—	—	—	—
Di-calcium Phosphate P <sub>2</sub> O <sub>5</sub>	—	—	—	2,800	—	—	—
Ammonium Phosphate N	73,000	—	—	56,900	19,260	—	72,830
P <sub>2</sub> O <sub>5</sub>	73,000	—	—	56,900	24,080	—	91,040
Nitrophosphate N	—	—	—	—	—	—	—
P <sub>2</sub> O <sub>5</sub>	—	—	—	—	—	—	—
Total : N	160,730	45,520	—	97,540	51,630	—	139,710
P <sub>2</sub> O <sub>5</sub>	83,810	5,850	—	70,250	24,080	11,380	104,210
<b>To be licensed*</b>							
Ammonium Sulphate N	—	—	—	—	—	—	—
Urea N	—	—	—	—	—	—	—
Superphosphate P <sub>2</sub> O <sub>5</sub>	—	—	6,970	—	—	—	—
Ammonium Phosphate N	—	—	—	—	—	—	—
P <sub>2</sub> O <sub>5</sub>	—	—	—	—	—	—	—
Total : N	—	—	—	—	—	—	—
P <sub>2</sub> O <sub>5</sub>	—	—	6,970	—	—	—	—
Grand Total : N	160,730	45,520	125,470	97,540	70,150	4,140	139,710
P <sub>2</sub> O <sub>5</sub>	99,980	5,850	10,730	75,800	34,580	17,880	131,680

†Provisional.

\* A fertiliser factory under the public sector has been proposed in Madhya Pradesh, the

**-STATEWISE AND PRODUCTWISE  
August 1962)**

(metric tonnes)

Mahara- shtra	Mysore	Orissa	Punjab	Rajas- than	Uttar Pradesh	West Bengal	Delhi	Total
—	1,380	—	—	—	—	5,790	—	103,410
—	—	—	—	—	—	—	—	36,450
—	—	—	80,820	—	—	—	—	80,820
—	—	—	—	—	10,160	—	—	10,730
13,520	1,070	—	—	—	—	10,990	11,710	12,190
—	—	—	—	—	—	—	—	103,890
—	—	—	—	—	—	—	—	2,680
—	—	—	—	—	—	—	—	3,350
—	1,380	—	80,820	—	10,160	5,790	—	246,280
13,520	1,070	—	—	—	—	10,990	11,710	107,240
—	—	—	—	81,580	—	—	—	130,560
—	—	—	—	—	—	—	—	—
—	—	121,930	—	—	—	—	—	121,930
42,900	—	—	—	—	80,470	59,010	—	402,220
—	—	—	—	—	10,160	—	—	14,480
4,990	10,790	—	—	10,570	26,980	—	—	105,090
13,410	—	—	—	—	—	—	—	13,410
3,780	—	—	—	—	—	4,560	—	11,140
—	—	—	—	—	—	—	—	221,990
—	—	—	—	—	—	—	—	245,020
45,000	—	—	—	—	—	—	—	45,000
45,000	—	—	—	—	—	—	—	45,000
87,900	—	121,930	—	81,580	90,630	59,010	—	936,180
67,180	10,790	—	—	10,570	26,980	4,560	—	419,660
—	22,000†	—	—	—	—	—	—	22,000†
—	52,000†	—	—	—	—	—	—	52,000†
—	—	—	—	—	—	—	—	6,970
—	26,000†	—	—	—	—	—	—	26,000†
—	26,000†	—	—	—	—	—	—	26,000†
—	100,000	—	—	—	—	—	—	100,000
—	26,000	—	—	—	—	—	—	32,970
87,900	101,380	121,930	80,820	81,580	100,790	64,800	—	1,282,460
80,700	37,860	—	—	10,570	26,980	15,550	11,710	559,870

details of which have not yet been finalised.

## 6.2 PRODUCTION, IMPORTS AND DISTRIBUTION OF FERTILISERS 1952-53 to 1961-62

(metric tonnes)

Year	Nitrogen <sup>(1)(2)</sup> (N)			Phosphoric acid <sup>(1)(3)</sup> (P <sub>2</sub> O <sub>5</sub> )		Potash (K <sub>2</sub> O)	
	Produced	Imported <sup>(5)</sup>	Distrib- uted <sup>(6)</sup>	Produced	Distrib- uted <sup>(7)</sup>	Imported	Distrib- uted <sup>(4)</sup>
1952-53	52,810	44,294	57,822	7,445	4,552	3,311	—
1953-54	52,648	19,346	89,287	13,821	8,261	7,490	—
1954-55	68,145	19,984	94,810	14,345	15,027	11,097	—
1955-56	76,486	53,379	107,494	12,365	13,018	10,265	—
1956-57	78,406	56,768	107,764	17,585	15,874	14,791	—
1957-58	80,751	110,100	149,019	25,785	21,922	12,786	—
1958-59	80,374	97,540	171,988	30,987	29,490	22,366	—
1959-60	82,465	142,335	235,351	51,407	50,111	33,103	21,342
1960-61	109,019	171,957	219,326	53,722	53,675	24,795	35,047
1961-62	151,135	142,614	313,584	65,360	62,934	30,381	30,837

- Note :**
- (1) Includes complex fertilisers which contain both N and P<sub>2</sub>O<sub>5</sub>.
  - (2) Excludes ammonium chloride for which data are not available.
  - (3) Excludes bonemeal and ground rock phosphate for which data are not available.
  - (4) In the case of sulphate of potash, quantity imported is taken as distributed.
  - (5) Figures from 1952-53 to 1957-58 are on financial year (April-March) basis.
  - (6) Figures from 1952-53 to 1956-57 relate to calendar years ending in the first half of the period stated while other figures are on financial year (April-March) basis.
  - (7) Figures from 1952-53 to 1957-58 relate to calendar years ending in the first half of the period stated.

**6.3 CONSUMPTION OF N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O—STATEWISE  
1961-62**

(metric tonnes)

State	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Andhra Pradesh	52,467	17,956	—
Assam	358	115	—
Bihar	15,346	3,080	—
Gujarat	10,651	7,844	—
Jammu & Kashmir	824	16	—
Kerala	9,188	2,012	—
Madhya Pradesh	6,555	2,378	—
Madras	38,379	7,043	—
Maharashtra	34,151	5,844	—
Mysore	22,728	4,591	—
Orissa	6,757	564	—
Punjab	15,428	1,055	—
Rajasthan	5,165	592	—
Uttar Pradesh	34,482	606	—
West Bengal	16,108	4,353	—
Delhi	187	28	—
Himachal Pradesh	206	92	—
Manipur	22	—	—
Tripura	—	—	—
Pondicherry	529	39	—
Goa	—	14	—
Andamans & Nicobar	7	—	—
Laccadives	2	—	—
Coffee Board	12,077	—	—
U.P.A.S.I.	9,618	—	—
Rubber Board	1,166	—	—
Tea Manure Mix. Firms	20,293	—	—
Industrial users	888	—	—
Sikkim	2	—	—
Nepal	—	4	—
Used in mixtures	—	4,375	—
Wastages	—	322	—
Free supply	—	10	—
G.O.I. purchases	—	—	—
<b>INDIA</b>	<b>313,584</b>	<b>62,934</b>	<b>30,381</b>

Note : Calculated on the basis of distribution figures.

**6.4 CONSUMPTION OF FERTILISERS PER ACRE OF  
AGRICULTURAL LAND  
1961-62**

(pound per acre)

State	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Andhra Pradesh	3.36	1.15	—
Assam	0.08	0.03	—
Bihar	1.33	0.27	—
Bombay*	1.26	0.39	—
Jammu & Kashmir	0.80	0.02	—
Kerala	3.32	0.73	—
Madhya Pradesh	0.28	0.10	—
Madras	4.52	0.83	—
Mysore	1.61	0.32	—
Orissa	0.83	0.07	—
Punjab	1.41	0.10	—
Rajasthan	0.30	0.03	—
Uttar Pradesh	1.36	0.02	—
West Bengal	2.15	0.58	—
Delhi	1.19	0.18	—
Himachal Pradesh	0.18	0.08	—
Manipur	0.16	—	—
Tripura	—	—	—
Pondicherry	...	...	...
Goa	...	...	...
Andamans & Nicobar	0.47	0.07	—
Laccadives	...	...	...
INDIA	1.67	0.34	0.16

\* Bombay—Gujarat & Maharashtra

Note : Calculated on the basis of distribution figures.

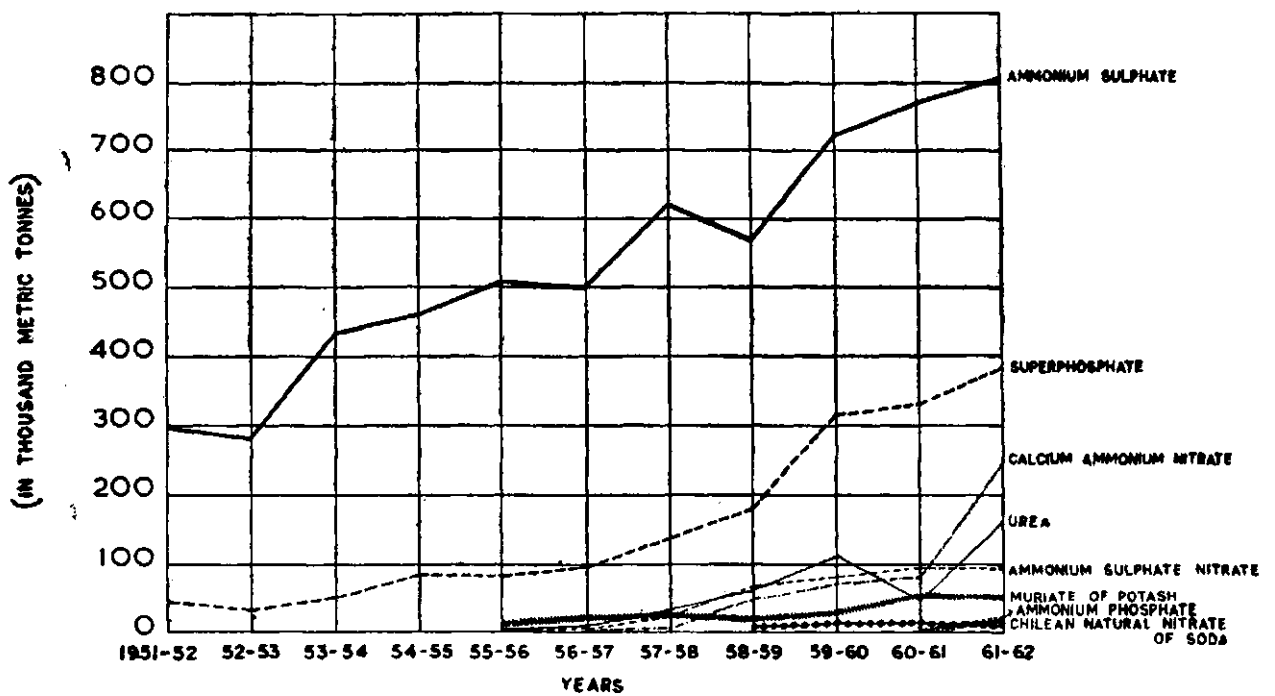
**65. RATIO OF N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O CONSUMPTION—STATEWISE  
1961-62**

State	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Andhra Pradesh	1	0.34	—
Assam	1	0.32	—
Bihar	1	0.20	—
Gujarat	1	0.74	—
Jammu & Kashmir	1	0.02	—
Kerala	1	0.22	—
Madhya Pradesh	1	0.36	—
Madras	1	0.18	—
Maharashtra	1	0.17	—
Mysore	1	0.20	—
Orissa	1	0.08	—
Punjab	1	0.07	—
Rajasthan	1	0.11	—
Uttar Pradesh	1	0.02	—
West Bengal	1	0.27	—
Delhi	1	0.15	—
Himachal Pradesh	1	0.45	—
Manipur	1	—	—
Tripura	...	...	...
Pondicherry	1	0.07	—
Goa	...	...	...
Andamans & Nicobar	1	0.14	—
Laccadives	...	...	...
INDIA	1	0.20	0.10

Note : Calculated on the basis of distribution figures

## DISTRIBUTION OF FERTILISERS

(1951-52 TO 1961-62)



## 7. PRICES AND SUBSIDY

### 7.1 PRICES OF FERTILISERS

Date	Price in rupees when sold for the use of plantations		Price in rupees when sold for the use of cultivators				Remarks
	In West Bengal or Assam or Manipur or Tripura	In any other State or Union Territory	In U.P.	In Madras	In Orissa	In any other State or Union Territory	
<b>(a) Pool Fertilisers</b>							
<b>Ammonium Sulphate</b>							
12-7-57	422.00 (L.T.)	405.00 (L.T.)	380.00 (L.T.)	380.00 (L.T.)	380.00 (L.T.)	380.00 (L.T.)	Exclusive of sales tax and other local taxes, wherever levied.
11-11-57	—do—	—do—	386.00 (L.T.)	—do—	—do—	—do—	
29-7-58	—do—	—do—	—do—	390.80 (L.T.)	—do—	—do—	In Madras State the price is (i) inclusive of sales tax and (ii) excluding Kanya Kumari district.
8-8-58	—do—	—do—	—do—	—do—	390.00 (L.T.)	—do—	
23-10-61	415.80 (M.T.)	399.10 (M.T.)	380.00 (M.T.)	385.14 (M.T.)	384.50 (M.T.)	374.50 (M.T.)	Exclusive of sales tax and other local taxes, wherever levied except in the case of Madras where the price is inclusive of sales tax and other local taxes.
1-12-61	—do—	—do—	366.00 (M.T.)	371.00 (M.T.)	370.00 (M.T.)	360.00 (M.T.)	
13-12-61	—do—	—do—	—do—	370.20 (M.T.)	—do—	—do—	
1-1-62	401.30 (M.T.)	384.60 (M.T.)	—do—	—do—	—do—	—do—	
5-10-62	384.60 (M.T.)	—do—	—do—	—do—	—do—	—do—	

(Continued)



**7.1 PRICES OF FERTILISERS (Continued)**

Date	Price in rupees when sold for the use of plantations		Price in rupees when sold for the use of cultivators				Remarks
	In West Bengal or Assam or Manipur or Tripura	In any other State or Union Territory	In U.P.	In Madras	In Orissa	In any other State or Union Territory	

**(a) Pool Fertilisers (Continued)**

Ammonium Sulphate Nitrate

12-7-57	450.00 (L.T.)	450.00 (L.T.)	450.00 (L.T.)	450.00 (L.T.)	450.00 (L.T.)	450.00 (L.T.)	} Exclusive of sales tax and other local taxes, wherever levied.
11-11-57	—do—	—do—	458.20 (L.T.)	—do—	—do—	—do—	
29-7-58	—do—	—do—	—do—	452.90 (L.T.)	—do—	—do—	} In Madras State the price is (i) inclusive of sales tax and (ii) excluding Kanya Kumari district.
23-10-61	460.00 (M.T.)	443.50 (M.T.)	446.00 (M.T.)	432.06 (M.T.)	443.50 (M.T.)	443.50 (M.T.)	
1-12-61	—do—	—do—	438.00 (M.T.)	432.00 (M.T.)	435.00 (M.T.)	435.00 (M.T.)	} Exclusive of sales tax and other local taxes, wherever levied except in the case of Madras where the price is inclusive of sales tax and other local taxes.
13-12-61	—do—	—do—	—do—	442.30 (M.T.)	—do—	—do—	
1-1-62	451.50 (M.T.)	435.00 (M.T.)	—do—	—do—	—do—	—do—	
5-10-62	435.00 (M.T.)	—do—	—do—	—do—	—do—	—do—	

(Continued)

### 7.1 PRICES OF FERTILISERS (Continued)

Date	Price in rupees when sold for the use of plantations		Price in rupees when sold for the use of cultivators				Remarks
	In West Bengal or Manipur or Tripura	In any other State or Union Territory	In U.P.	In Madras	In Orissa	In any other State or Union Territory	
<b>(a) Pool Fertilisers (Continued)</b>							
Urea							
12-7-57	740.00 (L.T.)	740.00 (L.T.)	740.00 (L.T.)	740.00 (L.T.)	740.00 (L.T.)	740.00 (L.T.)	} Exclusive of sales tax and other local taxes, wherever levied.
11-11-57	--do--	--do--	760.00 (L.T.)	--do--	--do--	--do--	
29-7-58	--do--	--do--	--do--	751.60 (L.T.)	--do--	--do--	} In Madras State the price is (i) inclusive of sales tax and (ii) excluding Kanya Kumari district.
23-10-61	755.00 (M.T.)	729.10 (M.T.)	733.00 (M.T.)	724.93 (M.T.)	729.10 (M.T.)	729.10 (M.T.)	
1-12-61	--do--	--do--	719.00 (M.T.)	711.00 (M.T.)	715.00 (M.T.)	715.00 (M.T.)	} Exclusive of sales tax and other local taxes, wherever levied except in the case of Madras where the price is inclusive of sales tax and other local taxes.
13-12-61	--do--	--do--	--do--	720.40 (M.T.)	--do--	--do--	
1-1-62	740.90 (M.T.)	715.00 (M.T.)	--do--	--do--	--do--	--do--	
5-10-62	715.00 (M.T.)	--do--	--do--	--do--	--do--	--do--	

(Continued)

**7.1 PRICES OF FERTILISERS (Continued)**

Date	Price in rupees when sold for the use of plantations		Price in rupees when sold for the use of cultivators				Remarks
	In West Bengal or Assam or Manipur or Tripura	In any other State or Union Territory	In U.P.	In Madras	In Orissa	In any other State or Union Territory	

**(a) Pool Fertilisers (Concluded)**

Calcium Ammonium Nitrate

12-7-57	360.00 (L.T.)	360.00 (L.T.)	360.00 (L.T.)	360.00 (L.T.)	360.00 (L.T.)	360.00 (L.T.)	} Exclusive of sales tax and other local taxes, wherever levied. } In Madras State the price is (i) inclusive of sales tax and (ii) excluding Kanya Kumari district.
29-7-58	—do—	—do—	—do—	360.20 (L.T.)	—do—	—do—	
23-10-61	354.80 (M.T.)	354.80 (M.T.)	359.00 (M.T.)	354.54 (M.T.)	354.80 (M.T.)	354.80 (M.T.)	} Exclusive of sales tax and other local taxes, wherever levied except in the case of Madras where the price is inclusive of sales tax and other local taxes.
1-12-61	—do—	—do—	346.00 (M.T.)	342.00 (M.T.)	342.00 (M.T.)	342.00 (M.T.)	
13-12-61	—do—	—do—	—do—	351.60 (M.T.)	—do—	—do—	
1-1-62	—	342.00 (M.T.)	—do—	—do—	—do—	—do—	
5-10-62	310.00 (M.T.)	310.00 (M.T.)	314.00 (M.T.)	319.60 (M.T.)	310.00 (M.T.)	310.00 (M.T.)	

L.T.—Long Ton  
M.T.—Metric Tonne

(Continued)

## 7.1 PRICES OF FERTILISERS (Concluded)

Fertilisers	Period	Price (Rs. per met- ric tonne)	Remarks
<b>(b) Non-pool fertilisers</b>			
Ammonium Phosphate	1961-62	550.00	Ex-works.
Chilean Natural Nitrate of Soda <sup>1</sup>	Sept. 1959	302.15	Retail price fixed by Govern- ment for sale to cultivators.
	Nov. 1959	306.09	
	July 1960	301.17	
	April 1961	294.28	
	March 1962	290.00	
Superphosphate (16% P <sub>2</sub> O <sub>5</sub> )	12th March 1960	177.16	These ex-works prices apply only to factories situated within 100 miles of sea- ports, for the material packed in alkathene lined 'B' Twill jute bags of 100 kilos capacity. Those situated further inland would charge an extra premium to cover transport costs of raw materials. When supplies are required in 50 kilos. packing, the manufacturers may charge extra at the rate of Rs. 5/- per metric tonne.
	11th May 1961	182.40	
	2nd June 1962	188.20	
	27th June 1962	193.50	
Muriate of Potash <sup>2</sup> (60% K <sub>2</sub> O)	January/March 1960	328.73	Ex-godown at port.
	April 1960	319.87	
	July 1960	313.96	
	May 1961	295.28	
Sulphate of Potash	1960	354.32	Ex-godown at port.

Source : (1) Rallis India Limited, Bombay.

(2) Indian Potash Supply Agency Ltd., Madras.

## 7.2 SUBSIDY ON SUPERPHOSPHATE

State	Subsidy
Andhra Pradesh	—
Assam	25% on the cost price including transportation and other incidental charges.
Bihar	20% on the sale price.
Gujarat	—
Jammu & Kashmir	—
Kerala	12½% on the value.
Madhya Pradesh	25% on the sale price.
Madras	—
Maharashtra	—
Mysore	—
Orissa	—
Punjab	25% on the sale price.
Rajasthan	...
Uttar Pradesh	25% on the retail sale price in fifteen backward districts in the eastern part of the State.
West Bengal	Rs. 37.35 per metric tonne when used in straight form. Rs. 40.86 per metric tonne when used in mixtures.
Delhi	25% on the sale price.
Himachal Pradesh	25% on cost. 50% on the remaining cost on transportation.
Manipur	...
Pondicherry	25% on the sale price.
Tripura	...

### 7.3 FORMULAE OF FIXING PRICES OF FERTILISER MIXTURES

#### *Andhra Pradesh*

(With effect from 20-9-62)

Chemical Nitrogen	Rs. 16.50 per unit
Organic Nitrogen	Rs. 51.40 " "
Water-soluble P <sub>2</sub> O <sub>5</sub> (For manufacturers)	Rs. 13.20 " "
" " " (For non-manufacturers)	Rs. 14.55 " "
Non-Water-soluble P <sub>2</sub> O <sub>5</sub>	Rs. 7.80 " "
K <sub>2</sub> O from muriate of potash	Rs. 5.50 " "
" " sulphate of potash	Rs. 8.10 " "
Mixing Charges	Rs. 5.00 per m. tonne
Overheads	Rs. 7.00 "
Packing (Cost of gunnies)	Rs. 21.75 "
Handling	Rs. 4.00 "
Polythene liners	Rs. 9.00 "
Profit & Commission	10 $\frac{1}{4}$ %
Sales Tax	3%

#### *Kerala*

(With effect from 1-12-62)

Chemical Nitrogen	Rs. 17.00 per unit
Water-soluble P <sub>2</sub> O <sub>5</sub> (For manufacturers)	Rs. 13.25 " "
Non-Water-soluble P <sub>2</sub> O <sub>5</sub>	Rs. 8.50 " "
Potash	Rs. 5.70 " "
Mixing Charges	Rs. 5.00 per ton
Overheads	Rs. 6.00 " "
Packing (Cost of gunnies)	Rs. 22.00 " "
Average transport charges	Rs. 18.00 " "
Polythene Liners	Rs. 9.00 " "
Profit & Commission	11 $\frac{1}{4}$ %
Sales Tax	2%

#### *Madras*

(With effect from 1-4-62)

Chemical Nitrogen	Rs. 17.20 per unit
Organic Nitrogen	Rs. 51.17 " "
Water-soluble P <sub>2</sub> O <sub>5</sub> (For Manufacturers)	Rs. 12.45 " "

(Continued)

### 7.3 FORMULAE OF FIXING PRICES OF FERTILISER MIXTURES (Continued)

Non-Water-soluble P <sub>2</sub> O <sub>5</sub>	Rs. 8.36 per unit
Potash	Rs. 5.90 " "
Mixing Charges	Rs. 5.90 per m. tonne
Overheads	Rs. 5.90 " " "
Packing (Cost of gunnies)	Rs. 22.00 " " "
Average Transport Charges	Rs. 18.70 " " "
Polythene Liners	Rs. 9.00 " " "
Profit & Commission	12½%
Sales Tax	3%
<i>Maharashtra</i>	
(Since September 1962)	
Organic Nitrogen	Rs. 51.00 per unit
Inorganic Nitrogen	Rs. 17.30 " "
Water-soluble P <sub>2</sub> O <sub>5</sub> (For Manufacturers)	Rs. 13.20 " "
Non-Water-soluble P <sub>2</sub> O <sub>5</sub>	Rs. 9.00 " "
Potash	Rs. 6.50 " "
Mixing Charges	Rs. 6.00 per ton
Overhead Charges	Rs. 6.00 " "
Gunnies	Rs. 22.00 " "
Polythene Liners	Rs. 9.00 " "
Average Transport Charges including handling	Rs. 18.70 " "
Cost of Filler if used (Dolomite or Gypsum only)	Rs. 10.00 per ton of mixtures
Manufacturer's profit 6% of the cost of the mixtures and Commission to distributors 6% of the selling price.	
<i>Mysore</i>	
(With effect from 1-10-62)	
Chemical Nitrogen	Rs. 16.70 per unit
Organic Nitrogen	Rs. 53.00 " "
Water-soluble P <sub>2</sub> O <sub>5</sub> (For Manufacturers)	Rs. 13.45 " "
Non-Water-soluble P <sub>2</sub> O <sub>5</sub>	Rs. 7.50 " "
K <sub>2</sub> O from muriate of potash	Rs. 5.80 " "
K <sub>2</sub> O from sulphate of potash	Rs. 7.50 " "
Mixing, Overheads and Packing (cost of gunnies) Charges	Rs. 36.25 per m. tonne
Average Transport Charges	Rs. 21.00 " " "
Polythene Liners	Rs. 9.00 " " "

(Continued)

### 7.3 FORMULAE OF FIXING PRICES OF FERTILISER MIXTURES (Continued)

Allowance for wastage, loss in transit etc.	2%
Profit & Commission	12½%
Sales Tax	1%
<i>West Bengal</i>	
The State Government laid down specification for manufacture of mixtures. During 1962-63 they are :	
<b>Paddy Mixture</b>	
Formulae—I (10-9-0)	
Ammonium Sulphate	38.7 parts.
Urea	5.0 ..
Superphosphate	56.3 ..
	<hr/> 100.0 parts.
Formulae—II (10-9-0)	
Ammonium Sulphate	22.7 parts.
Ammonium Sulphate Nitrate	21.0 ..
Superphosphate	56.3 ..
	<hr/> 100.0 parts.
<b>Potato Mixture</b>	
Formulae (7.5-10-5)	
Urea	8.0 parts.
Ammonium Sulphate	19.5 ..
Superphosphate	62.5 ..
Muriate of Potash	10.0 ..
	<hr/> 100.0 parts.
<b>Jute Mixture</b>	
Formulae—I (9-6.5-9)	
Ammonium Sulphate	45 parts
Muriate of Potash	15 ..
Superphosphate	37 ..
Bonemeal	3 ..
	<hr/> 100 parts.

(Continued)



### 7.3 FORMULAE OF FIXING PRICES OF FERTILISER MIXTURES (Concluded)

Formulae-- II  
(9- 6.5- 9)

Ammonium Sulphate	25 parts.
Calcium Ammonium Nitrate	20 „
Muriate of Potash	15 „
Superphosphate	37 „
Bonemeal	3 „
	100 parts.

Besides the actual cost of materials, the following mixing charges are allowed :

**Paddy Mixture**

1. Cost of gunny bags	Rs. 12.00 per ton
2. Distribution and mixing charges	Rs. 40.00 „ „
3. Cost of transport of superphosphate	Rs. 3.75 „ „
4. Railway Freight from mixing godown to destination station	Rs. 12.00 „ „
5. Internal transport cost from destination station to depot of distribution	Rs. 15.00 „ „
	Rs. 82.75 per ton

**Potato Mixture**

1. Mixing charges including cost of gunny bags	Rs. 30.00 per m. tonne
2. Distribution charges	Rs. 28.00 „ „ „
3. Average railway freight from mixing to destination station	Rs. 8.00 „ „ „
4. Average internal movement charges from railhead to depot	Rs. 12.00 „ „ „
	Rs. 78.00 per m. tonne

**Jute Mixture**

1. Cost of gunny bags	Rs. 12.00 per ton
2. Distribution and mixing charges	Rs. 40.00 „ „
3. Cost of transport of Superphosphate	Rs. 3.75 „ „
4. Railway freight from mixing godown to destination station	Rs. 12.00 „ „
5. Internal movement charges from destination station to depot of distribution	Rs. 15.00 „ „
	Rs. 82.75 per ton.

## 8. THIRD FIVE YEAR PLAN

### 8.1 TARGETS OF CONSUMPTION OF NITROGENOUS, PHOSPHATIC AND POTASSIC FERTILISERS

('000 tons)

	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
1961-62	400	100	82
1962-63	525	150	100
1963-64	650	225	130
1964-65	800	300	160
1965-66	1,000	400	200

Source : GOI Planning Commission, Third Five Year Plan, 1961.

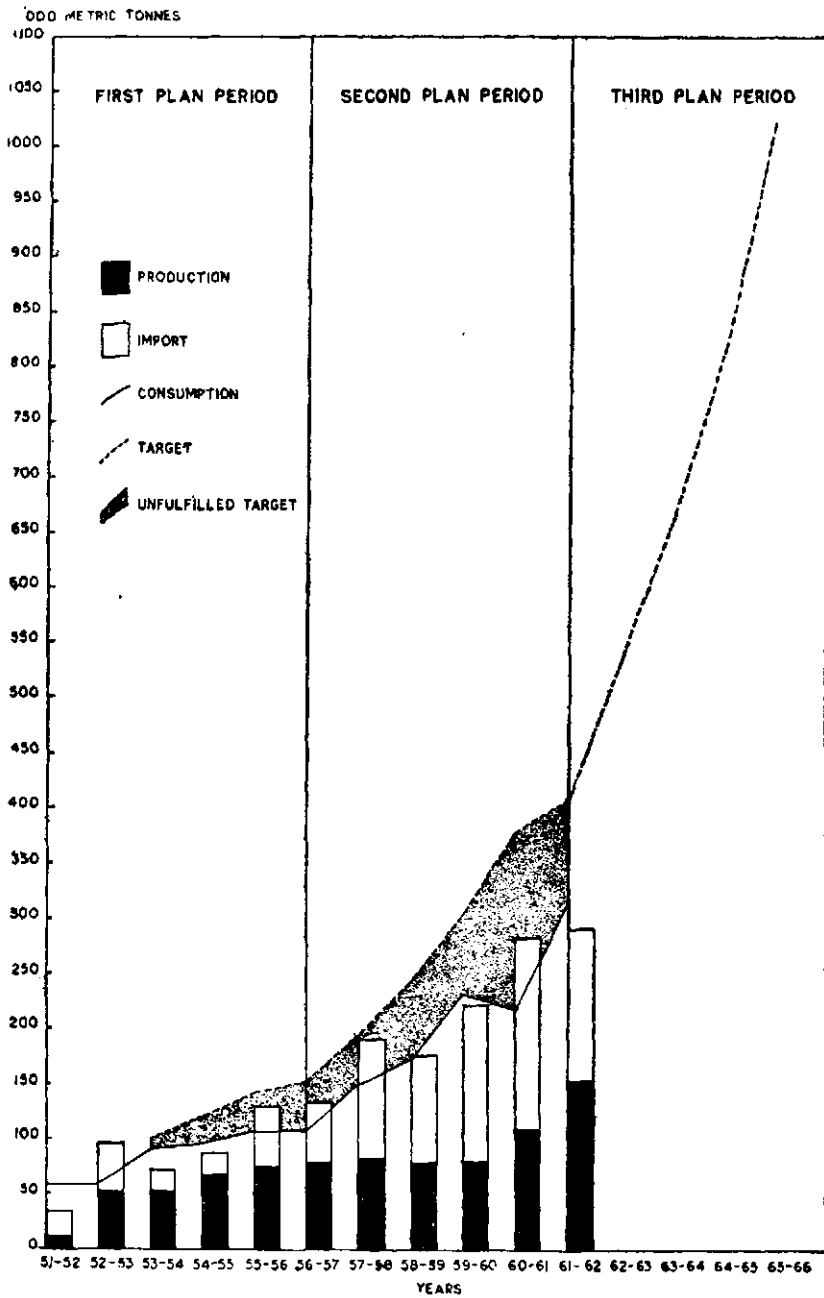
### 8.2 TARGETS OF PRODUCTION OF NITROGENOUS AND PHOSPHATIC FERTILISERS

('000 tons)

	N	P <sub>2</sub> O <sub>5</sub>
1961-62	140	100
1962-63	200	150
1963-64	300	225
1964-65	500	300
1965-66	800	400

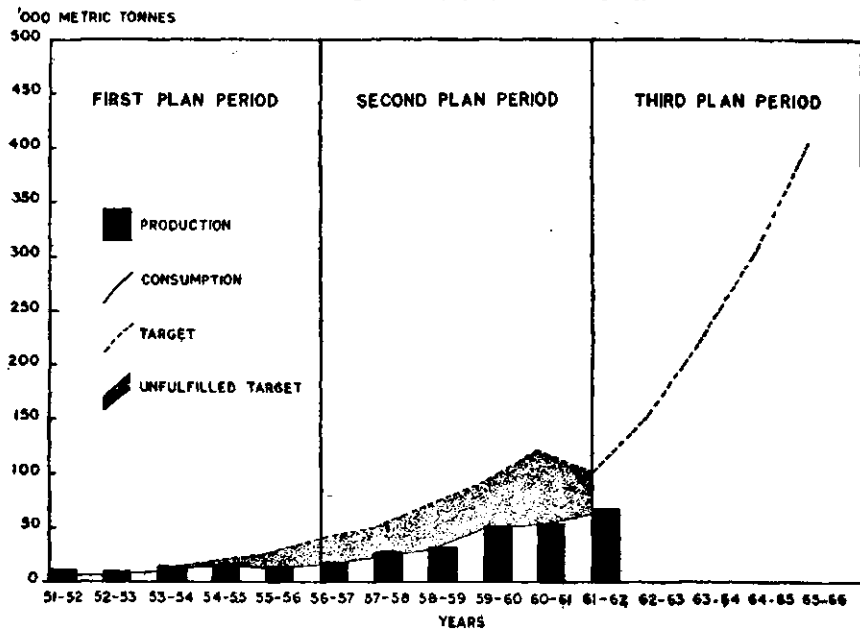
Source : GOI Planning Commission, Third Five Year Plan, 1961.

## PRODUCTION, CONSUMPTION, TARGETS AND NITROGEN

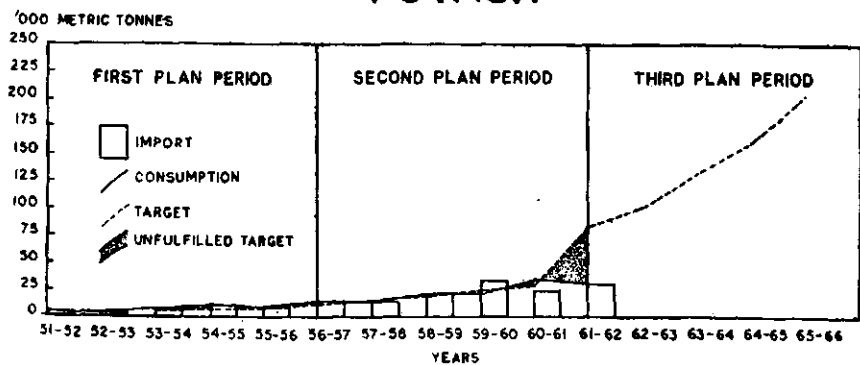


UNFULFILLED TARGETS FOR N, P<sub>2</sub>O<sub>5</sub> AND K<sub>2</sub>O

PHOSPHORIC ACID



POTASH



### 8.3 END-PRODUCT PATTERN OF NITROGENOUS AND COMPLEX FERTILISERS, 1965-66

('000 tons of N)

Ammonium sulphate	230
Ammonium sulphate nitrate	30
Nitro-chalk and nitro-lime stone	160
Nitro-phosphate and complex fertilisers	45
Urea	305
Ammonium phosphate	200
Ammonium chloride	30
	Total : 1000

Source : GOI Planning Commission, Third Five Year Plan, 1961.

### 8.4 OVERALL INVESTMENT IN FERTILISER FACTORIES

	(Rs.)
Overall investment on capital account	225 crores
Foreign exchange cost	100 crores

Source : GOI Planning Commission, Third Five Year Plan, 1961.

### 8.5 STATEWISE TARGETS OF CONSUMPTION OF FERTILISERS

('000 tons)

State/Union territory	Ammonium sulphate		Superphosphate		Muriate of potash	
	1960-61	1965-66	1960-61	1965-66	1960-61	1965-66
Andhra Pradesh	273	524	90	350	...	...
Assam	10	60	5	25	...	...
Bihar	50	400	15	120	1	20
Gujarat	95	300	48	90	...	13
Maharashtra	100	581	53	324	...	...
Kerala	37	191	7	190	1	56
Madhya Pradesh	26	200	5	40	...	...
Madras	150	580	60	320	12	90
Mysore	87	300	20	320	...	11
Orissa	30	200	8	50	...	2
Punjab	40	280	2	24	...	...
Rajasthan	15	100	4	33	...	...
Uttar Pradesh	297	990	60	300	8	80
West Bengal	40	500	25	250	...	...
Jammu & Kashmir	4	14	...	...	...	...
Delhi	1	1	...	...	...	...
Himachal Pradesh	...	1	...	1	...	...
Pondicherry	25	25	2	5	1	6
<b>Total :</b>	<b>1,280</b>	<b>5,247</b>	<b>404</b>	<b>2,442</b>	<b>23</b>	<b>278*</b>

\*In terms of  $K_2O$  the consumption target should be 200,000 tons. The lower figure as compared to that given in Table 8.1 is due to the fact that it does not take into account the consumption figures of other States for which information is not available.

Source : GOI Planning Commission, Third Five-Year Plan, 1961.

### 8.6 STATEWISE TARGETS OF ORGANIC MANURES AND GREEN MANURING

State/Union territory	Urban compost ('000 tons)		rural compost ('000 tons)		green manuring ('000 acres)	
	1960-61	1965-66	1960-61	1965-66	1960-61	1965-66
Andhra Pradesh	262	334	9,439	12,874	3,200	4,500
Assam	8	16	800	900	200	1,000
Bihar	75	177	1,000	7,756	1,095	3,095
Gujarat	118	318	246	371	10	100
Maharashtra	342	447	459	1,055	22	1,022
Kerala	22	55	94	269	250	1,050
Madhya Pradesh	160	365	130	1,960	50	2,200
Madras	400	600	1,400	3,000	3,000	6,000
Mysore	310	425	3,000	5,380	500	750
Orissa	20	44	2,340	13,956	1,200	7,000
Punjab	200	400	6,100	8,900	350	1,350
Rajasthan	444	968	887	269	130	630
Uttar Pradesh	580	750	56,060	82,340	650	9,000
West Bengal	40	100	500	7,500	1,000	3,000
Jammu & Kashmir	...	15	75	100	...	10
Delhi	5	40	...	...	2	30
Himachal Pradesh	...	...	120	220	28	78
Manipur	...	...	20	35	...	3
Tripura	1	2	67	148	...	...
<b>Total :</b>	<b>2,987</b>	<b>5,056</b>	<b>82,737</b>	<b>148,033</b>	<b>11,687</b>	<b>40,818</b>

Source : GOI Planning Commission, Third Five-Year Plan, 1961.

## 9. MISCELLANEOUS STATISTICS

### 9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES

Crops	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Andhra Pradesh</i>						
Paddy (irrigated)						
Coastal Alluviums						
Normal areas	30	15	0	150	10-10-0	15 lb. N as top dressing.
Coastal Alluviums						
Phosphate deficient areas	30	30	0	250	6-12-0	—do—
Chittoor, Nellore, Anantapur, Cuddapah, districts.	30	30	30	300	5-10-10	—do—
West Godavari district -1st crop	20	20	20	200	5-10-10	Additional 10 lb. N as top dressing wherever necessary.
2nd crop	40	20	20	250	8-8-8	20 lb. N as top dressing.
Murugudamu area	40	40	20	333	6-12-6	—do—
Telangana-Chalka soils						
Abi	60	30	0	300	10-10-0	30 lb. N as top dressing.
Tabi	45	22.5	0	225	10-10-0	22.5 lb. N as top dressing.
Telangana-Regur soils						
Abi	60	45	0	450	10-10-0	15 lb. N as top dressing.
Tabi	45	30	0	300	10-10-0	15 lb. N as top dressing.
Paddy (Rainfed)	40	20	0	200	10-10-0	20 lb. N as top dressing.
Ragi (Irrigated)	20	20	20	250	8-8-8	In Srikakulam under intensive cultivation, in addition to these 20 lb. N as top dressing.

(Continued)



**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crops	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Andhra Pradesh (Concluded)</i>						
Ragi (Rainfed)	20	10	0	166	12-6-0	
Bajra, Maize, Sorghum, etc.	20	20	20	250	8-8-8	20 lb. N as top dressing wherever necessary.
Tobacco (Virginia)	20	40	20	333	6-12-6	Two grades approved by the firms at Bezwada meeting.
Tobacco (Natu)	40	40	40	500	8-8-8	
Sugarcane (Chittoor)	175	50	50	500	5-10-10	150 lb. N as top dressing in two doses (1) 45 (2) 90 days after planting at the time of earthing up.
Circars	150	50	0	500	10-10-0	100 lb. N as top dressing.
Eksali	225	50	50	500	5-10-10	200 lb. N —do—
Adsali	300	100	100	1000	5-10-10	250 lb. N —do—
Cotton (irrigated)	40	20	0	200	10-10-0	20 lb. N —do—
Groundnut (irrigated)	15	30	30	300	5-10-10	
Groundnut (Rainfed)	10	20	20	200	5-10-10	

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose of plant nutrient in lb./acre			Fertiliser mixture to be applied at planting time		Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Assam</i>						
Paddy (Sali & Ahu)						
Poor land	40	40	20	400	5-10-5	20 lb. N as top dressing; basal dose of 100 md. of compost.
Medium land	30	30	15	300	5-10-5	15 lb. N as top dressing.
Rich land	20	20	10	200	5-10-5	10 lb. N as top dressing. Mixture to be applied in bands (2" deep).
Mustard and Matikalai						
New Alluvium	40	40	—	333	6-12-0	20 lb. N as top-dressing.
„ (Rich in P <sub>2</sub> O <sub>5</sub> )	40	—	—			
Old Alluvium (acid)	40	40	—	333	6-12-0	20 lb. N. Nitrogen supplied in the form of compost, if possible. Use of lime (20 md.) once in four years.
Potato	50	50	50	500	5-10-10	25 lb. N as top dressing; basal dose of 100-150 md. of compost; mixture to be applied in bands (2" deep).
Sugarcane (Planted crop)	170	—	—	—	—	Half of nitrogen applied as compost, the other half either as cake or fertiliser.
Sugarcane (Ratoon)	180	—	—			
Jute	40	40	40	400	5-10-10	20 lb. N.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb. per acre			Grade of fertiliser mixture recommended	Quantity of fertiliser mixture to be applied at sowing in lb./acre	Nitrogenous fertilisers to be applied as top dressing in terms of N per acre
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O			
<i>Bihar</i>						
Paddy (Rainfed)	25	30	20	6-12-6	350	10
Paddy (Irrigated)	50	40	20	6-12-6	350	30
Wheat (Rainfed)	25	25	20	8-8-8	300	—
Wheat (Irrigated)	50	40	20	6-12-6	350	30
Potato	75	40	40	8-8-8	500	35
Sugarcane North Bihar	60	75	25	6-12-6	500*	30
Sugarcane South Bihar	80	60	25	6-12-6	500	50

\*Extra application of 15 lb. P<sub>2</sub>O<sub>5</sub> should be made by incorporating 1 md. 6 seer or 95 pound of single superphosphate per acre as basal dressing along with fertiliser mixture.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Gujarat</i>						
<b>Paddy</b>						
Transplanted	40	20	—	220	9-9-0	20 lb. N
Drilled	20	10	—	110	9-9-0	10 lb. N
<b>Wheat</b>						
Unirrigated	20	10	—	166	12-6-0	
Irrigated	40	20	—	220	9-9-0	20 lb. N
<b>Bajra</b>	20	10	—	166	12-6-0	
<b>Jowar</b>	20	10	—	166	12-6-0	
<b>Maize hybrid</b>	40	20	—	220	9-9-0	20 lb. N
<b>Cotton</b>						
Unirrigated	20	10	—	110	9-9-0	10 lb. N
Irrigated	40	20	—	220	9-9-0	20 lb. N
<b>Groundnut &amp; oilseeds</b>						
Low rainfall	10	20	—	166	6-12-0	
High rainfall	20	40	—	332	6-12-0	
<b>Sugarcane</b>						
Adsali	325	100	100	1,000	5-10-10	275 lb. N in 3 instalments.
January planting	220	75	75	750	5-10-10	182 lb. N in 3 instalments.
<b>Tobacco</b>	160(80)	40	—	440	9-9-0	40 lb. N (80 lb. N as oil cake)
<b>Potato</b>	70	70	70	700	5-10-10	35 lb. N
<b>Pulses</b>	10	20	—	166	6-12-0	
<b>Vegetables</b>	40-80	20-40	—	220 to 440	9-9-0	20 lb. N 40 lb. N
<b>Banana</b>	200	100	100	1,250	8-8-8	100 lb. N

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Himachal Pradesh</i>						
Maize (local)	40	30	—	250	6-12-0	20 lb. N
(Hybrid)	80	40	20	450	9-9-0	40 lb. N. Potash may be applied if indicated by the Soil Testing Centre.
Paddy (Transplanted)	40	30	—	330	9-9-0	10 lb. N
Paddy (Dry sowing)	20	15	—	165	9-9-0	5 lb. N
Wheat (Winter rainfall below 10")	25	15	—	165	9-9-0	10 lb. N
Wheat (Winter rainfall more than 10")	40	20	20	220	9-9-0	20 lb. N. Potash may be applied if indicated by Soil Testing Centre.
Ginger	50	50	25	420	6-12-3	25 lb. N 12 lb. of K <sub>2</sub> O may be applied if indicated by Soil Testing Centre.
Sarson and mustard	30	15	—	165	9-9-0	15 lb. N
Pulses	10	20	—	160	6-12-0	
Pastures	20	20	—	220	9-9-0	
Potato	75	100	25	825	6-12-3	25 lb. N

The State Government has agreed to have 3 standard grades i.e., 6-12-0, 6-12-3, and 9-9-0.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing	
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade		
<i>Kerala</i>							
Paddy							
(a) Sandy soils & Sandy loam soils							
First crop	20	20	20	200	5-10 (5)-10	10 lb. N	
Second crop	30	30	30	300	5-10 (5)-10	15 lb. N	
(b) Clay loam soils (Kuttanad & similar areas)							
	30	40	20	286	7-14-7	10 lb. N	
(c) Laterite soils							
First crop	30	30	30	300	5-10 (5)-10	15 lb. N	
Second crop	40	30	30	333	9-9 (4.5)-9	10 lb. N	
Coconut							
Sandy (sand loam) soils	0.5	0.25	1.0	} per tree 6.25	8-4 (4)-16		
Laterite soils	0.5	0.5	1.0		6.25	8-8 (3)-16	
Clay loam (Kuttanad of similar areas)	0.5	0.5	1.0		6.25	8-8-16	
Tapioca*	50	50	100	625	8-8 (3)-16		
Banana	0.5	0.5	0.5 per plant	5.5	9-9 (4.5)-9		
Pineapple	50	50	100	625	8-8 (3)-8		
Arecanut	100	50	200	1,250	8-4 (4)-16		
Sugarcane-Factory areas of Thiruvella and Pandalam							
	100	80	100	1,110	9-7 (3)-9		
Other areas	150	75	75	1,250	12-6 (3)-6		
Pepper	0.2	0.3	0.15 per vine	3	7-10 (5)-5		
Groundnut	10	30	30	333	3-9 (9)-9		
Cotton (Irrigated)	40	40	40	445	9-9 (4.5)-9		
„ (Rainfed)	20	20	20	222	9-9 (4.5)-9		
„ (Sea Island)	40	30	50	500	8-6 (3)-10		

\* Taking into account the cost of fertilisers and the fluctuating price of the commodities the dose which had been originally fixed has been modified.

Note: The figures within brackets indicate the percentage of water soluble phosphoric acid.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade*	
<i>Madhya Pradesh</i>						
Paddy (Unirrigated)						
Light soil	10	10	—	110	9-9-0	
Medium & heavy soils	20	20	—	170	6-12-0	10 lb. N
Paddy (Irrigated)						
Light soil	20	20	—	170	6-12-0	10 lb. N
Medium and heavy soils	40	40	—	330	6-12-0	20 lb. N
Wheat & Barley (Unirrigated)						
Medium soils	10	10	—	110	9-9-0	
Heavy soils	15	15	—	166	9-9-0	
Wheat & Barley (Irrigated)						
Medium soils	20	20	—	225	9-9-0	
Heavy soils	30	30	—	333	9-9-0	
Cotton	20	—	—			
Groundnut	10	20	—	170	6-12-0	
Maize	20	20	—	225	9-9-0	
Sugarcane	150	100	—	830	6-12-0	100 lb. N
Potato	30	30	—	250	6-12-0	15 lb. N

\* The State Government propose to introduce the above two grades i.e., 6-12-0, 9-9-0.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Madras</i>						
Paddy						
(a) Coimbatore, Ramnad, Tirunelveli, Tanjore (old delta)	30	30	—	250	6-12-0	15 lb. N
(b) South Arcot, Niligiris, Salem, Arcot, Madurai, Trichy and Tanjore (new delta)	30	30	15	300	5-10-5	15 lb. N
Sugarcane	250	60	80	800	*5-10-10	120 lb. N. 80 lb. N as a basal dose in the form of oil cakes.
Cotton (Irrigated)	40	15	15	200	8-8-8	24 lb. N
Groundnut (Rainfed)	10	20	30	200	*5-10-10	
„ (Irrigated)	15	30	45	300	*5-10-10	
Coconut	0.6	0.6	1.2	9	7-7-14	
			(per tree)			
Millet-Cholam						
Irrigated	40	20	—	333	12-6-0	
Rainfed	30	20	—	250	12-6-0	
Kambu	40	20	—	333	12-6-0	
Ragi	40	20	20	250	8-8-8	20 lb. N
Potato (Rainfed)	120	200	100	2,000	*5-10-5	40 lb. N applied in the form of cake.
Banana	200	70	250	2,000	*6-6-12	80 lb. N
Chillies	50	30	30	375	8-8-8	20 lb. N
Citrus & Mango	0.5	1.5	1.5	10	5*-10-10	
			(per tree)			
Tobacco (Irrigated)	50	30	30	375	8-8-8	20 lb. N
Turmeric	50	45	45	560	*8-8-8	

Note: The fertiliser grades are subject to confirmation by the State Fertiliser Workshop.

\* Fertiliser grade to give approximately the recommended dose of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O is suggested.

(Continued)



**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting or sowing		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Maharashtra</i>						
Paddy on all soils except laterite and coastal soils <sup>1</sup>	40	20	0	222	9-9-0	20 lb.N
Paddy on laterite and coastal soils	20	20	0	167	6-12-0	10 lb.N
Bajri Irrigated or assured rainfall <sup>2</sup>	20	20	0	222	9-9-0	
Bajri - Unirrigated	10	0	0	—	—	
Jowar - Irrigated <sup>3</sup>	40	20	0	(i) 333 (ii) 222	12-6-0 9-9-0	20 lb.N
Jowar - Unirrigated <sup>3</sup>	20	10	0	167	12-6-0	
Nagli - Irrigated	40	20	0	333	12-6-0	
Cotton - Irrigated (Long staple) <sup>4</sup>	40	20	0	333	12-6-0	
Cotton - Irrigated <sup>4</sup>	40	20	0	(i) 333 (ii) 222	12-6-0 9-9-0	20 lb.N
Cotton - Irrigated (in rotation with sugarcane) <sup>5</sup>	10	10	0	111	9-9-0	
Cotton - Unirrigated	20	10	0	167	12-6-0	
Groundnut - Irrigated	15	30	0	250	6-12-0	
Groundnut - Unirrigated	10	20	0	167	6-12-0	
Maize - Irrigated	40	0	0	—	—	

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting or sowing		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Maharashtra (Concluded)</i>						
Wheat—Irrigated <sup>6</sup>	40	20	0	333	12-6-0	
Wheat—Unirrigated <sup>6</sup>	15	0	0	—	—	
Chillies, Tomato, Garlic, Ginger and Onions	40	20	0	222	9-9-0	20 lb. N
Suran and Turmeric	80	40	0	444	9-9-0	40 lb. N
Potatoes	70	70	0	583	6-12-0	35 lb. N
Banana <sup>7</sup>	480	0	0	—	—	

<sup>1</sup> Optimum dose is 60 lb. N—20 lb. P<sub>2</sub>O<sub>5</sub>.

<sup>2</sup> Under favourable soil conditions a dose of 40 lb. N—20 lb. P<sub>2</sub>O<sub>5</sub> may be given.

<sup>3</sup> (a) For rabi Jowar, in deep black soil P<sub>2</sub>O<sub>5</sub> may be added.

(b) Top dressing one month after 1st dose.

<sup>4</sup> (a) Doses can go up to 90 lb. N and 60 lb. P<sub>2</sub>O<sub>5</sub> under most favourable conditions.

(b) Top dressing at the time of flowering stage.

<sup>5</sup> If the previous crop of sugarcane is heavily manured with P<sub>2</sub>O<sub>5</sub>, then 10 lb. P<sub>2</sub>O<sub>5</sub> is not necessary.

<sup>6</sup> If sann green manuring is done before wheat, then give 10 lb. P<sub>2</sub>O<sub>5</sub> at the time of burying of sann along with 15 lb. N.

<sup>7</sup> Taking 1200 plants per acre. The dose per plant is 0.4 lb. N, one half of this should be in the form of organic manure.

**Note :** Besides the 3 grades mentioned in the statement the State Government have also approved the following 3 grades of fertiliser mixtures.

(i) 14 : 5 : 5—For sugarcane

(ii) 10 : 5 : 2—For vegetables

(iii) 9 : 9 : 5—For potatoes

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<i>Mysore</i>			
<b>Paddy</b>			
Coastal area	30	30	30
Semi Malnad areas	30	30	15
Red loams of tanks (South Mysore)	30	20	20
Channel areas	30	20	20
Black soil (North Mysore)	30	30	—
Red soil (North Mysore)	30	15	—
Ragi (Irrigated)	30	30	30
(Dry)	15	15	15
Jowar-kharif good rainfall	25	15	—
Rabi	10	10	—
Irrigated	40	20	—
Wheat (Irrigated)	30	20	—
(Dry)	10	10	—
Cotton (Irrigated) Red soil zones	30	15	15
Other areas	40	20	20
Cotton (Rainfed) Dharwar Division	20	10	—
Other Divisions	20	15	15
Groundnut (Irrigated)	15	30	15
(Dry-Black)	10	20	—
(Other areas)	10-20	20	10
Tobacco : Gowribidanur area	20	100	50
Mandya area	20	50	25
Bidi Tobacco	40	20	—
Sugarcane : Factory zone	300	100	100
Raichur division	225	100	—
Malnad area	150	100	—
Other areas	225	75	75
Root crops (Potato & Sweet potato)	50	25	25
Arecanut	50	75	50
Vegetables (Onions & Garlic)	40	20	20

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<i>Mysore (Concluded)</i>			
Plantain	100	30	100
Cardamom & Pepper	50	50	100
Grapes : Bangalore & Kolar areas	40	80	80
Raichur & Dharwar Divisions	40	80	120
Mulberry (Irrigated)	125	50	100
(Dry)	50	25	50

Note : The State Department of Agriculture has approved the following 20 grades of mixtures which have been formulated on an ad hoc basis.

10-10-0	7-14-0	14-7-0	12-8-0	8-8-0
5-10-5	4-8-8	3-9-9	10-5-5	8-4-12
6-3-12	9-3-9	6-8-8	8-6-6	6-9-6
14-5-5	2-6-6	6-6-12	4-12-8	12-6-9

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb.	Grade	
<i>Orissa</i>						
Paddy (Transplanted)	30	20	—	200	10-10-0	10 lb. N
„ (Broadcast)	30	20	—	200	10-10-0	10 lb. N
Wheat	30	20	—	200	10-10-0	10 lb. N
Maize hybrid	60	40	—	400	10-10-0	20 lb. N
Millets (Jowar, local maize, ragi)	40	20	—	200	10-10-0	20 lb. N
Groundnut	15	30	45			
Potato	60	40	40	500	8-8-8	20 lb. N
Vegetables	60	40	40	500	8-8-8	20 lb. N
Oilseeds	30	20	—	200	10-10-0	10 lb. N
Sugarcane						
(Irrigated)	120	60	60	750	8-8-8	60 lb. N
(Unirrigated)	80	40	40	500	8-8-8	40 lb. N
Jute & Mesta	30	20	20	250	8-8-8	10 lb. N
Cotton	30	20	—	200	10-10-0	10 lb. N
Tobacco	30	20	30			

Note : The State Government has decided to have 2 grades i.e., 10-10-0 and 8-8-8 as standard grades.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
<i>Punjab</i>				
<b>Wheat</b>				
Hoshiarpur, Gurdaspur, Ambala, Patiala, Kapurthalla, Ludhiana, Jullunder and Hissar	40	20	20	
Kangra	40	40	40	
Amritsar, Karnal and Bhatinda	40	20	0	For C 273, application of K <sub>2</sub> O is essential.
Remaining Districts	40	0	0	
Barley	25	0	0	
<b>Maize (local)</b>				
Kangra, Gurdaspur	50	50	50	(a) Liming is recommended when pH is below 6.0
Hoshiarpur, Patiala	50	25	25	(b) Application of P <sub>2</sub> O <sub>5</sub> & K <sub>2</sub> O where not recommended may be made if indicated by soil tests.
Ludhiana, Jullunder	50	25	0	
Remaining Districts	50	0	0	(c) Dose of nitrogen may be re- duced to half— if maize fol- lows berseem.
<b>Maize (Hybrid)</b>				
All Districts	100	50	50	
<b>Paddy</b>				
Gurdaspur, Karnal, Feroze- pur and Patiala	40	20	20	
Kangra	30	30	30	
Remaining Districts	40	0	0	
Bajra	30	0	0	
Gram	30 to 60	0	0	
<b>Berseem</b>				
Gurdaspur	50	100	0	
Remaining Districts	25	50 to 100	0	
Jowar	30	0	0	
<b>Cotton</b>				
Hansi & Abohar	80 to 120	0	0	P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O may be applied where indicated by soil tests.
Amritsar, Jullundur, Hoshiarpur & Gurdaspur	40	0	0	
Remaining Districts	50 to 60	0	0	

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
<i>Punjab (Continued)</i>				
<b>Sugarcane (Planted)</b>				
Jullundur, Hoshiarpur, Patiala, Karnal, Ambala (Jagadhri type II soils) and Kapurthala (Phagwara type II and III soils)	60	30	30	Plus 40 to 80 lb. nitrogen as top dressing.
Remaining districts	100	0	0	P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O may be applied if indicated by soil tests. Increased dose may be useful in very poor soils.
<b>Sugarcane (Ratoon)</b>				
Jullundur, Hoshiarpur, Patiala, Karnal, Ambala (Jagadhri type II soils) and Kapurthala (Phagwara type II and III soils)	60	30	30	Plus 80 lb. nitrogen as top dressing.
Remaining districts	140	0	0	P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O may be applied if indicated by soil tests. Increased dose may be useful in very poor soils.
<b>Potato</b>				
Palampur	100	100	200	
Remaining districts	50	50	100	Plus 50 lb. nitrogen at earthing.
<b>Tobacco</b>				
Desi	75	0	0	
Gobhi variety	100	0	0	
Groundnut	0	25	0	
Sarson	30	15	0	
Toria	30	15	0	
Raya	50	25	0	

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Remarks
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
<i>Punjab (concluded)</i>				
Linseed	40 to 50	0	0	
Tea	80 to 120	50	0	
Sweet Potato, Carrots, Brinjals, Peas and Chillies	50	0	0	P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O may be applied when indicated by the soil test.
Onions, Tomatoes, Cauliflower and Cabbage	100	0	0	—do—
Fruit trees— Citrus	1/8th lb. nitrogen per tree during 1st year and increase 1/8th lb. N every subsequent year. After 8 years 1.0 to 1.5 lb. N per tree per year.			—do—

Note: The State Department of Agriculture has approved on an adhoc basis two grades of mixtures i.e. 8-8-8 and 9-9-0.

(Continued)



**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>Rajasthan</i>						
Wheat (Irrigated)	40	20	—	220	9-9-0	20 lb. N
(Unirrigated)	20	15	—	220	9-9-0*	
Barley	40	20	—	220	9-9-0	20 lb. N
Maize local	60	30	—	330	9-9-0	30 lb. N
Bajra	15	15	—	166	9-9-0	
Paddy	40	20	—	220	9-9-0	20 lb. N
Cotton (Irrigated)	60	30	30	375	8-8-8	30 lb. N
Sugarcane	150(50)	75	—	830	9-9-0	75 lb. N (50 lb. N recommended as cake)
Jowar	40	20	—	220	9-9-0	20 lb. N

\*Fertiliser grade to give approximately the recommended dose of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O is suggested.

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT  
CROPS IN VARIOUS STATES (Continued)**

Crop	Dose in lb./acre			Fertiliser mixture to be applied at planting time		Top dressing
	N	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	lb./acre	Grade	
<i>Uttar Pradesh*</i>						
Rice	45	23	—	250	9-9-0	22 lb. N
Maize hybrid	135	67	—	750	9-9-0	67 lb. N
Milletts	25	12	—	200	12-6-0	
Cotton	45	23	—	250	9-9-0	22 lb. N
Sugarcane	135	67	—	550	6-12-0	102 lb. N
Groundnut	10	15	—			
Wheat	45	23	—	250	9-9-0	22 lb. N
Barley	45	23	—	250	9-9-0	22 lb. N
Gram & Peas	10	15	—			

\* Subject to confirmation by the State Department of Agriculture.

(Continued)

**9.1 FERTILISER RECOMMENDATIONS FOR DIFFERENT CROPS IN VARIOUS STATES (Concluded)**

Crop	Dose in lb./acre			Fertiliser mixture recommended		Time of application
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	lb./acre	Grade	
<i>West Bengal</i>						
Amon Paddy	25	20	0	250	10-9-0*	Half the quantity of nitrogen applied during puddling and the rest four weeks after transplantation.
Aus Paddy	25	20	0	250	10-9-0*	Half the quantity of nitrogen applied during land preparation and the rest during 1st weeding.
Jute	30	20	30	333	9-6.5-9	
Wheat	30	20	0			Half the quantity of nitrogen during sowing and half after 1st weeding.
Potato	80	80	80	1,600	5-5-5	1/3th at planting and the rest at 1st earthing.
	80	160	80	1,600	5-10-5	
	(Damodar family soil)					
Sugarcane	120	0	0	(Ganga family soil)		
	100	70	0	(Damodar family soil)		
Legumes	0	30	0			
Mustard	30	0	0			

\*Fertiliser grade to give approximately the recommended dose of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O is suggested.

9.2 GUIDE FOR MIXING FERTILISERS

- 1. Muriate of potash
- 2. Sulphate of potash
- 3. Sulphate of ammonia
- 4. Calcium-ammonium nitrate
- 5. Potassium and sodium nitrate
- 6. Calcium nitrate
- 7. Calcium cyanamide
- 8. Urea
- 9. Superphosphate, Triple phosphate
- 10. Ammonium phosphate
- 11. Basic slag
- 12. Rhenaniaphosphate
- 13. Hyperphosphate
- 14. Calcium carbonate

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- 1. Muriate of potash
- 2. Sulphate of potash
- 3. Sulphate of ammonia
- 4. Calcium ammonium nitrate
- 5. Potassium and sodium nitrate
- 6. Calcium nitrate
- 7. Calcium cyanamide
- 8. Urea
- 9. Superphosphate, Triple phosphate
- 10. Ammonium phosphate
- 11. Basic slag
- 12. Rhenaniaphosphate
- 13. Hyperphosphate
- 14. Calcium carbonate

- Fertilisers which can be mixed
- Fertilisers which may only be mixed shortly before use
- Fertilisers which cannot be mixed (for chemical reasons)

Bonemeal, which is often used as "drier" may be mixed with all other fertilisers.

Source : "Fertiliser Use", Jacob, A., and von Uexkuell. H.

**9.3 STATISTICS OF RURAL COMPOST PRODUCTION AND  
AREA GREEN MANURED DURING 1960-61 AND 1961-62**

Name of the State/ Union Territory	Rural compost (lakh tons)		Green manuring (lakh acres)	
	1960-61	1961-62* (Tentative)	1960-61	1961-62*
Andhra Pradesh	108.00	116.02	32.00	34.60
Assam	3.00	0.33	0.10	0.29
Bihar	9.17	7.94	10.95	7.40
Gujarat	2.96	2.32	0.55	0.80
Jammu & Kashmir	0.88	1.00	—	—
Kerala	1.18	1.50	2.50	3.50
Madhya Pradesh	1.14	1.96	0.41	1.81
Maharashtra	5.44	6.44	0.17	0.47
Madras	19.89	28.43	30.00	32.90
Mysore	27.50	30.62	0.12	3.43
Orissa	28.85	30.00	13.59	30.00
Punjab	51.40	67.38	3.00	4.50
Rajasthan	8.87	11.53	0.40	0.71
Uttar Pradesh	385.22	435.75	9.28	11.38
West Bengal	3.38	3.25	1.92	3.43
Delhi	0.20	0.20	0.005	0.00625
Himachal Pradesh	1.32	1.95	0.04	0.072
Manipur	0.16	0.43	0.009	0.0055
Tripura	0.87	1.10	0.007	0.0175
Pondicherry	0.20	0.20	0.10	0.10
N.E.F.A.	—	—	0.001	0.00640
N.H.T.A.	—	—	—	—
Andaman & Nicobar Laccadiv Minicoy	—	—	—	—
<b>Total :</b>	<b>659.63</b>	<b>748.35</b>	<b>105.152</b>	<b>135.42765</b>
	or say	or say	or say	or say
	<b>66.00**</b>	<b>75.00**</b>	<b>10.5</b>	<b>13.5</b>
	million	million	million	million
	tons	tons	acres	acres

\*Subject to revision.

\*\*In addition to this, farm yard manure produced by the farmers themselves (outside the various schemes initiated by the Ministry of Food & Agriculture) is roughly estimated at 216.00 million tons.

Source : Ministry of Food & Agriculture, Government of India.

### 9.4 STATISTICS OF URBAN COMPOST PRODUCTION AND DISTRIBUTION

(tons)

State	Working centres		Production		Distribution	
	1959-60	1960-61	1959-60	1960-61	1959-60	1960-61
Andhra Pradesh	303	308	236,780	242,359	174,838	186,378
Assam	14	14	4,191	3,931	1,456	851
Bihar	60	64	74,132	79,664	68,228	70,857
Gujarat	—	75	—	73,041	—	60,378
Jammu & Kashmir	2	2	7,778	7,500	4,378	4,739
Kerala	22	21	22,647	25,504	20,438	23,575
Madhya Pradesh	135	144	152,357	150,183	118,094	128,053
Madras	330	338	343,188	377,520	336,995	329,265
Maharashtra	—	215	—	298,493	—	254,954
Mysore	211	220	251,100	304,600	214,135	302,671
Orissa	51	51	18,266	20,968	10,892	10,935
Punjab	103	118	210,034	249,781	203,419	225,058
Rajasthan	53	55	63,934	69,895	55,003	40,632
Uttar Pradesh	347	372	519,223	556,143	552,321	517,579
West Bengal	36	35	26,830	33,706	40,859	39,422
Delhi	5	4	40,000	40,000	17,606	26,208
Himachal Pradesh	6	6	172	79	123	136
Tripura	1	1	2,126	825	764	698
Cantt Boards	39	40	99,316	103,888	92,426	92,323
Miscellaneous	41	35	144,845	216,781	144,660	216,781
<b>Total :</b>	<b>2,051</b>	<b>2,121</b>	<b>2,538,194</b>	<b>2,854,861</b>	<b>2,339,384</b>	<b>2,532,093</b>

Source : Ministry of Food &amp; Agriculture, Government of India.

## 9.5 PLANT NUTRIENTS REMOVED BY CROPS

Crop	Yield in lb./acre		Nutrients removed in lb./acre		
			N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>I. Grain Crops</b>					
Paddy	Grain	2,500	33	12	8
	Straw	5,000	40	9	102
Total :			73	21	110
Wheat	Grain	2,000	31	20	10
	Straw	4,000	21	6	50
Total :			52	26	60
Jowar	Grain	1,000	15	9	7
	Straw	4,000	31	7	70
Total :			46	16	77
Bajra	Grain	800	13	6	9
	Straw	3,200	12	4	81
Total :			25	10	90
Maize	Grain	2,400	42	22	13
	Straw	9,600	60	20	80
Total :			102	42	93
Barley	Grain	2,200	33	19	12
	Straw	4,400	15	7	100
Total :			48	26	112
<b>II. Oilseeds</b>					
Groundnut	Seeds	1,700	70	20	40
Mustard	Seeds	600	20	10	25
Castor*	Seeds	1,344	40	16	13
Linseed	Seeds	900	17	11	29
Coconut	Palms 70 (40 nuts/tree)		49.5	24.2	75.3
<b>III. Sugarcane*</b>	Cane	80,640	76	54	170
<b>IV. Fibre Crops</b>					
Cotton	Lint 93 (rainfed)		23	18	78
Jute	1,000 to 1,500		100-250	100-110	150-200

(Continued)

**9.5 PLANT NUTRIENTS REMOVED BY CROPS**  
(Concluded)

Crop	Yield in lb./acre	Nutrients removed in lb./acre		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>V. Plantations</b>				
Rubber*	Latex 350	42	5	19
Coffee	Cherries 560	12.3	4.5	15.1
Tea	Made tea 900	40.5	4.5	18
<b>VI. Miscellaneous</b>				
Potatoes*	Tubers 15,680	76	27	125
Tobacco	1,000 to 1,200	78	17	147

Source : \*Fertiliser Use—Nutrition and Manuring of Tropical Crops, by Dr. A. Jacob and H.von Uexkuell.

Other information obtained from various Indian sources.



### 9.6 NUTRIENT CONTENTS OF FERTILISERS

Material	Total nitrogen	Total phosphorus pentoxide	Available phosphorus pentoxide	Water soluble phosphorus pentoxide	Water soluble potash	Total lime	Equivalent acidity	Equivalent basicity
		P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>		CaO		
(per cent)								
<b>Nitrogenous Materials</b>								
1. Ammonia anhydrous	82.0	—	—	—	—	—	148	—
*2. Ammonium chloride	25.0**	—	—	—	—	—	128	—
3. Ammonium nitrate	33.5	—	—	—	—	—	60	—
*4. Ammonium sulphate	20.6**	—	—	—	—	—	110	—
*5. Ammonium sulphate nitrate	26.0**	—	—	—	—	—	93	—
*6. Calcium ammonium nitrate	20.5**	—	—	—	—	10.0-20.0	0	—
7. Calcium cyanamide	21.0	—	—	—	—	54.0	0	63
@8. Sodium nitrate	16.0**	—	—	—	—	—	—	29
*9. Urea	44.0**	—	—	—	—	—	80	—
10. Urea formaldehyde compound	38.0	—	—	—	—	—	68	—
<b>Phosphorus Materials</b>								
11. Basic slag, Bessemer	—	15.0-18.0	13.5-16.5	—	—	45.0-50.0	—	basic

(Continued)

**9.6 NUTRIENT CONTENTS OF FERTILISERS  
(Continued)**

Material	Total nitrogen	Total phosphorus pentoxide	Available phosphorus pentoxide	Water soluble phosphorus pentoxide	Water soluble potash	Total lime CaO	Equivalent acidity	Equivalent basicity
		P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>				
			per cent					
*12. Dicalcium phosphate	—	—	34.0**	—	—	32	—	25
13. Phosphoric acid	—	54.0	54.0	54.0	—	—	Acidic	—
*14. Single superphosphate	—	—	16.5**	16.0**	—	—	0	0
15. Triple superphosphate	—	—	—	40.0**	—	—	0	0
*16. Kotka phosphate	—	25.0**	16.0**	8.0**	—	—	0	0
<b>Potassium Materials</b>								
17. Kainite including carnalite and sylvinite	—	—	—	—	10.0-20.0	0.5-5.0	0	0
18. Potash from woodash	—	—	—	—	51.0	No data	—	Basic
@ 19. Potassium chloride (Muriate of potash)	—	—	—	—	60.0**	—	—	—
@ 20. Potassium sulphate (Sulphate of potash)	—	—	—	—	48.0**	—	—	—

(Continued)

**9.6 NUTRIENT CONTENTS OF FERTILISERS**  
(Continued)

Material	Total nitrogen	Total phosphorus pentoxide P <sub>2</sub> O <sub>5</sub>	Available phosphorus pentoxide P <sub>2</sub> O <sub>5</sub>	Water soluble phosphorus pentoxide P <sub>2</sub> O <sub>5</sub>	Water soluble potash	Total lime CaO	Equivalent acidity	Equivalent basicity
(per cent)								
<b>Nitrogen-Phosphorus Materials</b>								
21. Ammoniated superphosphate (Ordinary)	2.0-5.0	14.0-20.0	13.0-19.0	—	—	23.0-29.0	4-7	—
22. Ammoniated superphosphate (Double)	4.0-6.0	40.0-49.0	38.0-48.0	—	—	16.5-22.5	11-14	—
23. Diammonium phosphate	21.0**	—	—	53.0**	—	—	77	—
24. Mono-ammonium phosphate	11.0**	—	—	48.0**	—	—	55	—
*25. Ammonium phosphate sulphate	16.0**	—	—	20.0**	—	—	86	—
<b>Nitrogen-phosphorus-potassium materials</b>								
26. Ammonium potassium phosphate	5.5	54.0	54.0	—	18.5	—	Acidic	—

(Continued)

**9.6 NUTRIENT CONTENTS OF FERTILISERS  
(Concluded)**

Material	Total nitrogen	Total phosphorus pentoxide	Available phosphorus pentoxide	Water soluble phosphorus pentoxide	Water soluble potash	Total lime	Equivalent acidity	Equivalent basicity
		P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>		CaO		
(per cent)								
27. Nitrophoska	13.0	13.5	13.0	—	21.0	9.0	Acidic	—

Sources : (1) \*\*Fertiliser (Control) Order, 1957.

(2) Efficient Use of Fertilisers—F.A.O. Agricultural Studies No. 43.

\* Fertilisers manufactured in India. (i) Fertilisers imported in India.

Equivalent acidity is the number of parts by weight of calcium carbonate (CaCO<sub>3</sub>) required to neutralise the acidity resulting from the use of 100 parts of the fertiliser material.

Equivalent basicity is the number of parts by weight of calcium carbonate (CaCO<sub>3</sub>) that corresponds in acid neutralising power of 100 parts of the fertiliser material.

### 9.7 AVERAGE CHEMICAL COMPOSITION OF SOME ORGANIC MANURES

Material	(per cent)		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>I. Bulky Organic Manures</b>			
Farm yard manure	0.5—1.5	0.4—0.8	0.5—1.9
Compost (urban)	1.0—2.0	1.0	1.5
Compost (rural)	0.4—0.8	0.3—0.6	0.7—1.0
Green manures (various-average)	0.5—0.7	0.1—0.2	0.8—1.6
<b>II. Oil Cakes</b>			
<i>(a) Non-Edible Cakes</i>			
Castor cake	5.5—5.8	1.8—1.9	1.0—1.1
Cotton seed cake (undecorticated)	3.9—4.0	1.8—1.9	1.6—1.7
Mahua cake	2.5—2.6	0.8—0.9	1.8—1.9
Karanj cake	3.9—4.0	0.9—1.0	1.3—1.4
Neem cake	5.2—5.3	1.0—1.1	1.4—1.5
Safflower cake (undecorticated)	4.8—4.9	1.4—1.5	1.2—1.3
<i>(b) Edible Oil Cakes</i>			
Coconut cake	3.0—3.2	1.8—1.9	1.7—1.8
Cotton seed cake (decorticated)	6.4—6.5	2.8—2.9	2.1—2.2
Groundnut cake	7.0—7.2	1.5—1.6	1.3—1.4
Jambo cake	4.9—5.0	1.6—1.7	1.8—1.9
Linseed cake	5.5—5.6	1.4—1.5	1.2—1.3
Niger cake	4.7—4.8	1.8—1.9	1.3—1.4
Rapeseed cake	5.1—5.2	1.8—1.9	1.1—1.2
Safflower cake (decorticated)	7.8—7.9	2.2—2.3	1.9—2.0
Sesame or til cake	6.2—6.3	2.0—2.1	1.2—1.3
<b>III. Manures of Animal Origin</b>			
Dried blood	10—12	1.0—1.5	0.6—0.8
Fish manure	4—10	3—9	0.3—1.5
Bird guano	7—8	11—14	2—3
Bone meal (raw)	3—4	20—25	—
Bone meal (steamed)	1.0—2.0	25—30	—
Activated sludge (dry)	5—6	3—3.5	0.5—0.7
Settled sludge (dry)	2—2.5	1—1.2	0.4—0.5
Night soil	1.2—1.5	0.8—1.0	0.4—0.5
Human urine	1.0—1.2	0.1—0.2	0.2—0.3

(Continued)

**9.7 AVERAGE CHEMICAL COMPOSITION OF SOME  
ORGANIC MANURES (Concluded)**

Material	(per cent)		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Cattle dung and urine mixed	0.60	0.15	0.45
Horse dung and urine mixed	0.70	0.25	0.55
Sheep dung and urine mixed	0.95	0.35	1.00

Source : (1) Acharya, C. N. (1957) — Organic Manures, I.C.A.R. Review Series No. 2.  
 (2) Daji, J. A. (1955) — Manures & Manuring, I.C.A.R. Farm Bulletin No. 7.  
 (3) Van Slyke (1953) — Fertilisers and Crop Production. Published by Orange Jodd Publishing Co., New York.

## 9.8 ANALYSIS OF VARIOUS ROCK PHOSPHATES

Analysis	Type of	
	Gafsa (Tunisian rock phosphate) %	Florida rock phosphate %
1. Combined water— organic matter	4.18	1.25
2. Phosphorus pentoxide ( $P_2O_5$ )	30.30 [66.18 $Ca_3(PO_4)_2$ ]	35.17 [76.86 $Ca_3(PO_4)_2$ ]
3. Sulphur trioxide ( $SO_3$ )	2.52 (4.28 $CaSO_4$ )	0.42
4. Carbon dioxide ( $CO_2$ )	6.07 (13.80 $CaCO_3$ )	1.96 (4.46 $CaCO_3$ )
5. Insoluble silicious matter	2.60	2.29
6. Oxide of iron & aluminium ( $Fe_2O_3$ & $Al_2O_3$ )	0.87	1.72
7. Oxide of lime ( $CaO$ )	49.66	50.03
8. Magnesia ( $MgO$ )	0.62	0.14
9. Sodium oxide ( $Na_2O$ )	1.23	0.19
10. Potash ( $K_2O$ )	0.05	0.09
11. Chlorine (Cl)	0.06	0.009
12. Fluorine (F)	2.85 (5.85 $CaF_2$ )	3.73
13. Moisture (dried at 100°C)	—	1.10
14. Undetermined constituents	—	—
15. B. P. L. Grade	65/68	76/77

## IMPORTED FOR SUPERPHOSPHATE MANUFACTURE

rock phosphate				
Morocan rock phosphate %	Makatea rock phosphate %	Safaga rock phosphate %	Jordon rock phosphate %	Kosseir rock phosphate %
2.90	2.60	0.10	—	3.39
32.34	37.80	29.40	34.45	64.00
	[82.59 Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ]	[64.2 Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ]	[75.24 Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ]	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>
1.28	0.17	—	—	3.06
				CaSO <sub>4</sub>
5.03	1.30	12.0	4.75	13.33
	(2.95 CaCO <sub>3</sub> )	CaCO <sub>3</sub>	(10.80 CaCO <sub>3</sub> )	CaCO <sub>3</sub>
2.09	0.10	2.3	2.50	7.50
0.66	1.14	5.0	0.22	1.20
51.86	51.65	46.5	52.40	—
—	—	—	—	0.70
—	—	—	—	0.52
				Na <sub>2</sub> O
—	—	—	—	—
—	—	—	—	—
2.60	2.79	3.0	—	6.30
	(5.72 CaF <sub>2</sub> )	CaF <sub>2</sub>		CaF <sub>2</sub>
1.65	0.70	1.5	—	—
—	1.75	0.2	5.68	—
70/72	82/83	—	—	—



## 9.9 INDIAN STANDARD SPECIFICATIONS FOR FERTILISERS

### AMMONIUM SULPHATE

**Description**—The material shall be in the form of colourless crystals and free from visible impurities.

**Composition**—The material shall comply with the requirements given in the following table :

#### *Requirements for ammonium sulphate*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	1.0
(ii)	Ammoniacal nitrogen, per cent by weight, min.	20.6
(iii)	Free acidity (as $H_2SO_4$ ), per cent by weight, max.	0.025
(iv)	Arsenic (as $As_2O_3$ ), per cent by weight, max.	0.01
(v)	Pyridine ( $C_5H_5N$ ), per cent by weight, max.	0.01

Full details in publication No. IS : 826-1955 of the Indian Standards Institution.

### BONEMEAL (STEAMED)

**Description**—The material shall be in the form of particles, without undue amount of fluff or foreign matter, and free flowing.

**Particle size**—Not less than 90 per cent by weight of the material shall pass through IS Sieve 120.

The material shall comply with the requirements given in the following table.

#### *Requirements for bonemeal (steamed)*

Sr. No.	Characteristics	Requirements
(i)	Free moisture, per cent by weight, max.	7.0
(ii)	Total phosphates (as $P_2O_5$ ), per cent by weight, (dry basis), min.	22.0
(iii)	Available phosphates (as $P_2O_5$ ) solution in 2 per cent citric acid solution, per cent by weight (dry basis), min.	16.0

Full details in publication No. IS : 1014- 956 of the Indian Standards Institution.

With respect to steamed bonemeal containing more than 16.0 per cent by weight of available phosphates soluble in 2 per cent citric acid solution, the manufacturer should be entitled to a pro-rata premium for every unit (i.e., 1 per cent by weight) of available phosphate (as  $P_2O_5$ ) soluble in 2 per cent citric acid solution over and above the minimum 16.0 per cent prescribed.

(Continued)

## 9.9 INDIAN STANDARD SPECIFICATIONS FOR FERTILISERS (Continued)

### BONEMEAL (RAW)

**Description**—The material shall be in the form of particles, without undue amount of fluffy or foreign matter, and free flowing.

**Particle size**—The material shall pass wholly through IS Sieve 240 (aperture 2,399 microns) of which not less than 70 per cent shall pass through IS Sieve 80 (aperture 790 microns).

**Composition**—The material shall comply with the requirements given in the following table :

#### *Requirements for bonemeal (raw)*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	8.0
(ii)	Total phosphates (as $P_2O_5$ ), per cent by weight, min.	20.0
(iii)	Available phosphates (as $P_2O_5$ ), soluble in 2 per cent citric acid solution, per cent by weight, min.	8.0
(iv)	Total nitrogen, per cent by weight, min.	3.0

Full details in publication No. IS : 853-1956 of the Indian Standards Institution.

### DICALCIUM PHOSPHATE

**Description**—The material shall be in the form of fine powder, white in colour and free from grit and other extraneous impurities.

The material shall comply with the requirements given in the following table :

#### *Requirements for dicalcium phosphate*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	8.0
(ii)	Available phosphates (as $P_2O_5$ ) soluble in neutral ammonium citrate solution, per cent by weight, min.	34.0
(iii)	Chlorides (as Cl), per cent by weight, max.	1.0
(iv)	Fluorides (as F), per cent by weight, max.	0.5

Full details in publication No. IS : 1023-1956 of the Indian Standards Institution.

(Continued)

## 9.9 INDIAN STANDARD SPECIFICATIONS FOR FERTILISERS (Continued)

### KOTKA PHOSPHATE

**Description**—The material shall be free from lumps and hard cakes or in a form mutually agreed upon between the purchaser and the vendor.

The material shall comply with the requirements given in the following table :

#### *Requirements for kotka phosphate*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	8.0
(ii)	Water soluble phosphates (as $P_2O_5$ ), per cent by weight, min.	8.0
(iii)	Available phosphates (as $P_2O_5$ ) soluble in neutral ammonium citrate solution plus water soluble phosphates (as $P_2O_5$ ), per cent by weight, min.	16.0

Full details in publication No. IS : 1022-1956 of the Indian Standards Institution.

### SUPERPHOSPHATE (TENTATIVE)

**Form and condition**—Superphosphate shall be free from excessive lumps and shall not form a hard cake on storage.

**Composition**—The material shall comply with the requirements given in the following table :

#### *Requirements for superphosphate*

Sr. No.	Characteristics	Requirements
(i)	Moisture content, per cent by weight, max.	12.0
(ii)	Free phosphoric acid (as $P_2O_5$ ), per cent by weight, max.	3.0
(iii)	Water soluble phosphates (as $P_2O_5$ ), per cent by weight, min.	16.0
(iv)	Available phosphates (as $P_2O_5$ ) soluble in natural ammonium citrate solution and water soluble phosphates (as $P_2O_5$ ), per cent by weight, min.	16.5

Full details in Amendment No. 1 of August 1956 IS : 294-1951 of the Indian Standards Institution.

### TRIPLE SUPERPHOSPHATE

**Description**—The material shall be free from excessive lumps and shall not form hard cakes on storage.

(Continued)

### 9.9 INDIAN STANDARD SPECIFICATIONS FOR FERTILISERS (Continued)

The material shall comply with the requirements given in the following table :

#### *Requirements for triple superphosphate*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	12.0
(ii)	Free phosphoric acid (as $P_2O_5$ ), per cent by weight, max.	3.0
(iii)	Water soluble phosphates (as $P_2O_5$ ), per cent by weight, min.	40.0

Full details in publication No. IS : 1013-1956 of the Indian Standards Institution.

With respect to triple superphosphate containing more than 40.0 per cent by weight of available phosphate, soluble in water, the manufacturer should be entitled to a pro-rata premium for every unit (1.0 per cent of water soluble phosphate over and above the minimum 40.0 per cent) prescribed.

#### AMMONIUM CHLORIDE

**Description**—The material shall be in the form of white crystals or tablets or bars or powder free from hard caking and shall have no perceptible odour.

The material shall comply with the requirements given in the following table :

#### *Requirements for ammonium chloride, technical*

Sr. No.	Characteristics	Requirements
(i)	Moisture, per cent by weight, max.	2
(ii)	Ammoniacal nitrogen, per cent by weight (on dry basis), min.	25.0
*(iii)	Heavy metals including iron (as Pb), per cent by weight (individual metallic impurities not to exceed 0.01, per cent by weight, calculated as metal), max.	0.1
*(iv)	Sulphates [as $(NH_4)_2SO_4$ ], per cent by weight, max.	0.5
(v)	Chlorides other than ammonium chloride (as NaCl), per cent by weight, max.	2.0
*(vi)	Carbonates (as $NaHCO_3$ ), per cent by weight, max.	0.2
*(vii)	Matter insoluble in water, per cent by weight, max.	0.2

\*These requirements may not apply for material intended for use as a fertiliser.

Full details in publication No. IS : 1114-1957 of the Indian Standards Institution.

(Continued)

### 9.9 INDIAN STANDARD SPECIFICATIONS FOR FERTILISERS (Concluded)

#### UREA

**Description**—The material of fertiliser grade of both types shall be in the form of prills, granules or crystals and the material of the technical grade shall be in the form of white prills or crystals. The material of any grade shall be free from visible impurities and from dust.

**Particle size**—In the form of granules, the material shall pass IS Sieve 320 and not less than 80 per cent by weight of it shall be retained on IS Sieve 100. In the form of prills, the material shall pass IS Sieve 200 and not less than 80 per cent by weight of it shall be retained on IS Sieve 100.

The material shall also comply with the requirements given in the following table :

#### *Requirements for urea*

Sr. No.	Characteristics	Fertiliser grade		Technical grade
		Coated	Uncoated	
1.	Moisture, per cent by weight, maximum	1.0	1.0	0.50
2.	Total nitrogen, per cent by weight (on dry basis), minimum	44.0	45.0	46.0
3.	Biuret, per cent by weight, maximum	1.5	1.5	1.5
4.	Free ammonia (as $\text{NH}_3$ ), per cent by weight, maximum	—	—	0.01
5.	Ash, per cent by weight, maximum	2.5	—	—
6.	Iron (as Fe), per cent by weight	—	—	0.0002
7.	pH of 10 per cent solution	—	—	7.0—9.5

Full details in No. IS : 1781-1961 of the Indian Standards Institution.

**9.10 CONVERSION TABLE FOR PRODUCTION RATES  
OF NITROGEN AND AMMONIA**

Long tons N per year	Long tons NH <sub>3</sub> per year	Long tons NH <sub>3</sub> per day	Short tons N per year	Short tons NH <sub>3</sub> per year	Short tons NH <sub>3</sub> per day
10,000	12,200	37	11,200	13,600	41
20,000	24,300	74	22,400	27,200	82
30,000	38,500	111	33,600	40,800	124
40,000	48,600	147	44,800	54,400	165
50,000	60,800	184	56,000	68,000	206
60,000	73,000	221	67,200	81,600	247
70,000	85,100	258	78,400	95,300	289
80,000	97,200	295	89,600	108,900	330
90,000	109,400	332	100,800	122,500	371
100,000	121,500	368	112,000	136,100	412
110,000	133,700	405	123,200	149,700	454
120,000	145,800	442	134,400	163,300	495
130,000	158,000	479	145,600	176,900	536
140,000	170,100	515	156,800	190,500	577
150,000	182,300	552	168,000	204,100	618
160,000	194,500	589	179,200	217,700	659
170,000	206,600	626	190,400	231,300	701
180,000	218,700	663	201,600	244,900	742
190,000	230,900	700	212,800	258,600	784
200,000	243,000	736	224,000	272,200	825

Factors : NH<sub>3</sub> = 1.215 N

Short ton = 0.892 long ton

1 year = 330 operating days

## 9.11 RAILWAY FREIGHT

Name of the fertiliser material	Packing conditions	
	Internal I P	Outer**
1. Ammonium phosphate	—	P/7
2. Ammonium sulphate	—	P/7
3. Ammonium sulphate nitrate	—	P/7
4. Calcium ammonium nitrate	—	P/7
5. Ground phosphate	—	P/7
6. Gypsum	—	P/36
7. Manure mixture	—	P/7
8. Mineral phosphate	—	P/7
9. Muriate of potash	—	P/7
10. Sulphate of potash	—	P/7
11. Sulphur*	—	P/9
12. Superphosphate	—	P/7
13. Urea	—	P/9A

IP— means internal packing condition.

B. G.— means Broad Gauge.

M. G. — means Metre Gauge.

N. G.— mean Narrow Gauge.

W. — followed by a figure indicates the minimum weight in quintals per 4—wheeled wagon to which the rate applies, e. g. W/110 means that the rate applied to a minimum weagon load of 110 quintals per 4—wheeled wagon, 165 quintals per 6—wheeled wagon and 220 quintals per bogie wagon.

C. C.— indicates that the weight for charges is the carrying capacity of the wagon used.

\* Modifications in the packing conditions are under consideration with the Railway Board.

\*\* Refer Table 9.12

**RATES FOR FERTILISERS**

General classification		W/-or C. C. weight conditions under which wagon-load rates apply.		
Smalls	Wagon loads	B. G.	M. G.	N. G.
		Quintals		
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	CC	CC	CC
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
42.5-A	32.5-A	220	145	80
57.5-A	45.0-A	150	110	65
42.5-A	32.5-A	220	145	80
120-B	110-B	150	110	65

**Note:** The method of arriving at the rate for a particular commodity, either in "Wagon-loads" or "Smalls" is as follows :

- (i) From the general classification given above, the class assigned to the fertiliser must be ascertained.
- (ii) Reference should be made to the station-to-station and Junction Distance Tables (in Kilometres) to ascertain the distance for charge between two points.
- (iii) The rate to be charged for a particular distance is the rate shown against this class and for this distance in the Goods Rate Tables, which are published in the I. R. C. A., Good Tariff No. 31, Part II and contains the rates for all distances upto 5,000 kilometres for the different classes.



### 9.12 PACKING CONDITIONS FOR FERTILISERS

#### Packing Condition P/7, P/9 and P/9A\*

##### (a) General Description

The gunny/hessian bag should not wet or soiled, torn, patched, resewn or repaired. The bag should have no holes. The stiches should not be slack or loose. All the loose ends of the threads used for stiching should be securely fastened.

There should be adequate empty space left after filling the bag with

##### (b) Specifications

S. No. of packing conditions	Maximum net weight of contents	Porter <sup>1</sup> per inch (2.45 cm.)	Shot <sup>2</sup> per inch (2.45 cm.)
P/7	100 Kg.	6	8
P/9	1 Md. 15 srs. (1 Cwt.) (51.3206 Kg.)	8	8
P/9A Commodities for which this packing condition is prescribed must be packed in packing condition P/9.			

<sup>1</sup>Porter : It is the number of threads calculated per inch (2.54 cm) on the warp

<sup>2</sup>Shot : It is the number of threads calculated per inch (2.54 cm) on the

#### Packing Condition P/36

No packing required when in wagon loads, but when tendered in small lots must

\* Refer Table 9.11

**FOR CARRIAGE BY RAIL**

the contents and then the mouth of the bag should be rolled down and sewn. This does not apply to valved bags which automatically close after machine filling.

Jute twine used for sewing must be at least of 3 ply. When bags are machine stitched, stitching may be done with cotton twine.

Standard size and tare weight of the bags			Trade name
Length in inches (metres)	Width in inches (metres)	Tare weight of the bags	
44" (1.1176)	26½" (0.6731)	2½ lb. (1.0205 Kg)	B—Twill : Onion bag : Potato bag
36" (0.9144)	25" (0.6350)	1 lb. (0.4535 Kg.)	D. W. Nitrate bags.

double gunnies each of which must conform to the specifications corresponding to

(length of the bag.)

width of the bags i.e. from selvedge to selvedge (selvedge means the two sides of the bag.)

be in bundles securely tied or securely packed in gunny or in bags.

## 9.13 LIST OF SOIL TESTING LABORATORIES\*

State	Location	Address
		<b>Soil Testing Laboratory</b>
Andhra Pradesh	Bapatla Hyderabad	College of Agriculture, Bapatla Main Farm, Rajendranagar, Hyderabad, Dn.
	Rajahmundry	Central Tobacco Research Institute, Rajahmundry.
Assam	Jorhat	Department of Agriculture, Jorhat
Bihar	Sabour Hazaribagh	College of Agriculture, Sabour Soil Conservation Department, Damodar Valley Corporation, Hazaribagh.
Gujarat	Junagarh	Department of Agriculture, Junagarh
Kerala	Trivandrum	Agricultural College, Vellayani P. O., Nemom, Trivandrum.
Madhya Pradesh	Gwalior Jabalpur	College of Agriculture, Gwalior Agricultural Research Instt., Adhartal, Jabalpur.
Madras	Coimbatore	College of Agriculture, Lawley Road P. O., Coimbatore
Mysore	Bangalore	College of Agriculture, Hebbal, Bangalore-6.
	Balehonur	Coffee Research Station, P. O., Balehonur, Chikmagalur Dt.
Maharashtra	Nagpur	College of Agriculture, Nagpur
	Poona	College of Agriculture, Poona
Orissa	Sambalpur	Agricultural Research Station, Sambalpur.
Punjab	Karnal	C 149, Model Town, Karnal.
	Ludhiana	College of Agriculture, Ludhiana.
Rajasthan	Jodhpur	Department of Agriculture, 24 Paoto, Jodhpur.
Uttar Pradesh	Kanpur	College of Agriculture, Kanpur
West Bengal	Calcutta	Department of Agriculture, 230, Nataji Subash Chandra Road, Calcutta-40.

(Continued)

**9.13 LIST OF SOIL TESTING LABORATORIES\* (Concluded)**

State	Location	Address
Delhi	Delhi	Chemistry Division, Indian Agricultural Research Institute, New Delhi—12.
Himanchal Pradesh	Simla	Department of Agriculture, Hawthorn Villa, Simla—4.
Tripura	Agartala	Department of Agriculture, Agartala, Tripura.

\*Under the National Soil Testing Service.

## 10. WORLD STATISTICS

### 10.1 FERTILISER PRODUCTION

('000 metric tonnes)

Continent/Country	1958-59	1959-60	1960-61
<b>(a) Nitrogen (N)</b>			
<b>Europe</b>			
Austria	154.2	162.0	162.0
Belgium	295.1	305.4	278.4
Bulgaria	43.5	62.1	83.6
Czechoslovakia	108.1	133.3	...
Denmark	—	—	—
Finland	28.3	31.1	36.7
France	538.5	573.6	670.4
Germany East	320.0	329.1	334.1
Germany West	1,050.7	1,050.9	1,180.3
Italy	530.9	593.3	653.5
Netherlands	393.7	406.1	417.4
Norway	227.9	245.7	275.7
Poland	227.5	255.6	270.2
Spain	59.6	81.7	109.7
Sweden	33.7	42.9	51.8
United Kingdom	355.7	401.4	448.9
<b>North America</b>			
Canada	223.3	228.0	...
U. S. A.	2,448.0	2,544.0	2,680.0
<b>South America</b>			
Chile	202.0	148.2	...
Peru	36.6	45.8	...
<b>Asia</b>			
India	80.4	78.0	95.7
Japan	986.3	921.7	1030.1
Pakistan	10.1	11.7	10.3
Taiwan	30.3	39.0	49.9
<b>Africa</b>			
U. A. R.	34.3	38.1	39.6
South Africa	21.0	22.3	32.4
<b>Oceania</b>			
Australia	25.1	24.5	23.7
Newzealand	3.4	3.2	3.3
World	9,300.0	9,700.0	1,0600.0

(Continued)

## 10.1 FERTILISER PRODUCTION (Continued)

('000 metric tonnes)

Continent/Country	1958-59	1959-60	1960-61
<b>(b) Phosphoric acid (P<sub>2</sub>O<sub>5</sub>)</b>			
<b>Europe</b>			
Austria	27.8	24.0	31.4
Belgium	327.8	355.7	354.8
Czechoslovakia	103.2	118.4	...
Denmark	88.2	88.0	79.4
Finland	73.2	78.5	80.1
France	769.2	721.0	769.5
Germany East	136.3	138.8	165.8
Germany West	641.6	787.4	749.8
Italy	406.8	418.8	396.8
Netherlands	173.8	198.6	223.7
Poland	154.3	173.8	207.1
Spain	302.8	323.8	299.1
Sweden	102.7	112.2	110.6
United Kingdom	359.6	384.7	392.4
<b>North America</b>			
Canada	158.8	181.0	...
U.S.A.	2,487.0	2,555.0	2,549.0
<b>South America</b>			
Brazil	24.6	37.5	45.0
Chile	10.2	8.0	...
Peru	44.7	39.8	...
<b>Asia</b>			
India	27.1	40.1	51.8
Japan	415.9	460.8	514.6
Pakistan	0.4	0.3	1.3
Taiwan	24.4	25.1	27.8
<b>Africa</b>			
U.A.R.	27.7	25.0	28.1
South Africa	125.4	136.3	151.4
<b>Oceania</b>			
Australia	474.9	535.6	571.7
New Zealand	171.4	192.6	217.0
World	9,100.0	9,700.0	10,100.0

(Continued)

## 10.1 FERTILISER PRODUCTION (Concluded)

('000 metric tonnes)

Continent/Country	1958-59	1959-60	1960-61
<b>(c) Potash (K<sub>2</sub>O)</b>			
<b>Europe</b>			
Austria	—	—	—
Belgium	—	—	—
Czechoslovakia	—	—	—
Denmark	—	—	—
Finland	—	—	—
France	1,449.0	1,521.9	1,580.7
Germany East	1,650.0	1,644.0	1,666.0
Germany West	1,707.8	1,845.8	1,910.2
Italy	2.6	11.4	52.6
Netherlands	0.8	0.8	2.7
Poland	—	—	—
Spain	245.0	248.5	265.0
Sweden	0.8	2.0	1.9
United Kingdom	...	...	...
<b>North America</b>			
Canada	—	—	—
U.S.A.	2,107.0	2,303.0	2,045.0
<b>South America</b>			
Chile	14.0	11.4	...
Peru	2.1	2.2	...
<b>Asia</b>			
India	1.2	...	...
Japan	—	—	—
Pakistan	—	—	—
Taiwan	—	—	—
Israel	70.6	75.5	92.4
<b>Africa</b>			
U. A. R.	—	—	—
South Africa	—	—	—
<b>Oceania</b>			
Australia	—	—	—
New Zealand	—	—	—
World	8,200.0	8,600.0	8,700.0

Source : FAO Year Book 1961

## 10.2 FERTILISER CONSUMPTION

('000 metric tonnes)

Continent/Country	1958-59	1959-60	1960-61
<b>(a) Nitrogen (N)</b>			
<b>Europe</b>			
Austria	42.7	45.0	46.7
Belgium	97.5	98.6	99.7
Czechoslovakia	129.3	133.9	146.2
Denmark	104.2	122.8	123.8
Finland	49.7	52.7	59.6
France	480.8	504.8	564.9
Germany East	226.2	242.4	...
Germany West	574.8	624.6	617.8
Italy	298.3	350.8	332.2
Netherlands	209.1	212.1	223.6
Norway	45.4	48.4	47.7
Poland	226.8	251.3	...
Spain	273.8	236.4	275.2
Sweden	88.8	104.0	105.9
United Kingdom	345.7	421.2	459.5
<b>U. S. S. R.</b>	<b>686.0</b>	<b>709.0</b>	<b>769.0</b>
<b>North America</b>			
Canada	62.2	63.7	...
U. S. A.	2,423.7	2,483.9	2,734.2
<b>South America</b>			
Brazil	44.3	45.7	67.5
Peru	55.3	...	...
<b>Asia</b>			
India	204.3	223.8	375.6
Japan	681.7	584.1	753.3
Korea Rep. of	171.1	166.6	...
Pakistan	13.3	34.1	69.6
Philippines	20.2	...	...
Taiwan	98.1	110.7	103.1
<b>Africa</b>			
South Africa	36.1	45.1	50.1
U. A. R.	177.1	105.7	160.8
<b>Oceania</b>			
Australia	34.8	26.1	25.2
New Zealand	5.5	5.7	6.4
<b>World</b>	<b>8,800.0</b>	<b>9,200.0</b>	<b>10,200.0</b>

(Continued)



## 10.2 FERTILISER CONSUMPTION (Continued)

('000 metric tonnes)

Continet/Country	1958-59	1959-60	1960-61
<b>(b) Phosphoric acid (P<sub>2</sub>O<sub>5</sub>)</b>			
<b>Europe</b>			
Austria	79.5	74.9	88.1
Belgium	91.7	94.0	92.4
Czechoslovakia	131.5	147.4	159.0
Denmark	109.1	117.2	116.9
Finland	91.0	87.4	96.5
France	764.4	783.0	877.4
Germany East	214.8	209.7	...
Germany West	607.9	707.0	652.0
Italy	380.9	389.3	379.0
Netherlands	111.5	110.9	112.1
Poland	163.4	180.4	...
Spain	316.0	274.7	279.4
Sweden	97.9	108.4	103.3
United Kingdom	372.0	436.5	418.0
<b>U. S. S. R.</b>	<b>820.0</b>	<b>840.0</b>	<b>820.0</b>
<b>North America</b>			
Canada	124.5	133.4	...
U. S. A.	2,406.8	2,426.9	2,493.8
<b>South America</b>			
Brazil	81.3	61.0	73.7
Chile	27.5	29.6	...
Peru	7.3	7.8	...
<b>Asia</b>			
India	27.6	39.5	50.1
Japan	389.4	440.0	491.8
Korea Rep. of	66.8	119.4	...
Pakistan	0.4	5.4	15.0
Philippines	7.1	...	...
Taiwan	37.3	32.0	36.6
<b>Africa</b>			
South Africa	134.8	144.1	159.4
U.A.R.	27.7	25.0	30.0
<b>Oceania</b>			
Australia	476.0	536.5	573.9
New Zealand	181.1	196.8	221.2
<b>World</b>	<b>9,100.0</b>	<b>9,600.0</b>	<b>10,000.0</b>

(Continued)

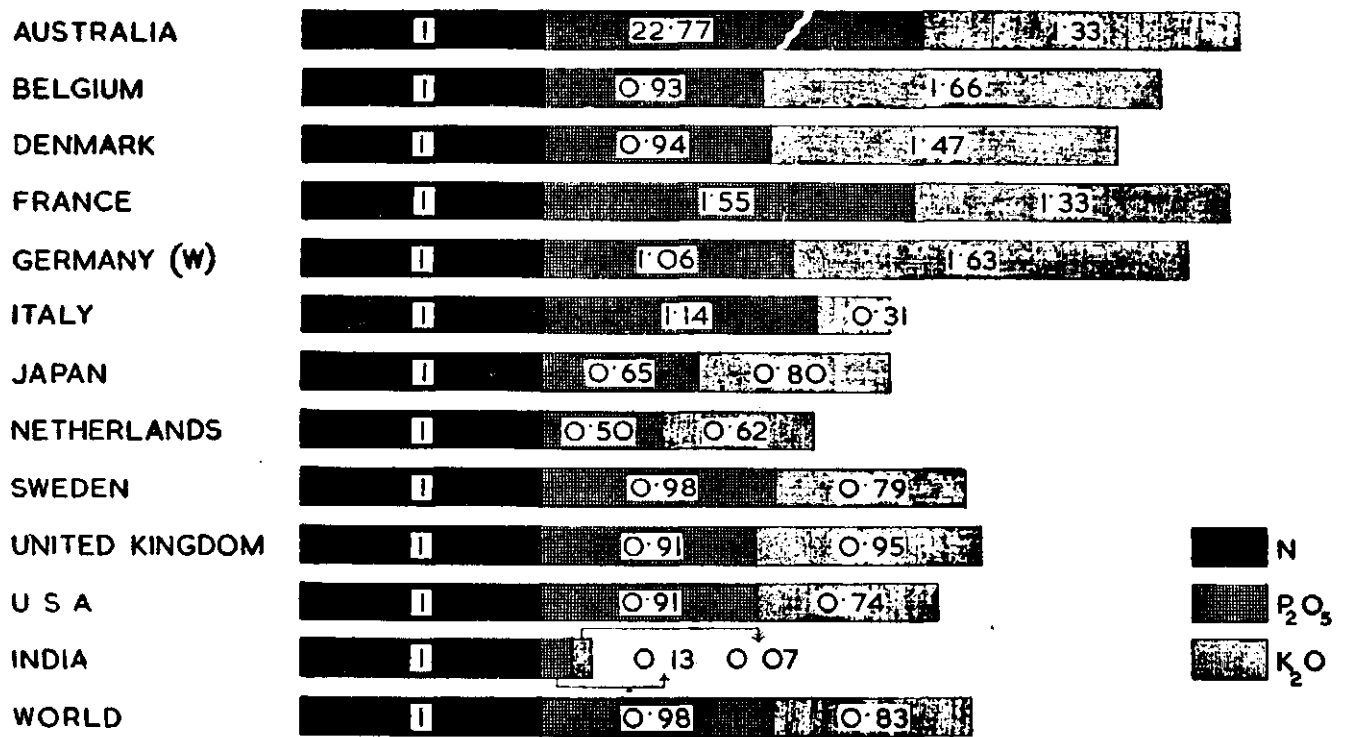
## 10.2 FERTILISER CONSUMPTION (Concluded)

('000 metric tonnes)

Continent/Country	1958-59	1959-60	1960-61
<b>(c) Potash (K<sub>2</sub>O)</b>			
<b>Europe</b>			
Austria	81.5	84.0	86.5
Belgium	152.3	155.5	165.9
Denmark	167.8	179.4	182.0
Finland	60.1	66.7	96.1
France	705.4	685.9	749.9
Germany East	511.6	499.4	...
Germany West	1,003.8	1,046.6	1,005.8
Italy	79.2	108.2	102.0
Netherlands	146.2	152.6	138.2
Poland	260.7	312.9	...
Spain	89.7	76.0	95.0
Sweden	79.0	86.2	83.9
United Kingdom	381.7	434.0	438.6
<b>U.S.S.R.</b>	743.0	787.0	766.0
<b>North America</b>			
Canada	95.3	84.9	...
U.S.A.	1,988.6	1,953.4	2,031.2
<b>South America</b>			
Brazil	65.7	56.5	104.5
Peru	3.2	3.3	...
<b>Asia</b>			
India	19.8	22.0	26.5
Japan	437.4	524.7	600.9
Korea Rep. of	5.0	6.4	...
Pakistan	0.1	0.2	9.0
Philippines	9.2	...	...
Taiwan	28.6	26.5	36.2
<b>Africa</b>			
South Africa	28.3	32.9	32.6
U.A.R.	2.3	...	1.0
<b>Oceania</b>			
Australia	27.6	22.5	33.4
New Zealand	32.5	47.5	67.6
<b>World</b>	7,900.0	8,200.0	8,500.0

Source : FAO Year Book 1961.

## RATIO OF N: P<sub>2</sub>O<sub>5</sub>: K<sub>2</sub>O CONSUMPTION (1960-61)



## 10.3 PRODUCTION OF ROCK PHOSPHATE

(metric tonnes)			
Continent/Country	1957-58	1958-59	1959-60
<b>Europe</b>			
France <sup>1, 2</sup>	72,400	68,900	...
Poland <sup>1, 3</sup>	52,222	71,283	41,015
Spain <sup>1</sup>	189	—	888 <sup>4</sup>
<b>North America</b>			
Netherlands Antilles (Curacao <sup>1, 5</sup> )	107,000	86,637	98,161
United States <sup>6</sup>	14,923,000	15,293,000	15,500,000
<b>South America</b>			
Brazil <sup>1</sup>	128,414	193,393	233,592
<b>Asia</b>			
India <sup>1, 7</sup>	9,300	14,800	...
Israel <sup>8</sup>	213,973	204,996	226,190
Jordan <sup>1</sup>	261,896	293,938	337,624
<b>Africa</b>			
Algeria	613,100	560,900	531,400
Former French West Africa			
Senegal <sup>1, 9</sup>	89,800	104,000	95,300
Madagascar <sup>1</sup>	3,515	2,000	...
Morocco <sup>10</sup>	5,567,000	6,336,000	7,164,000
Union of South Africa <sup>11</sup>	134,214	124,177	123,158
United Arab Republic			
Egyptian Region <sup>1</sup>	484,118	523,817	560,362
<b>Oceania</b>			
Christmas Islands <sup>5</sup>	378,987	485,672	...
French Polynesia (Makatea) <sup>1</sup>	347,000	368,000	369,000
Nauru	1,201,138	1,222,977	1,255,500
<b>World Total</b>	<b>26,980,000</b>	<b>28,600,000</b>	<b>29,660,000</b>

<sup>1</sup>Calendar year referring to the first part of the split year. <sup>2</sup>Low grade: 10-18% P<sub>2</sub>O<sub>5</sub>. <sup>3</sup>Low grade: 14% P<sub>2</sub>O<sub>5</sub>. <sup>4</sup>January-November. <sup>5</sup>Exports. <sup>6</sup>Marketable production. Estimated production of phosphate rock for fertiliser purposes was 1955-56, 10,906,000 metric tons; 1956-57, 10,778,000 metric tons; 1957-58, 10,965,000 metric tons and 1958-59, 10,970,000 metric tons. <sup>7</sup>25% P<sub>2</sub>O<sub>5</sub>. <sup>8</sup>24-28% P<sub>2</sub>O<sub>5</sub>. <sup>9</sup>Mainly aluminium phosphate. <sup>10</sup>Prior to 1958, former French zone only. <sup>11</sup>Mainly low grade rock containing 17% total and 7% citric soluble P<sub>2</sub>O<sub>5</sub>.

Source: Fertilizers, An annual review of world production, consumption and trade, FAO, 1960.

**10.4 FERTILISER CONSUMPTION PER ACRE OF  
AGRICULTURAL LAND (1960-61)**

Continent/Country	(pounds)			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>Europe</b>	<b>15.83</b>	<b>16.61</b>	<b>16.88</b>	<b>49.32</b>
Austria	10.28	19.40	19.05	48.73
Belgium	51.83	48.04	86.25	186.12
Czechoslovakia	17.80	19.36	23.26	60.42
Denmark	35.32	33.35	51.93	120.60
Finland	18.66	30.22	30.09	78.97
France	14.55	22.60	19.32	56.47
Germany West	38.67	40.81	62.95	142.43
Italy	14.16	16.16	4.35	34.67
Netherlands	86.10	43.16	53.21	182.47
Norway	41.20	38.52	45.77	125.49
Spain	11.25	11.42	3.88	26.55
Sweden	22.06	21.52	17.48	61.06
United Kingdom	20.61	18.75	19.67	59.03
<b>U.S.S.R.</b>	<b>1.16</b>	<b>1.24</b>	<b>1.16</b>	<b>3.56</b>
<b>North &amp; Central America</b>	<b>4.39</b>	<b>3.93</b>	<b>3.18</b>	<b>11.50</b>
U.S.A.	5.54	5.06	4.12	14.72
<b>South America</b>	<b>0.56</b>	<b>0.39</b>	<b>0.39</b>	<b>1.34</b>
Brazil	0.48	0.52 <sup>+</sup>	0.74	1.74
<b>Asia</b>	<b>2.64</b>	<b>1.31</b>	<b>1.19</b>	<b>5.14</b>
India	1.93 <sup>+</sup>	0.26 <sup>+</sup>	0.14 <sup>+</sup>	2.33 <sup>+</sup>
Japan	95.74	62.50	76.37	234.61
Pakistan	...	...	...	...
Taiwan	104.52	37.11	36.70	178.33
<b>Africa</b>	<b>0.33</b>	<b>0.34</b>	<b>0.10</b>	<b>0.77</b>
South Africa	0.44	1.41	0.29	2.14
U.A.R.	54.97	10.25	0.34	65.56
<b>Oceania</b>	<b>0.06</b>	<b>1.50</b>	<b>0.19</b>	<b>1.75</b>
Australia	0.05	1.11	0.06	1.22
New Zealand	0.43	15.03	4.59	20.05
<b>World</b>	<b>2.29</b>	<b>2.24</b>	<b>1.91</b>	<b>6.44</b>

Source : Calculated from FAO Year Book—1961.

**10.5 FERTILISER CONSUMPTION PER ACRE OF  
ARABLE LAND (1960-61)**

(pounds)

Continent/Country	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>Europe</b>	<b>23.90</b>	<b>25.07</b>	<b>25.48</b>	<b>74.45</b>
Austria	23.74	44.78	43.97	112.49
Belgium	93.93	87.05	156.29	337.27
Czechoslovakia	24.03	26.13	31.39	81.55
Denmark	39.67	37.46	58.32	135.45
Finland	19.93	32.27	32.13	84.33
France	23.43	36.39	31.10	90.92
Germany West	64.47	74.41	114.79	253.67
Italy	18.72	21.36	5.75	45.83
Netherlands	192.00	96.26	118.67	406.93
Norway	50.42	47.14	56.02	153.58
Spain	11.96	13.02	4.12	29.10
Sweden	26.26	25.62	20.80	72.68
United Kingdom	56.12	59.84	55.90	171.86
<b>U.S.S.R.</b>	<b>3.10</b>	<b>3.31</b>	<b>2.09</b>	<b>9.50</b>
<b>North &amp; Central America</b>	<b>10.63</b>	<b>9.51</b>	<b>7.70</b>	<b>27.84</b>
U.S.A.	13.19	12.03	9.80	35.02
<b>South America</b>	<b>2.81</b>	<b>1.95</b>	<b>1.95</b>	<b>6.71</b>
Brazil	3.15	3.44	4.87	11.46
<b>Asia</b>	<b>4.58</b>	<b>2.28</b>	<b>2.06</b>	<b>8.92</b>
India	2.08 <sup>+</sup>	0.27 <sup>+</sup>	0.15 <sup>+</sup>	2.50 <sup>+</sup>
Japan	110.68	72.26	88.28	271.22
Pakistan	2.11	0.45	0.27	2.83
Taiwan	105.85	37.57	37.16	180.58
<b>Africa</b>	<b>1.16</b>	<b>1.19</b>	<b>0.38</b>	<b>2.73</b>
South Africa	4.35	13.84	2.83	21.02
U.A.R.	54.97	10.25	0.34	65.56
<b>Oceania</b>	<b>1.05</b>	<b>25.49</b>	<b>3.22</b>	<b>29.76</b>
Australia	0.83	18.90	1.10	20.83
New Zealand	11.58	400.23	122.31	534.12
<b>World</b>	<b>6.46</b>	<b>6.33</b>	<b>5.38</b>	<b>18.12</b>

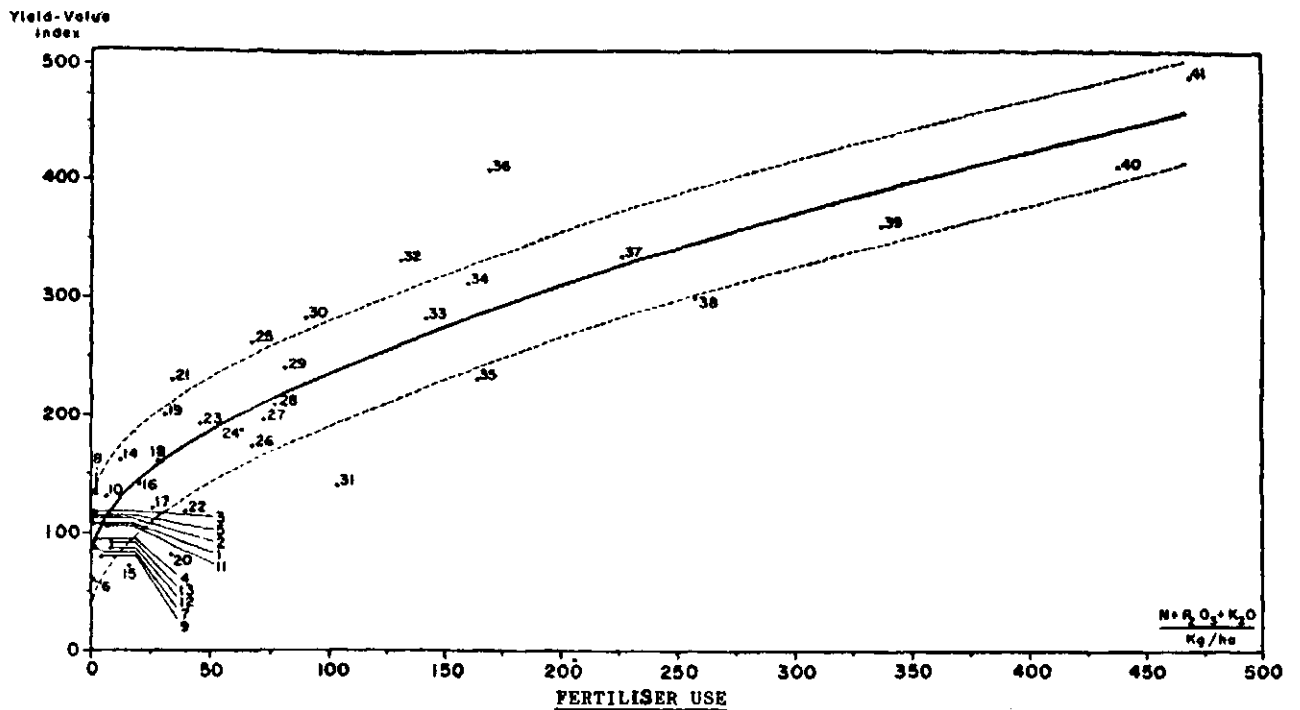
Source : Calculated from FAO year Book—1961.

**10.6 DENSITY OF POPULATION, FERTILISER CONSUMPTION AND YIELD  
1960-61**

Country	Fertiliser consumption (N+P <sub>2</sub> O <sub>5</sub> +K <sub>2</sub> O) per acre of arable land (lb.)	Density of population per acre of arable land	Yield per acre (lb.)					
			Paddy	Wheat	Maize	Barley	Potatoes	Cotton (lint)
1. Netherlands	406.93	4.47	—	4,157	3,399	3,774	24,713	—
2. Belgium	337.27	3.91	—	2,667	3,711	3,239	21,412	—
3. Japan	271.22	6.21	4,336	2,266	2,328	2,453	15,523	—
4. Germany West	253.67	2.63	—	2,569	2,971	2,935	19,271	—
5. United Kingdom	171.86	2.91	—	3,185	—	2,819	19,360	—
6. Austria	112.49	1.62	—	2,257	3,256	2,516	18,824	—
7. France	90.92	0.86	2,819	1,249	3,042	2,445	15,077	—
8. U.A.R.	65.56	4.02	4,470	2,186	1,972	2,204	...	544
9. Italy	45.83	1.26	4,291	1,329	2,864	955	9,010	232
10. U.S.A.	35.02	0.40	3,426	1,570	2,989	1,481	18,468	446
11. Australia	20.83	0.15	—	1,169	1,891	1,169	10,170	—
12. U.S.S.R.	9.50	0.39	1,668	945	1,490	1,178	8,208	606
13. Canada	6.20**	0.18	—	1,267	3,194	1,347	14,275	—
14. India	2.50	1.09	1,356	696	812	785	6,691	107

Source : Calculated from F.A.O. Year Book—1961

CURVE OF AVERAGE RELATIONSHIP BETWEEN FERTILISER USE AND VALUE INDEX OF CROP PRODUCTION  
(per arable hectare 41 countries, 1956-58)



1. Burma	8. Indonesia	15. South Africa	22. Australia	29. France	36. Switzerland
2. Argentina	9. Philippines	16. Yugoslavia	23. Italy	30. Austria	37. West Germany
3. Thailand	10. Canada	17. Spain	24. Peru	31. South Korea	38. Japan
4. Pakistan	11. Colombia	18. Greece	25. Egypt	32. Denmark	39. Belgium Luxembourg
5. Turkey	12. Mexico	19. U.S.A.	26. Finland	33. United Kingdom	40. Netherlands
6. India	13. Brazil	20. Portugal	27. Israel	34. Norway	41. New Zealand
7. Syria	14. Chile	21. Ceylon	28. Sweden	35. Taiwan	

Note : The numerical value of the crop yield value index of countries usually approximates to one-tenth of the average grain yield in kg. per hectare.

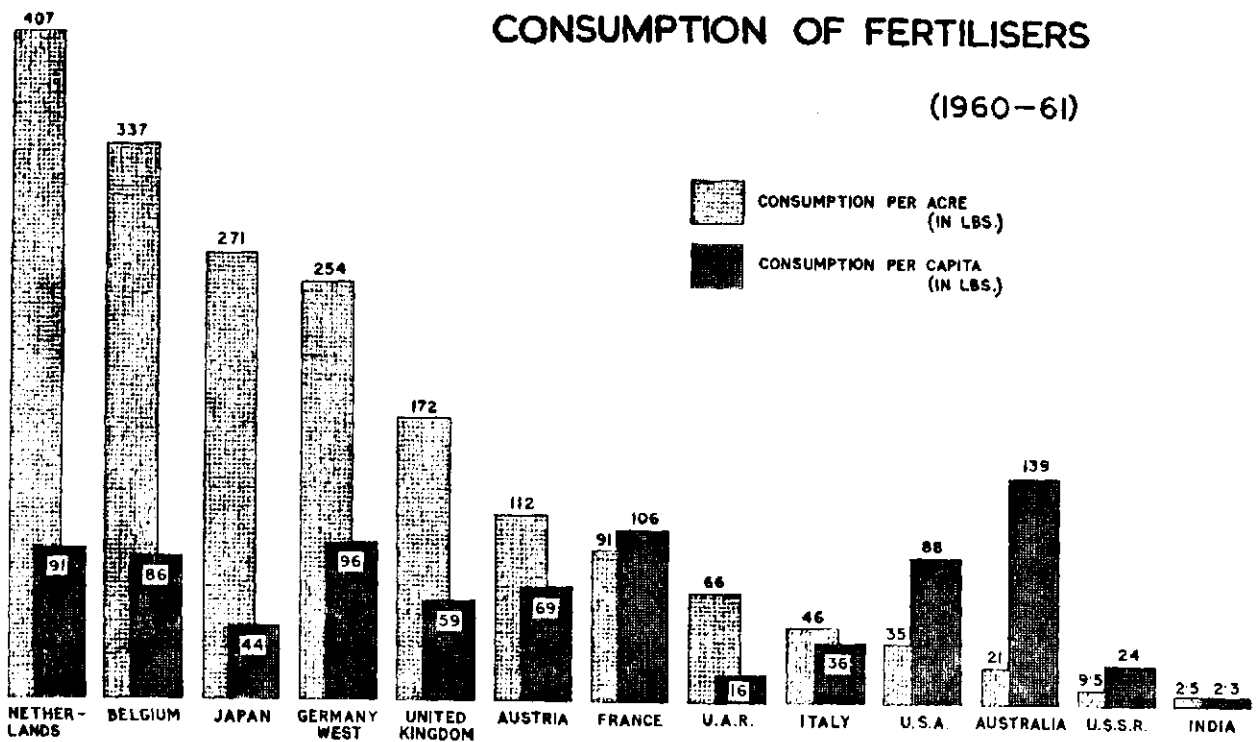
Source : F. W. Parker, Fertilizer and Economic Development, FAO, Rome 1962.



PER CAPITA AND PER ACRE\*

CONSUMPTION OF FERTILISERS

(1960-61)



\*OF ARABLE LAND

### 10.7 FARMERS' PRICE OF FERTILISERS, 1960-61

(Rs. per long ton of plant nutrient)

Country	Ammonium sulphate	Ammonium nitrate	Sodium nitrate	Ammonium phosphate	Single super-phosphate	Sulphate of potash	Muriate of potash
Australia <sup>1</sup>	1,451.80		2,427.60 <sup>2</sup>	—	575.96	837.76	523.60 <sup>3</sup>
Austria	1,218.16	1,061.48	—	—	604.52 <sup>4</sup>	495.04 <sup>5</sup>	—
Belgium	1,275.68	1,261.40	1,861.16 <sup>2</sup>	—	699.72	523.60	—
France <sup>6</sup>	1,470.84	1,428.00	2,008.72	—	1023.40	590.24	395.08 <sup>7</sup>
Germany West <sup>8</sup>	1,180.48	1,213.80	1,423.24	—	909.16	418.88	318.92 <sup>7</sup>
India <sup>9</sup>	1,837.36	—	2,127.72	—	1618.40 <sup>10</sup>	—	—
Italy	1,156.68	999.60	1,904.00	—	818.72	747.32	514.08 <sup>7</sup>
Japan	1,323.28	1,175.72	—	—	1042.44	661.64	437.92 <sup>3</sup>
Korea Rep. of <sup>11</sup>	1,461.32	1,418.48	1,547.00	1,113.84 <sup>19</sup>	894.88 <sup>10</sup>	690.20	514.08 <sup>3</sup>
					809.20 <sup>12</sup>		
Netherlands	1,199.52	1,180.48	1,846.88 <sup>2</sup>	—	690.20	675.92 <sup>13</sup>	395.08 <sup>7</sup>
Pakistan <sup>11,14</sup> —West	1,132.88	—	—	—	942.48 <sup>10</sup>	—	—
.. East	937.72	—	—	—	533.13 <sup>12</sup>	—	—
U.A.R. <sup>15</sup>	—	1,918.28	2,351.44 <sup>2</sup>	—	—	809.20	—
United Kingdom	690.20 <sup>16</sup>	918.68 <sup>17</sup>	1,204.28 <sup>16</sup>	—	533.12 <sup>17</sup>	590.24	476.00 <sup>7</sup>
U.S.A.	1,447.04	1,280.44	1,956.36	2,836.96 <sup>18</sup>	999.60 <sup>10</sup>	—	447.44 <sup>3</sup>
				265.76 <sup>19</sup>			

1. F.O.R. Yarville (Melbourne), 2. Chilean, 3. 60% K<sub>2</sub>O, 4. Net of subsidy of Rs. 22.32, 5. Net of subsidy of Rs. 14.94, 6. May-April, 7. Exceeding 45% K<sub>2</sub>O, 8. Net of subsidy of 12%, 9. Normal price to cultivators; subsidies at rate of 25% admissible in certain parts of the country, 10. Below 25% P<sub>2</sub>O<sub>5</sub>, 11. Are for 1959-60, 12. 25% P<sub>2</sub>O<sub>5</sub> or over, 13. Potassium magnesium sulphate, 14. Subsidised prices, 15. Are for calendar year 1960, 16. Net of subsidy of Rs. 58.92, 17. Net of subsidy of Rs. 47.03, 18. In terms of nitrogen, 19. In terms of phosphoric acid.

Source: Calculated from FAO Year Book—1961.

**10.8 FERTILISER PRICES AND SUBSIDY  
IN UNITED KINGDOM**

Article	Price per long ton in Rs.	Subsidy in Rs.	Net price in Rs.
Ammonium sulphate (21%N)	246.71	116.37	130.34
Nitrate of soda (16% N)	291.27	88.49	202.78
Nitro-chalk (21% N)	289.27	116.37	172.90
Nitro-shell (23% N)	316.61	127.10	189.51
Muriate of potash (60% K <sub>2</sub> O)	269.32	—	269.32
Superphosphate powdered (18% P <sub>2</sub> O <sub>5</sub> )	179.55	78.54	101.01
Basic slag (15% P <sub>2</sub> O <sub>5</sub> )	99.75	39.23	60.52
Bone meal (3.7%N—20.5% P <sub>2</sub> O <sub>5</sub> )	382.37	—	382.37
Hoof & hornmeal (13% N)	638.40	—	638.40

Source : Fertiliser and Feeding Stuffs Journal, June 1962

**10.9 WORLD TRADE IN FERTILISERS**  
**A. Imports**

('000 metric tonnes)

Continent/Country	1959-60			1960-61		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>Europe</b>						
Austria	0.6	54.9	83.3	0.7	65.2	85.4
Belgium	11.1	20.9	144.6	9.9	18.0	147.1
Denmark	115.1	29.6	180.0	139.4	40.1	192.8
France	21.6	131.9	5.5	22.4	176.8	—
Germany	4.3	83.9	2.4	6.0	58.7	10.7
Greece	72.7	10.0	3.4	43.0	2.0	4.4
Italy	3.8	12.5	112.1	1.8	4.1	104.5
Netherlands	24.5	52.9	175.3	30.3	57.0	176.8
Norway	—	1.4	46.7	—	1.4	52.0
Portugal	35.4	4.9	12.1	30.4	6.1	9.4
Spain	190.4	13.5	—	154.5	—	—
Sweden	62.4	3.0	79.7	61.4	—	86.9
Switzerland	—	35.0	40.0	—	36.0	41.0
Turkey	19.3	—	4.8	17.1	3.4	0.1
United Kingdom	68.7	31.4	422.5	60.5	33.2	439.0
Yugoslavia	80.4	57.1	110.0	81.5	18.6	96.1

(Continued)

**10.9 WORLD TRADE IN FERTILISERS (Concluded)**  
**B. Exports**

('000 metric tonnes)

Continent/Country	1959-60			1960-61		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>Europe</b>						
Austria	116.1	—	—	115.1	—	—
Belgium	231.2	268.9	2.3	179.2	256.5	1.8
Denmark	—	—	—	—	—	—
France	53.4	71.9	761.2	82.0	66.8	750.8
Germany	479.6	114.2	790.2	516.8	110.2	878.0
Greece	—	—	—	—	—	—
Italy	258.0	33.9	6.7	311.0	40.8	23.8
Netherlands	216.5	156.5	18.5	201.8	153.9	33.6
Norway	201.7	6.8	—	212.3	6.9	—
Portugal	1.1	10.6	—	3.8	17.1	—
Spain	—	9.9	176.4	—	9.1	188.4
Sweden	5.5	5.1	—	1.2	1.8	—
Switzerland	4.0	—	—	4.0	—	—
Turkey	—	—	—	—	—	—
United Kingdom	52.0	—	—	33.1	—	—
Yugoslavia	—	—	—	—	—	—

Source : OECD 11th Study: Fertilizers in Europe.

## PART II

### Related Statistics

## I. CLASSIFICATION OF AREA

### I.1 LAND

1956

State	Total geographical area according to		Classification of				
	Professional survey	Village papers (reporting area)	Forests	Not available for cultivation		Total	Other Permanent pastures and other grazing land
				Land put to non-agricultural use	Barren and unculturable land		
1. Andhra Pradesh	67,873	66,502	13,726	3,766	5,393	10,159	3,054
2. Assam (incl. NEFA)*	54,335	35,764	12,042	551	13,526	14,077	380
3. Bihar	43,007	42,823	9,676	3,560	1,739	5,299	494
4. Bombay (P)	122,264	120,876	15,486	2,189	17,071	19,260	6,019
5. Jammu & Kashmir (d)	55,055	5,923	1,398	691	946	1,637	312
6. Kerala	9,602	9,412	2,459	503	497	1,000	121
7. Madhya Pradesh	109,574	107,589	33,443	4,752	6,803	11,555	7,157
8. Madras	32,085	32,020	4,419	3,118	2,446	5,564	925
9. Mysore	47,438	46,155	6,650	1,871	2,250	4,121	4,494
10. Orissa*	38,504	38,401	8,799	2,717	3,557	6,274	1,819
11. Punjab	30,133	30,287	926	1,574	6,243	7,817	335
12. Rajasthan	84,576	84,450	3,553	2,687	12,146	14,833	3,409
13. Uttar Pradesh	72,610	72,543(a)	8,826(e)	4,597	6,387(f)	10,984	68
14. West Bengal	1,714	21,815	2,525	224	3,045	3,269	42
15. Delhi	366	366	4	82	3	85	21
16. Himachal Pradesh	6,964	2,971	522	101	78	179	1,372

## UTILISATION

-57

(Thousand acres)

reporting area						Net area sown	Total cropped area	Area sown more than once
uncultivated land excluding fallow land			Fallow lands					
Land under misc. tree-crops and groves not included in net area sown	Culturable waste	Total	Fallow lands other than current fallows	Current fallows	Total			
575	4,479	8,108	1,991	4,112	5,403	28,106	30,750	2,644
2,983	275	3,638	413	476	889	5,118	6,003	885
—	2,198	2,692	1,791	4,175	5,966	19,190	25,005	5,815
1,713	3,493	11,226	4,159	3,520	7,679	67,225	70,361	3,136
47	260	619	251	340	591	1,678	1,906	228
508	437	1,066	207	155	362	4,525	5,465	940
926	10,322	18,405	3,791	2,043	5,834	38,352	43,573	5,221
643	1,917	3,485	1,665	2,473	4,138	14,414	17,145	2,731
965	1,622	7,081	1,178	2,277	3,405	24,898	25,699	801
1,143	3,504	6,466	739	2,269	3,008	13,854	14,958	1,104
23	1,752	2,110	26	1,300	1,326	18,108	23,786	5,678
115	18,102	21,626	8,180	5,556	13,736	30,702	33,881	3,179
2,884(g)	4,361	1,713	3,166	441	3,607	41,813	52,766	10,953
1,515	191	1,748	1,210	238	1,448	12,825	14,977	2,152
—	36	48	12	—	12	217	324	107
63	108	1,543	9	39	48	679	1,047	368

(Continued)



## I.1 LAND

1956

State	Total geographical area according to		Classification of				
	Profes- sional survery	Village papers (report- ing area)	Forests	Not available for cultivation		Total	Other Perma- nent pas- tures and other grazing land
				Land put to non- agricul- tural use	Barren and un- cultura- ble land		
17. Manipur	5,522	346	37	—	—	(b)	(c)
18. Tripura	2,583	2,634	1,573	82	14	96	140
19. Andaman & Nicobar Islands	2,058	87	35	4	12	16	11
20. Laccadive, Minicoy & Amindivi Islands	7	7	—	(a)	—	(a)	—
<b>Total</b>	<b>806,270</b>	<b>720,971</b>	<b>126,099</b>	<b>33,069</b>	<b>83,156</b>	<b>116,225</b>	<b>30,165</b>

\* Due to non-receipt of 1956-57 data, figures for 1955-56 have been repeated.  
In case of Assam, the latest available data are of the year 1953-54

(a) Below 500 acres.

(b) Included under 'forests'.

(c) Included under 'culturable waste'.

(d) Excludes figure for the Pakistan occupied portion of the State (except in Col. 2).

(e) The figures are provisional and estimated after certain adjustments. They, therefore, do not tally with the figures given in the State Season and Crop Reports.

(f) Includes 3,433,000 acres in respect of Kumaon Division (estimated hill portion) part of which is under 'land put to non-agricultural uses'.

**UTILISATION (Concluded)**

-57

(Thousand acres)

reporting area						Net area sown	Total cropped area	Area sown more than once
uncultivated land excluding fallow land			Fallow lands					
Land under misc. tree-crops and groves not included in net area sown	Culturable waste	Total	Fallow lands other than current fallows	Current fallows	Total			
75	10	85	(a)	(a)	(a)	224	224	—
285	22	447	14	21	36	482	565	83
3	1	15	1	1	2	19	19	(a)
(a)	(a)	(a)	—	—	—	7	7	—
14,466	53,091	97,721	28,804	29,686	58,490	322,436	368,461	46,025

(g) Includes 429,000 acres in respect of Kumaon Division (estimated hill portion, part of which is under 'permanent pastures and other grazing lands' and culturable waste'.

(P) Provisional

## Notes :

1. Difference between the figures of area according to Surveyor-General of India and those according to village papers in respect of certain States is due to different method of survey.
2. Part of the area in respect of (i) Barren and unculturable land (ii) Miscellaneous tree crops and groves not included in the net area sown, and (iii) Fallow and other than current fallows are also under other heads of classification.

Source : Agricultural Situation in India, Vol. XIV. No. 6.

**1.2 NET CULTIVATED AND IRRIGATED AREA IN THE STATES  
(1956-57)**

State	Total reporting area	Net cultivated area	Percentage of cultivated area to total area	Net irrigated area (thousand acres)	Percentage of irrigated area to cultivated area
	thousands acres				
Andhra Pradesh	66,502	28,106	42.3	7,068	25.1
Assam (Incl. NEFA)*	35,764	5,118	14.3	1,533	30.0
Bihar	42,823	19,190	44.8	4,384	22.8
Bombay	120,876	67,225	55.6	3,616	5.4
Jammu & Kashmir	5,923	1,678	28.3	743	44.3
Kerala	9,412	4,525	48.1	829	18.3
Madhya Pradesh	107,589	38,352	35.6	2,049	5.3
Madras	32,020	14,414	45.0	5,517	38.3
Mysore	46,155	24,898	53.9	1,829	7.3
Orissa*	38,401	13,854	36.1	2,414	17.4
Punjab	30,287	18,108	59.8	7,459	41.2
Rajasthan	84,450	30,702	36.4	3,490	11.4
Uttar Pradesh	72,543	41,813	57.6	11,420	27.3
West Bengal	21,815	12,825	58.8	3,009	23.5
Delhi	366	217	59.3	79	36.4
Himachal Pradesh	2,971	679	22.9	94	13.8
Manipur	346	224	64.7	145	64.7
Tripura	2,634	482	18.3	4	0.8
Andaman and Nicobar Islands	87	19	21.8	—	—
Laccadive, Minicoy & Amindivi Islands	7	7	100.0	—	—
All-India	720,971	322,436	44.7	55,682	17.3

\*Due to non-receipt of 1956-57 data, figures for 1955-56 have been repeated. In case of Assam, the latest available data are of the year 1953-54.

**1.3 GROSS IRRIGATED AREA IN THE STATES—CROPWISE  
1956-57**

(Thousand acres)

State	Rice	Jowar or cholum	Bajra or cumbu	Maize	Wheat	Barley	Pulses	Sugar- cane	Ground- nut	Cotton	Tobacco	Total (gross) irriga- ted area
Andhra Pradesh	6,800	52	138	64	11	8	31	173	82	4	72	8,371
Assam <sup>1</sup> (Excl. NEFA)	1,433	—	—	(a)	—	—	16	—	—	—	—	1,533
Bihar	3,721	(a)	(a)	1	223	110	113	68	—	—	2	4,384
Bombay	782	609	158	42	841	16	137	290	30	148	26	4,089
Jammu & Kashmir <sup>2</sup>	461	(a)	—	78	81	15	16	1	—	2	1	776
Kerala	740	1	—	—	—	—	21	10	—	—	—	1,110
Madhya Pradesh	1,089	(a)	(a)	3	405	111	98	126	(a)	6	6	2,073
Madras	5,171	423	200	10	1	101	23	114	114	248	47	7,228
Mysore	1,273	56	4	21	26	4	5	127	—	17	—	1,883
Orissa <sup>3</sup>	2,425	1	(a)	5	9	—	86	59	—	6	—	2,820
Punjab	519	182	254	482	2,517	127	1,345	377	38	1,358	6	9,143
Rajasthan	27	41	83	268	1,454	909	358	77	3	328	10	4,183
Uttar Pradesh	1,002	28	16	230	4,189	1,949	1,952	1,935	1	103	38	12,467
West Bengal	2,711	(a)	—	16	50	6	99	28	—	—	—	3,077
Delhi	1	5	2	2	32	1	2	9	—	1	1	79
Himachal Pradesh	52	—	(a)	20	53	11	3	(a)	—	(a)	1	160
Manipur	—	—	—	—	—	—	—	—	—	—	—	145
Tripura	—	—	—	—	—	—	—	—	—	—	—	4

(Continued)

**1.3 GROSS IRRIGATED AREA IN THE STATES—CROPWISE  
1956-57 (Concluded)**

(Thousand acres)

State	Rice	Jowar or cholum	Bajra or cumbu	Maize	Wheat	Barley	Pulses	Sugar- cane	Ground- nut	Cotton	Tobacco	Total (gross) irriga- ted area
Andaman & Nicobar Islands	—	—	—	—	—	—	—	—	—	—	—	—
Laccadive, Minicoy & Amindivi Islands	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total</b>	<b>29,352</b>	<b>1,398</b>	<b>856</b>	<b>1,242</b>	<b>9,889</b>	<b>3,267</b>	<b>4,305</b>	<b>3,394</b>	<b>268</b>	<b>2,221</b>	<b>210</b>	<b>63,525</b>

<sup>1</sup>Due to non-receipt of data, figures for 1953-54 have been repeated.

<sup>2</sup>Excludes figures for the Pakistan occupied portion of the State.

<sup>3</sup>1955-56 figures.

Source : Agricultural Situation in India, Vol. XIV, No. 6.

**1.4 CROPWISE DISTRIBUTION OF GROSS CROPPED AREA  
AND GROSS IRRIGATED AREA  
1956-57**

Crop	Gross cropped area	Gross irrigated area	Percentage of crop area irrigated
	thousand acres		
Foodgrains	278,227	50,542	18.2
Rice	79,359	28,352	35.7
Wheat	33,678	9,889	29.4
Barley	8,693	3,267	37.6
Maize	9,492	1,242	13.1
Jowar	41,294	1,398	3.4
Bajra	27,925	856	3.1
Ragi	5,913	926	15.7
Other Cereals & Millets	13,102	307	2.3
Gram	23,968	2,597	10.8
Other Pulses	34,803	1,708	4.9
Sugarcane	5,138	3,394	66.1
Other Food Crops*	9,297	3,006	32.3
Oilseeds**	32,100	873	2.7
Cotton	20,143	2,221	11.0
Jute & Mesta	2,491	(a)	
Other Fibres	824	(a)	
Fodder Crops	14,155	2,313	16.3
Tea	784	(a)	
Coffee	255	(a)	
Rubber	213	(a)	
Other Non-Food Crops	4,834	1,176 (a)	12.5 (b)
<b>Total</b>	<b>368,461</b>	<b>63,525</b>	<b>17.2</b>

\*Includes (in '000 acres) chillies (1,645), black pepper (222), all fruits (2,343), potatoes (720) and other vegetables (2,604).

\*\*Includes (in '000 acres) peanuts (14,891), castor (1,463), sesamum (4,469), rape and mustard (3,050), linseed (3,735) and coconut (1,607).

(a) Included in other non-food crops.

(b) For all other non-food crops marked (a).

Source: Various Ministry of Food & Agriculture Publications.

**1.5 NET AREA IRRIGATED—SOURCEWISE  
1956-57**

(Thousand acres)

State	Area irrigated from					Total (net)
	Canals		Tanks	Wells	Other sources	
	Government	Private				
Andhra Pradesh	3,114	35	2,916	793	210	7,068
Assam <sup>1</sup> (Excl. NEFA)	178	721	—	—	634	1,533
Bihar	949	566	595	525	1,749	4,384
Bombay	624	65	520	2,299	108	3,616
Jammu & Kashmir <sup>2</sup>	140	569	3	7	24	743
Kerala	343	71	77	29	309	829
Madhya Pradesh	958	7	270	727	87	2,049
Madras	1,995	2	2,195	1,236	89	5,517
Mysore	396	12	809	320	292	1,829
Orissa <sup>3</sup>	487	69	1,223	94	541	2,414
Punjab	4,809	143	13	3,465	29	7,459
Rajasthan	690	—	468	2,238	94	3,490
Uttar Pradesh	4,252	27	1,040	5,412	689	11,420
West Bengal	594	921	963	40	491	3,009
Delhi	32	—	6	41	—	79
Himachal Pradesh	—	—	—	(a)	94	94
Manipur	—	145	—	—	—	145
Tripura	—	1	1	(a)	2	4
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindivi Islands	—	—	—	—	—	—
<b>Total</b>	<b>19,561</b>	<b>3,354</b>	<b>11,099</b>	<b>16,226</b>	<b>5,442</b>	<b>55,682</b>

<sup>1</sup> Due to non-receipt of data, figures for 1953-54 have been repeated.

<sup>2</sup> Excludes figures for the Pakistan occupied portion of the State.

<sup>3</sup> 1955-56 figures.

Source : Agricultural Situation in India, Vol. XIV, No. 6.

### 1.6 PERCENTAGE OF LAND RECEIVING DIFFERENT INTENSITIES OF RAINFALL

Average annual rainfall	Percentage to the total area
Above 75"	11
Between 50—75"	21
30—50"	37
15—30"	24
Below 15"	7

Source : Indian Agriculture in Brief, Directorate of Economics and Statistics.

### 1.7 ASSURED, MEDIUM AND DRY RAINFALL REGIONS

Rainfall	Area (million acres)
Assured rainfall region (50" and above)	209
Medium rainfall regions (between 30" and 50")	432
Dry region (below 30")	165
	806
Total geographical area :	806
Area for which agricultural statistics are available i.e., reporting area :	722

Source : Indian Agriculture in Brief, Directorate of Economics and Statistics.



## 2. INDEX NUMBERS

### 2.1 INDEX NUMBERS OF AGRICULTURAL PRODUCTION (1949-50=100)

Commodity	Weight	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
<b>I. FOODGRAINS</b>												
<b>(a) Cereals</b>												
1. Rice	35.3	87.9	90.1	96.8	118.6	105.8	114.2	120.4	105.6	127.5	125.2	136.3
2. Jowar	5.0	89.8	96.4	106.6	117.0	132.3	96.7	105.3	124.1	127.3	116.9	132.7
3. Bajra	2.7	83.8	75.8	94.8	135.0	107.8	108.3	90.1	113.5	120.7	112.1	99.8
4. Maize	2.1	84.4	101.3	123.3	130.2	127.5	112.3	132.8	135.9	134.3	145.1	141.8
5. Ragi	1.2	87.6	80.4	82.0	115.0	108.6	119.7	118.7	114.4	126.2	128.0	110.2
6. Small millets	1.5	88.9	97.4	97.9	125.9	126.8	105.1	98.0	89.5	108.3	106.0	101.8
<b>KHARIF CEREALS (1 to 6)</b>	<b>47.8</b>	<b>87.7</b>	<b>90.4</b>	<b>98.5</b>	<b>120.0</b>	<b>110.4</b>	<b>111.8</b>	<b>116.9</b>	<b>109.0</b>	<b>126.8</b>	<b>123.9</b>	<b>132.4</b>
7. Wheat	8.5	101.1	93.9	112.7	120.0	135.4	131.3	140.7	118.5	147.0	151.8	160.2
8. Barley	2.0	105.6	100.0	122.4	123.2	124.4	118.5	120.5	95.9	113.6	113.7	116.2
<b>RABI CEREALS (7 &amp; 8)</b>	<b>10.5</b>	<b>102.0</b>	<b>95.1</b>	<b>114.5</b>	<b>120.6</b>	<b>133.3</b>	<b>128.9</b>	<b>136.9</b>	<b>114.2</b>	<b>140.6</b>	<b>144.5</b>	<b>151.8</b>
<b>CEREALS (1 to 8)</b>	<b>58.3</b>	<b>90.3</b>	<b>91.2</b>	<b>101.4</b>	<b>120.1</b>	<b>114.5</b>	<b>114.9</b>	<b>120.5</b>	<b>109.9</b>	<b>129.3</b>	<b>127.6</b>	<b>135.9</b>

(Continued)

**2.1 INDEX NUMBERS OF AGRICULTURAL PRODUCTION (Concluded)**  
(1949-50=100)

Commodity	Weight	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58†	1958-59	1959-60	1960-61
<b>(b) Pulses</b>												
9. Gram	3.7	98.0	88.2	109.2	125.4	145.9	138.9	159.8	129.1	179.4	143.4	161.8
10. Tur or arhar	1.1	91.8	97.7	90.9	99.5	91.8	99.4	106.2	77.3	89.1	87.3	107.0
11. Other pulses	3.8	85.6	90.2	90.9	102.6	99.6	103.9	91.9	88.1	105.3	106.4	102.8
<b>PULSES (9 to 11)</b>	<b>8.6</b>	<b>91.7</b>	<b>90.3</b>	<b>98.8</b>	<b>112.0</b>	<b>118.5</b>	<b>118.4</b>	<b>122.9</b>	<b>104.4</b>	<b>135.1</b>	<b>119.9</b>	<b>128.7</b>
<b>FOODGRAINS (1 to 11)</b>	<b>66.9</b>	<b>90.5</b>	<b>91.1</b>	<b>101.1</b>	<b>119.1</b>	<b>115.0</b>	<b>115.3</b>	<b>120.8</b>	<b>109.2</b>	<b>130.0</b>	<b>126.6</b>	<b>135.0</b>
<b>II. NON-FOOD- GRAINS †</b>	<b>33.1</b>	<b>105.9</b>	<b>110.5</b>	<b>103.8</b>	<b>104.7</b>	<b>120.9</b>	<b>119.9</b>	<b>131.5</b>	<b>129.4</b>	<b>136.1</b>	<b>132.8</b>	<b>147.3</b>
<b>III. ALL COM- MODITIES</b>	<b>100.0</b>	<b>95.6</b>	<b>97.5</b>	<b>102.0</b>	<b>114.3</b>	<b>117.0</b>	<b>116.8</b>	<b>124.3</b>	<b>115.9</b>	<b>132.0</b>	<b>128.7</b>	<b>139.1</b>

† Includes oilseeds, fibres, plantation crops, sugarcane, tobacco, potato, pepper (black), chillies (dry) and ginger (dry).

- Notes : 1. The indices for 1958-59 and 1959-60 are generally based on partially revised estimates while those for 1960-61 are generally based on final estimates. The indices for these years are, therefore, subject to revision.
2. Owing to progressive increases in coverages and changes in methods of yield estimation, the actual production figures as given in table 3.1 are not comparable over time. For comparison of all-India position over time Index Numbers of Agricultural Production as given in this table may be used with a view to enabling trend studies.

Source : Directorate of Economics & Statistics.

### 3. AREA, PRODUCTION AND AVERAGE YIELD PER ACRE OF PRINCIPAL CROPS—ALL-INDIA

#### 3.1 AREA, PRODUCTION AND AVERAGE YIELD Forecast

Crop	Area (Thousand acres)				Produc- thousand tons	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Rice	75,087	77,891	82,829	83,335	21,462	27,122
Wheat	23,867	30,559	32,542	31,751	6,245	8,622
Jowar	38,737	42,903	42,158	42,108	5,722	6,619
Bajra	22,900	28,018	26,750	28,063	2,551	3,374
Maize	8,016	9,132	10,706	10,758	1,930	2,561
Ragi	5,435	5,701	5,964	5,760	1,406	1,817
Barley	7,787	8,447	8,345	7,916	2,295	2,771
Small millets	12,178	13,184	12,420	12,245	1,950	2,037
<b>Total Cereals</b>	<b>194,007</b>	<b>215,835</b>	<b>221,714</b>	<b>221,936</b>	<b>43,551</b>	<b>54,923</b>
Gram	18,693	24,166	25,372	23,483	3,531	5,332
Other pulses	29,108	33,202	34,768	34,184	4,667	5,539
<b>Total Pulses</b>	<b>47,801</b>	<b>57,368</b>	<b>60,140</b>	<b>57,667</b>	<b>8,198</b>	<b>10,871</b>
<b>Total Foodgrains</b>	<b>241,808</b>	<b>273,203</b>	<b>281,854</b>	<b>279,603</b>	<b>51,749</b>	<b>65,794</b>
Groundnut	11,030	12,685	14,864	15,455	3,316	3,801
Other oil-seeds	15,726	17,178	18,546	17,491	1,740	1,842
<b>Total Oil-seeds</b>	<b>26,756</b>	<b>29,863</b>	<b>33,410</b>	<b>32,946</b>	<b>5,056</b>	<b>5,643</b>
Sugarcane	4,211	4,564	5,220	5,734	55,397	59,587
Potato	595	691	881	884	1,613	1,830
Tobacco	819	1,013	914	968	242	298
Cotton	14,308	19,981	18,804	18,971	2,892	3,998
Jute	1,508	1,739	1,685	1,529	3,686	4,198
Tea	777	780	783	795	611,142	627,669
Coffee	226	249	267	274	52,407	75,784
Rubber	170 (137)	207 (166)	305 (172)	321 (174)	36,089	50,357

- Notes :
1. Production of rice is in terms of cleaned rice.
  2. Production of sugarcane is in terms of cane.
  3. Production of groundnut is in terms of nuts in shell.
  4. Production of cotton is in terms of lint cotton and in thousand bales of
  5. Production of jute is in terms of dry fibre and in thousand bales of
  6. Production of tea, coffee and rubber is in 1,000 lb.
  7. Figures in respect of tea and rubber relate to calendar year, e.g. the
  8. The data for last two years in respect of tea and coffee relate to 1957
  9. Figures for area under rubber refer to the planted area and tappable

Source : Various Ministry of Food and Agriculture Publications.  
Indian Rubber Statistics, Vol. 4, 1961.

**PER ACRE OF PRINCIPAL CROPS—ALL-INDIA**  
Crops

Area in million acres (unless otherwise stated)		Average yield per acre (lb.)				Crop
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
30,993	33,700	640	780	837	906	Rice
10,089	10,648	586	632	694	751	Wheat
8,004	9,085	331	346	425	483	Jowar
3,519	3,134	250	270	295	250	Bajra
4,006	3,915	539	628	838	815	Maize
1,904	1,640	579	714	715	638	Ragi
2,674	2,734	660	735	718	774	Barley
2,029	1,949	359	346	366	357	Small millets
63,188	66,805	—	—	—	—	<b>Total Cereals</b>
5,502	6,207	423	494	486	592	Gram
6,032	6,260	—	—	—	—	Other pulses
11,534	12,467	—	—	—	—	<b>Total Pulses</b>
74,722	79,272	—	—	—	—	<b>Total Foodgrains</b>
3,942	4,354	673	671	594	631	Groundnut
1,943	2,176	—	—	—	—	Other oil-seeds
5,885	6,530	—	—	—	—	<b>Total Oil-seeds</b>
75,201	85,045	29,468	29,245	32,270	33,223	Sugarcane
2,722	2,656	6,072	5,932	6,921	6,930	Potato
281	294	662	659	689	680	Tobacco
3,678	5,394	79	78	77	111	Cotton
4,605	4,030	978	966	1,093	1,054	Jute
677,567	699,200	787	805	865	879	Tea
93,035	100,302	232	304	348	366	Coffee
52,412	55,541	264	303	304	320	Rubber

392 lb. each.

400 lb. each.

figures for 1955-56 actually relates to 1955.  
& 1958 and 1958-59 & 1959-60 respectively.  
area respectively.

**3.2 AREA AND PRODUCTION OF PRINCIPAL CROPS—  
ALL-INDIA  
Non-forecast Crops**

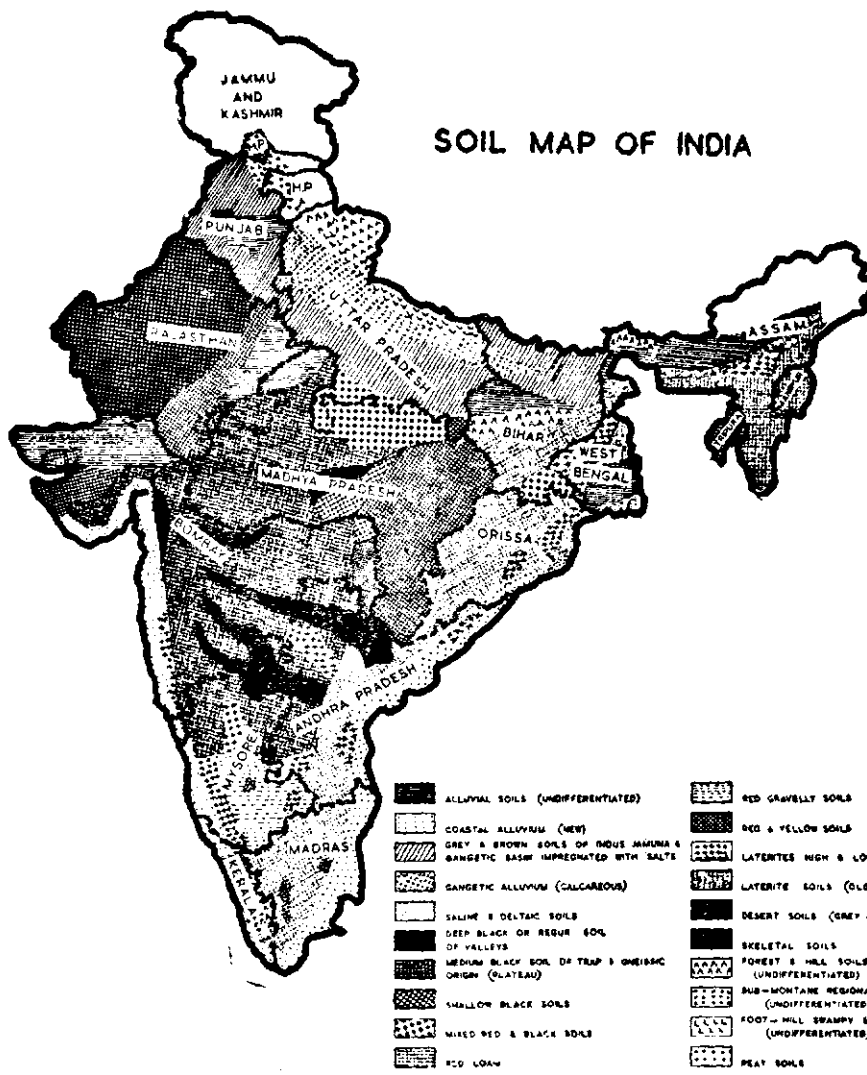
Crops	Area ( '000 acres)			Production ('000 tons)		
	1957-58	1958-59	1959-60	1957-58	1958-59	1959-60
Banana	442	448	449	2,065	2,009	2,019
Papaya	16	16	15	221	225	217
Sweet Potato	454	463	492	1,104	1,119	1,261
Tapioca	585	617	617	1,687	1,753	1,755
Turmeric	117	108	108	123	115	115
Indigo	6	7	7	b	b	a
Opium	64	74	105	18*	20*	21*
Cashewnut	209	223	223	94	98	98
Cardamom	127	133	136	3	3	3
Beteinuts	304	309	309	69	68	68
Coconuts	1,632	1,689	1,692	4,498†	4,613†	4,617†

\* In thousand md.

† In million nuts.

Source : Directorate of Economics & Statistics.

SOIL MAP OF INDIA



- |  |   |
|--|---|
| ALLUVIAL SOILS (UNDIFFERENTIATED)  | RED GRAVELLY SOILS                            |
| COASTAL ALLUVIUM (NEW)   | RED & YELLOW SOILS                            |
| GREY & BROWN SOILS OF INDUS JAMUNA & GANGETIC BASIN IMPREGNATED WITH SALTS | LATENT SOILS HIGH & LOW LEVEL                 |
| GANGETIC ALLUVIUM (CALCAREOUS)   | LATERITE SOILS (OLD ALLUVIUM)                 |
| SALINE & DELTIC SOILS  | DESERT SOILS (GREY & BROWN)                   |
| DEEP BLACK OR REGUR SOIL OF VALLEYS  | SCHELETAL SOILS                               |
| MEDIUM BLACK SOIL OF TRAP & GNEISSIC ORIGIN (PLATEAU)                      | FOREST & HILL SOILS (UNDIFFERENTIATED)        |
| SHALLOW BLACK SOILS  | SUB-MONTANE REGIONAL SOILS (UNDIFFERENTIATED) |
| MIXED RED & BLACK SOILS  | FOOT-HILL SWAMPY SOILS (UNDIFFERENTIATED)     |
| RED LOAM   | PEAT SOILS                                    |

**4. AREA, PRODUCTION  
AND AVERAGE YIELD  
PER ACRE OF PRINCIPAL  
CROPS—STATES.**

**4.1 RICE—AREA,**

State	Area in ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	5,630.0	6,728	7,936	6,854	2,162.0	3,050
Assam	4,095.7	4,308	4,208	4,310	1,553.3	1,666
Bihar	13,080.3	12,227	12,234	13,572	2,713.3	3,361
Gujarat	...	...	1,173	1,251	...	...
Jammu & Kashmir	392.7	463	466	511	146.0	213
Kerala	1,802.0	1,882	1,900	1,924	668.7	861
Madhya Pradesh	9,408.3	9,456	10,106	10,089	2,153.0	2,873
Madras	4,476.0	5,491	5,726	5,913	1,746.0	2,964
Maharashtra	3,806.0†	4,019†	3,066	3,076	1,063.3†	1,411†
Mysore	1,901.3	1,981	2,365	2,451	734.3	1,050
Orissa	9,522.3	9,566	10,570	9,335	2,062.0	2,090
Punjab	560.7	680	970	1,102	170.3	212
Rajasthan	135.3	169	247	241	27.0	86
Uttar Pradesh	9,064.0	9,298	10,251	10,200	2,000.0	2,547
West Bengal	10,517.0	10,823	10,916	11,396	3,997.0	4,444
Delhi	0.83	1	3	3	b	b
Himachal Pradesh	108.0	111	112	112	25.3	39
Manipur	195.7	222	392	393	84.0	117
Tripura	385.7	407	426	421	155.3	135
Andaman & Nicobar Islands	5.0	9	15	17	1.3	3
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
Nagaland	...	...	187	164	...	...
All-India	75,087.0	77,891	82,829	83,335	21,462.0	27,122

†These figures are for composite State of Bombay.

**PRODUCTION AND AVERAGE YIELD PER ACRE**

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
3,674	3,498	860.0	1015	1,037	1,143	Andhra Pradesh
1,618	1,638	849.0	866	861	851	Assam
3,826	4,669	465.0	613	694	770	Bihar
376	262	...	...	718	469	Gujarat
208	228	830.0	1030	999	999	Jammu & Kashmir
1,022	1,063	831.0	1025	1,205	1,238	Kerala
3,161	3,364	513.0	681	701	747	Madhya Pradesh
3,406	3,550	874.0	1209	1,332	1,345	Madras
1,210	1,277	626.0†	786†	884	930	Maharashtra
1,311	1,186	865.0	1187	1,241	1,084	Mysore
3,658	3,668	485.0	489	775	880	Orissa
406	434	680.0	698	938	882	Punjab
114	63	447.0	1140	1,033	586	Rajasthan
2,425	3,026	494.0	614	574	664	Uttar Pradesh
4,172	5,374	851.0	920	856	1,056	West Bengal
1	1	—	—	746	746	Delhi
38	29	525.0	787	760	580	Himachal Pradesh
93	124	961.5	1181	531	707	Manipur
153	156	902.0	743	804	830	Tripura
5	6	582.4	747	747	791	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
86	84	...	...	1,030	1,147	Nagaland
30,963	33,700	640.0	780	837	906	All-India



## 4.2 WHEAT—AREA, PRODUCTION

State	Area ('000 acres)					Production
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	50.3	60	51	45	5.7	7
Assam	3.3	6	5	9	1.3	1
Bihar	1,484.0	1,468	1,613	1,610	272.7	357
Gujarat	...	...	1,197	1,000	...	...
Jammu & Kashmir	180.0	304	416	410	59.3	80
Kerala	—	—	—	—	—	—
Madhya Pradesh	5,104.0	6,947	7,829	7,481	903.3	1,541
Madras	3.7	4	4	4	b	1
Maharashtra	2,494.0†	3,249†	2,215	2,273	467.1†	668†
Mysore	686.0	716	731	752	56.0	64
Orissa	13.0	13	16	16	3.3	3
Punjab	3,922.0	4,862	5,318	5,358	1,497.7	1,802
Rajasthan	1,198.7	2,403	3,033	2,612	272.0	907
Uttar Pradesh	8,232.0	9,965	9,579	9,684	2,597.7	3,041
West Bengal	122.3	173	119	86	35.7	47
Delhi	54.7	70	70	69	14.0	16
Himachal Pradesh	318.0	319	346	342	58.3	87
Manipur	0.7	a	—	—	0.7	b
Tripura	—	—	—	—	—	—
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
Nagalands	—	—	—	—	—	—
All-India	23,867.0	30,559	32,542	31,751	6,245.0	8,622

† These figures are for composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
5	5	254.0	261	210	249	Andhra Pradesh
1	3	882.3	373	448	747	Assam
349	349	411.6	545	485	485	Bihar
301	391	...	...	563	652	Gujarat
109	87	738.0	589	587	475	Jammu & Kashmir
—	—	—	—	—	—	Kerala
2,277	1,926	396.0	497	651	577	Madhya Pradesh
1	1	—	560	560	560	Madras
363	367	420.0†	461	367	362	Maharashtra
64	78	183.0	200	196	256	Mysore
4	4	568.7	517	560	560	Orissa
2,180	2,540	855.0	830	918	1,062	Punjab
1,032	986	508.0	845	762	846	Rajasthan
3,242	3,854	707.0	684	758	891	Uttar Pradesh
31	25	654.0	609	584	651	West Bengal
26	29	573.0	512	832	941	Delhi
104	103	411.7	611	673	675	Himachal Pradesh
—	—	—	—	—	—	Manipur
—	—	—	—	—	—	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
—	—	—	—	—	—	Nagalands
10,089	10,648	586.0	632	694	751	All-India

## 4.3 JOWAR—AREA, PRODUCTION AND

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	5,396.0	6,314	6,300	5,956	859.0	1,131
Assam	—	—	—	—	—	—
Bihar	7.7	5	8	7	1.5	1
Gujarat	...	...	3,317	3,145	...	...
Jammu & Kashmir	10.3	1.3	1	1	1.0	b
Kerala	6.7	9	4	4	2.3	2
Madhya Pradesh	4,438.3	4,780	4,559	4,733	579.3	773
Madras	1,586.0	1,865	1,751	1,780	392.3	478
Maharashtra	16,696.0†	1,7354†	14,088	14,210	2,284.0†	2607†
Mysore	5,869.0	6,764	6,519	6,688	810.0	990
Orissa	29.3	17	18	18	5.0	3
Punjab	710.0	702	697	788	69.7	33
Rajasthan	1,589.0	2,863	2,606	2,532	122.7	220
Uttar Pradesh	2,354.0	2,170	2,252	2,211	588.0	374
West Bengal	7.7	4	5	5	3.0	1
Delhi	34.7	55	33	30	4.3	6
Himachal Pradesh	2.0	a	—	—	b	b
Manipur	—	—	—	—	—	—
Tripura	—	—	—	—	—	—
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
All-India	38,737.0	42,903	42,158	42,108	5,722.0	6,619

† These figures are for the composite State of Bombay.

## AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
1,289	1,273	357.0	401	458	479	Andhra Pradesh
—	—	—	—	—	—	Assam
1	1	435.4	448	280	320	Bihar
201	234	...	...	136	167	Gujarat
b	b	—	—	—	—	Jammu & Kashmir
1	1	769.0	498	560	560	Kerala
1,141	1,321	292.0	362	451	625	Madhya Pradesh
537	554	554.0	574	687	697	Madras
2,798	3,803	306.0†	337†	444	599	Maharashtra
1,074	1,054	309.0	328	369	353	Mysore
4	4	382.0	395	498	498	Orissa
56	54	220.0	105	180	153	Punjab
315	292	173.0	172	271	258	Rajasthan
582	489	560.0	386	579	495	Uttar Pradesh
1	1	873.0	560	448	448	West Bengal
4	4	282.0	244	272	299	Delhi
—	—	—	—	—	—	Himachal Pradesh
—	—	—	—	—	—	Manipur
—	—	—	—	—	—	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive Minicoy & Amindive Islands
8,004	9,085	331.0	346	425	483	All-India

## 4.4 MAIZE—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	160.0	468	455	437	39.3	112
Assam	42.7	38	34	35	11.3	7
Bihar	1,599.0	1,308	1,983	1,987	365.0	254
Gujarat	...	...	464	472	...	...
Jammu & Kashmir	333.7	459	512	534	115.7	135
Kerala	0.8	—	—	—	b	—
Madhya Pradesh	909.0	1,041	1,142	1,124	134.0	194
Madras	12.0	12	15	15	4.3	5
Maharashtra	463.7†	557†	65	65	103.3†	187†
Mysore	25.0	33	26	27	8.0	6
Orissa	69.7	60	55	55	11.3	10
Punjab	934.0	1004	1,333	1,391	302.0	395
Rajasthan	832.0	1335	1,493	1,599	109.0	524
Uttar Pradesh	2,003.0	2,371	2,698	2,592	621.0	616
West Bengal	149.7	165	139	139	40.0	45
Delhi	2.0	3	3	3	0.7	b
Himachal Pradesh	280.0	278	289	283	64.7	71
Manipur	1.0	—	—	—	b	—
Tripura	a	—	—	—	b	—
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
<b>All-India</b>	<b>8,016.0</b>	<b>9,132</b>	<b>10,706</b>	<b>10,758</b>	<b>1,930.0</b>	<b>2,561</b>

†These figures are for the composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
108	143	244.5	536	532	732	Andhra Pradesh
6	6	594.0	413	395	384	Assam
916	770	511.0	435	1,035	868	Bihar
82	230	...	...	396	1,091	Gujarat
173	199	776.7	659	757	835	Jammu & Kashmir
—	—	—	—	—	—	Kerala
304	506	330.0	417	596	1,008	Madhya Pradesh
7	7	802.7	933	1,045	1,045	Madras
13	13	499.0†	752†	448	448	Maharashtra
9	9	717.0	407	775	747	Mysore
9	9	363.0	373	367	367	Orissa
699	617	725.0	881	1,174	993	Punjab
513	635	294.0	879	770	890	Rajasthan
1,013	619	694.0	582	841	535	Uttar Pradesh
46	35	599.0	611	741	564	West Bengal
1	1	746.0	560	747	747	Delhi
107	116	517.7	572	829	918	Himachal Pradesh
—	—	—	—	—	—	Manipur
—	—	—	—	—	—	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
4,006	3,915	539.0	628	838	815	All-India

## 4.5 GRAM—AREA, PRODUCTION AND

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	333.0	325	271	270	42.7	42
Assam	...	7	4	4	...	1
Bihar	1391.7	1225	1,428	1,339	226.3	206
Gujarat	...	...	280	269	...	...
Jammu & Kashmir	5.8	8	9	9	1.5	2
Kerala	—	—	—	—	—	—
Madhya Pradesh	3519.3	3668	4,116	3,924	598.0	805
Madras	3.3	4	4	4	1.0	1
Maharashtra	1388.0†	1616†	1,117	1,040	178.3†	227†
Mysore	438.7	418	400	387	51.0	52
Orissa	61.0	57	50	50	7.3	6
Punjab	3729.0	6310	6,190	6,013	742.0	1696
Rajasthan	1251.3	3234	4,247	3,396	158.0	707
Uttar Pradesh	6140.0	6715	6,657	6,331	1401.7	1443
West Bengal	365.0	478	545	373	118.0	139
Delhi	44.0	83	36	61	1.7	2
Himachal Pradesh	16.0	18	18	13	3.3	3
Manipur	—	—	—	—	—	—
Tripura	—	—	—	—	—	—
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
All-India	18,693.0	24,166	25,372	23,483	3,531.0	5,332

† These figures refer to composite State of Bombay.

## AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
32	31	287.0	289	264	257	Andhra Pradesh
1	1	...	320	560	560	Assam
240	223	364.0	377	376	373	Bihar
43	36	...	...	344	300	Gujarat
2	2	579.0	560	498	498	Jammu & Kashmir
—	—	—	—	—	—	Kerala
1,005	940	381.0	492	547	537	Madhya Pradesh
1	1	671.0	560	560	560	Madras
134	139	283.0†	315†	268	299	Maharashtra
47	47	260.0	279	263	272	Mysore
5	5	268.0	236	224	224	Orissa
1,632	1,973	446.0	602	591	735	Punjab
763	906	283.0	490	402	598	Rajaschan
1,487	1,796	511.0	481	500	635	Uttar Pradesh
102	86	724.0	651	419	516	West Bengal
5	19	86.0	54	311	698	Delhi
3	2	462.0	373	373	345	Himachal Pradesh
—	—	—	—	—	—	Manipur
—	—	—	—	—	—	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
5,502	6,207	423.0	494	486	592	All-India



## 4.6 GROUNDNUT—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	2,830.0	3,064	2,343	2,161	999.7	1,070
Assam	—	—	—	—	—	—
Bihar	—	—	—	—	—	—
Gujarat	...	...	3,619	4,374	...	...
Jammu & Kashmir	—	—	—	—	—	—
Kerala	27.3	35	32	33	13.7	14
Madhya Pradesh	490.7	640	1,078	1,080	100.0	154
Madras	1,824.7	1,778	2,029	2,039	723.7	821
Maharashtra	3675.7†	4545†	2,785	2,722	801.7†	1,049†
Mysore	1,725.3	2,035	2,098	2,092	520.7	469
Orissa	61.7	57	59	59	18.0	17
Punjab	102.0	133	151	176	26.0	38
Rajasthan	56.0	106	212	242	11.0	36
Uttar Pradesh	236.3	292	458	477	101.0	133
West Bengal	—	—	—	—	—	—
Delhi	—	—	—	—	—	—
Himachal Pradesh	a	a	—	—	b	b
Manipur	—	—	—	—	—	—
Tripura	—	—	—	—	—	—
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
All-India	11,030.0	12,685	14,864	15,455	3,316.0	3,801

†These figures refer to composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
610	484	791.0	782	583	502	Andhra Pradesh
—	—	—	—	—	—	Assam
—	—	—	—	—	—	Bihar
734	1,095	...	...	454	561	Gujarat
—	—	—	—	—	—	Jammu & Kashmir
13	13	1,124.0	896	910	882	Kerala
229	297	456.0	539	476	616	Madhya Pradesh
978	988	888.0	1,034	1,080	1,085	Madras
694	764	489.0†	517†	558	629	Maharashtra
381	423	676.0	516	407	453	Mysore
19	19	653.0	668	721	721	Orissa
52	64	571.0	640	771	815	Punjab
54	48	440.0	761	571	444	Rajasthan
178	159	957.0	1,020	871	747	Uttar Pradesh
—	—	—	—	—	—	West Bengal
—	—	—	—	—	—	Delhi
—	—	—	—	—	—	Himachal Pradesh
—	—	—	—	—	—	Manipur
—	—	—	—	—	—	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
3,942	4,354	673.0	671	594	631	All-India

## 4.7 SUGARCANE—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	172.3	175	196	190	4,580.0	5,170
Assam	58.7	64	69	62	680.0	660
Bihar	374.7	378	443	458	2,740.0	2,920
Gujarat	...	...	36	45	...	...
Jammu & Kashmir	—	3	4	4	—	10
Kerala	1.3	18	22	23	28.0	330
Madhya Pradesh	96.7	100	99	104	927.0	1,150
Madras	107.7	121	146	150	2,797.0	3,350
Maharashtra	214.7†	217†	295	311	5,626.0†	5,530†
Mysore	100.3	117	145	150	2,193.0	2,900
Orissa	61.0	56	59	59	1,053.0	920
Punjab	388.0	452	590	664	4,467.0	5,560
Rajasthan	47.3	65	69	101	323.0	450
Uttar Pradesh	2,523.3	2,720	2,944	3,289	29,020.0	29,400
West Bengal	53.3	62	81	99	863.0	1,310
Delhi	4.0	7	12	14	27.0	50
Himachal Pradesh	2.7	3	3	4	10.0	20
Manipur	—	—	—	—	—	—
Tripura	5.0	6	7	7	63.0	60
Andamans & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
Naga Hills— Tuensang Area	—	—	—	—	—	—
All-India	4,211.0	4,564	5,220	5,734	55,397.0	59,790

† These figures refer to composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
5,948	5,438	59,540.0	66,180	67,977	64,111	Andhra Pradesh
847	869	25,950.0	23,100	27,497	31,396	Assam
6,644	6,927	16,380.0	17,300	33,595	33,879	Bihar
765	860	...	...	47,600	42,809	Gujarat
11	14	—	7,470	6,160	7,840	Jammu & Kashmir
358	375	48,250.0	41,070	36,451	36,522	Kerala
1,064	1,095	21,470.0	25,760	24,074	23,585	Madhya Pradesh
3,823	3,918	58,170.0	62,020	58,654	58,509	Madras
8,119	8,874	58,710.0†	57,080†	61,649	63,915	Maharashtra
4,223	3,799	48,970.0	55,520	65,238	56,732	Mysore
691	691	38,667.0	36,800	26,235	26,235	Orissa
8,432	10,030	25,788.0	27,550	32,013	33,836	Punjab
595	971	15,290.0	15,510	19,316	21,535	Rajasthan
32,232	38,984	26,000.0	24,210	24,524	26,550	Uttar Pradesh
1,278	2,025	36,268.0	47,330	35,342	45,818	West Bengal
80	80	15,120.0	16,000	14,933	12,800	Delhi
16	19	9,739.0	14,930	11,946	10,640	Himachal Pradesh
—	—	—	—	—	—	Manipur
75	76	28,370.0	22,400	24,000	24,320	Tripura
—	—	—	—	—	—	Andamans & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindive Islands
—	—	—	—	—	—	Naga Hills— Tuensang Area
75,201	85,045	29,468.0	29,340	32,270	33,223	All-India

## 4.8 POTATOES—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	1.0	1	2	1	1.0	1
Assam	63.0	70	75	76	129.0	136
Bihar	96.3	112	174	187	199.3	238
Gujarat	...	...	5	5	...	...
Jammu & Kashmir	—	—	—	—	—	—
Kerala	—	—	—	—	—	—
Madhya Pradesh	18.3	19	29	29	39.0	42
Madras	18.3	21	26	27	46.7	56
Maharashtra	23.0†	29†	29	29	72.7†	121†
Mysore	13.3	13	15	18	24.7	17
Orissa	19.0	22	25	25	20.0	29
Punjab	14.7	19	31	28	43.3	95
Rajasthan	1.5	3	3	3	1.7	4
Uttar Pradesh	206.7	240	295	279	618.7	676
West Bengal	100.3	118	142	145	386.0	389
Delhi	a	a	a	a	b	b
Himachal Pradesh	18.3	21	26	28	27.7	22
Manipur	—	—	—	—	—	—
Tripura	2.0	3	4	4	3.0	4
Andaman & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindive Islands	—	—	—	—	—	—
Naga Hills — Tuensang area	—	—	—	—	—	—
All-India	595.0	691	881	884	1613.0	1830

† These figures refer to composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 tons)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
3	2	2,240.0	2,240	3,360	4,480	Andhra Pradesh
136	144	4,586.0	4,352	4,062	4,244	Assam
467	555	4,636.0	4,760	6,012	6,648	Bihar
39	39	...	...	17,472	17,472	Gujarat
—	—	—	—	—	—	Jammu & Kashmir
—	—	—	—	—	—	Kerala
121	111	4,774.0	4,952	9,346	8,574	Madhya Pradesh
78	79	5,716.0	5,973	6,720	6,554	Madras
93	93	7,080.0†	9,346†	7,183	7,183	Maharashtra
30	37	4,160.0	2,929	4,480	4,604	Mysore
27	27	2,358.0	2,953	2,074	2,074	Orissa
180	177	6,598.0	11,200	13,006	14,160	Punjab
3	4	2,538.0	2,987	2,240	2,987	Rajasthan
852	783	6,705.0	6309	6,840	6,286	Uttar Pradesh
660	570	8,620.0	7,384	10,411	8,806	West Bengal
1	1	—	—	—	—	Delhi
26	28	3,390.0	2,347	2,240	2,240	Himachal Pradesh
—	—	—	—	—	—	Manipur
6	6	3,360.0	2,987	3,360	3,360	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindivi Islands
—	—	—	—	—	—	Naga Hills— Tuensang area
2,722	2,656	6,072.0	5,932	6,921	6,730	All-India

## 4.9 TOBACCO—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	311.0	395	356	355	98.7	131
Assam	21.0	23	24	24	6.3	7
Bihar	47.0	29	45	39	14.7	6
Gujarat	...	...	165	216	...	...
Jammu & Kashmir	—	—	1	1	—	—
Kerala	a	1	2	2	b	1
Madhya Pradesh	13.7	16	12	11	2.7	4
Madras	40.0	67	41	43	17.3	36
Maharashtra	164.7†	246†	58	54	47.3†	60†
Mysore	84.3	108	93	99	16.3	17
Orissa	19.7	11	10	10	6.0	3
Punjab	8.7	7	4	4	3.0	1
Rajasthan	10.0	17	17	15	1.7	4
Uttar Pradesh	52.7	49	43	48	16.7	15
West Bengal	44.0	40	38	43	11.3	12
Delhi	a	1	1	1	b	1
Himachal Pradesh	1.6	2	2	1	b	b
Tripura	a	1	2	2	b	b
All-India	819.0	1,013	914	968	242.0	298

† These figures are for composite State of Bombay.

## AND AVERAGE YIELD PER ACRE

('000 acres)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
118	116	711.0	743	742	732	Andhra Pradesh
7	7	672.0	682	653	653	Assam
15	11	700.0	463	747	1,206	Bihar
46	59	...	...	624	612	Gujarat
b	b	—	—	—	—	Jammu & Kashmir
1	1	—	—	1,120	1,120	Kerala
3	2	441.0	560	560	407	Madhya Pradesh
23	25	969.0	1,204	1,257	1,302	Madras
14	10	643.0†	546†	541	415	Maharashtra
23	24	433.0	353	554	543	Mysore
3	3	682.0	611	672	672	Orissa
	1	772.0	320	560	560	Punjab
4	5	381.0	527	527	747	Rajasthan
13	16	710.0	686	677	747	Uttar Pradesh
10	14	575.0	672	589	729	West Bengal
b	b	—	—	—	—	Delhi
b	b	—	—	—	—	Himachal Pradesh
b	b	—	—	—	—	Tripura
281	294	662.0	659	689	680	All-India



## 4.10 COTTON—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Andhra Pradesh	1,322.3	1,005	761	772	182.0	128
Assam	31.3	38	36	32	12.3	9
Bihar	12.7	11	6	5	2.7	2
Gujarat	...	...	4,225	4,245	...	...
Jammu & Kashmir	—	—	3	4	—	—
Kerala	17.0	22	21	24	6.0	10
Madhya Pradesh	1,758.0	2,425	1,771	1,926	272.7	403
Madras	740.7	1,160	1,129	1,134	258.3	335
Maharashtra	7,048.7†	10,858†	6,270	6,288	1,339.0†	1,921†
Mysore	2,162.7	2,388	2,469	2,506	305.3	363
Orissa	25.0	24	19	19	2.3	2
Punjab	683.0	1,282	1,329	1,340	326.7	605
Rajasthan	347.3	604	585	496	129.7	184
Uttar Pradesh	135.3	141	160	161	46.3	29
West Bengal	a	a	a	a	b	b
Delhi	a	1	1	1	b	b
Himachal Pradesh	1.3	1	1	1	0.8	b
Manipur	—	—	—	—	—	—
Tripura	22.7	21	18	17	8.0	7
Andamans & Nicobar Islands	—	—	—	—	—	—
Laccadive, Minicoy & Amindivi Islands	—	—	—	—	—	—
Naga Hills- Tuensang area	—	—	—	—	—	—
All-India	14,308.0	19,981	18,804	18,971	2,892.0	3,998

† These figures are for composite State of Bombay.

\* Each of 392 lbs. of cotton lint.

## AND AVERAGE YIELD PER ACRE

('000 bales)*		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
122	123	54.0	50	63	62	Andhra Pradesh
9	5	154.0	93	98	61	Assam
1	1	83.0	71	65	78	Bihar
804	1,401	...	...	75	129	Gujarat
2	2	—	—	261	196	Jammu & Kashmir
8	10	138.0	178	149	163	Kerala
241	454	61.0	65	53	92	Madhya Pradesh
401	419	137.0	113	139	145	Madras
729	1,611	74.0†	71†	46	100	Maharashtra
370	375	55.0	60	59	59	Mysore
2	2	36.0	33	41	41	Orissa
769	788	187.0	185	227	230	Punjab
148	147	146.0	119	99	116	Rajasthan
65	50	134.0	81	159	122	Uttar Pradesh
b	b	—	—	—	—	West Bengal
b	b	—	—	—	—	Delhi
b	b	—	—	—	—	Himachal Pradesh
—	—	—	—	—	—	Manipur
7	6	138.0	131	152	138	Tripura
—	—	—	—	—	—	Andaman & Nicobar Islands
—	—	—	—	—	—	Laccadive, Minicoy & Amindivi Islands
—	—	—	—	—	—	Naga Hills— Tuensang area
3,678	5,394	79.0	78	77	111	All-India

## 4.11 JUTE—AREA, PRODUCTION

State	Area ('000 acres)				Production	
	1949-50/ 1951-52	1955-56	1959-60	1960-61	1949-50/ 1951-52	1955-56
Assam	280.7	367	334	299	782.3	1212
Bihar	366.0	381	399	363	726.3	589
Orissa	107.3	111	75	100	258.7	245
Uttar Pradesh	34.3	34	33	32	58.7	89
West Bengal	701.0	826	824	720	1,812.3	2,013
Punjab	—	—	20	15	—	—
Tripura	19.0	20	...	...	48.0	50
All-India	1,508.0	1,739	1,685	1,529	3,686.0	4,198

## AND AVERAGE YIELD PER ACRE

('000 bales of 400 lb.)		Average yield per acre (lb.)				State
1959-60	1960-61	1949-50/ 1951-52	1955-56	1959-60	1960-61	
1,114	813	1,115.0	1,321	1,334	1,088	Assam
957	839	793.8	618	959	925	Bihar
212	261	945.0	883	1,131	1,044	Orissa
92	89	684.0	1,047	1,115	1,112	Uttar Pradesh
2,170	1,987	1034.0	975	1,053	1,104	West Bengal
60	41	—	—	1,200	1,093	Punjab
...	...	990.0	1,000	...	...	Tripura
4,605	4,030	978.0	966	1,093	1,054	All-India

#### 4.12 TEA—AREA, PRODUCTION AND AVERAGE YIELD PER ACRE

State	Area ('000 Acres)			Production in ('000 lb.)			Average yield per acre (lb.)		
	1949-50/ 1951-52	1957	1958	1949-50/ 1951-52	1957	1958	1949-50/ 1951-52	1957	1958
Assam	383.7	391	389	326,854.0	378,283	394,283	852.0	967	1014
Bihar	2.7	1	1	2,142.0	272	149	793.3	272	149
Kerala	92.0	99	99	57,985.3	76,522	76,522	630.0	773	773
Madras	66.0	73	73	36,059.0	56,013	58,455	546.0	767	801
Mysore	9.3	4	4	5,515.3	5,299	5,282	593.0	651	1070
Punjab	9.0	9	9	1,540.3	2,434	2,302	171.0	270	256
Uttar Pradesh	6.0	5	5	1,789.7	1,624	1,685	298.0	325	337
West Bengal	196.3	197	201	174,961.7	152,092	155,845	891.0	772	775
Himachal Pradesh	1.0	2	2	239.3	163	163	239.3	81	81
Tripura	11.0	12	12	4,055.0	4,835	5,484	369.0	403	457
All-India	777.0	185	795	611,142.0	677,567	699,200	787.0	865	921

Source : Tables 4.1 to 4.12 taken from various publications of Ministry of Food and Agriculture.

#### 4.13 COFFEE—AREA, PRODUCTION AND AVERAGE YIELD PER ACRE

State	Area ('000 acres)			Production (in '000 lb.)			Average yield per acre (lb.)		
	1949-50/ 1951-52	1958-59	1959-60	1949-50/ 1951-52	1958-59	1959-60	1949-50/ 1951-52	1958-59	1959-60
Andhra Pradesh	a	a	a	2.0	6	74	—	—	—
Kerala	28.0	40	42	5,939.7	15,593	16,333	212	390	389
Madras	42.3	49	50	8,327.7	8,893	10,516	197	182	210
Mysore	156.0	178	182	38,138.0	68,543	73,377	246	385	403
Orissa	a	a	a	b	b	b	—	—	—
All-India	226	267P	274P	52,407	93,035P	100,302P	232	348	366

a = below 100 acres.

b = below 500 lb.

p = provisional.

Source : Directorate of Economics & Statistics.

## 4.14 RUBBER—AREA AND PRODUCTION

State	Planted area in acres			Tapable area in acres			Production in ton		
	1958	1959	1960	1958	1959	1960	1958	1959	1960
Kerala	270,625	288,450	303,021	...	...	...	22,158	21,262	22,322
Madras	11,581	12,631	13,610	...	...	...	1,725	1,677	1,998
Mysore	3,939	3,949	3,949	...	...	...	430	430	440
Andaman & Nicobar Islands	422	322	422	...	...	...	15	28	34
All-India	286,567	305,452	321,002	173,600	172,500	173,600	24,328	23,398	24,795

Source : Indian Rubber Statistics.

## 5. IMPORTS AND SUBSIDYS ON IMPORTED CEREALS

### 5.1 SUBSIDY BORNE BY GOVERNMENT OF INDIA ON IMPORTED CEREALS

(Lakh rupees)

Year	Subsidy	Year	Subsidy
1946-47	2,064.9	1954-55	3,600.0
1947-48	2,351.4	1955-56	
1948-49	4,366.3	1956-57	1,848.0
1949-50	884.1	1957-58	2,304.0
1950-51	1,593.4	1958-59	1,022.0
1951-52	4,459.0	1959-60	881.8
1952-53	2,278.7	1960-61	1,285.1
1953-54	138.7		

Notes : 1. The subsidy scheme was introduced from 1st April, 1946. This scheme was revised from 1st January, 1951. According to the revised scheme, the Central Government subsidised specified quantities of imported cereals in selected industrial towns and urban areas. With effect from 1st March, 1952 the subsidy scheme was abolished, but imported rice (coarse and broken), and milo continued to be supplied by the Centre to the recipient States at reduced prices (i.e. at prices lower than their actual landed cost). The losses so incurred were borne exclusively by the Government of India. The erstwhile Travancore-Cochin State was, however, allowed a special lump-sum subsidy of Rs. 2.25 crores during 1952-53 and Rs. 1.60 crores during 1953-54 due to its being highly deficit in the production of food-grains.

2. The figures given above represent both the subsidy paid at the source and the amount of subsidy which accrued to the State Governments on the cereals supplied to them during the specified period and do not represent the amount as adjusted in accounts.

3. The amount shown against 1954-55 and 1955-56 represents the losses incurred by the Government of India on the sale of imported rice from Burma and the quantities taken over from various State Governments as a result of de-control in July, 1954.

4. The amounts shown against 1956-57 onwards represent the losses in the shape of reduced prices. With effect from the 1st April 1956, foodgrains have been supplied to State Governments and others at a specially reduced price with a view to stabilising the market prices in the country.

Source : Bulletin on Food Statistics, January 1962.



## 5.2 IMPORTS OF CEREALS ON GOVERNMENT

Cereals	Country	1954	1955	1956
Rice	Burma	625 (a)	265	274
	U.S.A.	—	—	—
	China	—	—	46
	Pakistan	—	—	5 (b)
	Burma (through U.S.S.R.)	—	—	—
	Viet Nam	—	—	—
	U.A.R.	—	—	—
	Total	625 (a)	265	325
Wheat	Canada	—	—	—
	U.S.A.	—	129	423
	U.S.S.R.	—	—	40
	Australia	197	306	617 (c)
	Pakistan	—	—	15 (d)
Total	197	435	1,095 (c)	
Milo (sorghum)	U.S.A.	8	—	—
Corn (Maize)	U.S.A.	—	—	—
Grand Total		830 (a)	700	1,420 (c)

\* Provisional

(a) Includes quantity and value of about 22,000 tons of Burma rice supplied by the Government of Ceylon on replacement basis.

(b) Repayment of loan.

(c) Includes quantity and value of 8,950 tons of wheat diverted to Pakistan.

(d) On loan.

(e) Includes quantity and value of 700 tons of Burma rice jettisoned near Bassein.

(f) Includes quantity and value of 6,050 tons of Australian wheat diverted to Pakistan, 2,156 tons of U.S.A. wheat damaged ex. S. S. *Atlantic Countess* and 10,500 tons of U.S.A. wheat ex. S. S. *Captain John* drowned on high seas.

## OF INDIA'S ACCOUNT

(Thousand tons)

1957	1958	1959	1960	1961 *
476 (e)	384	290	331	157
194	—	—	253	191
14	—	—	—	—
12 (b)	—	—	—	—
33	—	—	—	—
7	7	—	—	—
—	—	—	104	30
736 (e)	391	290	688	378
11	760 (g)	274	24	115
2,674	1,898 (h)	3,127 (i)	3,976 (j)	2,498 (k)
—	—	—	—	—
176 (f)	15	96	317	390
—	—	—	—	—
2,852 (f)	2,873 (g) (h)	3,497 (i)	4,317 (j)	3,043 (k)
—	85	11	33	19
—	24	9	18	—
3,588 (e) (f)	3,173 (g) (h)	3,807 (i)	5,056 (j)	3,440 (k)

(g) Includes quantity and value of 5,822 tons of Canadian wheat lost on high seas.

(h) Includes quantity and value of 1,031 tons of damaged U.S.A. wheat.

(i) Includes quantity and value of 185 tons of U.S.A. wheat damaged ex. S.S. *KATINA* and 10,000 tons of wheat ex. S. S. *Valiant Effort* lost on high seas.

(j) Includes quantity and value of 9,925 tons or 10,084 metric tonnes of U.S.A. wheat ex. S. S. *Valley Forge* wrecked off Singapore.

(k) Includes quantity and value of 1,722 tons or 1,750 metric tonnes of U.S.A. wheat ex. S. S. *Portland Trader* lost on high seas.

Source : Bulletin on Food Statistics, January 1962.

**5.2 IMPORTS OF CEREALS ON GOVERNMENT OF INDIA'S  
ACCOUNT (Concluded)**

*SUMMARY*

Year	Quantity		Value (C & F) Lakh rupees	Year	Quantity		Value (C & F) Lakh rupees
	Thousand long tones	Thousand metric tonnes			Thousand long tons	Thousand metric tonnes	
1946	2,249	2,285	76,11	1954	830	843	48,53
1947	2,334	2,371	93,99	1955	700	711	33,11
1948	2,841	2,887	1,29,72	1956	1,420	1,443	56,34
1949	3,706	3,765	1,44,60	1957	3,588	3,646	1,62,39
1950	2,125	2,160	80,60	1958	3,173	3,224	1,20,51
1951	4,725	4,806	2,16,79	1959	3,807	3,868	1,41,41
1952	3,864	3,926	2,09,07	1960	5,056	5,137	1,92,84
1953	2,003	2,035	85,95	1961 *	3,440	3,495	1,29,56

\*Provisional

### 5.3 IMPORTS OF COTTON INTO INDIA

(Year 1st September to 31st August)

(Thousand bales of 392 lb. each)

Countries	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
Egypt	253	147	255	263	143	214	53	68	67	210	99
Sudan	72	53	79	45	79	130	70	74	125	130	89
Peru	13	10	5	—	7	4	—	—	—	—	1
<b>Total 1-3/16" above.</b>	<b>338</b>	<b>210</b>	<b>339</b>	<b>308</b>	<b>229</b>	<b>348</b>	<b>123</b>	<b>142</b>	<b>192</b>	<b>340</b>	<b>189</b>
East Africa	217	135	228	183	287	234	115	112	197	171	166
United States	265	890	86	190	93	10	352	143	94	416	725
Syria	—	—	—	—	—	—	—	—	—	18	23
Pakistan	—	—	—	—	—	—	—	—	—	34	2
Others	11	5	24	10	5	18	18	1	8	7	0
<b>Total 1-1/16" to 1-3/16"</b>	<b>493</b>	<b>1,030</b>	<b>338</b>	<b>383</b>	<b>385</b>	<b>262</b>	<b>485</b>	<b>256</b>	<b>299</b>	<b>646</b>	<b>925</b>
<b>Grand Total</b>	<b>831</b>	<b>1,240</b>	<b>677</b>	<b>691</b>	<b>614</b>	<b>610</b>	<b>608</b>	<b>398</b>	<b>491</b>	<b>986*</b>	<b>1,114*</b>

\* Includes cotton stapling 1" and below imported from Pakistan and U. S. A.

Source : Indian Central Cotton Committee.

## 6. THIRD FIVE YEAR PLAN

### 6.1 TARGETS OF AGRICULTURAL PRODUCTION

Commodity	Unit	Base level production 1960-61	Targeted production in 1965-66	Percentage increase
Foodgrains	million tons	76.0	100.0**	31.6
Oilseeds	million tons	7.1	9.8	38.0
Sugarcane (gur)	million tons	8.0	10.0	25.0
Cotton	million bales	5.1	7.0	37.2
Jute	million bales	4.0	6.2*	55.0
Coconut	million nuts	4500	5275	17.2
Arecanut	thousand tons	93	100	7.5
Cashewnut	thousand tons	73	150	105.5
Pepper	thousand tons	26	27	3.9
Cardamom	thousand tons	2.26	2.62	15.9
Lac	thousand tons	50	62	24.0
Tobacco	thousand tons	300	325	8.3
Tea	million lb.	725	900	24.1
Coffee	thousand tons	48	80	67.7
Rubber	thousand tons	26.4	45	70.5

\* Excludes mesta which may provide an additional 1.3 million bales in the Third Plan.

\*\* It is estimated that the production of rice in 1965-66 may be about 45 million tons, of wheat about 15 million tons, of other cereals about 23 million tons and of pulses about 17 million tons.

Source : GOI Planning Commission, Third Five Year Plan, 1961.

## 6.2 BENEFITS ANTICIPATED FROM MAJOR AND MEDIUM IRRIGATION PROJECTS

('000 acres) gross area

State	Irrigation on full development from First and Second Plan Scheme	First & Second Plan Schemes		Total from continuing Schemes and new schemes of Third Plan to end of Third Plan		Additional benefits in Third Plan	
		Potential created to end of Second Plan	Utilisation to end of Second Plan	Potential	Utilisation	Potential (Col. 5-3)	Utilisation (Col. 6-4)
1. Andhra Pradesh	3720	830	736	3495	2293	2665	1557
2. Assam	...	...	...	88	79	88	79
3. Bihar	5569	915	720	3674	2720	2759	2000
4. Gujarat	3809	640	227	1716	1091	1076	864
5. Jammu & Kashmir	163	5	5	66	43	61	38
6. Kerala	555	358	358	613	613	255	255
7. Madhya Pradesh	2242	95	75	1405	925	1310	850
8. Madras	890	611	581	824	822	213	241
9. Maharashtra	1248	233	105	1352	813	1119	708
10. Mysore	1480	707	324	1400	1200	693	876
11. Orissa	2615	1000	720	2287	1666	1287	946
12. Punjab	4351	3307	2957	4357	4258	1050	1301
13. Rajasthan	3666	734	618	2382	1763	1648	1145
14. Uttar Pradesh	4262	2118	1479	3712	2521	1594	1042
15. West Bengal	2990	1690	1084	2103	1968	413	884
<b>Total</b>	<b>37,560</b>	<b>13,243</b>	<b>9,989</b>	<b>29,474</b>	<b>22,775</b>	<b>16,231</b>	<b>12,786</b>

Source : GOI Planning Commission, Third Five Year Plan, 1961.

## 7. MISCELLANEOUS STATISTICS

### 7.1 DISTRIBUTION OF RAINFALL ACCORDING TO MONSOONS

Rainfall season	Duration	Approximate percentage to the annual rainfall
South-West Monsoon	June-September	75.0
Post-Monsoon	October-November	13.0
Winter and North-East Monsoon	December-February	2.0
Pre-Monsoon	March-May	10.0
		100.0

Source : Indian Agriculture in Brief, Directorate of Economics and Statistics.

### 7.2 IMPORTANT CROP ROTATIONS

Two-year rotation	Three-year rotation
1. Rice Pulses	1. Wheat Maize Sugarcane
2. Jowar or maize Wheat or gram	2. Sugarcane Wheat Cotton
	3. Wheat Wheat Torja
3. Cotton or jowar Groundnut or jowar	4. Rice Sugarcane (Plant) Sugarcane (Ratoon)

Source : Indian Crop Calendar.

## 7.3 IMPORTANT CROP MIXTURES

State	Crop mixtures
1. Andhra Pradesh	Cotton and <i>corra</i> or groundnut, cotton and chillies, castor and groundnut, <i>jowar</i> and <i>mung</i> , <i>jowar</i> and <i>urad</i> , <i>jowar</i> and <i>moth</i> , <i>tur</i> and cotton.
2. Assam	Paddy and maize, paddy and cotton.
3. Bihar	Wheat and barley, wheat and gram, gram and barley, <i>tur</i> and cotton
4. Bombay	Rice and <i>jowar</i> , rice and cotton, cotton and <i>jowar</i> , <i>jowar</i> and <i>tur</i> , wheat and linseed, cotton and <i>tur</i> , <i>bajra</i> and <i>tur</i> , groundnut and cotton, wheat and gram.
5. Kerala	Tapioca and beans, <i>ragi</i> and leguminous, tapioca and coconut.
6. Madhya Pradesh	Wheat and gram, wheat and linseed, linseed and gram, <i>tur</i> and cotton, <i>jowar</i> and <i>tur</i> , kondon and <i>tur</i> , wheat, linseed and gram, cotton and <i>jowar</i> , cotton and gram, <i>jowar</i> and <i>urad</i> , <i>jowar</i> and <i>mung</i> , <i>jowar</i> , <i>urad</i> and <i>mung</i> , sesamum and <i>tur</i> .
7. Madras	Cotton and chillies, groundnut and redgram, groundnut and castor, cotton and millets, <i>cumbu</i> and blackgram, <i>cholam</i> and horsegram, groundnut and <i>cumbu</i> .
8. Mysore	<i>Ragi</i> and <i>jowar</i> , <i>jowar</i> , castor and <i>tur</i> , <i>tur</i> and sesamum, cotton and minor millets, <i>tur</i> and cotton, <i>jowar</i> and <i>mung</i> , <i>jowar</i> and <i>urad</i> .
9. Orissa	Horsegram and mustard, greengram and linseed, mustard and linseed, <i>ragi</i> and maize.
10. Punjab	Wheat and gram, barley and gram, wheat and barley, <i>jowar</i> and <i>guar</i> , <i>cherry</i> and <i>moth</i> , maize and <i>senji</i> , <i>sarson</i> and wheat, <i>toria</i> and gram, <i>til</i> and cotton, <i>moth</i> and cotton, mellons and cotton, <i>senji</i> and cotton.
11. Rajasthan	Wheat and gram, wheat and mustard, gram and mustard, wheat and barley, barley and gram, <i>jowar</i> and <i>mung</i> , <i>bajra</i> and <i>moth</i> .

(Continued)



## 7.3 IMPORTANT CROP MIXTURES (Concluded)

State	Crop mixtures
12. Uttar Pradesh	Wheat and barley, wheat and gram, barley and gram, wheat and mustard, <i>jowar</i> and <i>arhar</i> , maize and <i>urad</i> , cotton and <i>arhar</i> , <i>bajra</i> and <i>arhar</i> , barley and peas, gram and linseed, <i>arhar</i> and groundnut, wheat, barley, gram and mustard.
13. West Bengal	Wheat and gram, wheat and linseed, paddy and <i>khesari</i> .
14. Delhi	Gram and wheat, wheat and barley, barley and gram.
15. Himachal Pradesh	Wheat and barley, wheat and gram, wheat and mustard, maize and sesamum, maize and pulses.
16. Manipur	Peas and mustard, wheat and Bengal gram or pea, rice and chillies, cotton and groundnut (under shifting cultivation).

Source : Indian Agriculture in Brief.

## 7.4 CROP YEARS

Crop season/Name of crop	Duration
1. <i>Kharif</i>	1st November to 31st October
2. <i>Rabi</i>	1st May to 30th April
3. Rice	1st November to 31st October
4. Wheat	1st May to 30th April
5. Sugarcane	1st November to 31st October
6. Cotton	1st September to 31st August
7. Jute	1st July to 30th June
8. <i>Kharif</i> oil seed	1st November to 31st October
9. <i>Rabi</i> oil seed	1st April to 31st March
10. Tea	1st January to 31st December
11. Coffee	1st July to 30th June
12. Tobacco	1st March to 28th February

Note : The beginning of the period denotes the time when generally the crops arrive in the market.

Source : Indian Agriculture in Brief, Directorate of Economics and Statistics.

**7.5 SEASON, DURATION AND SEED RATES OF  
PRINCIPAL CROPS**

Crop	Season	Duration*	Seed rates** (lb. per acre)
Rice	Winter	5½—6 months	20—50 (Transplanted)
	Autumn	4—4½ months	
	Summer	2—3 months	(Broadcast)
Wheat	Rabi	5—5½ months	40—80
Jowar	Kharif	4½—5 months	6—12
	Rabi	4½ months	
	Zaid Kharif	2½ months	
Bajra	Kharif	4½ months	6—10
Maize	Kharif	4—4½ months	10—20
Ragi	Kharif	3½ months	10—20
Barley	Rabi	5—5½ months	40—80
Gram	Rabi	6 months	30—80
Sugarcane	Perennial	10—12 months	
Sesamum	Kharif	3½—4 months	2—10
	Rabi	5 months	
Groundnut	Kharif	Early	40—80
		4—4½ months	
		Late	
		4½—5 months	
Rape and mustard	Rabi	4—5 months	4—10
	Zaid Rabi	4 months	
Linseed	Rabi	5½ months	10—16
Castor	Kharif	Early—6 months	10—12
		Other—8 months	
Cotton	Kharif	Early—	6—20
		6—7 months	
		Late—	
		7—8 months	
Tobacco	Kharif	7 months	
Jute	Kharif	6—7 months	6—8

(Capsularies)

\* Denotes the number of months for which the crop is in the land.

\*\* Based on information supplied by I.C.A.R.

Source: Indian Crop Calendar.

## 7.6 POPULATION OF INDIA—1961 CENSUS

State/Union Territory	No. of villages		Population (million persons)		
	Inhabit- ed	Uninha- bited	Rural	Urban	Total
<b>State</b>					
Andhra Pradesh	27,084	1,913	29.71	6.27	35.98
Assam	25,702	1,565	10.96	0.91	11.87
Bihar	67,665	10,294	42.54	3.91	46.45
Gujarat	18,584	433	15.32	5.31	20.63
Jammu & Kashmir	6,559	167	2.97	0.59	3.56
Kerala	1,574	1	14.35	2.55	16.90
Madhya Pradesh	70,414	6,429	27.74	4.63	32.37
Madras	14,124	615	24.70	8.99	33.69
Maharashtra	35,951	3,050	28.39	11.16	39.55
Mysore	26,377	2,972	18.32	5.27	23.59
Orissa	46,466	5,659	16.44	1.11	17.55
Punjab	21,269	1,468	16.22	4.09	20.31
Rajasthan	32,240	2,288	16.87	3.28	20.15
Uttar Pradesh	112,624	12,720	64.27	9.48	73.75
West Bengal	38,530	3,590	26.39	8.54	34.93
<b>Union Territory</b>					
Andaman & Nicobar Islands	399	13	0.05	0.01	0.06
Delhi	276	24	0.30	2.36	2.66
Himachal Pradesh	10,438	1,269	1.29	0.06	1.35
Laccadive, Minicoy and Aminidivi Islands	10	9	0.02	—	0.02
Manipur	1,866	42	0.71	0.07	0.78
Tripura	4,932	354	1.04	0.10	1.14
Dadra and Nagar Haveli	72	—	0.06	—	0.06
Goa, Daman & Diu	...	...	...	...	0.63
N. E. F. A.	2,451	—	0.34	—	0.34
Nagaland	814	14	0.35	0.02	0.37

(Continued)

**7.6 POPULATION OF INDIA—1961 CENSUS  
(Concluded)**

State/Union Territory	No. of villages		Population (million persons)		
	Inhabit- ed	Uninha- bited	Rural	Urban	Total
Pondicherry	388	—	0.28	0.09	0.37
Sikkim	460	2	0.16	—	0.16
<b>INDIA</b>	<b>567,169</b>	<b>54,891</b>	<b>359.77</b>	<b>78.84</b>	<b>439.24</b>

- Notes :
1. A census of Goa, Daman & Diu was taken by Portugese Government as on 15th December 1960. The figures represent 'present population' on that date.
  2. The number of villages shown against India excludes Goa, Daman and Diu.
  3. The distribution of India's population into rural and urban excludes Goa, Daman & Diu.
  4. The number of uninhabited villages for India and West Bengal is provisional and subject to further scrutiny.
  5. The figures of N. E. F. A. are not final.

Source : Census of India, Paper No. 1 of 1962.

## 8. WORLD STATISTICS

### 8.1 LAND

Continent/ Country	Period	Total area	Land area	Agricultural area	
				Arable land and land under per- manent crops	Permanent meadows and pastures
.....1000					
<b>Europe</b>					
Austria	1959	8,385	8,263	1,755	2,297
Belgium	1960	3,051	...	947	769
Czechoslovakia	1960	12,787	12,594	5,427	1,900
Denmark	1960	4,304	...	2,784	343
Finland	1960	33,701	30,540	2,668	181
France	1959	55,121	...	21,511	13,122
Germany East	1960	10,827	...	5,070	1,370
Germany west	1960	24,686	24,278	8,549	5,705
Greece	1960	13,092	12,844	3,701	5,210
Italy	1960	30,212	29,401	15,833	5,097
Netherlands	1960	3,245	...	1,039	1,278
Poland	1960	31,173	30,378	16,223	4,180
Spain	1960	50,474	...	20,523	1,303
Sweden	1960	44,973	41,119	3,598	684
United Kingdom	1960	24,402	24,095	7,305	12,589
Yugoslavia	1960	25,580	25,540	8,353	6,570
<b>U. S. S. R.</b>	1956	2,240,300	2,233,770	221,366	369,689
<b>North America</b>					
Canada	1956	997,438	919,423	40,600	21,876
United States	1959	782,784	769,603	184,940	255,001
<b>South America</b>					
Brazil	1957	851,384	846,989	19,095	107,633
Peru	1959	124,905	...	1,730	12,000
<b>Asia</b>					
Burma	1959	67,803	...	8,614	...
China, Taiwan	1960	3,596	3,541	869	11
India	1958	326,293	...	160,738	13,112
Japan	1960	36,966	...	6,072	948
Korea South	1959	9,693	9,664	2,056	...

**USE**

Forested land	Other area		Continent/ Country
	Unused but potentially productive	Built-on area, wasteland and other	
hectares.....			
3,142	17	1,174	<b>Europe</b>
591	...	744	Austria
4,372	...	1,088	Belgium
438	...	739	Czechoslovakia
10,757	...	20,095	Denmark
11,582	4,192	4,714	Finland
2,955	82	1,350	France
7,099	...	3,333	Germany East
2,479	...	1,702	Germany West
5,825	1,006	2,361	Greece
269	...	659	Italy
7,651	...	3,119	Netherlands
24,480	...	4,168	Poland
22,505	...	18,186	Spain
1,700	...	2,808	Sweden
8,831	...	1,826	United Kingdom
880,317	...	768,928	Yugoslavia
			<b>U. S. S. R</b>
			<b>North America</b>
442,278	72,721	419,963	Canada
258,388	4,753	79,709	United States
			<b>South America</b>
517,936	34,311	172,409	Brazil
70,000	...	41,175	Peru
			<b>Asia</b>
45,274	8,848	5,067	Burma
1,970	143	603	China, Taiwan
51,840	20,558	80,045	India
24,998	...	4,948	Japan
3,774	2,879	984	Korea South

(Continued)

## 8.1 LAND

Continent/ Country	Period	Total area	Land area	Agricultural area	
				Arable land and land under per- manent crops	Permanent meadows and pastures
Pakistan	1960	94,626	...	29,453	...
Philippines	1959	29,940	29,741	6,780	1,174
<b>Africa</b>					
South Africa	1960	122,341	...	10,279	90,891
U. A. R.	1957	100,000	...	2,610	...
<b>Oceania</b>					
Australia	1958	770,416	...	27,028	432,446
New Zealand	1959	26,867	26,589	493	12,635
<b>World Total</b>		13,531,000	...	1,409,000	2,569,000

**USE (Concluded)**

Forested land	Other area		Continent/ Country
	Unused but potentially productive	Built-on area, wasteland and other	
3,614	...	61,559	Pakistan
13,171	...	8,815	Philippines
			<b>Africa</b>
1,376	...	19,795	South Africa
1	516	96,873	U. A. R.
			<b>Oceania</b>
39,816	...	271,126	Australia
9,362	461	3,916	New Zealand
4,046,000	5,507,000		<b>World Total</b>



## 8.2 AREA, PRODUCTION AND YIELD

Continent/Country	Area ('000 hectares)			Production
	1948-49— 1952-53	1959-60	1960-61	1948-49— 1952-53
<b>Europe</b>				
Italy	149	136	129	723
U.S.S.R.	136	96	100	202
<b>North America</b>				
Mexico	96	127	131	173
U.S.A.	752	642	645	1,925
<b>South America</b>				
Brazil	1,927	2,926	3,179	3,025
Columbia	146	206	227	249
Peru	53	74	71	205
<b>Asia</b>				
Burma	3,758	4,055	4,197	5,481
China Mainland	26,819	29,700	31,500	58,188
Cambodia	1,127	1,385	1,352	1,372
Ceylon	373	422	467	570
India	30,115	33,519	33,724	34,011
Indonesia	5,876	7,153	7,289	9,441
Japan	2,996	3,289	3,308	11,991
Korea South	1,050	1,122	1,130	2,924
Laos	825	647	...	540
Nepal	1,295	1,295	1,416	1,134
Pakistan	9,003	9,748	10,038	12,399
Philippines	2,350	3,306	3,198	2,767
Thailand	5,211	5,214	5,677	6,846
Viet-Nam, Rep. of	1,814	2,400	2,318	2,469
<b>Africa</b>				
Madagascar	615	792	835	829
Sierra Leone	317	283	...	274
U.A.R.	256	306	297	971
<b>Oceania</b>				
Australia	14	20	19	68
Fiji	15	13	...	23
<b>World</b>	102,500	116,200	119,500	164,700

## PER HECTARE OF RICE (PADDY)

('000 metric tonnes)		Yield per hectare ('00 kg.)			Continent/Country
1959-60	1960-61	1948-49— 1952-53	1959-60	1960-61	
					<b>Europe</b>
755	619	48.5	55.6	48.1	Italy
214	187	14.5	22.1	18.7	<b>U.S.S.R.</b>
					<b>North America</b>
261	270	18.0	20.5	20.5	Mexico
2,433	2,476	25.6	37.9	38.4	U.S.A.
					<b>South America</b>
4,915	5,384	15.7	16.8	16.9	Brazil
422	449	20.4	20.5	19.8	Columbia
332	308	38.5	44.6	43.5	Peru
					<b>Asia</b>
6,880	6,789	14.6	17.0	16.2	Burma
80,000	85,000	21.7	26.9	27.0	China Mainland
1,449	1,544	12.2	10.5	11.4	Cambodia
762	876	12.9	18.0	18.8	Ceylon
47,190	51,361	11.3	14.1	15.2	India
12,441	12,810	16.1	17.4	17.6	Indonesia
15,626	16,073	40.0	47.5	48.6	Japan
3,255	3,127	27.8	29.0	27.7	Korea South
469	...	6.4	7.2	...	Laos
1,066	1,360	8.8	8.2	9.6	Nepal
14,424	16,053	13.8	14.8	16.0	Pakistan
3,739	3,705	11.8	11.3	11.6	Philippines
7,256	7,789	13.1	13.9	13.7	Thailand
5,092	4,955	13.6	21.2	21.4	Viet-Nam, Rep. of
					<b>Africa</b>
1,078	1,193	13.5	13.6	14.3	Madagascar
264	...	8.3	9.3	...	Sierra Leone
1,535	1,485	37.9	50.2	50.1	U.A.R.
					<b>Oceania</b>
127	114	48.6	64.1	61.1	Australia
30	...	15.6	18.8	...	Fiji
227,400	239,500	16.1	19.6	20.0	<b>World</b>

## 8.3 AREA, PRODUCTION AND YIELD

Continent/Country	Area ('000 hectares)			Production
	1948/49 1952/53	1959-60	1960-61	1948/49 1952/53
<b>Europe</b>				
France	4,264	4,439	4,358	7,791
Germany East	1,013	1,342	1,396	2,656
Greece	878	1,163	1,143	894
Italy	4,705	4,665	4,556	7,170
Spain	4,162	4,379	4,244	3,625
United Kingdom	881	781	851	2,397
Yugoslavia	1,819	2,134	2,064	2,171
<b>U.S.S.R.</b>	42,633	62,997	60,393	35,767
<b>North America</b>				
Canada	10,513	9,334	9,388	13,472
Mexico	604	937	840	534
U.S.A.	27,756	20,955	21,001	31,066
<b>South America</b>				
Argentina	4,487	4,378	3,599	5,175
Brazil	671	1,186	1,160	498
Chile	791	889	885	942
Uruguay	509	293	523	469
<b>Asia</b>				
China Mainland	23,050	24,078	...	15,910
India	9,290	12,602	13,169	6,218
Iran	2,080	3,150	3,314	1,860
Iraq	936	1,490	1,271	448
Japan	743	601	602	1,375
Pakistan	4,218	4,921	4,934	3,685
Turkey	4,770	7,666	7,831	4,771
<b>Africa</b>				
Algeria	1,597	1,741	1,920	996
Morocco	1,287	1,710	1,645	786
South Africa	936	1,097	1,056	555

## PER HECTARE OF WHEAT

('000 metric tonnes)		Yield per hectare ('00 kg)			Continent/Country
1959-60	1960-61	1948-49 1952-53	1959-60	1960-61	
<b>Europe</b>					
11,544	11,014	18.3	26.0	25.3	France
4,522	4,965	26.2	33.7	35.6	Germany East
1,766	1,692	10.2	15.2	14.8	Greece
8,471	6,803	15.2	18.2	14.9	Italy
4,644	3,528	8.7	10.6	8.3	Spain
2,830	3,040	27.2	36.2	35.7	United Kingdom
4,134	3,574	12.0	19.4	17.3	Yugoslavia
69,101	63,900	8.4	11.0	10.6	<b>U. S. S. R.</b>
<b>North America</b>					
11,254	13,326	12.8	12.1	14.2	Canada
1,266	1,190	8.8	13.5	14.2	Mexico
30,512	36,939	11.2	14.6	17.6	U. S. A.
<b>South America</b>					
5,837	3,960	11.5	13.3	11.0	Argentina
611	683	7.4	5.2	5.9	Brazil
1,116	1,123	11.9	12.4	12.7	Chile
183	413	9.1	6.2	7.9	Uruguay
<b>Asia</b>					
31,294	...	6.9	13.0	...	China Mainland
9,929	10,251	6.7	7.9	7.8	India
3,000	2,590	9.0	9.5	7.8	Iran
657	592	4.8	4.4	4.6	Iraq
1,416	1,531	18.5	23.6	25.4	Japan
3,915	3,938	8.5	8.0	8.0	Pakistan
7,987	8,590	10.0	10.4	11.0	Turkey
<b>Africa</b>					
1,105	1,505	6.2	6.4	7.8	Algeria
956	974	6.1	5.6	5.9	Morocco
740	766	6.1	6.8	7.2	South Africa

(Continued)

## 8.3 AREA, PRODUCTION AND YIELD

Continent/Country	Area ('000 hectares)			Production
	1948/49- 1952/53	1959-60	1960-61	1948-49- 1952-53
Tunisia	917	1,328	1,354	452
U.A.R.	605	620	612	1113
<b>Oceania</b>				
Australia	4,620	4,937	5,463	5,161
<b>World</b>	169,800	201,700	200,300	169,600

**PER HECTARE OF WHEAT (Concluded)**

('000 metric tonnes)		Yield per hectare ('00 kg)			Continent/Country
1959-60	1960-61	1948/49- 1952/53	1959-60	1960-61	
525	452	4.9	4.0	3.3	Tunisia
1,443	1,499	18.4	23.3	24.5	
					<b>Oceania</b>
4,502	7,449	11.2	10.9	13.1	Australia
249,200	243,700	10.0	12.4	12.2	<b>World</b>

## 8.4-AREA, PRODUCTION AND YIELD

Continent/Country	Area ('000 hectares)			Production
	1948/49— 1952/53	1959-60	1960-61	1948/49— 1952/53
<b>Europe</b>				
Bulgaria	90	78	78	11
Greece	70	131	165	21
Rumania	120	15	2	11
Spain	47	225	250	8
<b>U.S.S.R.</b>	2,274	2,152	2,192	970
<b>North America</b>				
Mexico	676	754	886	220
Guatemala	5	18	26	2
U.S.A.	9,798	6,118	6,195	3,105
<b>South America</b>				
Argentina	497	461	417	118
Brazil	2,603	2,745	2,805	395
Peru	151	236	250	76
<b>Asia</b>				
Burma	118	133	135	19
China Mainland	4,406	...	...	868
India	5,659	7,610	7,677	485
Iran	133	300	325	26
Pakistan	1,245	1,364	1,312	245
Turkey	474	624	621	119
<b>Africa</b>				
Congo (Leopoldville)	333	368	182	46
Former Fr. Eq. Africa	359	427	438	28
Mozambique	267	297	304	29
Sudan	207	381	419	74
Uganda	624	633	614	66
U.A.R.	761	739	787	396
<b>Oceania</b>				
Australia	2	15	13	—
<b>World</b>	31,900	33,300	33,600	7,600

## PER HECTARE OF COTTON (LINT)

('000 metric tonnes)		Yield per hectare('00 kg)			Continent/Country
1959-60	1960-61	1948/49— 1952/53	1959/60	1960-61	
					<b>Europe</b>
16	19	1.2	2.0	2.4	Bulgaria
57	63	3.0	4.3	3.8	Greece
1	—	0.9	0.7	1.9	Rumania
64	72	1.6	2.8	2.9	Spain
1,603	1,482	4.3	7.4	6.8	<b>U.S.S.R.</b>
					<b>North America</b>
368	437	3.2	4.9	4.9	Mexico
15	21	3.0	8.3	7.9	Guatemala
3,170	3,107	3.2	5.2	5.0	U.S.A.
					<b>South America</b>
89	122	2.4	1.9	2.9	Argentina
465	483	1.5	1.7	1.7	Brazil
120	130	5.0	5.1	5.2	Peru
					<b>Asia</b>
12	12	1.3	0.9	0.9	Burma
2,410	...	2.0	...	...	China Mainland
654	959	0.9	0.9	1.2	India
81	99	2.0	2.7	3.0	Iran
295	304	2.0	2.1	2.2	Pakistan
195	176	2.5	3.1	2.8	Turkey
					<b>Africa</b>
60	38	1.4	1.6	2.1	Congo (Leopoldville)
26	45	0.9	0.6	1.0	Former Fr. Eq. Africa
46	38	1.	1.5	1.3	Mozambique
129	114	3.6	3.4	2.7	Sudan
65	65	1.1	1.0	1.1	Uganda
457	478	5.2	6.2	6.1	U.A.R.
					<b>Oceania</b>
2	2	1.8	1.6	1.3	Australia
10,900	10,900	2.4	3.3	3.2	<b>World</b>



## 8.5 AREA AND PRODUCTION OF SUGARCANE

Continent/Country	Area planted ('000 hectare)			Production in ('000 metric tonnes)		
	1948/49-1952/53	1959-60	1960-61	1948-49-1952-53	1959-60	1960-61
<b>Europe</b>						
Spain	5	5	5	284	324	320
<b>North America</b>						
Cuba	1,346	1,429	...	45,920	47,500	...
Mexico*	203	317	...	10,419	17,863	...
Puerto Rico	155	135	128	9,947	9,072	9,798
U.S.A.*	126	129	133	5,759	6,639	7,003
<b>South America</b>						
Argentina	261	288	288	7,596	10,086	9,560
Brazil	848	1,291	1,361	32,837	53,477	57,178
Peru	53	67	...	4,257	7,359	...
<b>Asia</b>						
Burma	21	27	...	1,076	1,066	...
China	107	97	101	5,776	6,437	7,655
India	1,672	2,112	2,320	53,865	76,408	86,410
Pakistan	304	510	501	10,116	14,331	15,659
Philippines	170	242	232	7,700	...	...
Thailand	58	148	158	990	4,958	5,379
<b>America</b>						
Mauritius	69	82	84	3,737	4,743	2,394
Reunion	30	35	35	1,127	1,735	1,877
South Africa	158	256	...	4,789	8,277	7,847
U.A.R.	37	40	40	2,185	3,859	4,075
<b>Oceania</b>						
Australia	163	197	192	6,686	9,147	9,313
Fiji	40	51	...	908	2,487	1,187
<b>World</b>	...	...	...	268,300	388,600	413,600

\*Area harvested

## 8.6 PRICES OF IMPORTANT COMMODITIES

## RICE

(In U.S. \$ per metric tonne)

Continent/Country	1958	1959	1960
<b>Europe</b>			
Italy	96 <sup>P</sup>	96 <sup>P</sup>	93 <sup>P</sup>
United Kingdom	164	153	147
<b>North America</b>			
U.S.A.	103 <sup>P</sup>	101 <sup>P</sup>	101 <sup>P</sup>
<b>Asia</b>			
Burma	98	93	90
Ceylon	121 <sup>P</sup>	121 <sup>P</sup>	121 <sup>P</sup>
India	134	132	146
Japan	236	236	236
Pakistan	159	182	175
Philippines	218	161	164
Thailand	148	133	125
<b>Africa</b>			
U.A.R.	86	91	87

P=Paddy

(Continued)

**8.6 PRICES OF IMPORTANT COMMODITIES (Continued)**  
**WHEAT**

(In U.S. \$ per metric tonne)

Continent/Country	1958	1959	1990
<b>Europe</b>			
Belgium	93	94	93
France	78	77	81
Germany West	100	101	98
Ireland	78	81	79
Italy	100	104	109
Netherlands	76	80	82
Spain	—	—	86
Sweden	77	83	89
United Kingdom	77	75	74
<b>North America</b>			
Canada	63	64	62
U.S.A.	71	73	71
Mexico	102	93	98
<b>South America</b>			
Argentina	—	36	45
Chile	76	67	73
<b>Asia</b>			
India	102	90	86
Japan	102	102	104
Pakistan	73	73	91
Turkey	70	61	65
<b>Africa</b>			
Algeria	80	76	80
South Africa	83	85	86
U.A.R.	77	77	77
<b>Oceania</b>			
Australia	60	62	63

(Continued)

**8.6 PRICES OF IMPORTANT COMMODITIES (Continued)**  
**COTTON**

(In U.S. \$ per metric tonne)

Continent/Country	1958	1959	1960
<b>Europe</b>			
United Kingdom	780	980	1030
<b>North America</b>			
Mexico	470	520	500
U.S.A.	760	700	680
<b>Asia</b>			
India	410	480	480
Pakistan	460	510	550
Turkey	520	570	570
<b>Africa</b>			
U.A.R.	860	950	940

(Continued)

## 8.6 PRICES OF IMPORTANT COMMODITIES (Concluded)

*SUGARCANE*

(In U.S. \$ per metric tonne)

Continent/Country	1958	1959	1960
<b>Europe</b>			
United Kingdom*	121	124	122
<b>North America</b>			
U.S.A.	96	91	95
<b>South America</b>			
Cuba*	77	65	69
<b>Asia</b>			
India	81	91	91
Pakistan*	66	110	151
Philippines*	121	118	118
<b>Africa</b>			
South Africa	98	95	88
Mauritius	97	98	105
<b>Oceania</b>			
Australia	88	83	97

\*The prices is for cane sugar.

Source : Tables 8.1 to 8.6 FAO Year Book-1961.

## 9. CONVERSION FACTORS AND TABLES

### 9.1 CONVERSION FACTORS

<b>Handy equivalents</b>	
<i>AREA</i>	
1 hectare	= 2.47109 acres
1 acre	= 0.40468 hectare
	= 4,840 sq. yds.
	= 43,560 sq. ft.
	= $\frac{1,563}{1000}$ sq. miles
1 sq. mile	= 640 acres
	= 259 hectares
	= 2.59 sq. kilometres
1 sq. kilometre	= 0.3861 sq. miles
	= 100 hectares
<i>WEIGHT</i>	
1 metric tonne	= 2204.6 pounds
	= 0.98421 long tons
	= 1.10231 short tons
	= 1000 kilograms
	= 26.792 maunds
1 long ton	= 2240 pounds
	= 1.01605 metric tonnes
	= 27.22 maunds
1 short ton	= 2000 pounds
	= 0.90718 metric tonnes
1 Kilogram	= 2.20462 pounds
1 pound	= 0.45359 kilogram
1 maund	= 82.2857 pounds

(Continued)

**9.1 CONVERSION FACTORS (Continued)**

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*YIELD*

100 k.g. per hectare	=	1.4869 bushels (50 lb.) per acre
1 bushel (60 lbs.) per acre	=	67.253 kgs. per hectare

*DISTANCE*

1 mile	=	8 furlongs or 1760 yards
	=	1.609 kilometres
1 league	=	3 miles
1 kilometrè	=	5/8 mile (3280.89 ft.)
1 metre	=	1.0936 yards
1 inch	=	25.4 millimetres
1 foot	=	30.48 centimetres
1 yard	=	91.44 centimetres

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(Continued)

**9.1 CONVERSION FACTORS (Concluded)**  
**Foreign Exchange Rates : Par Values (As on April 16, 1962)**

Country	Currency unit	Indian rupees per currency unit	Currency units per Indian rupee
Australia	Pound	10.6667	0.0938
Austria	Schilling	0.1832	5.4600
Belgium	Franc	0.0952	10.5000
Burma	Kyat	1.0000	1.0000
Canada*	Dollar	4.4048	0.2270
Ceylon	Rupee	1.0000	1.0000
Cuba	Peso	4.7619	0.2100
Denmark	Krone	0.6894	1.4505
Ethiopia	Dollar	1.9167	0.5217
France	New Franc	0.9645	1.0368
Germany, West	Deutsche Mark	1.1905	0.8400
Ghana	Pound	13.3333	0.0750
Iraq	Dinar	13.3333	0.0750
Israel	Pound	1.5873	0.6300
Italy	Lira	0.0076	131.2500
Japan	Yen	0.0132	75.6000
Mexico	Peso	0.3810	2.6250
Morocco	Dirham	0.9410	1.0627
Netherlands	Guifder	1.3154	0.7602
New Zealand	Pound	13.2424	0.0755
Norway	Krone	0.6667	1.5000
Pakistan	Rupee	1.0000	1.0000
Philippines	Peso	2.3810	0.4200
Sudan	Pound	13.6741	0.0731
Sweden	Krona	0.9205	1.0864
Syrian Arab Republic	Pound	2.1729	0.4602
U.A.R. (Egypt)	Pound	13.6741	0.0731
U.K.	Pound	13.3333	0.0750
U.S.A.	Dollar	4.7619	0.2100
Yugoslavia	Dinar	0.0159	63.0000

\*Par value established on May 3, 1962.

Source : India pocket Book of Economic Information, 1962, Government of India,  
 Ministry of Finance, Department of Economic Affairs.



**9.2 CONVERSION TABLES**  
Existing Units to Metric Units

**1. Weights**

*Tons to metric tonnes*

Tons	1	2	3	4	5	6	7	8	9	10
Metric tonnes	1.02	2.03	3.05	4.06	5.08	6.10	7.11	8.13	9.14	10.16

*Pounds (av) to kilograms*

Pounds	1	2	3	4	5	6	7	8	9	10
Kilograms	0.45	0.91	1.36	1.81	2.27	2.72	3.18	3.63	4.08	4.54

*Tolas to grams*

Tolas	1	2	3	4	5	6	7	8	9	10
Grams	11.66	23.33	34.99	46.66	58.32	69.98	81.65	93.31	104.97	116.64

*Seers to kilograms*

Seers	1	2	3	4	5	6	7	8	9	10
Kilograms	0.93	1.87	2.80	3.73	4.67	5.60	6.53	7.46	8.40	9.33

*Maunds to quintals*

Maunds	1	2	3	4	5	6	7	8	9	10
Quintals	0.37	0.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.73

**2. Length**

*Miles to kilometres*

Miles	1	2	3	4	5	6	7	8	9	10
Kilometres	1.61	3.22	4.83	6.44	8.05	9.66	11.27	12.87	14.48	16.09

*Yards to metres*

Yard	1	2	3	4	5	6	7	8	9	10
Metres	0.91	1.83	2.74	3.66	4.57	5.49	6.40	7.32	8.23	9.14

(Continued)

**9.2 CONVERSION TABLES (Continued)**  
Existing Units to Metric Units

<i>Inches to millimetres</i>												
Inches	1	2	3	4	5	6	7	8	9	10	11	12
Millimetres	25.40	50.80	76.20	101.62	127.00	152.40	177.80	203.20	228.60	254.00	279.40	304.80
<b>3. Area</b>												
<i>Acres to hectares</i>												
Acres	1	2	3	4	5	6	7	8	9	10		
Hectares	0.40	0.81	1.21	1.62	2.02	2.43	2.83	3.24	3.64	4.05		
<i>Square yards to square metres</i>												
Square yards	1	2	3	4	5	6	7	8	9	10		
Square metres	0.84	1.67	2.51	3.34	4.18	5.02	5.85	6.69	7.53	8.36		
<b>4. Capacity</b>												
<i>Gallon (Imp) to litres</i>												
Gallons	1	2	3	4	5	6	7	8	9	10		
Litres	4.55	9.09	13.64	18.18	22.73	27.28	31.82	36.37	40.91	45.46		

(Continued)

**9.2 CONVERSION TABLES (Concluded)**

**Kilograms per hectare to pounds per acre**

*1 kg. per hectare = 0.892169 lb. per acre*

Kg. per hectare	0	1	2	3	4	5	6	7	8	9
	Pounds per acre									
0	0	0.892	1.784	2.677	3.569	4.461	5.353	6.245	7.137	8.030
10	8.922	9.814	10.706	11.598	12.490	13.383	14.275	15.167	16.059	16.951
20	17.843	18.736	19.628	20.520	21.412	22.304	23.196	24.089	24.981	25.873
30	26.765	27.657	28.549	29.442	30.334	31.226	32.118	33.010	33.902	34.795
40	35.687	36.579	37.471	38.363	39.255	40.148	41.040	41.932	42.824	43.716
50	44.608	45.501	46.393	47.285	48.177	49.069	49.961	50.854	51.746	52.638
60	53.530	54.422	55.314	56.207	57.099	57.991	58.883	59.775	60.667	61.560
70	62.452	63.344	64.236	65.128	66.020	66.913	67.805	68.697	69.589	70.481
80	71.374	72.266	73.158	74.050	74.942	75.834	76.727	77.619	78.511	79.403
90	80.295	81.187	82.080	82.972	83.864	84.756	85.648	86.540	87.433	88.325

# APPENDIX

## Members of The Fertiliser Association of India

(As on 31st October, 1962)

## **ACTIVE MEMBERS**

### **ALEMBIC CHEMICAL WORKS CO. LTD., Baroda—3.**

The Alembic Chemical Works Co. Ltd., with a paid-up capital of Rs. 2,97,050 was floated on July 30, 1907 by Prof T. K. Gajjar, Mr. A. S. Kotisbhaskar and Rajmitra B. D. Amin with a view to establishing an indigenous industry for the manufacture of pharmaceuticals, toilet preparations and chemicals on a sound basis.

In 1950-51 Alembics which had gained the reputation as a leading pharmaceutical industry, installed a 10-ton capacity plant to manufacture sulphuric acid by contact process and superphosphate production was started in 1951. An expansion scheme is now on hand to raise sulphuric acid production to 50 tonnes a day to step up manufacture of superphosphate and 'ALCHEMPHOS' mixed fertiliser.

Alembics have now started the manufacture of Penicillin besides a wide range of insecticides, fungicides, rodenticides, etc. and have also undertaken the manufacture of a mineral feed supplement with vitamins for cattle and poultry.

The present paid-up capital of the Company is Rs. 1,59,50,000 and over 2,000 persons are on the roll of the Company.

Two associate concerns, viz., Alembic Glass Industries Ltd. and Jyoti Limited, together with Alembic Chemical Works Co. Ltd. constitute what is commonly known as the Alembic Group of Industries.

Mr. C. I. Amin of Alembic Chemical Works Co. Ltd., is on the Board of Directors of F. A. I.

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### **ASSOCIATED INDUSTRIES (ASSAM) LTD. Registered Office : Ziakur House, Gauhati**

**Regional Office : 18, Netaji Subhas Road, Calcutta—1.**

Incorporated with limited liability in 1959 with an authorised capital of Rs. 1,00,00,000.

The Fertiliser Unit of the Company consists of a contact process

sulphuric acid plant, a superphosphate and a mixed fertiliser plant of 18000, 36000 and 72000 tons annual capacities.

The superphosphate plant is the most modern one with the Broadfield Acidulation Unit and with complete mechanised handling equipments. The plants are under erection by the well-known American firm of Messrs. Fluor-Singmaster & Breyer Inc. and are expected to go into production by October this year.

This is the first superphosphate and mixed fertiliser plant in the State of Assam. Besides these, the Company is having a liquid sulphur dioxide plant and a cotton spinning mill.

The Company also proposes to install a new bauxite alum plant shortly.

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**THE COIMBATORE CHEMICALS AND FERTILISERS LTD.,**  
457 Vysial Street, Coimbatore I.

A Public Limited Company incorporated in the year 1946 with an authorised capital of Rs. 5,00,000 subscribed mostly by the cultivators. Promoters of the Company are Messrs. Venus & Company who are the Managing Agents since the inception of the Company.

The Company has now two expanding Fertiliser Mixing Factories, one at Podanur and other at Olavakkot in Kerala State. The former factory is equipped with the required machinery and manufactures bonemeal, bone-grist, bone-sinews, horn, hoofmeal, etc. The Company manufactures in both the above factories, balanced mixed fertilisers for field and plantation crops and distributes the same through its authorised dealers throughout the States of Madras and Kerala.

From the outset, the Company concentrated on quality and it was this factor which rapidly established its reputation in all the important places in the Madras and Kerala States, for its famous "SUN" brand balanced manure mixtures.

Besides the technical personnel, the Company employs Marketing Officers Propagandists to visit the cultivators, conduct trials and demonstrations in the cultivators fields, and to explain the advantages of using manure mixtures.

The Company has been approved as one of the manure mixing firms by the Central and the State Governments of Madras and Kerala and have their regular allotments of chemical fertilisers.

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**THE COORG & MYSORE COFFEE CO. (1937) LTD.,  
Chamundi Curing Works, Vanivilas Mohalla P. O., Mysore-2.**

M/s. Chamundi Fertilisers was started in 1937 by the Coorg & Mysore Coffee Co. (1937) Ltd., a Public Limited Company incorporated in Mysore State. The Company is producing manure mixture suitable for all types of crops and also plantations. The Company is also manufacturing bone meal, de-oiled poonac and 'Chamundi' Brand Tree Killer. The Company has pulverizer, disintegrator and other machinery attached to the factory. During the Third Five-Year Plan period, the Company proposes to increase the production of manure mixtures to 25,000 tons, bone meal to 5,000 tons and de-oiled poonac to 1,000 tons per annum. The Company has branches in the States of Mysore, Maharashtra, Andhra Pradesh, Madras and Kerala. The Company has also manure mixing centres in all above States. The Company has a scheme to manufacture superphosphate in Mysore State with a capacity of 150 tons per day.

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**R. N. CHATTERJEE & CO. (FERTILIZERS),  
135 Canning Street, Calcutta.**

R. N. CHATTERJEE & CO., 135 Canning Street, Calcutta-1, established in 1942.

Distributors of fertilisers under the Central Government for North East India Tea Estates and under the Government of West Bengal for paddy, jute, potato, etc. for cultivation within the State. Exporters of oil, oilseeds, oilcakes and organic fertilisers.

Dealers in raw jute. Owners of godown and Jute Press property in Vizianagram (Andhra Pradesh).

Contractors to the South Eastern Railway and Eastern Railway.

Managing Agents of Bongaon Electric Supply Co. Ltd., Bongaon, 24 Parganas, West Bengal.

Scientific & Surgical Equipments (P) Ltd., Calcutta.

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**THE D. C. M. CHEMICAL WORKS,  
Najafgarh Road, Delhi.**

Started in a small way in 1942 by the Delhi Cloth and General Mills Co. Ltd., Delhi, to meet the acid requirements of Delhi Cloth Mills, the D. C. M. Chemical Works is today one of the biggest chemical factories in India. Its products include : sulphuric acid, nitric acid, hydrochloric acid, superphosphate fertiliser, ferric and ammonia alums, caustic soda, chlorine, active earth, hydrogenated oils and washing soap. The factory has its own power house to generate power. Most of the plants and equipment in the factory have been designed, fabricated and erected by its own technicians who have now started manufacturing plants for outside parties also. They have already erected one 50 ton per day sulphuric acid plant at Hyderabad and one is under construction at Surat.

To ensure high standards the products are subjected to quality control tests at the plants and finally in the Central Quality Control Laboratory.

The Company publishes a house journal and distributes reprints of articles on technical and management topics for the education of its employees. Also, a number of schemes are in operation for their physical, cultural and social development.

Lala Charat Ram of Delhi Cloth & General Mills Co. Ltd., is the Vice-Chairman of the Fertiliser Association of India.

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**THE DHARAMSI MORARJI CHEMICAL CO., LTD.**

**Registered Office : 317/21 Prospect Chambers,  
Dr. Dadabhoy Naoroji Road, Fort, Bombay.**

A public limited company incorporated in 1919. Authorised Capital Rs. 1,00,00,000. Paid-up Capital Rs. 31,83,300. Fixed assets as on 31st December, 1961, is Rs. 88,21,624.

The Company was Promoted by Messrs. Dharamsi Morarji & Co., who are the Managing Agents of the Company since its inception. The Company has its main works at Ambernath, 40 miles from Bombay, with



a licensed capacity of 72,000 tons of superphosphate and 38,000 tons of sulphuric acid per annum. During the year 1961, its second factory at Kumhari went into production. This is the first factory of its kind in the whole of Madhya Pradesh producing superphosphate, sulphuric acid and alumina sulphate.

Apart from superphosphate, sulphuric acid and alumina sulphate, Dharamsis also produce alumina ferric, sodium sulphide, green copperas, hydrochloric acid, nitric acid, oleum and chlorosulphonic acid. The 300-ton per day Sulphuric Acid Project at their Ambernath Works is in full progress. Dharamsis are also engaged in raising the installed capacity of their Alumina Sulphate Plant at Ambernath to 100 tons per day. Some of their products like alumina sulphate have been exported and well received by the consumers abroad.

The Board of Directors of the Company consists of Messrs P.R. Morarji (Chairman), C.M. Khatau, K.C. Nanavaty, S.N. Vakil, D.R. Morarji, R.M. Goculdas and D.T. Morarji. Mr. D.R. Morarji is a member of the Development Council for Inorganic Chemical Industries.

Mr. D.R. Morarji of Dharamsi Morarji Chemical Co., Ltd., is on the Board of Directors of F.A.I.

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**THE E.I.D.—PARRY GROUP,  
Dare House, Post Box 12, Madras.**

Thomas Parry, who arrived in India in 1788 to seek his fortune, was granted a licence to trade within definite limits as a free merchant by the East India Company, which held a monopoly of trade between India and the United Kingdom. That was the beginning of Parry & Co. The concern remained a private partnership until 1928 when it was converted into a private limited liability Company.

In 1948 Parry & Co. Limited was converted into a public limited company and in 1956 the whole of its ordinary share capital was acquired by the East India Distilleries & Sugar Factories Limited to form the E.I.D.—Parry Group which now consists of the holding Company, its subsidiaries Parry & Co. Ltd., Mofussil Warehouse & Trading Co., Limited, Andhra Fertilisers Private Limited and Parry, Murray & Co. Limited, London, and the companies managed by Parry & Co. Limited, viz. the Deccan Sugar & Abkhari Company Limited, Parrys Confectionery Limited,

**The Travancore Sugar & Chemicals Limited and Cauvery Sugar & Chemicals Limited.**

The Group has a pay-roll of some 10,000 employees and its interests are wide and varied, including the manufacture and sale of insecticides, fungicides, organic manures, fertiliser mixtures for field crops and plantations, superphosphate, ammonium phosphate, sugar, confectionery, carbonic acid gas, denatured and rectified spirit, molasses and European liquors; acids (hydrochloric, nitric and sulphuric), chemicals, bakers yeast and pottery. The Group also sells a variety of products manufactured by reputable Indian and Foreign concerns, such as constructional equipment and stores.

The E.I.D.—Parry Group were pioneers in the fertiliser fields, having established a bonemeal factory at Ranipet in the mid Nineteenth century. They were the first to start a superphosphate factory in 1906 at Ranipet where the preparation of various standard mixtures, insecticides and fungicides was subsequently undertaken. A second factory at Tadepalle commenced production in November 1960, bringing the total production capacity of the Group upto 80,000 tons superphosphate per annum. The Group have fertiliser factories at Shirampur, Ranoli, Ranipet, Tadepalli, Cuddalore, Mysore South, Mettupalayam, Kottayam, and Trichinopoly and over the past sixty years has built up an extensive marketing organisation, providing unrivalled distribution facilities.

In the field of nitrogenous fertilisers the E.I.D.—Parry Group will once again be the pioneer manufacturer in the private sector. In 1960 the Group placed a contract with Simon Carves Limited, Stockport, England, for the construction of a Compound Fertiliser Factory at Ennore near Madras designed to manufacture approximately 52,000 tons of ammonium phosphate per annum. This factory, which will cost about Rs. 5 crores, is expected to go into production by the end of 1962.

The E.I.D.—Parry Group are founder members of the Fertiliser Association of India and Mr. John K. John, Chairman of the Parry Board of Directors, is the Chairman of the Fertiliser Association of India.

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**THE FERTILISERS AND CHEMICALS, TRAVANCORE LIMITED,**

**Always.**

The Fertilisers and Chemicals, Travancore Ltd. (FACT), is the first factory in India to take up large-scale production of chemical fertilisers,

coming into being at a time of critical food shortage in country. Planned around 1944 for the manufacture of 40 tons a day of ammonia, using wood as the new material, the end product being 150 tons a day of ammonium sulphate, its plant was commissioned in 1947. In addition, two sulphuric acid plants, each of 75 tons a day capacity, were installed. Later a 150 tons a day superphosphate plant and a 25 tons a day ammonium chloride plant were added to the installation. Until August 15, 1960, the Management of the Company vested in Messrs. Seshasayee Brothers (Travancore) Private Ltd. Now the company is being managed by a Board of Directors through a Managing Director.

The first stage expansion of the factory, which was completed in 1960, doubled the ammonia production to 80 tons a day. Ammonium sulphate and sulphuric acid production were also increased to 225 and 300 tons a day respectively. Besides, manufacture of a compound fertiliser, ammonium phosphate 16-20 grade (FACTAMFOS) with a capacity of 100 tons a day was undertaken. The first large Electrolytic Hydrogen plant in India, with a capacity for the manufacture of 40 tons a day of ammonia and the use of by product gypsum obtained in the manufacture of phosphoric acid, for the production of ammonium sulphate by the Merseberg Process, were established during this period by FACT. Besides, a Sulphuric acid plant with a capacity of 150 tons a day, a Sulphur dioxide Recovery and Liquefaction plant with a capacity of 10 tons a day were also erected and commissioned.

In the second stage of expansion which is scheduled for commissioning in August/September 1962, ammonia and ammonium sulphate production will be increased to 130 and 300 tons a day respectively. The first Oil Gasification plant in India based on the Texaco Process and using naphtha as the raw material obtained from the Bombay Oil Refinery and utilising the byproduct oxygen from the Electrolytic Hydrogen plant and the Air Separation plant will replace the Wood Gasification process for producing hydrogen which had been in operation for over 15 years.

The third stage expansion programme now taken up will increase total nitrogen production to over 70,000 tons of fixed nitrogen per annum. On completion of the project, scheduled for the end of 1964, the ammonia production will increase to 270 tons a day.

Stage by stage progress is tabulated below :

	First stage completed	Second stage completed	Third Stage (scheduled for completion by end of 1964)
	( t o n s   p e r   a n n u m ) .		
Ammonium sulphate	66,000	100,000	200,000
Ammonium chloride	8,000	8,000	25,000
Sulphuric acid	97,000	99,000	250,000
Superphosphate	44,000	44,000	44,000
Ammonium phosphate	16,500	33,000	135,000
Fertiliser mixture	100,000	150,000	350,000

The highlights of the third stage expansion programme are :

- (1) the installation of a 450 tons a day sulphuric acid plant, one of the biggest plants in the East.
- (2) utilisation of an additional 480 tons of byproduct gypsum obtained in the manufacture of 100 tons of phosphoric acid for the production of 300 tons of ammonium phosphate, by the Merseberg Process.

In March 1962, FACT has entered into an agreement with the Power Gas Corporation Ltd., England, one of the leading designers and suppliers of chemical plants and equipment for the exchange of technical know-how developed in FACT, on a royalty basis, for the manufacture of ammonium sulphate from byproduct gypsum obtained from the phosphoric acid plant.

Mr. M.K.K. Nayar, Managing Director of FACT, is on the Board of Directors of FAI.

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**THE FERTILIZER CORPORATION OF INDIA LIMITED,  
D-15 South Extension Area II, Ring Road, New Delhi-16.**

**Board of Directors :**

Chairman : Mr. K.R. Damle  
 Directors : Mr. P.A. Narielwala, Mr. Brish Bhan,  
 Mr. Shiva Chandika, Mr. T. Swaminathan,  
 Mr. K.L. Ghei, Dr. S. Hussain Zaheer,  
 Mr. H.N. Sethna  
 Managing Director : Mr. B.C. Mukharji.

**Capital Structure :**

Authorised capital : Rs. 75 crores  
 Issued and subscribed capital : Rs. 39.63 crores.

The Fertiliser Corporation of India was formed on January 1, 1961, integrating the fertiliser units in the public sector and bringing them under a unified control. This was done in order to secure co-ordination in policy and ensure efficient and economic expansion and working of fertiliser factories in the public sector.

As a result of this integration, the constituent units of the Corporation now are the two operating factories at Sindri in Bihar and Nangal in Punjab and the three projected factories at Trombay in Maharashtra, Nahorkatiya (Namrup) in Assam and Gorakhpur in Uttar Pradesh.

The total capacity of the units under the Fertiliser Corporation of India will be of the order of 4,20,000 tons in terms of nitrogen and 45,000 tons in terms of phosphate a year by the end of the Third Plan.

Four types of nitrogenous fertilisers are at present being produced in the Corporation's operating factories, ammonium sulphate, double salt (ammonium sulphate nitrate) and urea at Sindri and calcium ammonium nitrate at Nangal. Sindri's installed capacity is 974 metric tons of ammonium sulphate, 406 metric tons of double salt (ammonium sulphate nitrate) and 71 metric tons of urea per day. Nangal's capacity is 1176 tons of calcium ammonium nitrate per day.

The associated heavy water plant at Nangal will shortly go into production. It will produce 14.5 tons of heavy water annually and will cost nearly Rs. 2 crores. This heavy water produced for the first time in India will be used as a moderator in India's atomic reactors.

The Corporation's three new projects are in the course of construction. Trombay will produce 330,000 tons of nitro-phosphate

annually. This is a complex fertiliser containing two soil nutrients, nitrogen and phosphate, and 97,500 tons of urea annually. The project is estimated to cost Rs. 25 crores and is expected to go into production sometime during the first half of 1964.

The Nahorkatiya (Namrup) factory in Assam will have an installed capacity of 1,00,000 tons of ammonium sulphate and 55,000 tons of urea per year, while the installed capacity of the Gorakhpur factory will be 1,80,000 tons of urea per year. The Nahorkatiya (Namrup) factory is expected to go into production in 1965, and the Gorakhpur factory in 1966. The Nahorkatiya (Namrup) factory is estimated to cost Rs. 20 crores and the Gorakhpur factory Rs. 25 crores. The rated capacities of the two operating factories and the 3 under construction are as follows :

Sindri	— 1,20,000 tons of nitrogen annually
Nangal	— 80,000 " " " "
Namrup (Assam)	— 50,000 " " " "
Gorakhpur (U.P.)	— 80,000 " " " "
Trombay (Maharashtra)	— 90,000 " " " "
	45,000 tons of phosphate annually

The Sindri and Nangal units of the Corporation provide today the largest training ground for the future technicians for new fertiliser projects which are now or will have in future to be built to satisfy the country's need for chemical fertilisers.

The experience and technical know-how built up by the Corporation have already been pressed into service. The Corporation's engineers and technicians are building two major plants, the nitric acid plant and the nitrolimestone plant with storage, bagging and other ancillary facilities, of its own designs for the Rourkela Fertiliser Project of Hindustan Steel Ltd. The Rourkela Fertiliser Plant will have a production capacity of 1,20,000 tons of nitrogen per year. About 60 per cent of the total equipment and machinery for these plants has been procured in the country. This marks a significant milestone in the country's technological advance. This is for the first time that Indian engineers and technicians have designed and are building such major plants.

**INDIAN POTASH SUPPLY AGENCY LIMITED,****8/9 Thambu Chetty Street, Madras.**

The Indian Potash Supply Agency Limited continue to be the sole distributing agents for muriate of potash imported by the State Trading Corporation of India Limited. The distribution is made through the same channels as for nitrogen.

They also provide ready market for indigenous muriate of potash which is obtained as a bye-product of the saltpetre industry. In view of the high cost of indigenous material, the industry is subsidised by the Company to bring the price on a level with imported material.

With a view to achieving the targets of consumption of 200,000 tons of  $K_2O$  by 1965, the Company has launched an intensive propaganda campaign with the approval of the State Trading Corporation of India Limited. Regional Agronomists have been appointed to tour particular tracts all over India and to acquaint the cultivators with the use of potash. Pamphlets and advertisements regarding the need for potash in general as well as for particular crops have been issued.

The above propaganda scheme was started in September 1960 but, due to limited funds, intensive propaganda by way of demonstrations in cultivators' fields, audio-visual education etc., had to be confined to the four Southern States and the States of West Bengal, Bihar and Uttar Pradesh where the increase in consumption of potash has been very encouraging.

The following are the sales figures of muriate of potash during the past few years :

Year	Madras	Cochin	Bombay	Calcutta	Total
(April/March)					
1955-56 T.	2884	3400	300	2000	8584
1956-57	4000	11500	1640	3100	20240
1957-58	8000	3017	1100	3600	15717
1958-59	11000	14704	4015	2481	32200
1959-60	8989	8209	3821	2707	23726
1960-61	10083	17706	3544	4800	36133
1961-62	13912	21442	3579	9406	48339

The Company is also the distributing agents for sulphate of potash imported by the State Trading Corporation of India Limited.

**JARDINE HENDERSON LTD.,**  
**4 Clive Row, Calcutta.**

The present fertiliser factory was started under the name of Acme Fertiliser Works at Kidderpore, Calcutta, by Ewing & Co. Ltd. in 1920, which is 100 per cent subsidiary of Jardine Henderson, Ltd., to serve the interests of the Tea Estates in North East India and of the cultivators in West Bengal for food and cash crops particularly paddy, potato, jute, sugarcane and vegetables. The Company has recently opened a fertiliser mixing and distribution centre at Muzaffarpore in Bihar to serve the interests of the cultivators of this State as well.

Fertiliser mixtures of all descriptions—inorganic and organic—are manufactured, by both mechanical and manual processes. The present installed capacity is 20,000 tons per annum.

Besides being a fertiliser mixture manufacturer the Company manufactures insecticide-cum-fertilisers, formulated according to the specifications given by the customers.

The Company holds a number of Managing Agencies and carries on an extensive business as General Traders and Agents, Shipping and Insurance Agents and dealers in fertiliser, insecticides, spraying equipment, yarn, piece goods, white ant exterminators, paints, tea chests and fittings, industrial leathers, etc.

The Company also has a number of trading subsidiaries including Diamond Products Ltd. (Producers of packaging materials), Kassipur Co. Ltd. (Manufacturers of laminated waterproofing materials), Meameco Private Ltd. (Manufacturers of Mining Machinery & Equipment), Behabor Tea Co. Ltd. and Mangaldai Tea Co. (Private) Ltd.

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**KHAITAN SONS & CO. (MANURE) PVT. LTD.,**  
**26 Chitranjan Avenue, Calcutta-12.**

The fertiliser department of Messers. Khaitan Sons and Co. was set up in 1926 when the firm handled the distribution of Japanese sulphate of ammonia imports on behalf of Messers. Mitsui Busan Kaisha Ltd.

In 1942 small quota of 250 tons was allotted to the firm by the Central Government for distribution to the North-East India Tea Industry. The quota was gradually increased until the firm became the third largest



quota holder for the North-East India Tea Industry. In 1953 the entire preparation and distribution of agricultural fertilisers in Assam was entrusted to it, the Company then operating under the name and style of Compound Fertilisers Ltd. Seventy-five depots and distribution centres were organised throughout the State at that time.

The firm manufactures and distributes all types of fertilisers for tea and field crops and has depots throughout Assam.

Khaitan Sons and Co., also have a plywood factory, where both commercial and tea chest plywood is manufactured. Other interests include chemicals, jute and fibre, tea garden store and machines.

Mr. B. M. Khaitan of Khaitan Sons and Co. (Manure) Private Ltd. is on the Board of Directors of F.A.I.

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**R. C. MITTER & SONS,  
54, Ramkanto Bose Street, Calcutta 3.**

The firm was started in 1947 as one of the dealers in fertilisers and manufacturers of fertiliser mixtures.

In its factory all types of fertiliser mixtures are produced. The installed capacity is 20,000 tons of mixed fertilisers.

The previous senior partner of the firm late Mr. R. C. Mitter was connected with the Fertiliser Industry since about 1910 and was associated with almost all important fertiliser concerns before starting the present firm. The firm has extensive dealings in both organic and inorganic fertilisers of every description in this part of India. The firm has also been acting as one of the distributors to the North East Indian Tea Industry appointed by the Ministry of Food and Agriculture, Government of India, for about 14 years now. The present senior partner of the firm Mr. S. C. Mitter is the Chairman of the Eastern Regional Committee of the Fertiliser Association of India.

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**THE MYSORE FERTILISER COMPANY,  
31-A, North Beach Road, Madras-1.**

The Mysore Fertiliser Co., Madras, was established in 1935. The firm has branches at Bezwada and Kuppam in Andhra Pradesh, Bangalore, Mysore, Kadur, Chikmagalur and Hubli in Mysore State, Erode, Coimbatore, Cuddalore, Coonoor and Ootacamund in Madras and Cochin and Palghat in Kerala.

The firm has 9 mixing factories and its sales organisation is built up around 500 depots and sub-depots. It has a laboratory in Madras and Vijayawada to examine and control the quality of manure mixtures marketed by the organisation. Besides the technical personnel, the firm employs inspectors and propagandists to visit the cultivators' fields, and explain the advantages of using manure mixtures.

The firm manufactures special mixtures for fields and plantation crops and also manufactures various kinds of bone products and animal wastes into useful manures.

The firm is formulating through a sister concern insecticides and fungicides based upon D.D.T. and B.H.C., Endrin, Heptachlor, Chlordane, Parathion, Malathion, Copper, Sulphur, etc. and has three units—one at Madras another at Kuppam, and the third at Vijayawada in Andhra Pradesh. It also handles sprayers, dusters, hose pipes for spraying, etc.

The firm has recently opened a minerals department and undertakes supply of ground minerals for making paints, abrasives, refractories flooring and insulating compounds, etc.

Mr. V. Venugopal of the Mysore Fertiliser Co. is on the Board of Directors of F.A.I.

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**PEIRCE, LESLIE & CO. LTD.,**  
Kozhikode.

**Registered Office :** 35, Crutched Friars, London E.C. 3.

**Branches in India :** Cochin, Calicut, Tellicherry, Coimbatore, Mangalore, Alleppey and Quilon.

Incorporated as a Private Company (Registered in England) in 1902. Established in India in about 1860.

Products manufactured include cashew products, coir and coir matting, tiles and bricks, fertiliser mixtures, coffee curing, printing press.

**Other Lines Handled:** Shipping Agents, Sea & Passage Air Booking, Receiving & Forwarding, Estate Supplied, Insurance.

**Petroleum Product :** Agents for Standard Vaccum Oil Co., Agents for Shalimar Paints and Gordons Coffee Machinery, Exporters of all Malabar produce. 'A' Class Agents for the Coffee Board.

Managing Agent/Secretaries & Treasurers for the following Plantation Companies :

<b>Rubber</b>	The Cochin Malabar Estates Ltd. The Thirumbadi Rubber Co. Ltd.
<b>Tea and Coffee</b>	Chembra Peak Estates Ltd. Cowody Estates Ltd. The Kalasa Tea & Produce Co., Ltd. The Kill Kotagiri Tea & Coffee Estates Co., Ltd. Kumergode Estates Ltd. The Ouchterlony Valley Estates (1938) Ltd. The Peria Karamelai Tea & Produce Co., Ltd. The Savamalai Estates Ltd.

The origin of the Company was the partnership of Peirce and Leslie which was set up in Cochin round about 1860. Later the partnership changed in form but retained the name of its founders and during the course of the second half of the 19th century spread its activities to various important centres on the Malabar coast and at Coimbatore. In 1902 it was incorporated as a Private Company and continues in that form today.

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**THE PHOSPHATE COMPANY LIMITED,  
14 Netaji Subhas Road, Calcutta-I.**

The Company was established in 1949 and started production during 1950, the capacity of superphosphate plant being 105 tons a day. The Company has an authorised capital of Rs. 50 lakhs and Issued and Paid-up capital of Rs. 22½ lakhs. The promoters of this Company are considered as pioneers in the Fertiliser Industry in the Eastern Zone. Messrs. Bangur Brother Limited, the Secretaries & Treasurers of the Company are one of the leading industrialists in the country.

The factory has a sulphuric acid plant of 25 tons per day capacity. For the production of superphosphate it has a Raymond Mill, the best of its kind in India.

The Company has put up an additional 50 tons capacity Acid Plant by Contact Process for meeting its present demand and further expansion in the superphosphate and in consumption of sulphate of alumina units. The Company is also modernising its existing superphosphate plant by installation of a Broadfield Acidulating Unit and a new Grinding (completed) which will increase the superphosphate plant capacity by 10 tons/hour. The Company is also installing a new Bauxite Alum Plant. The completion of the installation of new machineries and modernisation work of existing plant is expected to be completed by September 1962.

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**RALLIS INDIA LIMITED,  
21 Ravelin St., Fort, Bombay.**

The Company has been established in India for over 100 years and has branches and distributors throughout the country.

The Company's activities cover a wide field which includes trading in commodities such as raw cotton, oilseeds, oils, gunnies, piece goods, machinery, etc. The Company also has substantial manufacturing interests in the pharmaceutical, electrical and textile industries through its subsidiaries. It manufactures bonemeal, hoof and horn meal, leather meal and sterilised animal meal. Through an extensive net work of agents throughout the country, the Company distributes annually nearly a lakh tons of straight fertilisers and 'Tree Brand' Fertiliser Mixtures.

Rallis India Ltd. are the Sole Distributors of Chilean Natural Nitrate of Soda in this country.

One of the subsidiaries Messrs. Rallis Chemicals Limited, will be producing Superphosphate at Magarwara in Unnao District, U.P. The factory will go on stream in August 1962. It will produce Single Superphosphate. Sulphuric acid will be produced by Monsanto Contact Process and the Broadfield Process will be used to produce superphosphate. The installed capacity of the Unit is 50 tons of sulphuric acid per day and 60,000 tons of superphosphate per annum.

Mr. A. D. Mango of Rallis India Ltd., is on the Board of Directors of F. A. I.

**THE SCIENTIFIC FERTILISER COMPANY PRIVATE LTD.,****Coimbatore.**

The Company was established in 1938 by the late Mr. T. V. V. Iyer, to whom must go largely the credit for having pioneered the entry of national enterprise into the business of manure mixtures in South India. With characteristic acumen and intrepidity he stood firm against competition from vested interests and steered the concern into smooth waters by 1945, when happily the Government took up distribution of nitrogenous fertilisers which assured a fair deal to all interests.

Since then the concern has grown from strength to strength. With headquarters at Coimbatore, it operates branches at Ootacamund, Madras, Guntur, Mysore and Cochin. Getting quotas of nitrogenous fertilisers from State Governments, as well as U.P.A.S.I. and the Coffee Board, the Company manufactures and supplies fertiliser mixtures for all crops including plantation crops and has a good name for quality.

The Company has its own Disintegrator and Pulveriser for crushing of bones and powdering of rock phosphate. Its present production is 12,000 tons of mixtures per annum, but it has plans to double the output during the Third Plan period.

The Company has an Analytical Laboratory attached to the central factory at Coimbatore, manned by an experienced chemist. All ingredients and mixtures ex-stocks held at the various mixing centres are preanalysed regularly to ensure that the mixtures put out by the Company will conform to guaranteed analysis.

The Company has over 300 agents up-country selling its "CROWN" Brand fertiliser mixtures. Experienced inspectors, having charge of two or three districts, provide the liaison between the Company and its agents on one hand, as well as agents and customers on the other and see that the high standards associated with "CROWN" Brand are maintained through the various links between production and distribution.

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**T. STANES & COMPANY LIMITED,  
6/33 Race Course Road, Post Box No. 12, Coimbatore-1.**

The Firm was founded more than one hundred years ago by Sir Robert Stanes and was formed as a Company in 1910.

It was originally started as Coffee Curing Works and is now an "A" Class agent of Coffee Board. From the time of foundation it has supplied all planting requirements including fertilisers and now has four expanding fertiliser mixing factories, at Tudyalur and Madurai in Madras State and at Cochin and Trichur in Kerala State. The Tudyalur Factory is equipped with a modern mechanical mixing plant for compounding all types of manure mixtures for all crops. The chemical control of all ingredients used is by a qualified agricultural chemist operating the Company's well equipped laboratory.

The Company has under its control two wholly owned subsidiary companies—Messrs. Stanes Motors (South India) Limited and Messrs. United Coffee Supply Company Limited. This Company is also a subsidiary of Messrs. Simpson & Co. Limited, Madras.

Messrs. Stanes Motors (South India) Limited is chiefly engaged in the marketing of motor vehicles, tractors, radios, spare parts and accessories and has fully equipped repair workshops in Coimbatore and four other branch offices. This Company has the franchise for rebuilding of all motor vehicles tyres by the "TYRESOLES" process and tractors and "off the road" vehicle tyres by the "VACULUG" process.

This Company also owns a subsidiary Company—Stanes Transports Limited which operates a Town Service with a fleet of 11 passenger buses in the Coimbatore City.

The United Coffee Supply Company Limited was founded in 1908 and is famous throughout India for Tea and Coffee in its various forms. In 1956 a plant was installed for the manufacture of Instant Coffee for the first time in India. This product has become a firm favourite amongst the public.

T. Stanes & Company are the Managing Agents for two large Planting Estate Groups—The United Nilgiri Tea Estate Company Limited and Messrs. Stanes Amalgamated Estates Limited—both in the Nilgiris and comprising a total of 2,429 acres of tea and 487 acres of coffee cultivation.

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**A. TALUKDAR & CO. (FERTILISERS) PRIVATE LTD.,**  
**Registered Office : 15 Clive Row, Calcutta-1.**  
**Branch : Dibrugarh**

As agents of Government of India for distribution of Pool nitrogenous fertilisers to the North East India Tea Estates and as agents of West Bengal Government for distribution of fertilisers for paddy, potato, jute, sugarcane and vegetables, the Company manufactures every kind of fertiliser mixtures to the tune of 20,000 tonnes per annum.

The Company has four allied concerns :

- (1) M/s. Carl Ohmes & Co. (India) Private Ltd. (Manufacturers of modern agricultural implements of all varieties such as Dusters, Sprayers, etc.).
- (2) Indian Minerals & Phosphate Co. (Producers of and dealers in Rock Phosphate and other minerals).
- (3) Hindusthan Bone Mill (Manufacturers of bone-meal, bone-grist, etc.) and
- (4) Talukdar & Co. (Misc.)—General Suppliers of miscellaneous commodities.

Sri B.M. Talukdar—a pioneer in fertiliser business—has been assisting the Company as its technical adviser and under his able guidance it has grown from strength to strength and gained a reputation in the State and outside as reliable distributors of fertilisers and manufacturers of balanced fertilisers mixtures.

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**SHAH MOTEEJEE MEGHAJEE,  
98 Khand Bazar, Mandvi, Bombay-3.**

The firm of M/s. Shah Moteejee Meghajee is established over 100 years ago and are commission agents of Indian General Produce viz., Oil, Oilseeds, Oilcakes, Spices, etc.

Since last 15 years the partners have established at Poona and hence their Head Office is at Poona. They have got two very big wholesale store of Jaggery, Sugar, Spices, Edible Oils, and Oilcake, Food Grain, Indian Produce, Chemicals, Minerals, and Fertilisers at 68 Bhawani Peth, Poona 2 and 98 Khand Bazar, Mandvi, Bombay 3.

They are Manufacturers of MOME BRAND Manure Mixtures and MOME BRAND Talc. Powder (French Chalk). Since last 5 years they have also started exporting Oils, Oilcakes, Seeds, Spices, Jaggery, Sugar, Talc. Powder, and Ferrous Scrap to the Overseas. They have got a Banking Dept., viz. M. M. & Sons at Poona.

As commission agents they are connected with over 30,000 clients and are serving over 1 lac consumers.

They are also distributors of sugar of M/s. Phaltan Sugar Works Ltd., Bombay.

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**SHAW WALLACE & COMPANY LIMITED,  
4 Bankshall Street, Calcutta-1.**

The Company was established as a partnership on the 1st January 1886, and became a Public Limited Company in June 1947.

The Company are Merchants, Agents, Manufacturers and Managing Agents carrying out the following activities :—

**Coal :**

Collieries under the Company's management produce over 2,000,000 tons of coal per year.

**Tea :**

Tea Gardens under the Company's management produce over 350,000 maunds of tea annually.

**Flour :**

The Company manages two flour mills producing 13,50,000 maunds of wheat products annually.



**Tinplate :**

The Company manages the Tinplate Company of India Private Limited, producing about 76,000 tons of tinplate annually.

**Steamers :**

The Company are Agents for the Isbrandtsen Company at all ports, and the Hansa Line at Madras and Bombay.

**Agencies :**

The Company deals in wines and spirits, steatite, wire ropes, tea chests, paints and many other lines.

**Distillery :**

The Bengal Distilleries is wholly owned subsidiary producing Haywards liquors.

**Yeast :**

The Indian Yeast Company is a Subsidiary with rated capacity of 800 tons fresh yeast per annum.

**Glue :**

The Company manufactures high grade glue and technical gelatine at Madras/Calcutta/Cambay.

**Agriculture :**

The Company engages in many activities connected with agriculture.

**Fertiliser :**

The Company has been engaged in the manufacture and distribution of fertilisers since 1914 and at present handles over 1,00,000 tons of fertilisers per annum.

**Superphosphate :**

Manufactured at Madras at a production rate of 75,000 tons per annum.

**Organic Fertilisers :**

The Company produces organic fertilisers including Sterilised Animal Meal.

**Sprayers :**

The Company manufactures all types of Agricultural Sprayers and

**Dusters :**

Mr. S. M. Smith of Shaw Wallace & Company Limited, is on the Board of Directors of F.A.I.

21. M/s. Indian Commercial Syndicate,  
14, Vysial Street,  
Coimbatore-1.
22. M/s. International Ore & Fertiliser (India)  
Private Ltd.,  
66, Rashtrapathi Road,  
Secunderabad.
23. M/s. Japan Urea Centre,  
10B, Rajendra Park,  
Pusa Road,  
New Delhi-5.
24. M/s. Jayalakshmi Fertilisers,  
Venkatarayapuram,  
Tanucu (W. G. Dist.).
25. M/s. Kaira District Fertilisers Merchants Association,  
Station Road,  
Nadiad.
26. M/s. The Kerala Commercial Fertilisers & Agencies.  
T.D. Road,  
Post Box No. 126,  
Ernakulam, Kerala.
27. M/s. Kisan Khad Scheme of India,  
16-B Ganga Ram Hospital Marg,  
New Delhi-5.
28. M/s. Kothari & Sons,  
Post Box No. 267,  
'Oriental Building',  
Armenian Street,  
Madras-1.
29. M/s. Mulchand M. Choksey & Co.,  
19-21, Hamam Street,  
Fort,  
Bombay-1.
30. M/s. The New Premier Chemical Industries.  
Private Ltd.,  
289, Thambu Chetty Street, G.T.,  
Madras-1.

31. M/s. The Pioneer Fertilisers Company,  
38-1-12 Abbaskhaji Road,  
Buckinghampet P.O.,  
Vijayawada-2.
32. M/s. Potash Fertilisers Ltd.  
P.B. No. 524,  
6, Lotus Court,  
Jamshedji Tata Road,  
Bombay-2.
33. M/s. B.K. Roy Private Ltd.,  
4, Bankshall street,  
Calcutta-1.
34. M/s. West India Chemicals Ltd.,  
32, Appolo Street, (2nd Floor),  
Fort,  
Bombay-1.
35. M/s. Vitro International,  
4th Floor, Bharat Bhawan,  
White House,  
Walkeshwar Road,  
Bombay-6.
36. M/s. V. Venugopal Pillai & Co.,  
2/27 Broadway,  
Madras-1.
37. M/s. The Yercaud Coffee Curing Works, Ltd.,  
3/22 Kondappanaickenpatty,  
Kannankurichi P. O.,  
Salem (Dist.).

## **ASSOCIATE MEMBERS**

1. M/s. A. P. V. Sons,  
13, Swami Sannathi Lane,  
East Masi Street,  
Madurai.
2. M/s. Adarsh Chemicals & Fertilisers Ltd.  
Udhna,  
Navsari, Surat Dist.
3. M/s. Agri-India Fertilizers,  
Beaumen Chambers,  
27-28, Meadows Street,  
Fort,  
Bombay-1.
4. M/s. Agri-Union Services Private Ltd.,  
Post Box 1834,  
Bombay-1.
5. M/s. Anil Starch Products Ltd.  
Anil Road, P. B. No. 1062.  
Ahmedabad-2.
6. M/s. Bharat Fertilizer Industries Private Ltd.  
12, Nanabhai Lane,  
Bombay-1.
7. M/s. Bharat Pulverising Mills Private Ltd.  
38-A, Sayani Road, Hexamer House,  
Bombay-28.
8. M/s. Boda Subrahmanyam & Co.  
Tapeswaram,  
(E. Godavari).
9. M/s. The Chembur Bone and Fertiliser Co.  
Private Ltd.,  
Darabshaw House,  
Ballard Road,  
Bombay-1.
10. M/s. Chemfert Traders,  
2, Nanabhai Lane,  
Bhadran Bhuvan,  
2nd Floor, Fort,  
Bombay-1.

11. M/s. J. K. Cotton Spinning and Weaving Mills Co., Ltd.  
Kamala Tower,  
Kanpur.
12. M/s. Darati Khad Scheme,  
P. O. Box No. 507,  
New Delhi-5.
13. M/s. Deccan Sales Corporation Ltd.,  
'Jamunotry', 26th Road,  
Bandra,  
Bombay-50.
14. M/s. C. Dhanvantrai & Co.  
Lentin Chambers,  
Dalal Street,  
P.O. Box No. 1050,  
Bombay-1.
15. M/s. The East Asiatic Co. (India) Private Ltd.,  
P.O. Box No. 656,  
New Delhi-1.
16. M/s. Gujarat Fertilizers,  
Pulbari, Salatwada Road,  
Baroda.
17. G. von Gontard, Esq.,  
c/o Messrs. Potash Fertilizers Ltd.,  
P.B. No. 524,  
6, Lotus Court,  
Jamshedji Tata Road,  
Bombay-1.
18. M/s. The Hind Agricultural Corporation,  
Railpet,  
Guntur.
19. M/s. Hyderabad Manures,  
C.V.R. Charities Compound,  
Station Road,  
Vijayawada-1.
20. M/s. Imperial Chemical Industries (India)  
Private Ltd., I.C.I. House,  
34, Chowringhee Road,  
Calcutta-16.

## OVERSEAS ASSOCIATE MEMBERS

1. M/s. Anglo-French Minerals Ltd.,  
50 Cannon Street,  
London E. C. 4, England.
2. M/s. Central Stikstof Verkoopkantoor, N. V.,  
(Central Nitrogen Organization),  
Alexanderstraat 22, Postbus 404,  
The Hague, Holland.
3. M/s. Compagnie Nord Africaine De  
L'Hyperphosphate Reno,  
58, Rue Galilee,  
Paris 8e, France.
4. M/s. S. C. Comptoir Belge De L'Azote 'Cobelaz',  
8, Rue De Suisse,  
Bussels, Belgium.
5. M/s. Fisons Overseas Ltd.,  
Fison House,  
95, Wigmore Street,  
London W. 1.
6. M/s. International Minerals & Chemical Corporation,  
Old Orchard Road, Skokie,  
Illinois, U. S. A.
7. M/s. International Ore & Fertilizer Corporation,  
500 Fifth Avenue,  
New York 36, N. Y.,  
U. S. A.
8. M/s. The Jordan Phosphate Mines Co., S. A.,  
P. O. Box No. 30,  
Amman, Jordan.
9. M/s. Malayan Fertilisers Limited,  
54, Ampang Road,  
Post Box No. 157,  
Kuala Lumpur, Malaya.
10. M/s. Montecatini Soc. Gen. per L'Industria  
Mineraria L. Chimica,  
Via Turati,  
18 Milano, Italy.

11. M/s. Osterreichische Stickstoffwerke,  
Aktiengesellschaft,  
St. Peter 224,  
Linz/Donau, Austria.
12. M/s. Office Cherifien Des Phosphates,  
305, Avenue Mohamed V,  
Rabat, Morocco.
13. M/s. Potash Export Association, Inc.  
122 E, 42nd Street,  
New York 17,  
U.S.A.
14. M/s. Ruhr-Stickstoff A.G.  
Aktiengesellschaft,  
Konigsalle—21,  
Rupertihaus, Bochum,  
West Germany.
15. M/s. Safaga Phosphate Co., S.A.E.,  
1 Sharia 26 July,  
Post Box No. 1421,  
Cairo, Egypt.
16. M/s. Shaw Scott & Company Ltd.,  
19 Leadenhall Street,  
London, E. C. 3.
17. M/s. Shaw Wallace & Hedges Ltd.,  
363, Kollupitiya Road,  
Colombo-3.
18. M/s. Societa Edison,  
Settore Chimico,  
Via Principe,  
Eugenoo,  
5-Milano, Italy.
19. M/s. Societa Egiziana Per L'Estrazione  
ED IL Commercio Dei Fosfati, S. A. E.,  
23, Soliman Pasha Street,  
Cairo (Egypt), U. A. R.
20. M/s. Societa Per IL Commercio Di  
Fertilizzanti Azotati,  
Piazza Duca D'Aosta,  
Milan, Italy.

21. M/s. Societe Commerciale Des Potasses D'Alsace.,  
II, Avenue de Friedland,  
Paris 8e, France.
22. M/s Sulphur Export Corporation,  
375 Park Avenue,  
New York-22, U. S. A.
23. M/s. Verkaufsgemeinschaft Deutscher  
Kaliwerke G. M. B. H.,  
Prinzenstr 12,  
Hannover (Germany).
24. M/s. Woodward & Dickerson  
1400 South Penn Square,  
Philadelphia--2, P. A.,  
U. S. A.



**TECHNICAL & PROFESSIONAL  
ASSOCIATE MEMBER**

1. Dr. N. Jayaraman, M. A., D. Sc., A. I. I. Sc., A. R. I. C., F.A. I.  
Director,  
M/s. Essen & Co.,  
550, 8th Main Road,  
Malleswaram,  
Bangalore-12.