

# **Production and Consumption of Fertilisers**

## **Annual Review : 1971-72**

*(On July-June basis)*

**(with an overview of 1972-73 and 1973-74)**



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## PREFACE

This is the thirteenth edition of the Annual Review of Production, Despatches and Consumption of Fertilisers. The Review includes comments on the actual performance during the period 1966-67 to 1970-71. Based on this trend, estimates of production, despatches and consumption have also been made for the year 1971-72. This is projected so as to present the likely trend in production and consumption, zonewise, for the year 1972-73. Assuming that the actuals would follow 1972-73 trend, 1973-74 forecast has also been indicated at the end of the Review.

Data for the preparation of the Review have been drawn from different sources. The Ministry of Agriculture has furnished us valuable information regarding the Pool despatches and the manufacturers have supplied actual factory production and despatches Statewise upto 1970-1971. As in the previous year, data on actual consumption of fertilisers in terms of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O have been drawn from the proceedings of the half yearly Zonal Conferences on Fertilisers and are on April-March basis. But for this, the statistics in the Review remain the same as in previous years and is on agricultural year basis, i.e., July-June.

The Association welcomes any suggestion for improvement of the Annual Review.

New Delhi  
May 31, 1972

SATYA NAND  
Executive Director  
The Fertiliser Association of India

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## INTRODUCTION

Fertiliser marketing in India has passed very many stages of statutory Government control. The Central Fertiliser Pool was the sole distributing agency for straight nitrogenous fertilisers (imported as well as indigenous) until September 1966. However, the domestic manufacturers of ammonium chloride, superphosphates and complex fertilisers were permitted to market their products as they wished.

In October 1966, the Government of India as a part of its new fertiliser policy, extended the concept of free marketing to straight nitrogenous fertilisers also. Domestic manufacturers were permitted to sell 30 per cent of their production in the free market, which was gradually increased to 50 per cent in October 1967, 70 per cent in 1968 and 100 per cent in April 1969. The main objective of this decontrol was the Government's desire to facilitate the movement of fertilisers to farmers by widening the base of distribution by utilising the net work of manufacturers' distribution channels.

Data presented in the Appendices of this Review cover fertilisers produced by indigenous manufacturers and distributed by the manufacturers and Central Fertiliser Pool (on July-June basis). Actual consumption figures in terms of nutrients have, however, been taken as such from the proceedings of the Zonal Conferences on Fertilisers and are on April-March basis. Production, distribution and consumption tables by nutrients form another set which is placed after Chapter V (before Appendices) for easy reference. Alphabetically numbered tables pertain only to the Chapter under which these are discussed.

Until 1966-67, consumption figures were not readily available and distribution figures were treated as being synonymous with consumption on the assumption that there were only marginal variations in the stocks. But strictly speaking this is not so. With free marketing, there was a wide disparity between distribution and consumption. The increased use of fertilisers necessitated a clear distinction between and a critical analysis of factors affecting distribution and consumption of fertilisers. Therefore, as in the previous issue, separate figures of distribution and consumption have been provided except for 1966-67. Distribution data has been collected from the manufacturers and Central Fertiliser Pool in the form of fertiliser material. Consumption data is readily available from 1967-68 onwards



(x)

from the proceedings of the Zonal Conferences in the form of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O. The materialwise consumption figures are not conveniently available.

An attempt has been made to analyse the factors affecting the consumption of fertilisers in different States. The detailed Statewise analysis is given in the section dealing with nitrogenous fertilisers with relevant brief comments in the other sections. Impact of various agricultural extension programmes like HYVP, Multiple Cropping and special programmes of SFDA and MFAL which affect fertiliser consumption has been studied.

A study of actual production and distribution of fertiliser materials, Statewise and regionwise, has been made for the last five years—1966-67 to 1970-71. Capacity utilisation of N and P<sub>2</sub>O<sub>5</sub> has been analysed to evaluate the likely trends in production, and likewise analysis of production and distribution has been made to indicate changes in stock levels.

The future trends in production, distribution and consumption of fertilisers for 1971-72 have been estimated on the basis of actual production and distribution data from July to December 1971 collected from manufacturers and Central Fertiliser Pool and estimates for January to June 1972. An attempt has also been made to forecast the likely production and consumption for the years 1972-73 and 1973-74.

The Review deals only with fertilisers in a chemical form. Organic manures, bone-meal, rockphosphate, etc. are not covered.

*Notes on presentation*

Figures of production, distribution and consumption have been rounded off to the nearest thousand tonnes for ease of presentation. Percentages are given to the nearest one decimal place. Owing to rounding off, the totals of the columns may not, in every case, tally with the sum of the constituent items.

Production and distribution figures are on July-June basis whereas consumption and installed capacity figures are on April-March basis.

Wherever Statewise consumption figures are not available, regionwise figures are provided.

For the purpose of this Review, India has been divided into the following four regions:

*South:* Andhra Pradesh, Kerala, Mysore, Tamil Nadu, Pondicherry and Laccadive Islands.

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*West:* Gujarat, Madhya Pradesh, Maharashtra, Goa, Daman & Diu and Dadra & Nagar Haveli.

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

*East:* Assam (including Meghalaya and Mizoram), Bihar, Nagaland, Orissa, West Bengal, Manipur, Tripura, NEFA (Arunachal) and Andamans.

## SUMMARY AND CONCLUSIONS

This thirteenth edition of the Annual Review (for 1971-72) reviews the trends in actual production, distribution and consumption of fertilisers for the period 1966-67 to 1970-71, arranged nutrientwise and regionwise. Corresponding detailed statistics, materialwise and regionwise are given in the Appendices to enable a better appreciation of the factors affecting the trends. Based on a critical review of various relevant factors, an attempt is made here to gauge the likely production, distribution and consumption during 1971-72 (July-June) and extend these to cover the following year 1972-73 (and 1973-74). Whereas production and distribution are on July-June basis, consumption and distribution data are available only on April-March.

### I. Nitrogenous Fertilisers

#### *Production*

The installed capacity remained static during 1969-70 and 1970-71 at 1,323 thousand tonnes, whereas the production rose to 846 thousand tonnes in 1970-71 due to capacity utilisation of 64 per cent mainly on account of better performance of the new projects commissioned in 1969-70.

The year 1971-72 is a year of record expansion in capacity which rose from 1,323 to 1,839 thousand tonnes of N. Major contribution is due to the commissioning of Madras Fertilisers Ltd., Manali (190,000 N; 85,000 P<sub>2</sub>O<sub>5</sub>), IVth stage expansion of FACT, Alwaye (22,000N; 9,200 P<sub>2</sub>O<sub>5</sub>) and the projected commissioning of Cochin Fertiliser Project, Cochin (152,000 N) and of FCI, Durgapur (152,000 N) during the year. Production in 1971-72 is expected to register a sizeable increase over 1970-71 and production is anticipated to be 978 thousand tonnes. On account of the contribution from these projects accruing mainly in 1972-73 with some contribution anticipated from Goa project (175,000 N; 45,000 P<sub>2</sub>O<sub>5</sub>), production of nitrogen next year is expected to be around 1,200 thousand tonnes.

#### *Consumption*

Consumption data of N is available only from 1967-68 and is given Statewise in Table 6 (a) at the end of Chapter V.

A sharp rise in consumption of N is anticipated in 1971-72 at 1,761 thousand tonnes from 1,487 thousand tonnes in 1970-71, i.e. an increase of

18 per cent (Ref : Table 1 at the end of Chapter V). Had there been no shortage in the *rabi* 1971-72 season, the consumption would have been still higher.

Farmers have become aware of the benefits arising from fertiliser use. Special agricultural programmes have started showing promising results particularly on wheat in assured water supply areas. The National Demonstrations, Farmers' Training Programmes, Farmers' Development Agencies (Small and Marginal), 10-point fertiliser promotion programme, etc. are making their impact and in 1972-73, consumption should attain a new high level of 2,100 thousand tonnes of N, registering an increase of 19 per cent over 1971-72.

## II. Phosphatic Fertilisers

### *Production*

After 1966-67, the capacity of  $P_2O_5$  remained static at 427 thousand tonnes in the following four years 1967-68 to 1970-71. Nor did the production show any improvement since 1967-68 mainly on account of the shortage of either rock, sulphur or both and other related factors, e.g. shutting of superphosphate capacity which makes a sizeable contribution to total  $P_2O_5$  capacity, due to lack of market acceptability in competition with complex fertilisers.

In 1971-72, capacity and production are expected to go up to 532 and 308 thousand tonnes of  $P_2O_5$ , respectively, mainly, due to the commissioning of Madras Fertilisers Ltd., Manali, and fourth stage expansion of FACT, Alwaye.

With the improved performance of the above two projects and some contribution anticipated from Goa project, production in 1972-73 is expected to be around 360 thousand tonnes of  $P_2O_5$ . Current trend is towards production and use of phosphate in complex, mixture and granulated forms (containing either N & P or N, P & K) to facilitate attaining the goal of balanced application of plant nutrients.

### *Consumption*

Consumption data of  $P_2O_5$  is available only from 1967-68 [Ref: Table 7(a) at the end of chapter V].

Consumption of Phosphate has been erratic during the period under review. The over supply of complex fertilisers to the States and in the pipeline in 1967-68 seems to have corrected itself. Consumption during 1971-72 is expected to rise to 565 thousand tonnes registering a rise of 23

per cent over the previous year (Table 1). With emphasis on balanced fertilisation and success of special agricultural programmes, consumption of phosphates is likely to go upto 700 thousand tonnes of  $P_2O_5$  in 1972-73.

Materialwise trend of consumption shows that the share of superphosphate is gradually declining while that of high analysis complex fertilisers is correspondingly increasing. Superphosphate would continue to be used largely as an ingredient in mixture manufacture, in leguminous crops and in soils requiring sulphur and calcium in appreciable quantities.

### III. Potassic Fertilisers

Due to lack of indigenous production of potash, all our requirements are met through imports. This situation is likely to continue in the foreseeable future.

#### *Consumption*

Statewise actual consumption of potash for 1967-68 to 1970-71 with regionwise estimates for 1971-72 is given in Table 8(a) at the end of chapter V. Consumption in the previous two years has risen rapidly. Consumption during 1971-72 is anticipated to be 303 thousand tonnes registering an increase of 33 per cent over the previous year (Table 1). Due to the continuous use of nitrogen and phosphate on improved varieties of crops requiring heavy doses of fertilisers, potassic deficiency is becoming more marked. Its consumption is likely to continue to rise if we are to achieve the goal of balanced fertilisation. It is estimated that 390 thousand tonnes of potash will be consumed in 1972-73 registering an increase of 29 per cent over 1971-72.

Muriate and sulphate of potash were the only sources of  $K_2O$  supply till 1965-66. With the imports of NPK complex fertilisers from 1966-67 and indigenous availability since 1967-68, the share of muriate of potash as such as a source of  $K_2O$  has declined through increased use of complex fertilisers. Both muriate and sulphate of potash will, however, continue to play a big role to meet specific crop requirements.

### IV. Growth of Fertiliser Industry

The manufacture of chemical fertilisers in the form of superphosphate commenced in India in 1906. The manufacture of ammonium sulphate on a commercial scale started at FACT, Alwaye in 1947. The fertiliser industry received its due importance in the early fifties with the dawn of the development era in the country and has since then developed into a major factor in India's economic growth. Table 2 at the end of chapter V gives in chrono-



### VI. Share of Plant Foods

Production of N and  $P_2O_5$  during 1970-71 amounted to 78 and 22 per cent respectively, of the total production of all types of fertilisers. There was a gradual rise in the share of N because of increased contribution from the new capacity for N. (Ref: Table B)

Share of consumption of N remained constant at 68 per cent while that of  $P_2O_5$  dropped from 23 to 21 per cent,  $K_2O$  share registering a rise from 9 to 11 per cent. Ratio of 6.2:1.9:1.0 compared to the desired level of 4:2:1 is still heavily biased in favour of N.

**Table B**  
*Share of N,  $P_2O_5$  and  $K_2O$  to the total plant foods produced and consumed (1968-69 to 1970-71)*

Nutrient	Percentage share to the total					
	Production			Consumption		
	1968-69	1969-70	1970-71	1968-69	1969-70	1970-71
N	73	77	78	68	68	68
$P_2O_5$	27	23	22	23	21	21
$K_2O$	—	—	—	9	11	11
N+ $P_2O_5$ + $K_2O$	100.0	100.0	100.0	100.0	100.0	100.0

Note : Each figure here is assumed to be 100 in Table A.

### VII. Plant Food Consumption per Unit Area

From Table 9(a) given at the end of chapter V, it will be seen that the consumption of all the three plant nutrients per hectare of agricultural land has been increasing steadily over the period under review. It is expected to go up to 14.8 kg in 1971-72 and 18.3 kg in 1972-73 (Ref: Table C). The general trend is healthy indeed.

**Table C**

*Distribution and consumption of plant foods per hectare of agricultural land (kg) (1966-67 to 1972-73)*

Year	Distribution	Consumption
1966-67	6.9	6.9
1967-68	10.0	6.7
1968-69	9.6	9.6
1969-70	8.0	11.4
1970-71	10.2	12.3
1971-72 (Est.)	13.3	14.8
1972-73 (Est.)	17.8	18.3

#### Conclusions

The year 1967-68 was a memorable one in that the consumption of fertilisers during the year rose by 40 per cent over the previous year. The rate of growth remained more or less static thereafter, at 13-14 per cent till 1970-71 when it dropped to 9 per cent. This caused anxiety and misapprehensions to all concerned with the agricultural development of the country because of the correlation between fertiliser consumption and agricultural production. Doubts were being expressed of our ability to sustain progress in achieving our agricultural production targets with such a low rate of growth of fertiliser consumption. It is, therefore, heartening to note that the growth rate in 1971-72 based on the figures compiled at the recent round of zonal conferences, has been 22 per cent over the previous year. This is particularly gratifying since this increase is over a larger base of 1970-71 as compared to 1966-67. It is our firm view that the consumption would have been higher still, probably at 25-26 per cent, but for some of the following inhibiting factors :

- (i) natural calamities such as cyclones, drought and floods in some States;
- (ii) non-availability of adequate quantum of production credit to the farmers;
- (iii) inadequacy of transport and warehousing facilities particularly in hilly and inaccessible areas;
- (iv) gaps in extension and promotional efforts;



- (v) inadequate distribution system including weak co-operative structure in some States; and
- (vi) periodic shortages of farmer-preferred fertilisers and the time lag in their changing over to alternatives.

The net effect was that the actual fertiliser consumption did not keep pace with rapid increases in the potential demand arising, amongst other things, from the larger coverage under special agricultural programmes like high-yielding varieties and multiple cropping. Despite this, the year 1971-72 can be regarded as the "fertiliser year" in a true sense of the world. It has exhibited a forward thrust in demand which has tended to slow down. A close study of the measures taken to overcome the inhibiting factors and to safeguard against such pitfalls in future shows that the future for fertiliser consumption is bright. Fertiliser consciousness has been created all round the country. On this firm base, it should be possible to achieve a sustained substantial growth rate. This possibility is even greater if we take into account the increased emphasis in future on development of rice and cash crops, provided adequate supplies are available at the right time, coupled with adequate credit support. The latter is necessary so that farmers can procure and effectively utilize the various inputs in an economic manner.

This optimism for the future stems from a number of factors. Government of India have initiated various development projects like intensive cotton and jute programmes, pilot projects for multiple cropping and Small and Marginal Farmers Development Agencies. Development of dry farming is being given increased attention both by the Government and the fertiliser industry. Nationalised banks are devoting greater attention to providing funds for the agricultural sector and for production and distribution credit for fertilisers. Liberalisation of the terms of the Credit Guarantee Corporation for fertiliser distribution should enable more funds to flow into this vital sector.

Most domestic manufacturers have intensified their promotional efforts and introduced various interesting and novel features in their package of sales promotion activities. The efficiency of their endeavours will be considerably enhanced by the formation of the Fertiliser Promotion Cell in the Government of India under the charge of a Fertiliser Promotion Commissioner. This cell will initiate a massive 10-point programme and generally coordinate the promotional activities of the industry for achieving optimum benefits.

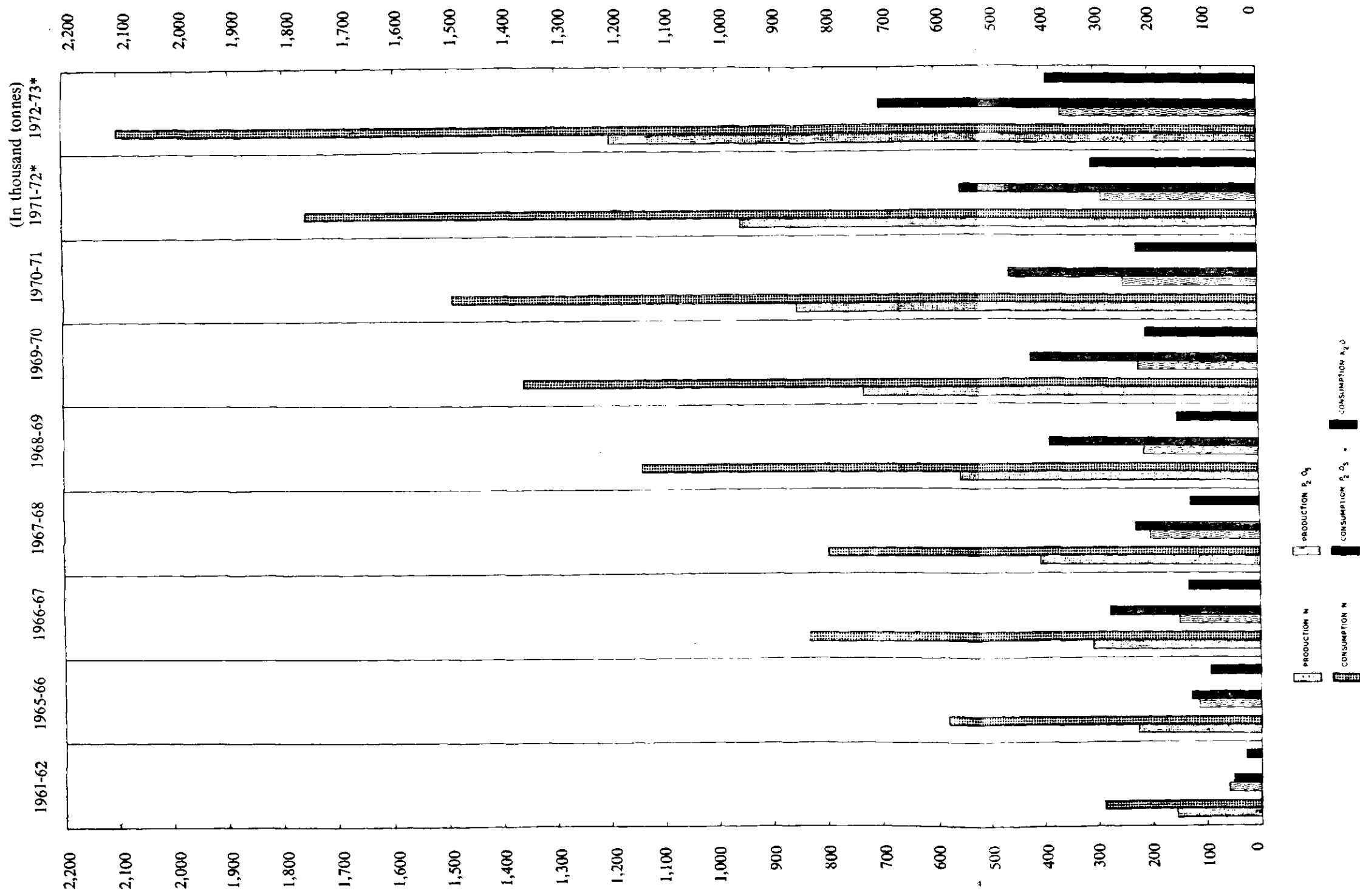
One of the bottlenecks has been rail movement of fertilisers. A beginning has been made with forward planning of movement from fertili-

ser plants on a quarterly basis. It is hoped that with more experience this exercise will become more fruitful.

Most of the above mentioned measures are problem-oriented and should contribute to the agricultural prosperity of the country. But these can really be effective only if adequate quantities of fertilisers can be made available within the country to meet total requirements.

Domestic production being short of requirement, adequate supply is linked with a realistic import programme. It is true that both installed capacity and indigenous production are increasing every year. But so are the requirements and the ratio of actual production to consumption continues to be around 60-65 per cent. This shortfall will continue, may be even beyond 1975-76, the current target for achieving self-sufficiency in fertilisers. The balance requirement has to be met from imports which will evidently continue for some time even if urgent steps are taken to augment domestic capacity. Recent experience has shown the need for planning imports carefully on a long term basis and yet building flexibility into the operations of the pool. Import requirements may need a drastic change at short notice due to a combination of various factors, e.g., spurt in demand, shortfall in domestic production, breakdown in imports, etc. Our system of imports should be such as can quickly react to these changes. Basic approach should be to have enough product in stock and in the pipeline to fill gaps and prevent a psychology of shortages from developing in the market, as this psychology creates a variety of problems all round. Of course, to prevent it a great responsibility devolves upon the domestic manufacturers also, who plan ahead their production programme, to advise in good time the Government and their consumers of likely changes in their production pattern so that the Government can take suitable timely action to prevent a break down in supplies. It is the coordinated efforts of the Government and the Industry that will ensure adequate production availability to the farmer and assist in the onward march of the "Green Revolution".

**PRODUCTION AND CONSUMPTION OF N, P<sub>2</sub>O<sub>5</sub> AND K<sub>2</sub>O IN INDIA  
DURING 1961-62 AND 1965-66 TO 1972-73**



Note : Potassic fertilisers are not produced in the country.

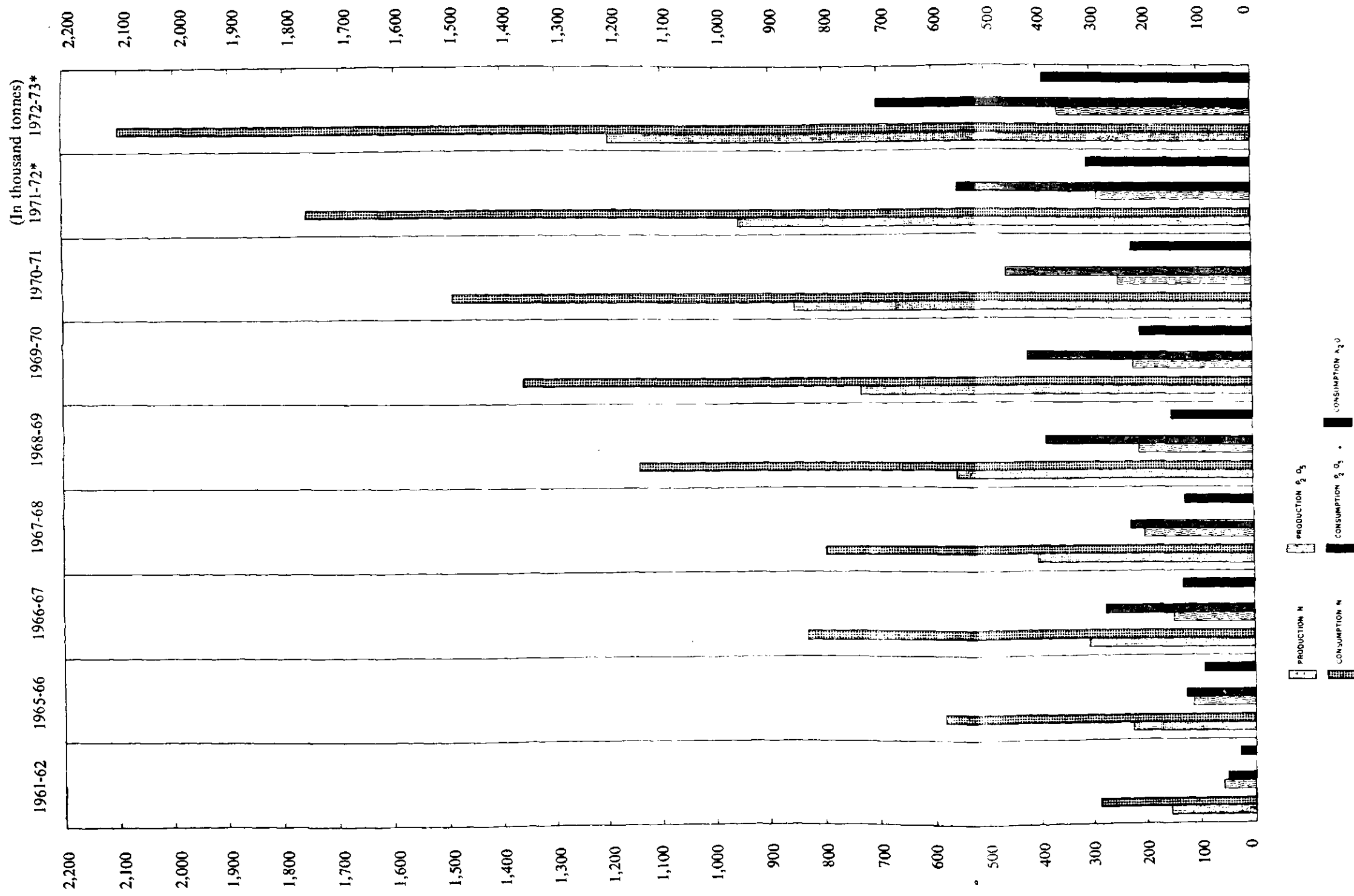
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**PRODUCTION AND CONSUMPTION OF N, P<sub>2</sub>O<sub>5</sub> AND K<sub>2</sub>O IN INDIA  
DURING 1961-62 AND 1965-66 TO 1972-73**

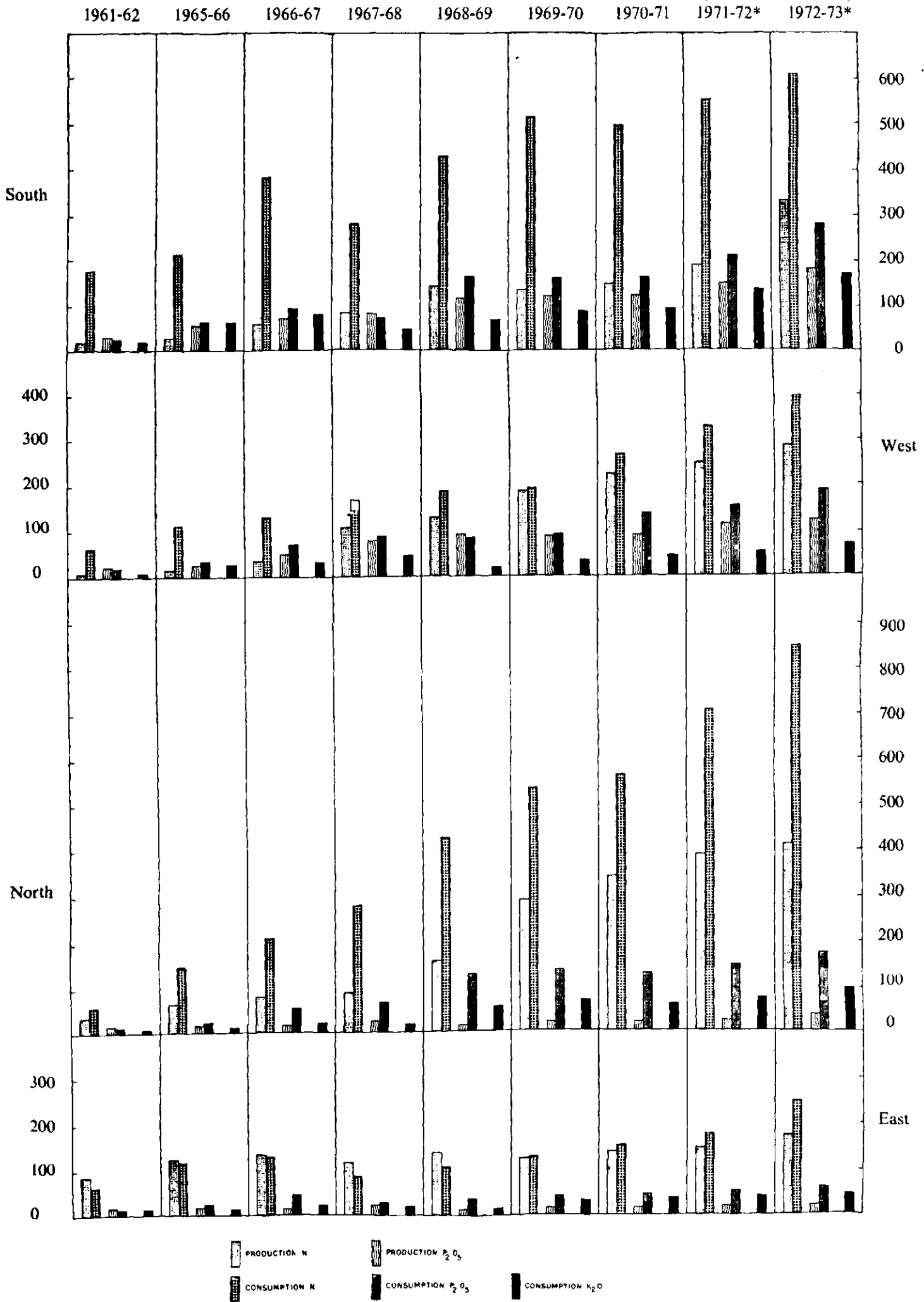


Note : Potassic fertilisers are not produced in the country.

\* Estimated

**REGIONWISE PRODUCTION AND CONSUMPTION OF N, P<sub>2</sub>O<sub>5</sub>, AND K<sub>2</sub>O  
DURING 1961-62 AND 1965-66 TO 1972-73**

(In thousand tonnes)



Note : Potassic fertilisers are not produced in the country.  
\* Estimated

**DETAILS OF PRODUCTION,  
DISTRIBUTION AND  
CONSUMPTION**

## CHAPTER I

### PRODUCTION OF FERTILISERS

The development of fertiliser industry in India before the commencement of Plan periods (1906 to 1950) and during the successive Five Year Plans is presented in Appendix I (a).

Production of chemical fertilisers started in 1906, first in the form of superphosphate by M/s. E.I.D.—Parry Ltd., Ranipet. The first synthetic nitrogen fertiliser factory started producing ammonium sulphate from 1939 at Belagula by M/s. Mysore Chemicals & Fertilisers Ltd. The Fertilisers and Chemicals Travancore Ltd., Alwaye, started commercial production of ammonium sulphate in 1947 and was the first unit in the country to start the production of complex fertiliser in December 1960.

#### A. Forms in Which Fertilisers are Produced

##### NITROGEN

During the period under review (1966-67 to 1971-72), various single nutrient and multi-nutrient fertilisers were produced in the country. Their production during each year, actuals upto 1970-71 and estimates for 1971-72 is given in Table 3 at the end of chapter V. The table also presents the percentage increase in production of materials over the previous years and their contribution to the total nutrient produced during the year.

The material-wise capacity of each factory in production (as on 1.1.1972) is given in Appendix I (b). Fertilisers produced in the country, materialwise and Statewise, are given in Appendices II to IV.

##### *Capacity*

The year 1971-72 is a year of record expansion in capacity (Table A pp 19) when (i) a new factory of MFL, Manali, with urea and NPK complex fertilisers went into production in October 1971, (ii) FACT, Alwaye, completed its fourth stage expansion in October 1971 and (iii) Cochin Fertiliser Project, Cochin, and FCI, Durgapur, are expected to start trial runs before the close of the year 1971-72. Of the three new urea plants of 1971-72, two are situated in the Southern region at Manali (210,000 tonnes of urea) and Cochin (330,000 tonnes of urea) and the third in the Eastern region at Durgapur (330,000 tonnes of urea). The NPK complex fertiliser factory is of Madras Fertilisers Ltd. (MFL) in the Southern region at



Manali with a capacity of 360,000 tonnes manufacturing 17-17-17 and 14-28-14 grades. The fourth stage expansion of FACT, Alwaye, generated an additional capacity for 22,000 tonnes of N.

Earlier, factories like M/s. Coromandel Fertilisers Ltd., Vizag, M/s. E.I.D.—Parry Ltd., Ennore, M/s. G.S.F.C. Ltd., Baroda, and M/s. F.C.I. Ltd., Trombay, came out with some new formulations of NPK complex fertilisers shown here in that order (22-22-11), (14-35-14); (14-14-14); (18-27-3); and (20-20-2), (18-18-9), (15-15-15), (14-10-5-14), (15-7.5-15); 15-7.5-10); respectively.

There has been no substantial addition to the capacity of production of other fertilisers.

#### *Production*

Total production of N in the country rose by 15.6 per cent in 1970-71 over the previous year. All nitrogenous fertilisers, except ammonium sulphate nitrate and calcium ammonium nitrate, contributed to this increase. In 1971-72, total production of N is likely to go up further by another 16.6 per cent. Main contribution will come from urea, CAN, ammonium phosphate sulphate, nitrophosphate and complex NPK.

### **Straight Nitrogenous**

#### *Ammonium sulphate*

Five units produce ammonium sulphate by synthesis (one gypsum-based) and six units produce as by-product from coke-ovens. Although there has been a rise in production of ammonium sulphate during 1970-71 compared to 1969-70, the production is likely to decrease in 1971-72 over 1970-71 (Ref. Table 3 at the end of chapter V). The fall in production of ammonium sulphate is attributed to the fact that units like FCI—Sindri and FACT—Alwaye are not in a position to utilize their full capacity due to mechanical troubles and non-availability of right type of raw materials. Similarly, production of ammonium sulphate went down at GSFC—Baroda, FCI—Namrup and E.I.D.—Parry Ltd., Ennore due to mechanical troubles. In the units producing ammonium sulphate as by-product, ammonium sulphate production is dependent upon the production of coke oven gas. As the major production is in the five synthetic units, the production of ammonium sulphate would go up only when the five major units producing synthetic ammonium sulphate achieve an improvement in their capacity utilisation.

#### *Ammonium sulphate nitrate*

The only factory producing ammonium sulphate nitrate is at FCI—Sindri. There has been a downward trend in its production from 1967-68,

when its production was 62-thousand tonnes against a capacity of 122 thousand tonnes (the reported attainable capacity is 83 thousand tonnes). Reason for low utilisation of capacity is the obsolete plant and low quality raw materials. Prospects of an immediate improvement are remote.

#### *Urea*

There were nine urea manufacturing units having a total installed capacity of 1,581 thousand tonnes in 1970-71. One more unit went into production in 1971-72 and the installed capacity has gone up to 1,791 thousand tonnes, the contribution being from M/s. Madras Fertilisers Ltd., Manali. M/s. Cochin Fertilizer Project, Cochin and M/s. F.C.I. Ltd., Durgapur have gone into trial runs and may go into commercial production during June 1972. During 1970-71, 59.9 per cent N production is through urea. Though urea production would go up in 1971-72, in the overall production of nitrogenous fertilisers substantial share would be taken away by NPK fertilisers and, hence, the contribution of urea would drop to 58.6 per cent.

#### *Ammonium chloride*

Although ammonium chloride is produced in two factories, only one factory with a capacity of 41 thousand tonnes produces fertiliser grade. Production during the period under review varied between 14 and 23 thousand tonnes highest being during 1970-71. It might improve slightly in 1971-72. The low production is due to the obsolete technology and plant; however, attempts are being made to incorporate the modern technology of steam reforming of naphtha for ammonia production. The share of ammonium chloride in the total nitrogenous fertiliser production is small but may rise in course of time as a few more plants are licensed for its production.

#### *Calcium ammonium nitrate*

There are two factories — one at Nangal and other at Rourkela— producing calcium ammonium nitrate with a total capacity of 800 thousand tonnes per annum. Total production from both the units has been low at 312 thousand tonnes during 1970-71 due to power shortage at Nangal and, non-availability of right quality and adequate quantity of raw gas at Rourkela. Even in 1971-72, production is unlikely to go beyond 460 thousand tonnes. Since there is a heavy demand for CAN in most of the Northern States, there would appear to be a great need for ensuring adequate power supply to FCI Nangal; simultaneously the naphtha gasification plant at Rourkela should be commissioned expeditiously. When power is made available to the Nangal plant, it works to the full attainable capacity.

The contributions made by various fertiliser materials to total nitrogen during the period under review are given in Table 3 at the end of chapter V. It will be noticed that urea takes the first place in having contributed in 1970-71, 59.9 per cent of total nitrogen with an estimate of 58.6 per cent in 1971-72. The prominent position once held by ammonium sulphate and calcium ammonium nitrate has considerably diminished since 1966-67. This trend is likely to continue.

#### *Complex*

The contribution of complex fertilisers to the total nitrogen was about 9 per cent in 1966-67 when only ammonium phosphate sulphate and nitrophosphate were being produced. In 1970-71, their share went up to about 14 per cent. This is expected to go up further to 15 per cent in 1971-72 with the commissioning of Madras Fertiliser Factory at Manali and the IVth stage expansion of FACT, Alwaye. Within the complex fertilisers, there is a marked trend towards balanced fertilisers. Nitrophosphates and NPK are gaining popularity. Their total contribution to N went up from 2.4 per cent in 1969-70 to 3.3 per cent in 1970-71 and 6.2 per cent (estimated) in 1971-72.

A comparison of Appendix 1 (b) with Table 3 (at the end of chapter V) will show that the production of nitrogenous fertilisers during the year 1970-71 was only 64 per cent of the installed capacity. Some of the causes for the shortfall are listed below :

- (1) Some of the ammonium sulphate plants e.g., FCI, Sindri, and FACT, Alwaye, have become very old and need major renovation. Some technological improvement and other development work has already been started at these factories.
- (2) Other difficulties like labour unrest, shortage and/or non-availability of raw materials in time were experienced by some factories.
- (3) Plants based on gypsum and coal had operational difficulties due to the poor quality of these feedstocks.
- (4) The supply of power from Bhakra power project was cut by 50 per cent which resulted in a serious fall in production of CAN at Nangal. Chances of a significant improvement in the situation in the immediate future seem remote unless alternate arrangements of assured supplies of power are made.
- (5) Accidents of a technical nature and mechanical troubles were reported from M/s. GSFC Ltd., Baroda, Indian Explosive Ltd., Panki, and Units of FCI at Gorakhpur and Namrup.

- (6) Other difficulties were power failure, voltage drops, shortage of railway wagons, transshipment difficulties, etc.

## PHOSPHATE

### *Capacity*

The entire production of phosphate in the country was in the form of superphosphate. That year is a landmark when the first factory to manufacture complex fertiliser went into production at FACT, Alwaye. As the years passed by, many more complex fertiliser factories were commissioned. The overall capacity of  $P_2O_5$  in 1966-67 was 378 thousand tonnes which has risen to 427 thousand tonnes in 1970-71 (Table A pp. 19) During 1971-72, one more factory of complex fertilisers (MFL) has gone on stream, raising the total capacity to 532 thousand tonnes.

Table 3 (at the end of chapter V) gives the actual annual production of  $P_2O_5$  from 1966-67 onwards.

Total capacity of superphosphate in the country is 1,373 thousand tonnes of material. No new units of superphosphate went into production during 1970-71 nor is any addition in capacity envisaged during 1971-72 though another two factories started production of granulated superphosphate and granulated mixtures.

### *Production*

The production of single superphosphate, hitherto the major source of  $P_2O_5$ , was 665 thousand tonnes in 1970-71 (vide Table 3 at the end of chapter V) which was only 5.3 per cent above 1969-70. The capacity utilisation during the year was 48 per cent. Its production during 1971-72 is, however, expected to be 840 thousand tonnes, an increase by 28.2 per cent over 1970-71 due to the emphasis on reducing the import bill in an endeavour to be self-reliant. This will result in better utilisation of indigenous capacity.

The performance of superphosphate factories has been far from satisfactory due to a variety of reasons, main ones being lack of demand due to competition from cheaper complex fertilisers and non-availability of adequate quantities of the two main raw materials, rockphosphate and sulphur which are mostly imported. During the year 1969-70 and 1970-71, the contribution of superphosphate to the total  $P_2O_5$  production in the country was more or less the same (43 per cent). This is unlikely to change in 1971-72 also despite a rise in the quantum of production because of increased share of complex fertilisers.

It is hoped that promotional efforts of producers to popularise the use of single and triple superphosphates and the active support of the Government to optimise indigenous production to conserve foreign exchange would result in better utilisation of capacity. It may be seen from Table 3 (at the end of Chapter V) that the production of triple superphosphate, which started in 1967-68, is gradually increasing over the years as against its capacity of 27 thousand tonnes. Comparatively low performance seems to be due to fluctuating demand.

The other fertilisers contributing  $P_2O_5$  are ammonium phosphate sulphate, nitrophosphate, diammonium phosphate, urea ammonium phosphate and NPK complex fertilisers. At the beginning of the period under review, i.e. 1966-67, ammonium phosphate sulphate and nitrophosphate were the only two complex fertilisers produced in the country, which contributed 19 per cent of the total  $P_2O_5$  produced. During 1967-68, diammonium phosphate and urea ammonium phosphate started production and the total production of complex fertilisers has been growing gradually each year. Consequently, the contribution of the complex fertilisers to the total  $P_2O_5$  in the years 1969-70 and 1970-71 was 53 and 55 per cent, respectively. Correspondingly, the contribution of superphosphate to the total  $P_2O_5$ , once dominant, has come down from 78 per cent in 1966-67 to 43 per cent in 1970-71 due to increased capacity of complex fertiliser factories and high nutrient content of their end-products. This trend is likely to continue because of the definite market preference for high analysis balanced fertilisers.

Within the complex fertilisers, balanced fertilisers like nitrophosphates and NPK complexes are gaining popularity. Whereas their contribution to total  $P_2O_5$  in 1969-70 was 7.8 per cent, it is expected to go up in 1971-72 to 19.8 per cent.

#### **B. Production of Fertilisers by States**

The fertiliserwise and factorywise installed capacity of the units located in various States is given in Appendix I (b).

Appendices II, III and IV provide actual production Statewise and materialwise for the period 1966-67 to 1970-71 and estimates for 1971-72. The consolidated Statewise production figures in terms of nutrients, N and  $P_2O_5$  are given in Table 4 at the end of Chapter V.

#### **NITROGEN**

##### **(A) ALL-INDIA**

##### *Capacity*

It may be seen from Appendix I (b) that capacity has been increasing every year (barring 1970-71) with a big spurt during 1971-72. The latter,

as mentioned earlier, is due to the commissioning of one plant viz., Madras Fertilizers Ltd., Manali, in October 1971 and another two plants, FCI Ltd., Durgapur, and Cochin Fertiliser Project, Cochin, taking trial runs by the end of the year 1971-72 besides the completion of the fourth stage expansion of FACT, Alwaye.

#### Production

Production has also been increasing steadily over this period as seen from Table 3. Even though the capacity remained unchanged production went up by 16 per cent in 1970-71 over 1969-70, due to improved performance of plants commissioned during the previous year. In 1971-72, it is likely to go up by another 16.6 per cent. Main impact of the newly generated capacity will, however, be felt in 1972-73.

**Table A**  
*Capacity and production of N & P<sub>2</sub>O<sub>5</sub>*

Capacity/ Production	By the year					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
('000 tonnes)						
<b>Nitrogen</b>						
Capacity	531	787	1,123	1,323	1,323	1,839
Production	309	402	562	730	846	978*
Performance (percentage)	58.2	51.1	50.0	55.2	63.9	53.5
<b>Phosphate</b>						
Capacity	378	427	427	427	427	532
Production	145	207	203	223	244	308*
Performance (percentage)	38.4	48.5	47.5	52.2	57.1	57.9

\*Estimated

#### Capacity utilisation

The installed capacity, total production and capacity utilisation are given in Table A above. It may be seen that in 1966-67, the production of nitrogen was 58.2 per cent of the installed capacity. It dropped to about 50 per cent in 1968-69. Capacity utilisation went up again during the next two years but is likely to register a fall in 1971-72 on account of non-

utilisation to the full of the large additional capacity commissioned towards the end of the review period. Position should improve again during the following year.

#### (B) REGIONWISE PRODUCTION

Table 4 (at the end of chapter V) depicts the annual production of fertiliser nutrients, All-India, Regionwise and Statewise from 1966-67 onwards. It would be observed that production of N has increased considerably in the Northern region during this period and more so from 1968-69 onwards. Upto 1967-68, Eastern Region led the other regions. Thereafter, Northern Region has been in the lead followed by Western, Southern and Eastern Regions. This inter-regional change is due to the commissioning of two big nitrogenous fertiliser plants one each in Northern and Western Regions. The recent increases in production capacity in the Southern and Eastern Regions will affect production only during 1972-73.

#### *Southern Region*

From a close study of the Statewise production of nitrogen, it will be noticed that in the Southern Region Andhra Pradesh contributed the most during the last three years. This is due to the improved performance of M/s. Coromandal Fertilisers Ltd., Vizag, since it was commissioned in December 1967.

Next comes Tamil Nadu where E.I.D.—Parry Ltd., Ennore, and Neyveli Lignite Corporation, Neyveli, with an annual capacity of 86,000 tonnes of N produced 45 and 51 thousand tonnes during the years 1967-68 to 1969-70. Production during 1970-71, however, went down to 41 thousand tonnes. Reasons for low production at Neyveli were labour unrest, mechanical trouble, non-availability of adequate quantity of lignite; and at E.I.D.—Parry Ltd., Ennore, mechanical and labour troubles.

Production went up during 1968-69 due to the completion of third stage expansion of the FACT plant. But there has been a gradual decline thereafter, due to a variety of reasons.

Although Mysore was the first to start synthetic nitrogenous fertilisers, it is now stopped.

With the commissioning of the fourth stage expansion of FACT during 1971-72 and trial runs at Cochin Fertiliser Project by the end of the year 1971-72 in Kerala and, commissioning of Madras Fertilisers Ltd., Manali in Tamil Nadu, production in Tamil Nadu and Kerala States should rise during the following year.

*Western Region*

Increase in production of N in the Western Region is mainly contributed by Gujarat, on account of the commissioning of GSFC Baroda in May 1967 with an annual installed capacity of 96 thousand tonnes of N. Production in Gujarat has been steadily increasing over the years as GSFC plant commissioned its second stage expansion in June 1969 and got over its teething troubles. In Madhya Pradesh, there is only one factory producing nitrogenous fertiliser as a byproduct based on coke oven gas which it receives from the steel plant of Hindustan Steel Ltd. at Bhilai. Its contribution is minimal. In Maharashtra, FCI at Trombay produces urea and various grades of nitrophosphates. Production at Trombay during 1970-71 was better than during the earlier years. Some of the reasons for shortfall are reported to be mechanical trouble, design problem and feed stock/raw material shortage. These difficulties are being expeditiously surmounted by "debottlenecking". Performance during 1971-72 is expected to be appreciably better than in the past.

*Northern Region*

The year 1967-68 was a significant year for Uttar Pradesh as urea production commenced at FCI—Gorakhpur plant having an annual installed capacity of 80,000 tonnes of N. In 1969-70, another unit was commissioned in the State, Indian Explosives Ltd.,(IEL) at Panki, Kanpur, with an installed capacity of 200,000 tonnes of N per annum.

From 1970-71, U.P. has emerged as the largest producer of N. Out of the three factories in the State, two manufacturing urea are very large i.e. IEL, Kanpur and FCI, Gorakhpur. The third plant produces ammonium chloride. Though the contribution from ammonium chloride to total N is negligible, the entire supply of fertiliser grade ammonium chloride in the country is made by this unit supported by occasional imports. The production of these factories is gradually increasing every year with a significant rise in 1970-71. IEL has picked up. FCI, Gorakhpur was working to full capacity, but its production went down due to a variety of reasons. Production during 1971-72 is expected to be even better though not upto its full capacity due to labour problems, shortage of power in the State and inadequacy of naphtha at Gorakhpur.

The only factory in Rajasthan is of M/s. Shriram Chemical Industries at Kota. It went into production in 1968-69 with an installed capacity of 240 thousand tonnes of urea per annum. Production has been steadily rising every year and is likely to be well over capacity during 1971-72.



The production of CAN at FCI, Nangal in the Punjab had been steady during the period 1966-67 to 1969-70. It, however, dropped sharply in 1970-71 due to heavy power cut from Bhakra Power system. There is a likelihood of considerable improvement during 1971-72.

#### *Eastern Region*

In the Eastern region the production of nitrogenous fertilisers is shared by all the four major States of Bihar, Orissa, Assam and West Bengal in that order.

The factory of FCI, Namrup in Assam went into production in 1968-69. The level attained in 1969-70 was maintained in 1970-71. It is hoped that by overcoming its problems, the performance of FCI Namrup would improve in future.

Of the three fertiliser units in Bihar, two produce byproduct ammonium sulphate, the main item of production being steel. The third and only synthetic fertiliser (N) factory in the State is of FCI Ltd., Sindri. The overall production of N in the State dropped in 1967-68 from the previous year and has been more or less static ever since. The reported causes for low production at Sindri are the very old plant, poor quality and inadequate supply of gypsum, coal and frequent mechanical troubles. A planned renovation and rationalisation programme has been taken in hand toward which naphtha gasification plant is being completed.

In Orissa, calcium ammonium nitrate (CAN) and byproduct ammonium sulphate are produced. The production of CAN is tied down to the availability of coke oven gas. A new naphtha gasifier is being installed to supplement supply of feedstocks. Production during the years under review was between 22 to 40 per cent due to the poor supply of coke oven gas, power shortage and mechanical troubles.

In west Bengal, till 1970-71 only two factories produced byproduct ammonium sulphate. With the commissioning of FCI, Durgapur unit by the end of 1971-72 with a capacity of 152 thousand tonnes of N, it is hoped that nitrogenous production in West Bengal also will go up considerably.

#### *Phosphates*

Statewise production of phosphates for the years 1966-67 to 1971-72 is also given in Table 4 (at the end of chapter V). Materialwise details of installed capacity per annum, developments in the phosphatic fertiliser capacity and production are given in Table A pp 19 and Appendices I(a), I(b), III and IV.

**(A) ALL-INDIA***Capacity*

Capacity increased marginally in 1967-68 over the previous year but remained static thereafter at 427 thousand tonnes till 1971-72 when it went up to 532 thousand tonnes (vide Table A pp 19) with the commissioning of MFL, Manali.

*Production*

Production of  $P_2O_5$  in the country has been increasing gradually from 145 thousand tonnes in 1966-67 to 244, thousand tonnes in 1970-71. This has been achieved primarily through better utilisation of existing capacity. This is likely to go up substantially during 1971-72 to 308 thousand tonnes (vide Table A pp 19) due to the commissioning of MFL plant and better utilisation of existing capacity which is essential to make up the anticipated drop in imports due to suspension of some foreign aid. This suspension has developed restriction on imports of complex fertilisers during 1971-72 which might give a fillip to superphosphate production.

**(B) REGIONWISE PRODUCTION**

The capacity for  $P_2O_5$  is concentrated in Southern and Western Regions as most of the big units of superphosphate and complex fertilisers are situated in these regions. This pattern is likely to continue for some more years. During the year 1971-72 another unit was commissioned in the Southern Region (NPK complex fertiliser factory of Madras Fertilisers Ltd., at Manali). Eastern and Northern Regions do not have any complex fertiliser factories. Main increase in production of phosphates, therefore, took place in the Southern and Western Regions with the other regions contributing much smaller quantities.

**(C) STATEWISE PRODUCTION**

Andhra Pradesh, Maharashtra and Gujarat are the only three States where the annual production was over 30 thousand tonnes of phosphate each during the period 1968-69 to 1970-71. These three States account for 50 per cent of the total production of  $P_2O_5$  in the country. The production in the first two States has registered an increase every year with a marginal drop in Gujarat. There was increase in production during 1970-71 in the States of Kerala, Madhya Pradesh, Rajasthan and West Bengal. In the remaining States producing  $P_2O_5$ , there was a decrease due to various factors already mentioned elsewhere.

*Complex fertilisers*

The production of complex fertilisers confined to only five States, i.e. Andhra Pradesh (urea ammonium phosphate), Kerala (ammonium phos-

phate sulphate), Tamil Nadu (ammonium phosphate sulphate and NPK complex), Maharashtra (nitrophosphate) and Gujarat (diammonium phosphate) (vide Appendix IV). The main contribution to phosphates in these States, except in Tamil Nadu, is from complex fertilisers. During the period 1968-69 to 1970-71, the relative contribution of superphosphate and complex fertilisers to the total production of  $P_2O_5$  from these five States was 33 and 67 per cent respectively. With the commissioning of new complex fertiliser units like MFL, the share of superphosphate will come down still further while that of complex fertiliser will correspondingly increase if the superphosphate factories did not improve their production performance.

During 1970-71, the production of complex fertilisers in these States increased in the following manner over 1969-70 :

Andhra Pradesh	—	12.7 per cent
Tamil Nadu & Kerala	—	12.0 per cent
Maharashtra	—	52.8 per cent
Gujarat	—	(—) 3.8 per cent

The year 1971-72 is expected to be a very good one and production of all complex fertilisers, except diammonium phosphate, is expected to show a sizeable increase. A major part of this increase will be contributed by the recently commissioned Madras Fertilisers Ltd., manufacturing 17-17-17 and 14-28-14 grades.

A comparison of production and distribution of complex fertilisers during the period under review (Tables 3 & 5 given at the end of Chapter V) would reveal that the imports of complex fertilisers which started five years ago are still quite large and reportedly adversely affecting the indigenous production of  $P_2O_5$  particularly superphosphate. But the reduction in foreign aid will affect import and pave the way through import substitution towards larger indigenous production.

With the anticipated upsurge in demand for fertilisers in the country and the increased emphasis on optimising indigenous production, it is fair to expect that the future of fertiliser industry in India is indeed bright.

## CHAPTER II

### CONSUMPTION OF FERTILISERS

#### A. Forms in which Fertilisers are Consumed

A variety of fertilisers of different nutrient contents were distributed, and hence, consumed, during the period under review. Details of these are given in Table 5 at the end of chapter V and their Statewise break-up of distribution in Appendices V to XX.

The following Table A shows the quantities of fertilisers distributed in terms of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O during the period under review :

**Table A**  
*Distribution of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O*  
(1966-67 to 1971-72\*)

	('000 tonnes)					
Distribution	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
Nitrogen	820	1,156	1,220	1,004	1,299	1,597
Phosphate	275	447	296	236	306	467
Potash	134	206	162	151	197	254

\*Estimated.

These figures are based upon the detailed information given in Appendices V to XX. Figures upto the year 1970-71 are actuals based on data received from the manufacturers and the Central Fertiliser Pool. Estimates for 1971-72 are based upon actuals for the first half, i.e., July to December 1971, and estimates for the period January to June 1972.

It will be noticed from Table B (pp 26) that the consumption of fertilisers rose rapidly in the past few years. Many factors contributed to this increase. Some of them are: Promotional efforts by the Government agencies; incentives like off-season rebates, subsidies; introduction of High Yielding Varieties; freedom of marketing to private manufacturers, greater promotional and marketing efforts by them; and the gradual realization by the farmers of the benefit they would derive through higher agricultural output by the use of fertilisers.

**Table B**

*Changes in inventories of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O in the States  
(1967-68 to 1970-71 and 1971-72\*)*

('000 tonnes)

Distribution/ Consumption	By the year				
	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>Nitrogen</b>					
Distribution	1,156	1,220	1,004	1,299	1,597
Consumption	799	1,131	1,360	1,487	1,761
Inventories (N)@ (±)	-357	+89	-356	-188	-164
<b>Phosphates</b>					
Distribution	477	296	236	306	467
Consumption	236	389	419	461	565
Inventories (P <sub>2</sub> O <sub>5</sub> ) @ (±)	211	-93	-183	-155	-98
<b>Potash</b>					
Distribution	206	162	151	199	254
Consumption	129	154	209	228	303
Inventories (K <sub>2</sub> O) @ (±)	+77	+8	-58	-29	-49

\* Estimated.

@ Does not take into account inventories (in the States) at the end of the previous year.

During the latter part of the year 1971-72, there has been generally a shortage of supplies in most parts of the country. Main contributory causes have been :

- (a) Delay in startup of plants like MFL, Cochin & Durgapur;
- (b) Low capacity utilisation in some of the plants due to a variety of problems, e.g. shortage of raw material industrial relations, power failure, technical problems, etc.
- (c) The suspension of aid by some countries and the delay in the import of fertilisers;
- (d) Diversion of a part of domestic production to Bangla Desh to meet their urgent demands.

Assumed indigenous availability did not materialise due to (a) & (b) above. Not only was it not possible to make up the deficit from additional imports but even the planned imports programmes have been upset by the suspension of aid by some countries, the generally reduced availability of some of the materials (e.g. ammonium sulphate), hardening of prices in the international market and delays in arranging imports.

These factors have inhibited total consumption figures. With better availability, consumption for the year 1971-72 would have been higher by about 5 per cent.\*

Main forms in which fertilisers are consumed in the country are as follows :

- Nitrogenous — Urea, calcium ammonium nitrate, and ammonium sulphate;
- Phosphate — single superphosphate;
- Complex — ammonium phosphate sulphate, urea ammonium phosphate, diammonium phosphate, nitrophosphate and NPK complexes.

#### *Nitrogenous*

Consumption (distribution) of nitrogenous fertilisers during the year 1970-71 increased by 28 per cent over the previous year. This is likely to

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\* The original estimate of consumption of plant nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) for 1971-72 determined at Sept./Oct. 1971 Zonal Committee Meetings was at 2,768 thousand tonnes. Due to the reasons mentioned above, the consumption for the current year is likely to be 2,629 thousand tonnes [vide Tables 6(a), 7(a) & 8(a) at the end of Chapter V].

go up further during 1971-72 by another 23 per cent over the last year (vide Table 5 at the end of chapter V). Taking 1966-67 as the base year, consumption would have nearly doubled by 1971-72. This increase in consumption (distribution), although insignificant, is not adequate to meet the desired targets and various promotional measures are being taken to accelerate consumption.

#### *Straight*

There is a growing preference for the use of higher analysis fertilisers. Consequently, the contribution of ammonium sulphate to total N went down from 34.4 per cent in 1966-67 to 10.3 per cent in 1971-72. On the other hand, contribution by urea went up from 34 per cent to 59 per cent during the corresponding period. Even though calcium ammonium nitrate (CAN) is still an important source of N in certain areas, its contribution dropped from 16.1 per cent in 1966-67 to 10.9 per cent in 1970-71; its share is, however, likely to go up to 13.7 per cent in 1971-72 due to better capacity utilisation of Nangal and Rourkela plants. But production of CAN of 20.5 per cent N has been stopped and it is now confined to 25 per cent.

#### *Complex*

Complex NPK fertilisers are also emerging as large contributors of total N. Their contribution rose from 11.9 per cent in 1966-67 to 15.7 per cent in 1971-72, with a corresponding reduction in the contribution by straight nitrogenous fertilisers. This trend will continue because of the benefit of balanced fertilisation available from their use.

#### *Phosphatic*

The consumption (distribution) of phosphatic fertilisers in 1970-71 increased by 29.7 per cent over 1969-70. The estimated increase during 1971-72 is 52.6 per cent and consequently the increase in 1971-72 over 1966-67 will be 77.3 per cent.

Although the increase in the last two years is substantial, the increase over the 5 years period has not been adequate largely because of a drop in consumption during two successive years of 1968-69 and 1969-70.

Consequently, the total consumption in 1971-72 will be only 10 per cent higher than in the previous peak year of 1967-68.

#### *Superphosphate*

It is gradually losing its prominent position (vide Table 5 at the end of chapter V.) Whereas it contributed 41.9 per cent of the total  $P_2O_5$  in the country in 1966-67, its share dropped to 27.7 per cent in 1971-72. This is due to a variety of reasons, the main one being its low nutrient concen-

ration and its comparatively high price per unit of nutrient. Even though the total quantity sold in 1971-72 will be substantially higher than in the previous year, its contribution to total  $P_2O_5$  has come down and this pattern is likely to continue.

#### *Complex*

In line with the trend noticed in the case of nitrogenous fertilisers, in complex fertilisers also there is a preference for higher concentration (and balanced) fertilisers. Consequently, the consumption (distribution) of DAP, nitrophosphate, urea ammonium phosphate and NPK complexes is going up substantially every year. This tendency will continue.

#### *Diammonium phosphate 18-46-0*

The consumption rose from 91 thousand tonnes in 1969-70 to 143 thousand tonnes in 1970-71 and is likely to be about 350 thousand tonnes during 1971-72. There is a marked preference for DAP and it is very much in demand. But it is likely to be in short supply because of the shortage of foreign exchange for imports arising from stoppage of some foreign aid. Its offtake will be lower than its potential demand.

#### *Nitrophosphate*

The consumption in 1970-71 nearly doubled over 1969-70 and will register a further increase of about 12 per cent in 1971-72. This is indicative of better acceptance of nitrophosphate by the farmer as a result of aggressive marketing and promotion by FCI and better availability from Trombay plant.

#### *Urea ammonium phosphate*

Urea ammonium phosphate was manufactured for the first time by Coromandel Fertilisers Ltd., Vizag in 1967-68. Consumption has been registering a substantial increase over the years. Its contribution to total  $P_2O_5$  in 1971-72 at 16.6 per cent was next only to superphosphate and DAP.

#### *NPK complex fertilisers*

Their consumption is steadily rising because of the definite advantages these offer, e.g. balanced fertilisation, lower cost per unit of nutrient, ease of handling, etc. Beginning with almost nil consumption in 1966-67, their consumption in 1971-72 is likely to be 320 thousand tonnes. Their contribution to total  $P_2O_5$  was 4.5 per cent in 1966-70, 7.2 per cent in 1970-71 and estimated to be about 10 per cent in 1971-72. In anticipation of the commissioning of the MFL plant at Manali, Zuari at Goa and IFFCO plant at Kandla, aggressive seeding programmes were undertaken by these prospective manufacturers resulting in substantial increase in



offtake. When Zuari and IFFCO plants go into production their total contribution to  $P_2O_5$  will register considerable further increase in the years to come.

#### *Potassic*

Consumption (distribution) of potash in the country has not followed any consistent pattern. After registering an increase in 1967-68, it declined in the following two years by 2 and 7 per cent respectively. Consumption in 1970-71 rose over the previous year by 30.5 per cent. It is estimated to go up in 1971-72 over the previous year by another 28.9 per cent. Consumption (distribution) in 1971-72 will be 89 per cent higher than in 1966-67. Despite these increases the overall consumption in the country will not be commensurate with the national targets and in relation to consumption of N it is lower than the desired level.

Main source of  $K_2O$  is straight muriate potash. Its share, however, is gradually dwindling and NPK complex fertiliser mixtures are likely to become bigger sources of  $K_2O$ , even though the same muriate of potash will be used as an ingredient for producing NPKs.

### **B. Consumption of Fertilisers by States**

#### *Consumption vs. distribution*

From 1970-71 edition of the Annual Review onward an attempt has been made to present separately the distribution and consumption figures of plant nutrients.

The Annual Review until two years ago was based only on distribution figures which were treated as being analogous to consumption. This assumption, however, suffered from a major drawback that it did not take cognizance of changes in inventories. This created anomalies. However, till 1966-67, it has not been possible to separately identify the two figures. These have, therefore, been left unchanged and the segregation done only from 1967-68 onwards.

Distribution figures are based on despatches to various States by the manufacturers and the Central Fertiliser Pool, and hence, represent quantities received in the respective States. The consumption figures from 1967-68 onwards are on April-March basis as reported by the State Governments at the half-yearly meetings of the Zonal Committees of the Central Agricultural Ministry. Difference between these two for any year and/or for any State represents changes in inventories in the States. This is illustrated in Table B on an all-India basis for the years under study.

The inventory indices given in the table for 1967-68 do not take into account the quantum of physical stocks at the end of the previous year. Figures in Table B against inventory are, therefore, indicative not of the level of inventories but the variations in the inventories from year to year. Over the year, inventories have been depleted at rapid rate—particularly of  $P_2O_5$ . The anticipated levels of distribution and consumption for 1971-72 for each of the three plant nutrients will further deplete the inventories and, in the absence of an adequate cushion, may well result in fall in consumption below the anticipated levels and adversely affect agricultural development programmes. Distribution figures being fairly reliable, same cannot be said of the consumption figures or of the assessment of stocks. It would be worthwhile to emphasise on the need for a better reporting system on statistics. An improved reporting system is of paramount importance to enable an objective assessment of the residual imports to fill the gap between demand and indigenous production.

### Nitrogen

#### (A) CONSUMPTION : ALL-INDIA

Consumption and distribution figures of N for the period 1966-67 to 1971-72 are shown separately in Tables 6(a) and 6(b), respectively at the end of Chapter V.

Consumption of N has been rising continuously except for a temporary setback in 1967-68 caused by a drop in demand in Southern and Eastern regions. Even this drop may only be illusory due to change in the basis of comparison, i.e., 1966-67 referring to distribution figures and 1967-68 to consumption.

Rate of increase in consumption was the highest in 1968-69 at 41 per cent followed by 20 per cent in 1969-70. Contrary to expectations, the rate of growth during 1970-71 was disappointing at only 9 per cent over 1969-70.

The year 1971-72 is likely to show marked increase in the rate of growth and the total consumption is expected to rise to a new high of 1,761 thousand tonnes (vide Table B). Performance would have been better but for a variety of reasons which are reviewed wherever possible, separately for each State, but broadly these are:

- (i) Natural causes such as cyclones, drought and floods of unusual severity in some States;
- (ii) Availability of credit not growing *pari passu* with fertiliser availability;

- (iii) Inadequacies in fertiliser distribution, e.g. inadequacy of transport and warehousing facilities;
- (iv) Gaps in extension and promotional efforts;
- (v) Unfavourable cost benefit ratio as between inputs costs and farm produce prices; and
- (vi) Not-so-spectacular results so far from high yielding varieties (HYV) of paddy as from wheat.

It is hoped that with the extension of the HYV and Multiple Cropping Programmes, IADP & IAAP, easy availability of credit both production and distribution including that from nationalised banks, introduction of the "Bill Market Scheme", the timely availability of fertilisers, the impact of extension services and other promotional measures and the introduction of plans for intensive cultivation of cash crops, consumption will certainly rise at a more rapid rate during the years to come

(B) CONSUMPTION : REGIONWISE

Comparative All-India and Regionwise consumption performance of N over the previous years is given in Table C.

Consumption has been rising in all the four regions over the years except in the South during 1970-71. There is no uniformity of pattern of consumption or growth between the regions or from year to year. In terms of total consumption North continues to lead the other three regions with

**Table C**  
*Consumption performance of N during 1966-67 to 1970-71 and 1971-72 \**

(per cent ±)

Region	1967-68 over 1966-67	1968-69 over 1967-68	1969-70 over 1968-69	1970-71 over 1969-70	1971-72* over 1970-71	1970-71 over 1966-67
South	(-) 24.8	53.4	18.0	(-) 2.2	9.9	33.2
West	27.7	4.2	11.0	40.1	20.8	106.9
North	34.1	56.0	25.2	7.4	21.8	181.5
East	(-) 34.7	27.8	24.8	16.7	29.3	21.5
All-India	(-) 3.6	41.4	20.0	9.3	18.4	79.4

\* Estimated

South, West and East following in a descending order. Over a span of 5 years consumption, in terms of percentage, has increased by 182 per cent in the North followed by 107 in the West. The rate of growth in the South and the East has been comparatively much slower.

The increase in the areas under HYVP has varied widely from region to region because of agro-climatic conditions, cropping pattern, availability of irrigation facilities and the economic return from these high yielding varieties. These have had a considerable impact on the consumption of fertilisers and account for the regionwise variations. As against this, growth under Multiple Cropping Programme in 1970-71 has more or less been uniform at 20-25 per cent in all the regions.

In 1970-71, Northern region exceeded its targets of coverage set for HYV and Multiple Cropping Programmes. With similar accelerated rate of growth in the future, it is expected that Northern region will achieve the consumption level envisaged for 1971-72.

#### (C) CONSUMPTION : STATEWISE

An attempt is made in the following paragraphs to present a broad review of the factors affecting fertiliser consumption in the states during 1970-71 and the outlook for 1971-72. The latter is based on the data/information so far available on the subject. These factors would normally apply equally to all three nutrients.

*Andhra Pradesh:* The year 1968-69 was a very good year from the point of view of fertiliser consumption which doubled over 1967-68. Extension of Multiple Cropping Programme more than compensated for floods followed by drought in some coastal districts and a reduction in the area under high yielding varieties.

In 1969-70, though consumption of N increased by about 9 per cent consumption of both  $P_2O_5$  and  $K_2O$  showed a decline. Drop in selling prices of paddy and sugarcane during the last two years is stated to be one of the reasons for the lower level of consumption.

In 1970-71, though demand for  $K_2O$  showed some signs of recovery, consumption of  $P_2O_5$  continued to fall. What is more disturbing is that even the consumption of N registered a fall of 15 per cent despite a marked increase in the coverage under HYV and Multiple Cropping Programmes. The shortfall of N and  $P_2O_5$  in 1970-71 was as a result of unfavourable weather conditions in Telangana region as a whole and delayed planting in the delta areas. In the assured areas of production viz., districts of Godavari, Krishna and Guntur, the absence of remunerative price for paddy was another major constraint for higher fertiliser use. Further, steep fall in the

price of gur, in comparison to earlier years was equally responsible for retarding the growth of fertiliser use. Consumption is not expected to go up in 1971-72, reportedly due to acute shortage of ammonium sulphate and calcium ammonium nitrate during *kharif* 1971. The severe drought conditions prevailing during *kharif* 1971 in most of the districts seem to have affected 70 per cent of the paddy growing area.

*Kerala:* Increase in the level of consumption of N over a period of 6 years under review was only marginal despite a significant increase in areas under HYV and Multiple Cropping Programmes. Consumption of three plant nutrients was the highest in 1969-70 due to better credit facilities advanced by banks. But for stoppage of loans with the discontinuance of Food Production Development Plan, low return on paddy and stoppage of *taccavi* the consumption would have been even higher. These factors coupled with agricultural labour trouble adversely affected the overall consumption of the three plant nutrients, notably of  $P_2O_5$  and  $K_2O$ , during 1970-71 which dropped over the previous year. Expectations are that the situation would improve in *rabi* 1971-72 and will result in an overall increase in consumption of the three plant nutrients in 1971-72. Availability of ammonium sulphate for plantation crops will go a long way in boosting consumption.

*Mysore:* Consumption of N,  $P_2O_5$  and  $K_2O$  has continuously been increasing over the period under review except for a drop of  $P_2O_5$  in 1967-68 and of  $K_2O$  in 1968-69. Though the area under HYVP increased cent per cent in two successive years 1967-68 and 1968-69, fertiliser consumption did not increase at the corresponding rate suggesting that the fertiliser application per hectare has not so far gone up to the recommended dose.

Change over of agency for distribution of fertilisers in the State from the Cooperative Federation to Mysore Agro-Industries Corporation set up in 1969-70 is reported to be one of the factors having affected fertiliser consumption in *kharif* 1970 especially of N and  $P_2O_5$ , and may have been responsible for the slowing down of the growth rate. Position seems to have improved during *kharif* 1971. Despite the State having suffered drought affecting 40 per cent of the paddy growing area, the overall consumption is anticipated to register a satisfactory rise during 1971-72. Since 75 per cent of the area is rainfed, higher offtake in future will depend primarily on the intensity of rainfall in dry areas.

*Tamil Nadu:* Consumption of N and  $K_2O$  has continuously been rising yearwise as well as seasonwise—during the period under review except for a drop in the case of  $K_2O$  in 1968-69. Consumption trend of  $P_2O_5$  has

been more erratic. From a peak offtake of 26,000 tonnes in 1966-67, it dropped to 20,000 tonnes in 1968-69 and remained stationary during the following year. However, during 1970-71, it registered an increase of 170 per cent.

Despite drought in *kharif* 1969, consumption of nutrients rose mainly due to the increase in coverage under HYVP and timely rains (in November 1969). Notwithstanding another dry spell in *kharif* 1970, consumption further picked up on account of the State Government having launched a crash programme for disbursement of short term credit especially in the HYV areas. In *kharif* 1971 again, the consumption went up. Performance could have been better but for the scarcity of ammonium sulphate. The State Government has launched a drive on multiple cropping and supply of seed of high yielding varieties with emphasis on Small Farmers Development Agency. (See Notes attached to chapter V).

*Gujarat:* Consumption of nitrogen has been rising quite rapidly during the period under review, with a big spurt first in 1967-68 and then again in 1970-71.

Marginal fall in the consumption of nitrogen in 1969-70 was reportedly due to *taccavi* loans having been discontinued from that year and the State Cooperative Marketing Society having not been able to provide for adequate credit to support consumption during that year. Rainfall below normal during *kharif* 1969 was another factor which affected fertiliser application to bajra crop coupled with a fall in the area under HYVP by about 20 per cent.

Though consumption of phosphate went up steadily, same was not true for potash. Rate of growth for the latter was much slower than for phosphate.

During 1970-71, there was a marked rise in the consumption of each of the three plant nutrients, N 63 per cent,  $P_2O_5$  36 per cent and  $K_2O$  50 per cent over 1969-70, despite floods in six districts of Gujarat which disrupted the supply of fertilisers to these areas. This was due to an increase of about 70 per cent in the areas under high yielding varieties, particularly of wheat and bajra, and intensive as well as extensive marketing efforts put in by the private trade. (The latter is borne out by the fact that the number of sale points in the private sector increased from 1,305 in 1969-70 to 1,773 in 1970-71). Same trend is expected to be maintained during 1971-72 especially in the *rabi* season, despite inadequate rainfall in *kharif* 1971.

*Madhya Pradesh* : It is one of the few States where consumption of plant nutrients has been rising very rapidly year after year. The upward trend was marked particularly in the case of N (13 fold) and  $P_2O_5$  (3 times). Main reasons are (i) the launching of a Cash Incentive Scheme, (ii) the active participation of a nationalised bank in advancing credit to farmer, and (iii) significant increases in the coverage under HYVP (paddy and jowar) and Multiple Cropping Programmes. The State has a high potential for fertiliser consumption particularly on paddy, despite, being largely a monocrop area. Consumption was, however, impeded due to inadequacy of timely supplies and the hesitation of many banks in giving loans in some districts.

Experiments conducted with foliar and aerial spray of urea have shown promising results and should generate additional demand for fertilisers. It is felt that on account of transport facilities being inadequate, storage strategic points would go a long way in increasing consumption especially in undeveloped areas.

*Maharashtra* : Broadly, consumption of plant nutrients has been steadily rising in the State. Consumption of N and  $K_2O$  dropped in 1968-69 and that of  $P_2O_5$  during 1968-69 and 1969-70. In these two years, the total coverage under HYVP remained more or less static, even though there were seasonal variations between *rabi* and *kharif* crops. There was a revival in consumption during 1969-70, though the increase was only marginal because of (i) no apex organisation was involved in the distribution of fertilisers and (ii) nor was the working of the cooperatives at lower levels fully geared to assist farmers in uplifting fertilisers. To improve availability of the product, Zilla Parishads were called upon to supplement the activities of cooperatives in the distribution of fertilisers. Receipt of well distributed and timely rainfall in *kharif* 1970, good sowing of cotton and sugarcane, vastly improved performance of jowar and the rise in coverage of high yielding varieties are some of the reasons which account for good development in 1970-71. In *kharif* 1971, nitrogen has again showed a slight decline over *kharif* 1970 due to drought conditions, and top-dressing could not be given. Use of NPK complex fertilisers not only did compensate for the above loss of N to a considerable extent but also increased the consumption of  $P_2O_5$  and  $K_2O$  sizeably. On the whole, the year 1971-72 looks to be better due to the cultivation of hybrid and other improved varieties of cotton over large areas, increase in area under seed crops, better performance of paddy and continued rise in the utilisation of nitrogen for sugarcane.

*Uttar Pradesh* : It has consistently been the highest consuming State for N in the country largely because of its size. On an average

20 per cent of the all-India consumption of nitrogen is accounted for by this State alone.

Consumption of N has been steadily going up at about 50 per cent per annum. Consumption of  $P_2O_5$  and  $K_2O$  did not, however, rise in an uniform pattern over the years under review; nor was their rate of growth as rapid as of N.

During 1969-70, despite drought conditions in the western districts and floods in the eastern districts, consumption of N,  $P_2O_5$  and  $K_2O$  increased over the previous year by about 40, 30 and 30 per cent, respectively due to three factors, i.e., increase in the coverage under HYVP in *rabi*, commercial banks giving credit to big farmers especially in Tarai area, and disbursement of large funds "taccavi loans" by the State Government. In 1970-71 and to some extent in *kharif* 1971, consumption of all the three plant nutrients showed a decline due to the (i) area under HYVP having gone down temporarily on account of a changing cropping pattern in the State, (ii) difficulty in obtaining credit (Distribution credit was not available) and (iii) short supply of fertilisers. Besides, small quantities available with the cooperatives in the interior could not be moved to the consuming areas in time.

*Punjab* : Punjab has emerged as the leading State in the consumption of plant nutrients per hectare of agricultural land. As will be seen from Table 9 (a) at the end of chapter V, the rate of growth in the case of nitrogen was much higher than in phosphate and even more so compared to  $K_2O$ . Rate of growth in agricultural area being not so rapid increased consumption of fertilisers is reflected in an increasing intensity of consumption. This is supported by figures given in Tables 6(a), 7(a) and 8(a) at the end of chapter V for the three plant nutrients. Significant increases in the areas under multiple cropping and HYV Programmes especially wheat during *rabi* 1968-69, were favourable factors for steep rises in the consumption of N,  $P_2O_5$  and  $K_2O$ . It is reported that in 1969-70, though the coverage under these two programmes increased more or less at the same pace as in 1968-69, both in *kharif* and *rabi* seasons, consumption rose only nominally because the return to the farmers especially from maize and paddy was not commensurate with the cost of fertilisers and other inputs. Linking of sale of  $P_2O_5$  and  $K_2O$  with N and lack of credit from nationalised banks were other inhibitory factors in 1969-70. In 1970-71, with further increases in the coverage under special agricultural programmes of wheat and paddy and improved marketing facilities, the consumption of N picked up substantially while that of  $P_2O_5$  and  $K_2O$  only nominally. Consumption of N would have been much higher but for poor availability of CAN from Nangal due to



power cut. Non-availability of complex fertilisers of preferred grades in time and difficulty in converting farmers to using indigenous straight phosphatic fertilisers were some of the main causes of low rate of growth of  $P_2O_5$  and  $K_2O$ .

*Haryana* : Consumption of N rose steadily in Haryana while of  $P_2O_5$  attained a new high in 1968-69 and then declined. The consumption of  $K_2O$  remained more or less static during the period under review. Resumption of *taccavi* loan in *rabi* 1968-69 had a major impact on increasing the consumption of nitrogen in 1968-69. In 1969-70, the State introduced crop loan system and incentive schemes which, coupled with sharp increases in coverage under high yielding varieties, resulted in a steep rise in the consumption of nitrogen during *rabi* 1969-70. This mitigated to a great extent the effect of lower consumption during *kharif* 1969 which was due to the failure of rains. As in Punjab, non-availability of farmer-preferred complex fertilisers in adequate quantities and time-lag in converting demand to indigenous straight phosphatic fertilisers were the main causes of lower rate of growth of  $P_2O_5$  and  $K_2O$  in Haryana 1970-71.

*Rajasthan* : Eastern and North-Western parts of Rajasthan being agriculturally potential, consumption of fertilisers mostly is in these areas. It will be seen from the accompanying table that the consumption of nitrogen, phosphate and potash has been steadily and continuously increasing over successive years. To record a few steps taken to foster fertiliser consumption (i) *taccavi* loan was abolished in 1968-69 to strengthen cooperative structure through a special Agricultural Credit Corporation, (ii) simplification of procedures for processing loans from nationalized banks, especially the verification of loanees, and (iii) the State Government issued credit cards to farmers to enable them to obtain their supplies of inputs in kind. Area under high yielding varieties doubling successively during the past three years, 1967-68 to 1969-70, fertiliser application rose steadily which was reflected in the form of higher kg/ha of agricultural land given in Table 9 (a). In 1970-71, consumption would have been higher had the desired quantities of complex fertilisers and necessary credit loan been made available. In 1971-72, the insufficient supply of N might be responsible for the poor increase in consumption whereas, inadequate irrigation facilities might account for low level of consumption of  $P_2O_5$  and  $K_2O$ .

*Jammu & Kashmir* : Consumption of fertilisers has not been following any particular pattern in the State of Jammu and Kashmir. Due to poor rain fall in *kharif* 1969 followed by dry spell in *rabi* 1969-70 in certain areas and late snow fall in upper ranges, consumption went down considerably in 1969-70. On account of this, area under high yielding varie-

ties remained more or less static over 1968-69. Liberalization of credit from cooperatives, advancing of fresh loan to farmers upon clearing outstanding cooperative due to the extent of one-third, willingness of nationalized banks to advance fresh loans to farmers upon clearing 50 per cent of their earlier dues, etc., were some of the steps which offset, to a considerable extent, further fall in consumption in 1969-70. In 1970-71, a tractor-hiring scheme was introduced under which large areas of rice fallows were brought under wheat cultivation. Farmers were shown that wheat can be raised satisfactorily in such fields without affecting the next paddy crop. Orchards are being developed to replace paddy cultivation wherever possible. With these steps and anticipated increase in area under HYVP, consumption is expected to pick up in 1971-72.

*Himachal Pradesh* : Fertiliser consumption in Himachal Pradesh has been quite low due to a variety of reasons. Hilly track, inaccessible interiors and limited crop varieties in these areas have impeded the extension work and infrastructure for fertiliser movement and use. In 1969-70, consumption of N went down while  $P_2O_5$  and  $K_2O$  remained more or less static. Distribution of fertilisers which had hitherto been handled by the Department of Agriculture was entrusted to the cooperatives from April, 1970. Its immediate effect was the increase in consumption of  $P_2O_5$  and  $K_2O$  in 1970-71. N did not go up on account of short supply of preferred calcium ammonium nitrate both from Nangal and the Pool. Besides *taccavi* from the Government, farmers started obtaining credit from the cooperatives also. The fertiliser offtake in the IADP district of Mandi is serving as a model, which would go a long way in effective utilisation of loans by the farmers. Full benefit of successive increases in area under high yielding varieties will accrue through increased consumption of fertilisers only if transport charges in hilly and inaccessible areas are made economical and the material is moved in time for which Government is taking suitable measures. Impact of these measures was noticeable in *kharif* 1971 when consumption went up by 120 per cent over *kharif* 1970. Recently discontinued *taccavi* credit system and shortage of preferred complex fertilisers might affect the consumption to a certain degree in 1971-72.

Consumption of fertilisers in the Eastern Region has steadily been increasing on an average by 25 per cent each year during the review period barring 1966-67, which refers to distribution statistics. Though, this percentage increase is commendable, in quantum, Eastern Region is the last in line following other regions. In view of various issues like land tenure, holding size, fertiliser consciousness, etc., the growth of fertiliser consumption has been rather slow in the highly potential Eastern Region. A

special Agricultural Credit Corporation is being set up in the four major States of West Bengal, Bihar, Orissa and Assam to supplement the extension and promotional efforts. Nationalised banks have already started participating in providing credit needed to sustain agricultural production at the desired level. Cultivation of non-traditional crop like wheat is likely to open new avenues for fertiliser use in this region.

*Assam* : In Assam, consumption of fertiliser showed hardly any rise during the period under review though 1968-69 was the best year from all accounts. Change over of distribution management of fertilisers to Assam Agro-Industries Corporation in 1967-68, extension measures, *taccavi* loans, increase in area under paddy during *kharif* 1968 are the contributing factors. However, overall consumption came down in 1969-70 reportedly due to poor *rabi* crop (despite promising *kharif*), natural calamities and discontinuance of credit facilities by the State Government on account of poor realisation of dues. Another important avenue for fertiliser consumption, besides HYV areas, was tea plantations requiring straight nitrogenous fertilisers like ammonium sulphate which was in short supply. River basin reportedly suitable for normal variety of paddy at present, and hill slopes for orchards; plantations require further extension and research work to enable the high yielding varieties to contribute significantly through increased use of fertilisers. Efforts are under way to increase the coverage under high yielding varieties in 1971-72 but the response so far received from the farmers has had a dampening effect. The situation is likely to improve in years to come.

*Bihar* : In Bihar during the period 1967-68 to 1969-70, consumption of N rose by 50 per cent while that of  $P_2O_5$  by 100 per cent.  $K_2O$  remained more or less static. The year 1969-70 was the best year from the point of view of consumption which, on an overall declined in 1970-71. N increased only marginally and both  $P_2O_5$  and  $K_2O$  went down sizeably. Fall in  $P_2O_5$  and  $K_2O$  seems to be due to non-availability of material in time. A study of the progress of coverage under high yielding varieties shows that the new areas have been brought under the programme at a very rapid rate. A five-fold increase was reported during 1967-68 which is rising further especially under the wheat crop. This overall increase can be attributed to the Department of Agriculture having introduced in 1968-69 a new system of fertiliser delivery order linked with *taccavi* and crop-loans whereby the department would pay for the fertiliser supplied to farmers. To overcome certain practical difficulties, all offices of the Department of Agriculture were empowered in 1969-70 to collect cooperative dues from the farmers; eligible members (farmers) of the ineligible societies in certain areas were reportedly given supplementary line of credit. Appex Marketing

society commenced advancing 45 days' credit to the cooperative societies to ensure effective distribution of agricultural input. The consumption is expected to go up in 1971-72 with irrigation facilities having increased and mono-cropping having been converted into double and triple cropping in some areas. With private sector coming forward, other areas are expected to receive due attention in fertiliser promotion and consumption.

*Orissa :* In Orissa, the consumption trend has broadly been static over the years under review, though nitrogen showed marginal increase. Performance of  $P_2O_5$  and  $K_2O$  has, in particular, been poor. A study reveals that (i) *taccavi* system was discontinued in 1968-69, (ii) cooperatives had difficulties in realising the loans advanced and (iii) the number of cooperative retail points had reportedly fallen, all of which tended to lower down consumption of these two nutrients. This choked the distribution of fertilisers, with the result, consumption increased only marginally in 1968-69 and 1969-70. To foster consumption, State Government has taken on hand intensive and extensive promotional measures and introduced an incentive scheme similar to the one in operation in M.P. Distribution of fertilisers has been entrusted to both cooperatives and the private trade to reach remote areas. These steps and a transport subsidy in backward areas, if provided, would lead to higher consumption in future. The new soil testing scheme chalked out by the State Government is likely to promote fertiliser use on an extensive scale. In 1971-72, consumption is expected to show a significant rise due to (i) the cultivation of non-traditional crop, like wheat despite railway transport difficulties in the Eastern Sector in *kharif* 1971 and (ii) irrigation facilities having increased to grow double/triple crops in a year in many areas. Since 1969, private trade was permitted to expand marketing activities in the State which has started showing promising results.

*West Bengal :* In West Bengal, whereas the consumption of nitrogen rose steadily all through, particularly in 1970-71; 1968-69 was the best year for  $P_2O_5$  and 1966-67 for  $K_2O$ .  $K_2O$  surpassed the 1966-67 performance in 1970-71 and  $P_2O_5$  is likely to do so in 1971-72. Consumption of N in 1969-70 would have been higher if (i) supplies were not delayed from Assam due to transport difficulties and (ii) urea, a popular fertiliser in the State, was made available in adequate quantities. Reported use of lower doses of fertilisers on jute on economic considerations was another adverse factor. Linking of sale of N with other types of fertilisers, frequent ban on sale of pulverised mixtures, excessive rains in some areas, floods in southern part of the State, etc., further slowed down the growth of consumption in 1969-70. In general, progressive increase in consumption is due to increase in area under HYVP and increase in the number of retail points. Area under wheat

increased from 1.9 lakh acres in 1967-68 to 8.4 lakh acres in 1970-71 while area under winter paddy went up to 7.0 lakh acres. Due to successful cultivation of wheat as well as winter paddy in the State, consumption of N is likely to go up in 1971-72 despite heavy unfulfilled demand in *Rabi* 1971-72.  $P_2O_5$  may receive a slight setback on account of floods having made its application to paddy impossible at the time of puddling. Its consumption trend is also affected by the often changing policy towards the use of pulverised mixtures on which ban was revoked last in 1970-71. This step is likely to offset the ill-effects of floods to some extent. In general, 1971-72 would have been a good year for the State had floods and natural calamities not impeded progress.

#### *Distribution*

Distribution of N has been satisfactory during the period under review. Due to excess distribution of fertilisers during 1967-68 than the required quantity there was a build-up of stocks in all States. This resulted in the availability of fertilisers during next few years. But, lifting of fertilisers from the manufacturers' stocks was affected very much. During 1968-69, distribution and consumption were more or less equal except in the South. In the year 1969-70 there was a decrease in despatch although the demand was there. Requirements were partially met through the stock brought forward from the last two years. Distribution in 1970-71 has increased by 29 per cent over 1969-70 and during 1971-72 it is expected to increase by 23 per cent.

#### **Phosphates**

The consumption and distribution figures of phosphates, on an All-India, regionwise and Statewise basis are presented in Tables 7(a) and 7(b) at the end of chapter V.

#### **(A) CONSUMPTION : ALL-INDIA**

There has been a continuous increase in the consumption of phosphates during the period under review. The increase during 1968-69, 1969-70 and 1970-71 over the previous years were 64.8, 7.9 and 10 per cent, respectively (vide Table D). During 1971-72, it is expected to increase by another 22.8 per cent over 1970-71. As compared to 1967-68, the consumption during 1968-69 increased considerably, whereas during the ensuing two years it was only marginal. The over-all increase during the period 1966-67 to 1970-71 was 68 per cent. Consumption of phosphates has increased in the form of granulated fertilisers and NPK complex fertilisers.

In 1971-72, the All-India consumption is expected to go up to 565 thousand tonnes (vide Table B).

**Table D**  
*Consumption performance of P<sub>2</sub>O<sub>5</sub> during  
 1966-67 to 1970-71 and 1971-72\**

(Per cent ±)

Region	1967-68 over 1966-67	1968-69 over 1967-68	1969-70 over 1968-69	1970-71 over 1969-70	1971-72* over 1970-71	1970-71 over 1966-67
South	(-)-27.3	120.8	(-)-0.6	5.1	22.9	67.7
West	13.2	(-)-9.1	20.0	54.8	25.4	91.2
North	24.1	85.1	7.2	(-)-4.5	20.5	135.2
East	(-)-52.4	80.0	22.2	13.6	18.4	(-)-9.5
All-India	(-)-14.2	64.8	7.9	10.0	22.8	68.2

\* Estimated

**(i) CONSUMPTION : REGIONWISE**

The regionwise and All-India growth rates of consumption are given in Table D :

Rate of growth has been the highest in the North followed by West and South. Consumption has fallen down in the East during the period under review. During 1971-72, however, the rate of growth is expected to be uniformly high in all regions.

**(ii) CONSUMPTION : STATEWISE**

Amongst the States, the analysis shows that the consumption of phosphates as for nitrogen was the highest in U.P., where there has been an increase in consumption every year. This is partly due to the fact that the total cropped Area is more in U.P., than any other State. U.P. is followed by Andhra Pradesh, Tamil Nadu, Gujarat, Maharashtra and Mysore. The consumption trend is not uniform during the years under view. Consequently, the percentage increases have been erratic.

In 1967-68, the consumption increased over the previous year in Kerala, Maharashtra, Punjab, Haryana and Uttar Pradesh. There was no change in Rajasthan, whereas there was a decrease in consumption in other States.

In 1968-69, the consumption increased over the previous year in Andhra Pradesh (276 per cent), Kerala (119 per cent), Mysore (316 per cent),

Gujarat (66 per cent), Punjab (100 per cent), U.P. (114 per cent), Bihar (33 per cent) and West Bengal (75 per cent). In Orissa, the consumption was static but it dropped in other States including Tamil Nadu and Maharashtra.

The consumption in 1969-70 over 1968-69 continued to show an increasing trend in most of the States. In Kerala, the increase was of 20 per cent, Mysore 24 per cent, Gujarat 56 per cent, Madhya Pradesh 75 per cent, Rajasthan 25 per cent, Uttar Pradesh 27 per cent and Bihar 93 per cent. In the States of Andhra Pradesh, Maharashtra, Haryana, Punjab, Jammu & Kashmir, Assam, Orissa and West Bengal the consumption of phosphates decreased by 20, 16, 20, 34, 200, 100, 20 and 79 per cent, respectively. In the year 1970-71, major increase in consumption took place only in six States namely, Tamil Nadu (170 per cent), Gujarat (36 per cent), Madhya Pradesh (78 per cent), Maharashtra (73 per cent), Haryana (75 per cent) and Rajasthan (75 per cent). Increases in Mysore and West Bengal were only marginal. Consumption dropped in Andhra Pradesh, Kerala and U.P. by 7, 66 and 22 per cent, respectively.

The factors affecting consumption of phosphates in some respects are the same as given in part B of Chapter II viz., "Consumption of Fertilisers by States—Nitrogen". An important factor which needs to be mentioned here is the amendment of the Fertiliser (Control) Order in November 1969 by which dealers registered to sell fertilisers were required to keep in stock all the three plant nutrients in certain minimum proportions. This factor has helped in the growth of balanced use of fertilisers. By ensuring the timely availability of all the three nutrients at the retail level with the same dealer has increased the consumption of fertilisers. To improve the efficiency of application of phosphates, seed-cum-manure drills were introduced which increased the offtake of phosphates.

#### *Distribution*

The All-India distribution in 1967-68 increased by 63.1 per cent over the preceding year due to better utilisation of the domestic capacity and heavy imports of phosphates to meet the anticipated increased requirements. The distribution during 1967-68 was much in excess of consumption and this coupled with a large carry-over of inventories from the previous year led to heavy over-stocking in the distribution channels which took care partially of the requirement of 1968-69. The impact of large scale distribution during 1966-67 and 1967-68 was so severe that distribution and production during the following two years were adversely affected. In the year 1970-71 the distribution increased by 29 per cent and is expected to improve during 1971-72 by 58 per cent.

**Potash**

The Statewise and regionwise consumption and distribution of potash is given in Tables 8 (a) and 8 (b) at the end of chapter V.

There is no production of potash in the country. All requirements of  $K_2O$  are met through imports. Till 1965-66, entire consumption was in the form of muriate and sulphate of potash. During 1966-67, the year that marked the beginning of imports and availability of  $K_2O$  in the form of complex fertilisers, consumption of  $K_2O$  in the form of muriate of potash was 93 per cent, sulphate of potash 7 per cent, with NPK complex fertilisers constituting only 0.2 per cent of the total (vide Table 5 at the end of chapter V). Thereafter, with increased availability of NPK complex fertilisers, share of muriate and sulphate of potash has been gradually reducing. It is interesting to note that while import quantum of NPK complex fertilisers did not vary very widely over the years, its consumption increased sizeably from 0.2 per cent of the total in 1966-67 to 11 per cent in 1970-71. This was due to the indigenous production of NPK Complex fertilisers since 1967-68.

**(A) CONSUMPTION : ALL-INDIA**

All-India consumption of potash during the period under review has steadily been increasing since 1967-68. It is expected to attain a level of 303 thousand tonnes by 1971-72 (vide Table B). Table E shows the annual growth rate of consumption of  $K_2O$  over the review period.

Rate of growth at 9 per cent in 1970-71 over 1969-70 slowed down considerably and was much lower than during the two preceding years.

**Table E**

*Consumption performance of  $K_2O$  during  
1966-67 to 1970-71 and 1971-72\**

Region	(per cent)					
	1967-68 over 1966-67	1968-69 over 1967-68	1969-70 over 1968-69	1970-71 over 1969-70	1971-72* over 1970-71	1970-71 over 1966-67
South	(—) 35.9	49.7	18.9	22.0	34.0	38.9
West	78.8	(—) 74.1	195.9	35.3	23.9	84.0
North	26.8	137.3	14.9	(—) 5.0	35.1	294.7
East	(—) 15.2	13.3	66.1	(—) 10.7	40.0	47.1
All-India	(—) 2.9	18.5	35.7	9.1	32.9	71.4

\*Estimated.



This seems to be in line with the growth rate of other nutrients. Increase during 1971-72 is expected to be much larger.

**(B) CONSUMPTION : REGIONWISE**

The consumption of  $K_2O$  has been consistently the highest in the Southern Region accounting for about 40 per cent of the All-India consumption. North, West and East follow in that order.

There has been a gradual increase in the consumption of  $K_2O$  in all the regions during the five-year period under review despite each region experiencing a depression in one year or the other, latest being in the North and the East in 1970-71.

The increase in consumption during 1970-71 over the first year of the review period i.e., 1966-67 was about 295 per cent in the Northern Region, 84 per cent in the West and 47 per cent in the East. (vide table E).

With increased emphasis on balanced use of fertilisers, consumption is likely to increase in all the regions during 1971-72.

**(C) CONSUMPTION : STATEWISE**

During the year 1966-67, Tamil Nadu, Maharashtra and Kerala led the other States in potash consumption. From 1967-68 onwards, the situation changed considerably in that though, Tamil Nadu and Maharashtra maintained their position. Gujarat and U.P. overtook Kerala. It is interesting to note that not only has the consumption of potash since 1968-69 been the highest in U.P. but the percentage increase has also been the highest followed by Tamil Nadu and Maharashtra. The share of U.P. in the total consumption of potash during the period under review has gone up from 9 per cent in 1966-67 to 26 per cent in 1970-71. Excepting the above-mentioned five or six States,  $K_2O$  consumption in the other States is yet very low though the situation is likely to improve gradually in future due to the increasing emphasis on the use of balanced fertilisers.

Statewise analysis of factors affecting the consumption of N and  $P_2O_5$  (mentioned in this Chapter II, part B) are also applicable to potash.

*Distribution*

Distribution of potash was the highest in 1967-68, the year in which imports of all nitrogenous and complex fertilisers were also the heaviest. Despatches to the various States being far in excess of their realistic requirements, distribution went down in the subsequent two years till 1969-70. In 1970-71, it picked up again due to the stocks having been depleted. Same situation is expected to prevail in 1971-72 when an all-time high quantum

of distribution is visualised. Broadly, high consuming States have been maintaining heavy receipts of potassic materials to support consumption notably in Maharashtra, Tamil Nadu and Uttar Pradesh. In Kerala, where  $K_2O$  ranks highest on the basis of ratio, it occupies fourth position in the matter of distribution. What is true of consumption is also true for distribution. There is large scope for  $K_2O$  distribution in almost all the States. Efforts would have to be made not only in the direction of increasing the quantum of potash use but also maintaining a balance between  $K_2O$  and its counter-parts N and  $P_2O_5$ .

### CHAPTER III

## PLANT FOOD CONSUMPTION AND DISTRIBUTION PER UNIT AREA

To work out plant food consumption and distribution per unit area of agricultural land, agricultural land has been defined to include total cropped area, permanent pastures and other grazing lands and land under miscellaneous tree crops. As against this, fertiliser consumption per unit of arable land covers only the total cropped area and would thus be higher than that for agricultural land. Consumption and distribution for the latter for 1970-71 with corresponding figures for 1969-70 are shown in Table 9(a) and Table 9(b), respectively at the end of Chapter V.

#### *Consumption*

It will be seen from Tables 6(a), 7(a) and 8(a) (given after chapter V) that the all-India consumption of N,  $P_2O_5$  and  $K_2O$  in 1970-71 went up by 9 per cent (Table 1 given after Chapter V) over 1969-70. As agricultural area normally varies only marginally over a short span of two to three years, plant-foods consumption per unit area of agricultural land more or less directly reflects the fluctuations in fertiliser consumption. Consequently, the all-India consumption of plant foods rose in 1970-71 by only 1 kg per hectare of agricultural land, i.e. about 9 per cent over the previous year. Individually, consumption of N increased by 9 per cent,  $P_2O_5$  by 10 per cent and  $K_2O$  by 9 per cent. (Ref : Table 1)

The rate of consumption in Southern and Northern Regions is comparatively much higher than in the other two because of better irrigation facilities therein and a more advanced stage of adoption of higher technology in agriculture.

West and North zones showed appreciable rise in consumption whereas there was a marginal fall in the East and South. For the first time South registered a decline mainly due to the low consumption of nitrogen. In the East, both phosphate and potash accounted for the drop. In the North, the drop in phosphate and potash were more than compensated by a large increase in the consumption of nitrogen. West is the only region where all the three plant nutrients individually registered an increase with nitrogen having the maximum share. In 1970-71, West surpassed the East for the first time.

South continues to be the leading zone in the matter of consumption of plant-foods per hectare of agricultural land despite a marginal fall in nitrogen. This is surprising since in 1970-71 the area under both HYV and Multiple Cropping Programmes in the North at 42 per cent and 36 per cent respectively of the all-India totals, are much higher than the corresponding figures of 23 per cent and 20 per cent for the South. This more intensive use of nutrients in the South is presumably because of the differences in the cropping pattern and fertiliser consciousness of the farmers in the region. Also, it would appear that farmers have generally tended to apply less than the recommended high doses to the HYV and areas under Multiple Cropping.

In 1970-71, among the States, Punjab has the highest rate of consumption per hectare (40.24) followed by Tamil Nadu (34.50), Andhra Pradesh (19.34) and Kerala (18.69). It is interesting to note that there is a large gap in the levels of consumption of Tamil Nadu and Andhra Pradesh. Despite a fall in consumption both in Andhra Pradesh and Kerala their positions interchanged in 1970-71 over that in 1969-70. Uttar Pradesh and Bihar were the other two States where per hectare consumption in 1970-71 declined over 1969-70.

#### *Distribution*

The all-India distribution of plant foods per hectare of agricultural land went up considerably (by 2.43 kg/ha) 28 per cent in 1970-71 over 1969-70 as against consumption (by 0.98 kg/ha). This would appear to be a reflection of a build-up of stocks for the ensuing season.

Distribution per unit area increased by about 50 per cent in West, North and East but registered a drop of about 10 per cent in the South. But South still continues to be in the lead.

Amongst the States, Punjab was way ahead of the other States. This would indicate the advance stocking by Markfed who contribute for a major share of the trade in the State. The position improved appreciably in Gujarat, Haryana, U.P., Bihar and West Bengal but Andhra Pradesh, Kerala and Tamil Nadu (all in the South) registered drops. The seems to be a marked relationship between consumption and distribution figures in most States, U.P. and Tamil Nadu being exceptions.

## CHAPTER IV

### RATIO OF PLANT FOOD CONSUMPTION

The Statewise and regionwise consumption and distribution ratios of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O for the two years 1969-70 and 1970-71 are presented in Tables 10(a) and 10(b) at the end of Chapter V with N as unity.

#### *Ratio : All-India*

The ratio of consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O was 1.00 : 0.31 : 0.15 (or 6.7 : 2.1 : 1) in both the years. There has, therefore, been no improvement in the consumption of P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O in relation to N during 1970-71 over 1969-70. Various agricultural development programmes like IADP, IAAP, HYVP and Multiple Cropping that were initiated earlier and were under implementation during the period under review, do not appear to have made so far any impact on creating consciousness for increasing the consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O in desired proportion. It cannot, however, be denied that these development programmes are responsible least for increasing total consumption and for attaining the prevailing ratio.

It is generally accepted that in the Indian conditions a ratio of consumption of 4:2:1 is desirable. The present consumption ratio is still far below the desired one. Vigorous promotional efforts are urgently called for to correct this imbalance.

#### *Ratio : Regions*

Among the regions, West had a comparatively better consumption ratio during 1970-71 followed by South, while in the Eastern and Northern Regions the proportion of P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O in relation to N has gone down in 1970-71 over that observed in 1969-70.

But in respect of the total quantity of fertilisers consumed and consumption per hectare of agricultural land, South leads all the other regions. There would thus appear to be no direct relationship between the level of consumption and ratio of NPK consumption on account of variations in the rate of growth of consumption of P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O in relation to that of nitrogen.

The ratio of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O consumption in the Southern and Western Regions at 1 : 0.34 : 0.20 (or 5 : 1.7 : 1) and 1 : 0.49 : 0.17 (or

5.9 : 2.9 : 1), respectively, are above the all-India average. Similar ratios in both-Northern and Eastern Regions are below the all-India average. The reason for this higher ratio may partially at least be historical. Most of the superphosphate and complex fertiliser plants are concentrated in Southern and Western Regions. Obviously, the promotional efforts of the manufacturers have resulted in popularising the use of phosphates. As their promotional efforts are extended to other areas of potential demand, position should improve.

In respect of  $K_2O$ , the N to K ratio is higher in all the regions than the all-India position except for the Northern Region.

The disparity in the pattern of consumption ratios can be attributed to the variations in soil conditions, cropping pattern, irrigation facilities, progress of different agricultural development programmes, fertiliser consciousness of the farmers and the promotional activities of the fertiliser industry and the cooperative societies. The availability of fertilisers in adequate quantities at the right time and place, together with the capacity and willingness of the farmers to use the recommended doses of fertilisers are equally important for fostering balanced fertilisation.

#### *Ratio : States*

There is a wide disparity in the level of consumption of the three nutrients as between States. There are only five States, i.e., Kerala, Pondicherry, Maharashtra, Himachal Pradesh and Nagaland, where the nutrient ratios are upto or higher than the desired level. In all other States, the consumption of one and/or the other nutrient are out of balance.

#### *Phosphates*

The proportion of phosphate consumption in relation to nitrogen in Kerala, Pondicherry, Himachal Pradesh and Nagaland is higher than the desired ratio of 4 : 2. In Madhya Pradesh, Maharashtra and Goa the shortfall is only marginal. The rate of application is less than half of the desired ratio in Haryana, Punjab, Delhi, Bihar, Manipur and Tripura where concentrated promotional work will be necessary to improve the ratios.

#### *Potash*

In respect of potash position in the States of Andhra Pradesh, Kerala, Mysore, Pondicherry, Maharashtra, Assam, West Bengal and Nagaland is better than the desired 0.25, with Tamil Nadu showing only a marginal shortfall. The shortfall is very significant in most of the Western and Northern States.

The information given in Table 10 (a) (at the end of Chapter V) has been regrouped below in terms of level of consumption ratios separately for phosphates and potash in relation to nitrogen.

It will be seen from Table A that in respect of phosphates four States fall in the ratio group of 0.75 to 0.51 in relation to nitrogen, while none in the highest group. The majority of the States (as many as 13) lie in the ratio group of 0.50 to 0.26. Of these, three States are only marginally below

**Table A**  
*Consumption of phosphates and potash (in relation to nitrogen)  
in States according to different ratio groups—1970-71*

Consumption ratio in relation to nitrogen	Consumption ratio group	States falling in different ratio groups (arranged in descending order)
(i) Phosphates	1.00 — 0.76	
	0.75 — 0.51	Kerala, Pondicherry, Himachal Pradesh and Nagaland
	0.50 — 0.26	Andhra Pradesh, Mysore, Tamil Nadu, Gujarat, Madhya Pradesh, Maharashtra, Goa, Jammu & Kashmir, Rajasthan, Uttar Pradesh, Assam, Orissa and West Bengal
	0.25 — 0.21	Bihar and Tripura
	0.20 — 0.11	Haryana, Punjab and Delhi
	0.10 — 0.01	Manipur
(ii) Potash	1.00 — 0.76	Andhra Pradesh
	0.75 — 0.51	Kerala and Nagaland
	0.50 — 0.26	Mysore, Pondicherry, Maharashtra, Assam and West Bengal
	0.25 — 0.21	Tamil Nadu and Himachal Pradesh
	0.20 — 0.11	Goa, Uttar Pradesh and Tripura
	0.10 — 0.01	Gujarat, Madhya Pradesh, Haryana, Jammu & Kashmir, Punjab, Rajasthan, Delhi, Bihar, Orissa and Manipur.

0.50. Another six are in the very low ratio group of below 0.26. Included in these are also some of the States like Bihar, Punjab and Haryana with a high total off-take of fertilisers.

In the case of potash, only one State falls in the highest group 1.00—0.76 in relation to N and two in group 0.75 to 0.51. The reasons for higher consumption of potash in these States are : (i) widespread deficiency of potash in the soils of Kerala and parts of Andhra Pradesh, (ii) predominance of plantation crops cultivated in Kerala and commercial crops like tobacco, chillies, etc., in parts of Andhra Pradesh, (iii) popularity of mixtures and (iv) intensive promotional efforts for increasing the consumption of potash in Kerala and Andhra Pradesh.

Five States fall in the group 0.50—0.26 and the rest in the very low ratio group of 0.25 to 0.01. These are the 10 States where concentrated promotional work will pay dividends.

Soil test data made available so far (as published in *Fertiliser News*, August 1969) show that the phosphates and potash deficiency is increasing in the Indian soils. This may further be aggravated with the continuous and intensive cropping of the high yielding varieties of cereals grown under various agricultural development programmes, which remove large quantities of plant nutrients including phosphates and potash. The need for promoting balanced fertilisation based on soil tests, crop requirements and agro-climatic conditions will, therefore, need much greater attention in future.



CHAPTER V

**PRODUCTION AND CONSUMPTION OF  
FERTILISERS (1972-73 and 1973-74)**

*1. Trends in consumption*

An attempt has been made in the chapter "Consumption of Fertilisers by States" to highlight factors which influenced the trends in consumption of plant nutrients—N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O—during the 5-year period 1966-67 to 1970-71. Based on this and other emerging factors, estimates of production and consumption for 1970-72 have been presented in the Annual Review.

It is worth mentioning that the actual consumption of N for 1970-71 was a little higher and of P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O pretty close to the earlier estimates. This improved performance necessitated the revision of the earlier estimates for 1971-72 also to 1,761, 565 and 303 thousand tonnes of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O, respectively. Likely consumption figures for the year 1972-73 are projected at 2,100 thousand tonnes of N, 700 thousand tonnes of P<sub>2</sub>O<sub>5</sub> and 390 thousand tonnes of K<sub>2</sub>O (vide Table 11 at the end of Chapter V) and for 1973-74 at 2,400 thousand of N, 850 thousand tonnes of P<sub>2</sub>O<sub>5</sub> and 500 thousand tonnes of K<sub>2</sub>O.

The reason for optimism for future despite a slowing down in growth rate during 1970-71 stems from a number of factors. Government of India have initiated various development projects like Intensive Cotton and Jute Programmes, pilot projects for Multiple Cropping and Small and Marginal Farmers Development Agencies (Ref: "Notes" pp 58). Development of dry farming is being given increased attention both by the Government and the fertiliser industry. Nationalised banks are devoting greater attention to provide funds for the agricultural sector and for production and distribution credit for fertilisers. Liberalisation of the terms of the Credit Guarantee Corporation for fertiliser distribution should enable more funds to flow into this vital sector.

Most domestic manufacturers have intensified their promotional efforts and introduced various interesting and novel features in their package of sales promotion activities. The efficiency of their endeavours will be considerably enhanced by the formation of the Fertiliser Promotion Cell in the Government of India under the charge of a Fertiliser Promo-

tion Commissioner. This cell will initiate a massive 10-point programme (Ref. "Notes" pp 58) and generally coordinate the promotional activities of the industry for achieving optimum benefits.

One of the bottlenecks has been rail movement of fertilisers. A beginning has been made with forward planning of movement from fertiliser plants on a quarterly basis. It is hoped that with more experience, this exercise will become more fruitful.

#### Seasonwise demand

Broadly, the consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O between the two crop season *kharif* (K) and *rabi* (R) was shared in the following order :

	Til 1969-70		1970-71		1971-72 (Est.)	
	R	K	R	K	R	K
	←.....percentage.....→					
N	56-54	44-46	58-56	42-44	58-56	42-44
P <sub>2</sub> O <sub>5</sub>	56-54	44-46	58-56	42-44	58-56	42-44
K <sub>2</sub> O	62-60	38-40	59	41	59	41

A shift has taken place for N and P<sub>2</sub>O<sub>5</sub> towards *rabi* which already accounted for a larger proportion of the consumption. These proportions seem to be more or less the same for all regions. This is indicative of greater use of fertiliser for wheat during the season in areas of assured water supply. This pattern is likely to continue for the years 1972-73 and 1973-74. On this basis, future consumption is likely to be as given in Table A.

**Table A**  
*Anticipated consumption—All-India (1971-72 to 1973-74)*

('000 tonnes)

Year	Anticipated consumption		Total	
	Kharif	Rabi		
(i) 1971-72				
	N	736	1,025	1,761
	P <sub>2</sub> O <sub>5</sub>	239	326	565
	K <sub>2</sub> O	120	183	303
(ii) 1972-73				
	N	894	1,206	2,100
	P <sub>2</sub> O <sub>5</sub>	300	400	700
	K <sub>2</sub> O	157	233	390
(iii) 1973-74				
	N	975	1,425	2,400
	P <sub>2</sub> O <sub>5</sub>	370	480	850
	K <sub>2</sub> O	200	300	500

## 2. Trends in production

Indigenous production during 1971-72 would be around 955 thousand tonnes of N and 285 thousand tonnes of  $P_2O_5$ .  $K_2O$  requirement will continue to be met through imports. These estimates take into account contribution not only from the existing units, but also from the new projects that have been commissioned in 1971-72 (July-June). According to the indications presently available, additional production during the years 1971-72 to 1973-74 is anticipated from the projects given in Table B.

**Table B**  
Contribution anticipated from new projects  
(1971-72 to 1973-74) (July-June)

Unit	Capacity ('000 tonnes/annum)		Likely date of commissioning	
	N	$P_2O_5$		
(i) 1971-72				
*a) Madras Fertilizers Ltd., Manali	190†	85	Oct.	1971
*b) F.A.C.T. Expansion (fourth Stage)	22	9	Oct.	1971
(ii) 1972-73				
a) Cochin Fertiliser Project, Cochin (Phase I)	152	—	Sept.	1972
b) Zuari Agro Chemicals Ltd., San Coale	175	45	Jan.	1973
c) F.C.I., Durgapur	152	—	Dec.	1972
d) Shriram Chemical In- dustries, Kota (Expn.)	42	—	March	1973
(iii) 1973-74				
a) F.C.I., Barauni	152	—	Oct.	1973
b) F.C.I., Namrup (Expn.)	152	—	Oct.	1973
c) Indian Farmers Ferti- lizers Coop. Ltd., Kandla (IFFCO)	215	127	Jan.-Mar.	74
d) Southern Petrochemical Industries Corpn., Tut- corin (SPIC)	255	53	Jan.-Mar.	74
e) Mangalore Chemicals & Fertilisers Ltd., Mangalore	160	—	Jan.-Mar.	74

\* : These projects have since been commissioned.

† : Actual capacity earmarked for fertiliser production is 164 thousand tonnes of N; balance 26 thousand tonnes of N is meant for direct sale.

Though, IFFCO, SPIC and Mangalore Projects are expected to go on stream during January-March 1974, these are not likely to significantly contribute additional production during the year 1973-74. Main incremental contribution in 1973-74 would come through better performance and stabilization of production of the projects commissioned in 1971-72 and 1972-73. Based on this consideration, the balance sheet of anticipated consumption vis-a-vis production in the ensuing 3 years (1971-72 to 1973-74) is likely to be of the order as given in Table C.

**Table C**  
*Balance Sheet of*  
*anticipated consumption vis-a-vis production*  
(<sup>0</sup>000 tonnes)

Year	N	P <sub>2</sub> O <sub>5</sub>
<b>(i) 1971-72</b>		
Consumption	1,761	565
Production	955	285
Shortfall	(—) 806	(—) 280
<b>(ii) 1972-73</b>		
Consumption	2,100	700
Production	1,200	360
Shortfall	(—) 900	(—) 340
<b>(iii) 1973-74</b>		
Consumption	2,400	850
Production	1,600	390
Shortfall	(—) 800	(—) 460

Note : The above study does not take into account the inventories at either end.  
(For details, see May 1972 issue of *Fertiliser News*—pp 42-45).

### 3. Product availability

There would appear to be a sizeable shortfall between anticipated consumption and indigenous availability. This gap is met through imports. Imports during 1971-72 are, however, expected to be much lower than the gap due to difficulties with reference to foreign aid, product prices, avail-

ability and shipping. This shortfall in imports has affected availability during *rabi* 1971-72. Inventories have been run down to a dangerously low level which will affect availability during *kharif* 1972 also. Position is expected to improve later due to the efforts of the fertiliser industry to improve indigenous availability through better capacity utilisation and by the Government initiating a crash programme for immediate imports.

It will be noted that though both consumption and indigenous production of N would be rising at a much faster rate as compared to  $P_2O_5$ , the shortfall in the case of N remains more or less static at 800 thousand tonnes per annum. For  $P_2O_5$  this gap widens from 280 thousand tonnes during 1971-72 to 460 tonnes during 1973-74. It is very necessary to take remedial measures for improving the production performance of existing N and  $P_2O_5$  units and creating additional capacity for both to bridge the gap between production and consumption to the maximum extent possible and save valuable foreign exchange outgoing on imports.

#### Notes

##### *I. The programme for Small Farmers Development Agency (SFDA) :*

It is particularly production and institutional credit oriented. This scheme is proposed to be taken up in 46 selected areas : 50,000 potentially viable small farmers (with holdings generally between 2.5 and 7.5 acres) are to be assisted in each project area with subsidised irrigation support, land levelling, soil conservation, improved agricultural implements, custom service facilities, storage and marketing and in development of subsidiary occupation like dairy, poultry, fishery, piggery, etc. The average outlay on each project will be Rs. 1.50 crores during the Fourth Plan. The programme includes giving of assistance to rural artisans also. Farmer participants will be given a subsidy of 25 per cent from the Agency, and the balance as loans mainly from Cooperative Credit Institutions. All the 46 SFDA have already been approved by the Government of India and work has already started in 45 of them. An amount of Rs. 306.90 lakhs has been sanctioned upto 31st March 1971. This scheme will benefit about 20 lakh families.

##### *II. Marginal Farmers and Agricultural Labourers (MFAL) :*

These programmes are oriented towards development of subsidiary occupation with the help of institutional credit. This scheme is proposed to be taken up in 41 selected areas : 15,000 marginal farmers (with holding generally up to 2.5 acres) and about 15,000 agricultural labourers are to be assisted in each project area with subsidised credit support for agricultural and subsidiary occupations. Provision has also been made for giving direct wage employment in the off-season to agricultural labourers in rural works

of a productive nature. The average outlay on each project will be Rs. 1.00 crore during the Fourth Plan. This scheme will benefit 8 to 9 lakh families.

*III. Rural Works Programme (RWP) :*

This programme is designed to generate employment opportunities for agricultural labourers in the chronically drought affected areas. This programme covers 54 districts in 13 States. Fourth Plan outlay in the Central non-Plan sector is Rs. 100 crores and each selected district is expected to get an allocation of nearly Rs. 2 crores. These schemes include irrigation, soil conservation, road building, etc. The programme has been sanctioned for 50 districts in July, 1971.

*IV. Ten-Point Promotion Programme :*

The main features of the proposed ten-point promotion programme to boost the use of fertilisers in the coming years are :

- (1) Massive demonstration programme in 70 selected districts on a package approach in collaboration with the other demonstration programme in respect of cereals and specific cash crops like cotton, oilseeds, jute, sugarcane, etc.
- (2) Training of V.L.Ws, retail dealers including Cooperative salesmen, Extension officers and other field officers in proper fertiliser use and management, so that they can assist the farmers on the efficient use of fertilisers.
- (3) Training of farmers including farm women in proper use and management of fertilisers in the selected districts.
- (4) Dissemination of information on the use of fertilisers through personal contact, group discussion and mass media such as films, radio and television.
- (5) Organisation of fertiliser festivals in the selected districts.
- (6) Strengthening of the existing soil testing laboratories and also strengthening the quality control laboratories at the Centre and in the States.
- (7) Increasing cooperative credit facilities to farmers for fertiliser use.
- (8) Credit to be given in kind as fertilisers as far as possible.
- (9) More selling points to be opened in each block and their proper dispersal.
- (10) Linking of Commercial Bank Credit Programme with fertiliser sales on an area basis.

## **TABLES**

Table 1

Percentage increase in production, distribution and consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (1966-67 to 1971-72\*)

Nutrient	Percentage increase from					
	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72	1966-67 to 1971-72
<b>Production</b>						
Nitrogen (N)	30.1	39.8	29.9	15.9	16.3	218.5
Phosphate (P <sub>2</sub> O <sub>5</sub> )	42.9	(—)1.9	9.9	9.4	26.2	112.4
(N+P <sub>2</sub> O <sub>5</sub> )	34.1	25.6	24.6	14.4	18.5	184.6
<b>Distribution</b>						
Nitrogen (N)	41.0	5.5	-17.7	28.0	22.9	94.8
Phosphate (P <sub>2</sub> O <sub>5</sub> )	62.5	-33.8	-20.3	29.6	52.6	69.8
Potash (K <sub>2</sub> O)	53.7	-21.4	-6.8	30.5	28.9	89.6
(N+P <sub>2</sub> O <sub>5</sub> +K <sub>2</sub> O)	47.2	-8.2	-17.1	29.6	28.6	88.6
<b>Consumption**</b>						
Nitrogen (N)	-3.6	41.4	20.2	9.3	18.4	112.2
Phosphate (P <sub>2</sub> O <sub>5</sub> )	-14.2	64.8	7.9	10.0	22.8	105.5
Potash (K <sub>2</sub> O)	-2.9	18.5	35.7	9.1	32.9	126.1
(N+P <sub>2</sub> O <sub>5</sub> +K <sub>2</sub> O)	-5.8	43.7	18.8	9.5	20.8	112.2

Note: Requirements of phosphates do not include ground rock phosphate used directly or bonemeal.

\* Year under estimation.

\*\* For regionwise and seasonwise details, see Tables 6, 7, 8 and 11.

Ref: "Summary and Conclusions"



Table 2

*Chronology of fertiliser manufacture*

Approx. year of first manufacture	Fertiliser material manufactured	Factory which first manufactured	Total number of units operating (as on 1.1.1972)
(i) 1906	Single superphosphate	E.I.D.-Parry Ltd., Ranipet	28
(ii) 1906	Fertiliser mixtures		661
(iii)	Ammonium sulphate		11
1933	(a) As a by-product of steel industry	(a) Tata Iron & Steel Co. Ltd., Jamshedpur	6
1947	(b) Synthetic	(b) FACT, Alwaye	4
1950	(c) Using gypsum as a raw material	(c) FCI, Sindri	1
(iv) 1959	Ammonium sulphate nitrate	FCI Ltd., Sindri	1
	Urea	FCI Ltd., Sindri	10
	Ammonium chloride (Agricultural)	New Central Jute Mills Co. Ltd., Varanasi	1
(v) 1960	Ammonium phosphate	FACT, Alwaye	2
(vi) 1961	Calcium ammonium nitrate	FCI Ltd., Nangal	2
(vii) 1965	Nitrophosphate	FCI Ltd., Trombay	1
(viii) 1967	Diammonium phosphate	Gujarat State Fertilizers Co. Ltd., Baroda	1
(ix) 1968	Triple superphosphate	Dharamsi Morarji Chemical Co. Ltd., Ambernath	1
	Urea ammonium phosphate	Coromandel Fertilisers Ltd., Vizag	1
	NPK complex fertilisers	FCI Ltd., Trombay	3

Note : 1. Granulation of superphosphate and manufacture of granulated fertiliser mixtures were started by M/s Phosphate Co. Ltd., Rishra and M/s Bharat Fertiliser Industries Ltd., Bombay, respectively.

2. Units manufacturing more than one end-product are correspondingly accounted for more than once in the last column given above [see also Appendix 1(b)]

Ref : "Summary and Conclusions"

Table 3

## Forms in which fertilisers are produced

Kind of fertiliser	Fertiliser production ('000 tonnes)						Percentage increase from					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72	1966-67 to 1971-72
Ammonium sulphate (20.6% N)	437 (29.1)	434 (22.2)	594 (21.7)	597 (16.9)	626 (15.3)	585 (12.2)	-0.6	36.8	0.5	4.8	-6.5	33.9
Ammonium sulphate nitrate (26% N)	61 (5.1)	62 (4.0)	45 (2.6)	46 (1.6)	34 (1.1)	36 (0.8)	0.7	-27.5	2.1	-26.1	-11.8	-103.3
Urea <sup>+</sup>	131 (18.7)	264 (30.2)	458 (37.4)	845 (53.3)	1,099 (59.9)	1,250 (58.6)	100.8	73.6	84.4	30.0	13.7	854.2
Calcium ammonium nitrate (20.5% N)	562 (37.3)	262 (30.5)	124 (21.6)	— (13.9)	— (9.2)	— (12.6)	53.4	52.6	—	—	—	—
Calcium ammonium nitrate (25% N)	—	278 (30.5)	386 (21.6)	406 (13.9)	312 (9.2)	460 (12.6)	—	38.8	5.2	-23.1	57.0	76.2
Ammonium chloride <sup>++</sup> (25% N)	14 (1.2)	16 (1.0)	16 (0.7)	15 (0.5)	23 (0.7)	25 (0.6)	13.8	2.4	-5.5	53.3	8.7	78.5
Ammonium phosphate sulphate (16-20-0)	86 (4.4)	90 (3.6)	103 (3.0)	83 (1.9)	93 (1.8)	115 (1.8)	4.6	14.4	-19.4	12.0	23.6	33.7
Nitrophosphates <sup>2</sup>	81 (4.2)	92 (4.6)	86 (3.1)	108 (2.4)	165 (3.3)	200 (4.1)	13.6	-6.5	25.5	52.8	21.2	146.9
Diammonium phosphate <sup>4</sup> (20-48-0)	—	36 (1.8)	55 <sup>3</sup> (1.9)	53 <sup>4</sup> (1.3)	51 <sup>1</sup> (1.1)	50 (0.8)	—	52.8	-3.6	-3.8	-2.0	—
Urea ammonium phosphate (28-28-0)	—	31 (2.1)	155 (7.7)	188 (8.2)	248 (7.6)	225 (6.4)	—	416.1	37.5	12.7	-9.3	625.8
NPK complex fertiliser (17-17-17) (14-28-14)	—	—	—	—	—	125 (2.1)	—	—	—	—	—	—
<b>Total N</b>	<b>309 (100.0)</b>	<b>402 (100.0)</b>	<b>562 (100.0)</b>	<b>730 (100.0)</b>	<b>846 (100.0)</b>	<b>978 (100.0)</b>	<b>30.1</b>	<b>39.9</b>	<b>29.6</b>	<b>15.6</b>	<b>16.6</b>	<b>218.5</b>

(Continued)

**Table 3**  
(Concl.)

*Forms in which fertilisers are produced*

Kind of fertiliser	Fertiliser production ('000 tonnes)						Percentage increase from					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72	1966-67 to 1971-72
Superphosphate (16% P <sub>2</sub> O <sub>5</sub> )	711 (78.1)	868 (67.1)	612 (46.0)	616 (44.2)	655 (43.0)	840 (43.5)	22.0	29.4	0.7	6.3	28.2	18.1
Higher grades of superphosphate (17.5-18.5% P <sub>2</sub> O <sub>5</sub> )	23 (2.9)	29 (2.5)	15 (1.3)	13 (1.1)	8 (0.4)	—	26.1	-48.3	-13.3	-38.5	—	—
Triple superphosphate (45% P <sub>2</sub> O <sub>5</sub> )	—	2 (0.4)	3 (0.6)	7 (1.5)	8 (1.6)	10 (3.3)	—	50.0	135.3	12.5	12.5	—
Ammonium phosphate sulphate (16-20-0)	86 (11.8)	90 (8.7)	103 (9.8)	83 (7.8)	93 (7.8)	115 (7.5)	4.6	14.4	-19.4	12.0	23.6	33.7
Nitrophosphates <sup>2</sup>	81 (7.2)	92 (8.8)	86 (8.1)	108 (7.8)	165 (11.5)	200 (13.0)	13.6	-6.5	25.5	52.8	21.2	146.9
Diammonium phosphate (20-48-0) <sup>4</sup>	—	36 (8.3)	55 (12.3)	53 <sup>4</sup> (10.9)	51 (9.4)	50 (7.5)	—	52.8	-3.6	-3.8	-2.0	38.8
Urea ammonium phosphate (28-28-0)	—	31 (4.2)	155 (20.3)	188 (26.7)	248 (26.3)	225 (20.4)	—	416.1	37.5	12.7	-9.3	625.8
NPK complex fertiliser (17-17-17) } (14-28-14) }	—	—	—	—	—	125 (6.8)	—	—	—	—	—	—
<b>Total P<sub>2</sub>O<sub>5</sub></b>	<b>145</b> <b>(100.0)</b>	<b>207</b> <b>(100.0)</b>	<b>213</b> <b>(100.0)</b>	<b>223</b> <b>(100.0)</b>	<b>244</b> <b>(100.0)</b>	<b>308</b> <b>(100.0)</b>	<b>41.8</b>	<b>2.9</b>	<b>4.7</b>	<b>9.4</b>	<b>26.2</b>	<b>110.9</b>

\* Estimated. + Since 1967-68 it is calculated on the basis of 46% N. Prior to this it was calculated at 44% N.

+ + For agricultural purposes only. <sup>1</sup>Of grade 20-20-0. <sup>2</sup>Of different grades breakup of which is given in Appendix IV.

<sup>3</sup> Composed of 19 thousand tonnes of grade 18-46-0 and 36 thousand tonnes of grade 20-48-0.

<sup>4</sup> Of grade (18-46-0) since 26.1.1969. <sup>5</sup>Composed of grades 20-20-0 (23 thousand) and 22-22-11 (9 thousand).

<sup>6</sup> Of grade 14-14-14.

The tonnage figures have been rounded off to nearest thousand tonnes. The percentage performance and share of each fertiliser to the total nutrient N and P<sub>2</sub>O<sub>5</sub> have been repeated from the previous years publication. There may be slight variation in these percentage on account of rounding off.

Ref.: Chapter I

Table 4

## Statewise production of fertilisers in terms of nutrients

('000 tonnes)

Region/State	Nitrogen (N)						Phosphate (P <sub>2</sub> O <sub>5</sub> )						Region/State
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	
<b>South</b>	<b>56</b>	<b>84</b>	<b>143</b>	<b>138</b>	<b>148</b>	<b>189</b>	<b>70</b>	<b>83</b>	<b>102</b>	<b>114</b>	<b>118</b>	<b>155</b>	<b>South</b>
Andhra Pradesh	—	16	55	62	76	—	11	23	56	68	73	—	Andhra Pradesh
Kerala	24	23	37	27	31	—	18	14	18	14	16	—	Kerala
Mysore	—	—	—	—	—	—	9	9	2	a	a	—	Mysore
Tamil Nadu	32	45	51	49	41	—	32	37	26	32	29	—	Tamil Nadu
<b>West</b>	<b>40</b>	<b>102</b>	<b>126</b>	<b>173</b>	<b>222</b>	<b>246</b>	<b>49</b>	<b>79</b>	<b>81</b>	<b>79</b>	<b>95</b>	<b>111</b>	<b>West</b>
Gujarat	—	49	73	123	160	—	12	30	36	31	34	—	Gujarat
Madhya Pradesh	4	5	6	6	6	—	12	12	6	8	10	—	Madhya Pradesh
Maharashtra	36	48	47	44	56	—	25	37	39	40	51	—	Maharashtra
<b>North</b>	<b>79</b>	<b>89</b>	<b>152</b>	<b>283</b>	<b>336</b>	<b>393</b>	<b>11</b>	<b>22</b>	<b>20</b>	<b>19</b>	<b>20</b>	<b>26</b>	<b>North</b>
Punjab	76	78	76	77	47	—	—	—	—	—	—	—	Punjab
Rajasthan	—	—	16	91	114	—	—	6	6	7	8	—	Rajasthan
Uttar Pradesh	3	11	60	115	175	—	5	7	7	3	3	—	Uttar Pradesh
Delhi	—	—	—	—	—	—	6	9	7	9	9	—	Delhi
<b>East</b>	<b>134</b>	<b>127</b>	<b>141</b>	<b>136</b>	<b>140</b>	<b>150</b>	<b>15</b>	<b>23</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>16</b>	<b>East</b>
Assam	—	—	13	26	27	—	3	3	2	4	2	—	Assam
Bihar	90	75	74	78	73	—	4	6	—	2	1	—	Bihar
Orissa	39	47	48	26	34	—	—	—	—	—	—	—	Orissa
West Bengal	5	5	6	6	6	—	8	14	8	5	8	—	West Bengal
<b>India</b>	<b>309</b>	<b>402</b>	<b>562</b>	<b>730</b>	<b>846</b>	<b>978</b>	<b>145</b>	<b>207</b>	<b>213</b>	<b>223</b>	<b>244</b>	<b>308</b>	<b>India</b>

\* Estimated  
a. Less than 500 tonnes  
Ref : Chapter I

Table 5

## Forms in which fertilisers are consumed (July-June)

Kind of fertiliser	Consumption ('000 tonnes)						Percentage increases from					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72*	1966-67 to 1971-72*
Ammonium sulphate	1,387 (34.4)	1,376 (24.5)	1,591 (26.9)	824 (16.9)	980 (15.6)	800 (10.3)	-0.8	15.7	-48.2	18.9	-18.4	-42.3
Calcium ammonium nitrate—20.5% N	520	248	121	@	@	@	-52.3	-51.4	—	—	—	—
—25% N	23 <sup>1</sup>	266	383	423	303	470	105.5	44.0	10.4	-28.4	55.1	1,943.4
—26% N	81 (16.0)	130 (13.1)	61 (11.2)	60 (12.1)	251 (10.9)	392 (13.7)	60.5	-43.1	-1.6	318.3	56.2	383.9
Urea—46% N	643 (34.1)	1,095 (43.6)	1,309 (49.3)	1,316 (60.2)	1,699 (60.1)	2,060 (59.4)	70.3	19.5	0.5	29.1	21.2	220.4
Ammonium sulphate nitrate—26% N	82 (2.6)	84 (1.9)	44 (0.9)	44 (1.1)	68 (1.4)	32 (0.5)	2.4	-47.6	—	54.5	-52.9	-60.9
Ammonium chloride—25% N	33 (1.0)	61 (1.3)	54 (1.1)	12 (0.3)	30 (0.6)	25 (0.4)	84.8	-11.5	-77.8	150.0	-16.7	-24.2
Ammonium phosphate sulphate (16-20-0)	82 (1.6)	86 (1.2)	109 (1.4)	87 <sup>2</sup> (1.5)	90 (1.1)	110 (1.1)	4.9	26.7	-20.2	3.4	22.2	34.1
Ammonium phosphate (20-20-0)	186 (4.5)	203 (3.5)	55 (0.9)	++	1	—	9.1	-72.9	—	—	—	—
Diammonium phosphate (18-46-0)	206 (4.5)	454 (7.6)	178* (3.1)	91 (1.6)	143 (2.0)	350 (4.1)	120.4	-60.8	-48.9	57.1	144.7	69.9
Diammonium phosphate (20-48-0)	— (4.5)	30 (7.6)	24 (3.1)	—	—	—	—	-20.0	—	—	—	—
Nitrophosphate <sup>+</sup>	70 (1.3)	69 (1.2)	130 (2.0)	92 (1.5)	176 (2.4)	200 (2.5)	-1.4	88.4	-29.2	91.3	13.6	185.7
Urea ammonium phosphate <sup>+</sup>	—	31 (0.7)	118 (2.7)	141 (4.3)	217 (5.1)	290 (5.1)	—	280.6	9.5	53.9	33.6	—
NPK mixture—(14-14-14)	3	118 (1.4)	51 (0.5)	76 (1.1)	159 (1.6)	200 (1.7)	—	-56.8	49.0	109.2	25.8	6,566.7
—(17-17-17) }	—	—	—	—	—	120	—	—	—	—	—	—
—(14-28-14) }	—	—	—	—	—	(1.2)	§	—	—	—	—	—
<b>Total N</b>	<b>820</b> <b>(100.0)</b>	<b>1,156</b> <b>(100.0)</b>	<b>1,220</b> <b>(100.0)</b>	<b>1,004</b> <b>(100.0)</b>	<b>1,299</b> <b>(100.0)</b>	<b>1,597</b> <b>(100.0)</b>	<b>40.9</b>	<b>5.5</b>	<b>-17.7</b>	<b>28.0</b>	<b>22.9</b>	<b>94.7</b>

(Continued)

**Table 5**  
(Contd.)

*Forms in which fertilisers are consumed (July-June)*

Kind of fertiliser	Consumption ('000 tonnes)						Percentage increase from					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72*	1966-67 to 1971-72*
Superphosphate—(16% W.S. P <sub>2</sub> O <sub>5</sub> )	698	791	639	683	683	820	13.3	-19.2	6.9	—	20.0	17.4
Superphosphate—(18% W.S. P <sub>2</sub> O <sub>5</sub> )	6	4 <sup>1</sup>	2 <sup>1</sup>	2	—	—	-33.3	-50.0	—	—	—	—
Superphosphate—(19% W.S. P <sub>2</sub> O <sub>5</sub> )	13	1 <sup>5</sup>	1 <sup>5</sup>	++	++	—	—	—	—	—	—	—
	(41.9)	(28.5)	(35.7)	(46.4)	(35.6)	(26.9)	—	—	—	—	—	—
Basic slag	11	—	—	—	—	—	—	—	—	—	—	—
	(0.6)	—	—	—	—	—	—	—	—	—	—	—
Triple superphosphate (45% P <sub>2</sub> O <sub>5</sub> )	—	++	2	5	9	10	—	—	150.0	80.0	11.1	—
	—	—	(0.4)	(1.0)	(1.3)	(0.8)	—	—	—	—	—	—
Ammonium phosphate sulphate- (16-20-0)	82	86	109	87 <sup>2</sup>	90	110	4.9	26.7	-20.2	3.4	22.2	34.1
	(6.0)	(3.9)	(7.4)	(7.7)	(5.9)	(4.5)	—	—	—	—	—	—
Ammonium phosphate (20-20-0)	186	203	55	++	1	—	9.1	-72.9	—	—	—	—
	(13.8)	(9.1)	(3.7)	—	—	—	—	—	—	—	—	—
Diammonium phosphate (18-46-0)	206	454	178 <sup>3</sup>	91	143	350	120.4	-60.8	-48.9	57.1	144.7	69.9
Diammonium phosphate (20-48-0)	—	30	24	—	—	—	—	-20.0	—	—	—	—
	(34.3)	(50.0)	(31.7)	(18.2)	(21.6)	(33.1)	—	—	—	—	—	—
Nitrophosphate <sup>+</sup>	70	69	130	92	176	200	-1.4	88.4	-29.2	91.3	13.6	185.7
	(3.3)	(2.9)	(7.5)	(6.4)	(10.1)	(8.2)	—	—	—	—	—	—
Urea ammonium phosphate <sup>+</sup>	—	31	118	141	217	290	—	280.6	9.5	53.9	33.6	—
	—	(1.9)	(11.2)	(15.8)	(18.3)	(16.6)	—	—	—	—	—	—
NPK mixtures—(14-14-14)	3	118	51	76	159	200	—	-56.8	49.0	109.2	25.8	6,566.7
	(0.1)	(3.7)	(2.4)	(4.5)	(7.2)	(5.8)	—	—	—	—	—	—
—(17-17-17)}	—	—	—	—	—	120	—	—	—	—	—	—
—(14-28-14)}	—	—	—	—	—	(4.1)	—	—	—	—	—	—
<b>Total P<sub>2</sub>O<sub>5</sub></b>	<b>275</b>	<b>447</b>	<b>296</b>	<b>236</b>	<b>306</b>	<b>487</b>	<b>62.5</b>	<b>-33.8</b>	<b>-20.3</b>	<b>29.7</b>	<b>52.6</b>	<b>77.3</b>
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	—	—	—	—	—	—

(Continued)

**Table 5**  
(Concl.)

*Forms in which fertilisers are consumed (July-June)*

Kind of fertiliser	Consumption ('000 tonnes)					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
Muriate of potash	206	291	241	227	283	375
	(92.7)	(90.9)	(91.4)	(90.0)	(86.3)	(88.5)
Sulphate of potash	19	5	14	9	10	2
	(7.1)	(1.1)	(4.3)	(2.9)	(2.5)	(0.3)
NPK mixture (14-14-14)	3	118	51	76	159	200
	(0.2)	(8.0)	(4.3)	(7.1)	(11.2)	(10.2)
<b>Total K<sub>2</sub>O</b>	<b>134</b>	<b>206</b>	<b>162</b>	<b>151</b>	<b>197</b>	<b>254</b>
	<b>(100.0)</b>	<b>(100.0)</b>	<b>(100.0)</b>	<b>(100.0)</b>	<b>(100.0)</b>	<b>(100.0)</b>

Percentage increase from				
1957-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72*	1966-67 to 1971-72*
-21.8	-8.1	24.7	32.5	82.0
180.0	-35.7	11.1	-80.0	-89.5
56.8	49.0	109.2	25.8	6,566.7
<b>-21.3</b>	<b>-6.8</b>	<b>30.5</b>	<b>28.9</b>	<b>89.5</b>

Note :—

\*Estimated.

1. Of grade 22% N.
  2. In addition 3,943 tonnes of ammonium phosphate sulphate (20-20-0) was distributed in 1969-70.
  3. Switched over to production and distribution of diammonium phosphate of grade (18-46-0) from January 1969.
  4. Contains 665 tonnes of 17.5% W.S. P<sub>2</sub>O<sub>5</sub> material and 2,993 tonnes of 18% P<sub>2</sub>O<sub>5</sub> material during 1967-68 and 1,296 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material during 1968-69.
  5. Contains 49 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material 662 tonnes of 19% P<sub>2</sub>O<sub>5</sub> material and 115 tonnes of 21% P<sub>2</sub>O<sub>5</sub> material during 1967-68 and 426 tonnes of 21% P<sub>2</sub>O<sub>5</sub> and 458 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material during 1968-69.
  6. Material of 50% K<sub>2</sub>O grade.
- @ No distribution is made since 1969-70 as indigenous production has been switched over from 20.5%N to 22%N.
- + Break up is Available in Appendix No. 12 and 15.
- ++ Less than 500 tonnes.

Ref: Chapter II.

of 17.5% P<sub>2</sub>O<sub>5</sub> and 1,296 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> during 1968-69. 426 tonnes of 21% P<sub>2</sub>O<sub>5</sub> and 458 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material during 1967-68 and 426 tonnes of 21% P<sub>2</sub>O<sub>5</sub> and 458 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material during 1968-69.

**Table 5**  
(Concl'd.)

*Forms in which fertilisers are consumed (July-June)*

Kind of fertiliser	Consumption ('000 tonnes)						Percentage increase from					
	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	1966-67 to 1967-68	1967-68 to 1968-69	1968-69 to 1969-70	1969-70 to 1970-71	1970-71 to 1971-72*	1966-67 to 1971-72*
Muriate of potash	206	291 25 <sup>6</sup>	241 6 <sup>6</sup>	227	283	375	53.4	-21.8	-8.1	24.7	32.5	82.0
Sulphate of potash	(92.7) 19	(90.9) 5	(91.4) 14	(90.0) 9	(86.3) 10	(88.5) 2	-73.7	180.0	-35.7	11.1	-80.0	-89.5
NPK mixture (14-14-14)	(7.1) 3	(1.1) 118	(4.3) 51	(2.9) 76	(2.5) 159	(0.3) 200	-	56.8	49.0	109.2	25.8	6,566.7
	(0.2)	(8.0)	(4.3)	(7.1)	(11.2)	(10.2)						
<b>Total K<sub>2</sub>O</b>	<b>134</b> <b>(100.0)</b>	<b>206</b> <b>(100.0)</b>	<b>162</b> <b>(100.0)</b>	<b>151</b> <b>(100.0)</b>	<b>197</b> <b>(100.0)</b>	<b>254</b> <b>(100.0)</b>	<b>53.7</b>	<b>-21.3</b>	<b>-6.8</b>	<b>30.5</b>	<b>28.9</b>	<b>89.5</b>

Note :- \*Estimated.

1. Of grade 22% N.
  2. In addition 3,943 tonnes of ammonium phosphate sulphate (20-20-0) was distributed in 1969-70.
  3. Switched over to production and distribution of diammonium phosphate of grade (18-46-0) from January 26, 1969.
  4. Contains 665 tonnes of 17.5% W.S. P<sub>2</sub>O<sub>5</sub> material and 2,993 tonnes of 18% P<sub>2</sub>O<sub>5</sub> material during 1967-68 and 1,152 tonnes of 17.5% P<sub>2</sub>O<sub>5</sub> and 1,296 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> during 1968-69.
  5. Contains 49 tonnes of 18.5% P<sub>2</sub>O<sub>5</sub> material 662 tonnes of 19% P<sub>2</sub>O<sub>5</sub> material and 115 tonnes of 21% P<sub>2</sub>O<sub>5</sub> grade material during 1967-68 and 426 tonnes of 21% P<sub>2</sub>O<sub>5</sub> and 458 tonnes of 18.5% during 1968-69.
  6. Material of 50% K<sub>2</sub>O grade.
- @ No distribution is made since 1969-70 as indigenous production has been switched over from 20.5%N to 25% N.  
 + Break up is Available in Appendix No. 12 and 15.  
 ++ Less than 500 tonnes.

Ref: Chapter II.



**Table 6**  
*Consumption of nitrogen (N) by States*  
(<sup>'000 tonne</sup>)

Region/State	1966-67*	1967-68	1968-69	1969-70	1970-71	1971-72
<b>South</b>	<b>371</b>	<b>279</b>	<b>428</b>	<b>505</b>	<b>494</b>	<b>543</b>
Andhra Pradesh	176	109	218	237	207	
Kerala	29	23	28	30	26	
Mysore	50	51	69	87	93	
Tamil Nadu	96	96	113	148	165	
Pondicherry	1	N.A.	N.A.	3	3	
UPASI	9	—	—	—	—	
Coffee Board	9	—	—	—	—	
Rubber Board	1	—	—	—	—	
Miscellaneous	@	—	—	—	—	
<b>West</b>	<b>130</b>	<b>166</b>	<b>173</b>	<b>192</b>	<b>269</b>	<b>325</b>
Gujarat	37	55	67	65	106	
Madhya Pradesh	4	15	21	34	51	
Maharashtra	88	96	85	92	111	
Goa	1	N.A.	N.A.	1	1	
<b>North</b>	<b>205</b>	<b>275</b>	<b>429</b>	<b>537</b>	<b>577</b>	<b>703</b>
Haryana	14	31	40	45	61	
Punjab	68	82	135	147	175	
Rajasthan	14	19	23	31	41	
Uttar Pradesh	98	142	220	306	291	
Jammu & Kashmir	9	N.A.	5	3	4	
Delhi	1	1	2	2	2	
Himachal Pradesh	1	N.A.	4	3	3	
<b>East</b>	<b>121</b>	<b>79</b>	<b>101</b>	<b>126</b>	<b>147</b>	<b>190</b>
Assam	2	3	4	3	5	
Bihar	59	33	49	70	75	
Orissa	16	14	15	18	20	
West Bengal	27	29	32	34	47	
Manipur	@	—	1	1	@	
Tripura	@	—	—	@	@	
Nagaland	@	—	—	@	@	
NEFA	—	—	—	—	—	
Andamans	—	—	—	—	—	
Tea manure mixtures	17	—	—	—	—	
<b>Total</b>	<b>827</b>	<b>799</b>	<b>1,131</b>	<b>1,360</b>	<b>1,487</b>	<b>1,761</b>
Others	2	—	—	—	—	
<b>All-India</b>	<b>829</b>	<b>799</b>	<b>1,131</b>	<b>1,360</b>	<b>1,487</b>	<b>1,761</b>

\* FAI Estimates. @ Less than 500 tonnes.

+ Figures from 1967-68 onwards relate to consumption (April-March) whereas for 1966-67 they relate to distribution (July-June).

Note : For seasonwise/regionwise details, please see Table 11.

Ref : Chapter II

Table 6(b)

*Distribution of nitrogen (N) by States*

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>370</b>	<b>454</b>	<b>366</b>	<b>380</b>	<b>354</b>	<b>410</b>
Andhra Pradesh	176	175	107	210	118	
Kerala	29	26	32	54	10	
Mysore	50	87	21	30	28	
Tamil Nadu	95	149	99	79	57	
Pondicherry	1	2	1	@	@	
UPASI	9	6	12	3	8	
Coffee Board	9	7	11	3	5	
Rubber Board	1	2	2	1	2	
Food Corporation of India	—	—	—	—	—	
Cardamom Board	@	@	@	—	—	
<b>West</b>	<b>130</b>	<b>189</b>	<b>220</b>	<b>194</b>	<b>286</b>	<b>286</b>
Gujarat	37	60	55	81	110	
Madhya Pradesh	4	25	32	42	51	
Maharashtra	88	103	132	71	50	
Goa	1	1	1	@	b	
Dadra & Nagar Haveli	@	@	@	@	—	
<b>North</b>	<b>206</b>	<b>364</b>	<b>483</b>	<b>299</b>	<b>454</b>	<b>666</b>
Haryana	14	38	43	35	50	
Punjab	68	104	129	135	137	
Rajasthan	14	25	25	15	31	
Uttar Pradesh	98	177	279	107	195	
Jammu & Kashmir	9	13	1	1	4	
Delhi	1	2	3	3	4	
Himachal Pradesh	2	5	3	3	4	
Chandigarh	—	@	—	@	—	
<b>East</b>	<b>121</b>	<b>132</b>	<b>107</b>	<b>102</b>	<b>164</b>	<b>150</b>
Assam†	2	@	6	15	16	
Bihar	59	65	33	35	67	
Orissa	16	11	10	18	22	
West Bengal	27	38	44	32	43	
Manipur	@	1	2	@	@	
Tripura	@	@	@	@	b	
Dandakaranya	—	@	@	@	—	
Nagaland	@	—	@	—	b	
NEFA	—	—	—	—	—	

(Continued)

Table 7 (a)

Consumption of phosphates ( $P_2O_5$ ) by States

('000 tonnes)

Region/State	1966-67 <sup>φ</sup>	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>99</b>	<b>72</b>	<b>159</b>	<b>158</b>	<b>166</b>	<b>204</b>
Andhra Pradesh	36	21	79	63	59	
Kerala	8	16	35	42	14	
Mysore	19	6	25	31	37	
Tamil Nadu	36	29	20	20	54	
Pondicherry	+	N.A.	N.A.	2	2	
<b>West</b>	<b>68</b>	<b>77</b>	<b>70</b>	<b>84</b>	<b>130</b>	<b>163</b>
Gujarat	26	15	25	39	53	
Madhya Pradesh	9	6	9	14	25	
Maharashtra	32	56	36	30	52	
Goa	1	N.A.	N.A.	1	+	
Dadra & Nagar Haveli	+	N.A.	N.A.	N.A.	N.A.	
<b>North</b>	<b>54</b>	<b>67</b>	<b>124</b>	<b>133</b>	<b>127</b>	<b>153</b>
Haryana	1	10	55	4	7	
Punjab	10	16	32	21	31	
Rajasthan	5	5	6	8	11	
Uttar Pradesh	33	36	77	98	75	
Jammu & Kashmir	4	N.A.	3	1	1	
Delhi	+	—	+	+	+	
Himachal Pradesh	1	N.A.	1	1	2	
<b>East</b>	<b>42</b>	<b>20</b>	<b>36</b>	<b>44</b>	<b>38</b>	<b>45</b>
Assam	2	1	3	2	2	
Bihar	21	6	14	27	18	
Orissa	10	5	5	4	6	
West Bengal	9	8	14	11	12	
Manipur	—	—	+	+	+	
Tripura	+	—	—	+	+	
Nagaland	+	—	—	+	—	
Andamans	+	—	—	—	—	
NEFA	+	—	—	—	—	
<b>Total</b>	<b>263</b>	<b>236</b>	<b>389</b>	<b>419</b>	<b>461</b>	<b>565</b>
Used in mixtures	11	×	×	×	×	—
<b>All-India</b>	<b>274</b>	<b>236</b>	<b>389</b>	<b>419</b>	<b>461</b>	<b>565</b>

\* FAI Estimates. + Less than 500 tonnes.

<sup>φ</sup> Figures from 1967-68 onwards relate to consumption (April-March), whereas for 1966-67 they relate to distribution (July-June)

× Included in the consumption figures of States.

Note: For seasonwise/regionwise details, please see Table 11.

Ref: Chapter II.

**Table 7 (b)**  
*Distribution of phosphates (P<sub>2</sub>O<sub>5</sub>) by States*  
(\*000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>99</b>	<b>185</b>	<b>80</b>	<b>99</b>	<b>92</b>	<b>129</b>
Andhra Pradesh	36	59	32	51	44	
Kerala	8	12	8	8	7	
Mysore	19	47	20	19	16	
Tamil Nadu	36	66	19	21	17	
Pondicherry	b	1	b	b	b	
Coffee Board	—	—	a	—	—	
UPASI	—	—	a	—	—	
<b>West</b>	<b>68</b>	<b>97</b>	<b>85</b>	<b>76</b>	<b>120</b>	<b>136</b>
Gujarat	26	32	33	35	44	
Madhya Pradesh	9	8	12	13	27	
Maharashtra	32	56	40	28	25	
Goa	1	1	b	b	b	
Dadra & Nagar Haveli	b	b	b	—	—	
<b>North</b>	<b>54</b>	<b>118</b>	<b>75</b>	<b>33</b>	<b>39</b>	<b>130</b>
Haryana	1	4	2	b	b	
Punjab	10	33	17	12	13	
Rajasthan	5	8	1	8	6	
Uttar Pradesh	33	57	54	13	16	
Jammu & Kashmir	4	13	b	—	—	
Delhi	b	1	b	b	b	
Himachal Pradesh	1	2	1	b	b	
<b>East</b>	<b>42</b>	<b>40</b>	<b>15</b>	<b>13</b>	<b>15</b>	<b>29</b>
Assam	2	2	1	1	1	
Bihar	21	26	2	3	2	
Orissa	10	2	1	2	1	
West Bengal	9	10	11	7	10	
Manipur	—	a	b	—	—	
Tripura	b	b	—	b	b	
Nagaland	b	b	b	b	b	
Andamans	b	—	—	b	—	
Dandakaranya	—	b	—	—	—	
NEFA	b	—	—	—	—	
Tea (N.E. India)	—	—	—	b	—	
<b>Total</b>	<b>263</b>	<b>440</b>	<b>255</b>	<b>221</b>	<b>266</b>	<b>424</b>
Used in mixtures	11	7	7	16	42	63
<b>All-India</b>	<b>274</b>	<b>447</b>	<b>262</b>	<b>237</b>	<b>308</b>	<b>487</b>

\* Estimated.

a=More than 250 tonnes but less than 500 tonnes.

b=Less than 250 tonnes.

Note : The sum of States total may not tally with zonal total because breakup of fertilisers supplied by Pool under seeding programme is not available.

Ref : Chapter II.

Table 8 (a)

*Consumption of potash (K<sub>2</sub>O) by States*

('000 tonnes)

Region/State	1966-67 <sup>φ</sup>	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>72</b>	<b>46</b>	<b>69</b>	<b>82</b>	<b>100</b>	<b>134</b>
Andhra Pradesh	11	3	19	13	17	
Kerala	19	13	15	21	16	
Mysore	13	N.A.	11	14	26	
Tamil Nadu	29	30	24	33	40	
Pondicherry	—	N.A.	N.A.	1	1	
<b>West</b>	<b>25</b>	<b>45</b>	<b>12</b>	<b>34</b>	<b>46</b>	<b>57</b>
Gujarat	3	21	4	4	6	
Madhya Pradesh	1	1	2	3	4	
Maharashtra	21	23	6	27	36	
Goa	+	N.A.	N.A.	+	+	
<b>North</b>	<b>19</b>	<b>23</b>	<b>56</b>	<b>65</b>	<b>57</b>	<b>77</b>
Haryana	+	1	1	2	1	
Punjab	6	3	11	6	7	
Rajasthan	1	1	1	2	2	
Uttar Pradesh	10	18	42	55	45	
Jammu & Kashmir	2	N.A.	1	+	1	
Delhi	+	+	+	+	+	
Himachal Pradesh	—	N.A.	+	+	1	
<b>East</b>	<b>17</b>	<b>15</b>	<b>17</b>	<b>28</b>	<b>25</b>	<b>35</b>
Assam	1	2	3	1	2	
Bihar	3	4	4	13	7	
Orissa	2	2	3	3	2	
West Bengal	11	7	7	11	14	
Manipur	—	—	+	+	+	
Tripura	—	—	—	+	+	
Nagaland	+	—	—	+	+	
<b>Total</b>	<b>133</b>	<b>129</b>	<b>154</b>	<b>209</b>	<b>228</b>	<b>303</b>
Others	—	—	—	—	—	—
<b>All-India</b>	<b>133</b>	<b>129</b>	<b>154</b>	<b>209</b>	<b>228</b>	<b>303</b>

\* FAI Estimates

<sup>φ</sup> Figures from 1967-68 onwards relate to consumption (April-March) whereas for 1966-67 relate to distribution (July-June).

+ Less than 500 tonnes.

Note : For seasonwise/regionwise details, please see Table 11.

Ref : Chapter II.

Table 8 (b)

*Distribution of potash (K<sub>2</sub>O) by States*

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>72</b>	<b>91</b>	<b>86</b>	<b>69</b>	<b>79</b>	<b>110</b>
Andhra Pradesh	11	4	6	13	12	
Kerala	19	20	25	20	19	
Mysore	13	22	12	11	12	
Tamil Nadu	29	45	25	25	26	
Pondicherry	—	a	—	b	b	
UPASI	—	b	a	—	—	
Coffee Board	—	b	a	—	—	
<b>West</b>	<b>25</b>	<b>28</b>	<b>29</b>	<b>38</b>	<b>54</b>	<b>54</b>
Gujarat	3	3	4	5	8	
Madhya Pradesh	1	3	3	3	5	
Maharashtra	21	22	22	30	32	
Goa	a	a	a	b	b	
<b>North</b>	<b>19</b>	<b>66</b>	<b>47</b>	<b>28</b>	<b>29</b>	<b>60</b>
Haryana	b	3	3	b	b	
Punjab	6	8	4	11	5	
Rajasthan	1	1	1	1	1	
Uttar Pradesh	11	44	39	16	20	
Jammu & Kashmir	1	10	—	—	—	
Delhi	b	—	b	b	1	
Himachal Pradesh	—	b	—	b	b	
<b>East</b>	<b>17</b>	<b>18</b>	<b>15</b>	<b>16</b>	<b>27</b>	<b>30</b>
Assam@	1	1	1	2	3	
Bihar	3	3	3	2	7	
Orissa	2	2	1	1	2	
West Bengal	11	12	10	10	15	
Andamans	—	—	—	b	—	
Tripura	—	—	—	1	b	
Manipur	—	—	—	b	b	
Nagaland	b	—	b	b	b	
Dandakaranya	—	b	—	—	—	
<b>Total</b>	<b>133</b>	<b>203</b>	<b>159</b>	<b>151</b>	<b>189</b>	<b>254</b>
Others	—	2	5	a	10	—
<b>All-India</b>	<b>133</b>	<b>205</b>	<b>164</b>	<b>151</b>	<b>199</b>	<b>254</b>

\* Estimated.

@ Includes Meghalaya.

a= More than 250 tonnes but less than 500 tonnes.

b= Less than 250 tonnes.

Note : The sum of States total may not tally with Zonal total because break up of fertilisers applied by pool under seeding programme is not available.

Ref : Chapter II.

Table 9 (a)

*Plant food consumption in kilogram per hectare of agricultural land  
(1969-70 and 1970-71)  
(April-March)*

State	Consumption in kg. per hectare during 1969-70				Consumption in kg. per hectare during 1970-71			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>South</b>	<b>14.44</b>	<b>4.19</b>	<b>2.21</b>	<b>20.84</b>	<b>13.31</b>	<b>4.48</b>	<b>2.71</b>	<b>20.50</b>
Andhra Pradesh	16.76	4.39	0.93	22.28	14.87	3.24	1.23	19.34
Kerala	10.59	7.17	7.52	25.28	8.69	4.68	5.32	18.69
Mysore	6.97	2.48	1.13	10.58	7.36	2.96	8.07	12.39
Tamil Nadu	18.68	5.24	4.14	28.06	21.98	7.19	5.33	34.50
Pondicherry	52.95	37.25	24.51	114.71	57.41	37.04	22.59	117.04
<b>West</b>	<b>3.48</b>	<b>1.42</b>	<b>0.61</b>	<b>5.51</b>	<b>4.81</b>	<b>2.33</b>	<b>0.82</b>	<b>7.96</b>
Gujarat	5.61	2.49	0.27	8.37	9.23	4.63	0.51	14.37
Madhya Pradesh	1.55	0.66	0.13	2.34	2.20	1.08	0.17	3.45
Maharashtra	4.38	1.63	1.32	7.33	5.31	2.48	1.72	9.51
Goa	6.14	3.99	0.76	10.89	3.67	1.75	0.60	6.02
<b>North</b>	<b>10.04</b>	<b>2.51</b>	<b>1.21</b>	<b>13.76</b>	<b>11.00</b>	<b>2.43</b>	<b>1.09</b>	<b>14.53</b>
Haryana	10.13	1.10	0.39	11.62	14.81	1.67	0.54	17.02
Himachal Pradesh	1.11	0.28	0.05	1.44	1.25	0.72	0.32	2.29
Jammu & Kashmir	2.59	0.61	0.27	3.47	3.43	1.22	0.32	4.97
Punjab	28.31	4.06	1.20	33.57	3.30	5.92	1.32	40.24
Rajasthan	1.82	0.48	0.09	2.39	2.52	0.70	0.11	3.33
Uttar Pradesh	13.33	4.29	2.39	20.01	12.54	3.21	1.92	17.67
Delhi	20.28	1.86	0.68	22.82	24.95	3.28	1.43	29.66
<b>East</b>	<b>4.25</b>	<b>1.49</b>	<b>0.93</b>	<b>6.67</b>	<b>4.67</b>	<b>1.20</b>	<b>0.78</b>	<b>6.65</b>
Assam	1.05	0.54	0.36	1.95	1.46	0.61	0.45	2.52
Bihar	7.32	2.77	11.33	14.22	6.62	1.57	0.62	8.81
Orissa	2.03	0.52	0.34	2.91	2.32	0.56	0.25	3.12
West Bengal	4.66	1.50	1.48	7.64	6.43	1.70	1.89	10.02
Manipur	2.86	0.26	0.03	3.15	2.15	0.20	0.05	2.45
Nagaland	0.12	0.14	0.04	0.30	0.41	0.22	0.22	0.85
Tripura	0.30	0.06	0.04	0.40	0.69	0.16	0.13	0.98
<b>All-India</b>	<b>7.77</b>	<b>2.36</b>	<b>1.19</b>	<b>11.32</b>	<b>8.40</b>	<b>2.61</b>	<b>1.29</b>	<b>12.30</b>

Note 1. Data on agricultural land have been taken from Table 1.01 Part II. It includes total cropped area, permanent pastures and other grazing lands and land under miscellaneous tree crops, etc.

2. Calculated on the basis of consumption figures, provided at the Zonal Committee Meetings of the Ministry of Agriculture.

Ref: Chapter III.

Table 9 (b)

*Plant food distribution in kilogram per hectare of agricultural land  
(1969-70 and 1970-71)*

Region State	1969-70				1970-71			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>South</b>	<b>10.16</b>	<b>2.64</b>	<b>1.85</b>	<b>14.65</b>	<b>9.55</b>	<b>2.49</b>	<b>1.12</b>	<b>13.16</b>
Andhra Pradesh	14.86	3.61	0.91	19.38	8.45	3.15	0.90	12.50
Kerala	19.09	2.95	7.21	29.25	2.99	2.16	5.75	10.90
Mysore	2.42	1.49	0.85	4.76	2.27	1.31	0.97	4.55
Tamil Nadu	9.97	2.64	3.20	15.81	7.65	2.25	3.47	13.37
Pondicherry	1.33	1.84	0.53	3.70	6.09	0.35	3.81	10.25
<b>West</b>	<b>3.60</b>	<b>1.40</b>	<b>0.71</b>	<b>5.71</b>	<b>5.12</b>	<b>2.15</b>	<b>0.97</b>	<b>8.24</b>
Gujarat	7.25	3.12	0.40	10.77	9.62	3.88	0.71	14.21
Madhya Pradesh	1.91	0.60	0.15	2.66	2.17	1.17	0.23	3.57
Maharashtra	3.43	1.35	1.48	6.26	2.41	1.19	1.57	5.17
Goa	2.50	0.33	0.50	3.53	0.73	0.71	0.18	1.62
Dadra & Nagar Haveli	0.88	—	—	0.88	—	—	—	—
<b>North</b>	<b>5.58</b>	<b>0.61</b>	<b>0.52</b>	<b>6.71</b>	<b>8.66</b>	<b>0.75</b>	<b>0.55</b>	<b>9.96</b>
Haryana	7.42	0.35	0.34	8.11	12.66	0.04	0.05	12.25
Punjab	26.10	2.30	2.21	30.61	25.89	2.54	0.99	29.42
Rajasthan	0.88	0.45	0.04	1.37	1.91	0.34	0.06	2.31
Uttar Pradesh	4.67	0.55	0.67	5.89	8.38	0.69	0.86	9.93
Jammu & Kashmir	0.98	—	—	0.98	3.70	—	—	3.70
Delhi	28.41	0.59	0.96	29.96	36.53	0.73	7.22	44.48
Himachal Pradesh	1.12	0.03	—	1.15	1.50	0.04	0.06	1.60
<b>East</b>	<b>3.45</b>	<b>0.45</b>	<b>0.52</b>	<b>4.40</b>	<b>5.15</b>	<b>0.49</b>	<b>0.86</b>	<b>6.50</b>
Assam	4.53	0.46	0.51	5.50	4.55	0.22	1.13	5.90
Bihar	3.66	0.29	0.23	4.18	6.00	0.23	0.61	6.84
West Bengal	4.36	0.99	1.34	6.69	5.87	1.36	2.04	9.27
Orissa	2.04	0.19	0.17	2.40	2.47	0.15	0.28	2.90
Manipur	0.42	—	0.27	0.69	2.20	—	0.85	3.05
Tripura	0.27	0.07	0.09	0.43	0.38	0.17	0.26	0.81
Nagaland	0.08	0.02	0.29	0.39	0.75	0.61	0.14	1.50
Andamans	0.77	1.23	0.77	2.77	0.43	—	—	0.43
<b>All-India</b>	<b>5.46</b>	<b>1.35</b>	<b>0.87</b>	<b>7.98</b>	<b>7.35</b>	<b>1.74</b>	<b>1.12</b>	<b>10.21</b>

Ref: Chapter III.



**Table 10 (a)**

*Ratio of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O consumption (1969-70 and 1970-71)  
(April-March)*

Region/State	1969-70			1970-71		
	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>South</b>	<b>1</b>	<b>0.31</b>	<b>0.16</b>	<b>1</b>	<b>0.34</b>	<b>0.20</b>
Andhra Pradesh	1	0.26	0.06	1	0.29	0.83
Kerala	1	0.68	0.71	1	0.54	0.61
Mysore	1	0.36	0.16	1	0.40	0.28
Tamil Nadu	1	0.28	0.22	1	0.33	0.24
Pondicherry	1	0.70	0.46	1	0.65	0.39
<b>West</b>	<b>1</b>	<b>0.44</b>	<b>0.18</b>	<b>1</b>	<b>0.49</b>	<b>0.17</b>
Gujarat	1	0.60	0.06	1	0.50	0.06
Madhya Pradesh	1	0.42	0.08	1	0.49	0.08
Maharashtra	1	0.33	0.29	1	0.47	0.32
Goa	1	0.65	0.12	1	0.48	0.16
<b>North</b>	<b>1</b>	<b>0.25</b>	<b>0.12</b>	<b>1</b>	<b>0.22</b>	<b>0.10</b>
Haryana	1	0.11	0.04	1	0.11	0.04
Jammu & Kashmir	1	0.24	0.10	1	0.36	0.09
Punjab	1	0.14	0.04	1	0.18	0.04
Rajasthan	1	0.26	0.05	1	0.28	0.05
Uttar Pradesh	1	0.32	0.18	1	0.26	0.15
Delhi	1	0.09	0.03	1	0.13	0.06
Himachal Pradesh	1	0.25	0.04	1	0.57	0.25
<b>East</b>	<b>1</b>	<b>0.35</b>	<b>0.22</b>	<b>1</b>	<b>0.27</b>	<b>0.17</b>
Assam	1	0.51	0.34	1	0.42	0.31
Bihar	1	0.38	0.18	1	0.24	0.09
Orissa	1	0.27	0.17	1	0.27	0.10
West Bengal	1	0.32	0.32	1	0.26	0.29
Manipur	1	0.09	0.01	1	0.09	0.02
Tripura	1	0.20	0.13	1	0.23	0.20
Nagaland	1	0.17	0.33	1	0.55	0.55
<b>All-India</b>	<b>1</b>	<b>0.31</b>	<b>0.15</b>	<b>1</b>	<b>0.31</b>	<b>0.15</b>

Ref : Chapter IV

Table 10 (b)

*Ratio of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O distribution (1969-70 and 1970-71)*

Region/State	1969-70			1970-71		
	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>South</b>	<b>1</b>	<b>0.26</b>	<b>0.18</b>	<b>1</b>	<b>2.26</b>	<b>0.22</b>
Andhra Pradesh	1	0.24	0.06	1	0.37	0.10
Kerala	1	0.15	0.38	1	0.72	1.92
Mysore	1	0.62	0.35	1	0.58	0.43
Tamil Nadu	1	0.26	0.32	1	0.29	0.45
Pondicherry	1	1.38	0.40	1	0.06	0.63
<b>West</b>	<b>1</b>	<b>0.39</b>	<b>0.20</b>	<b>1</b>	<b>0.42</b>	<b>0.19</b>
Gujarat	1	0.43	0.06	1	0.40	0.07
Madhya Pradesh	1	0.31	0.08	1	0.54	0.10
Maharashtra	1	0.39	0.43	1	0.49	0.65
Goa	1	0.13	0.20	1	0.97	0.25
Dadra & Nagar Haveli	—	—	—	—	—	—
<b>North</b>	<b>1</b>	<b>0.11</b>	<b>0.09</b>	<b>1</b>	<b>0.08</b>	<b>0.06</b>
Haryana	1	0.05	0.05	1	—	—
Jammu & Kashmir <sup>+</sup>	—	—	—	—	—	—
Punjab	1	0.09	0.08	1	0.09	0.04
Rajasthan	1	0.51	0.04	0	0.18	0.03
Uttar Pradesh	1	0.12	0.14	0	0.08	0.10
Delhi	1	0.02	0.03	1	0.02	0.20
Himachal Pradesh	1	0.05	—	1	0.03	0.04
<b>East</b>	<b>1</b>	<b>0.13</b>	<b>0.15</b>	<b>1</b>	<b>0.09</b>	<b>0.16</b>
Assam	1	0.10	0.11	1	0.05	0.25
Bihar	1	0.08	0.06	1	0.03	0.10
Orissa	1	0.09	0.08	1	0.06	0.11
West Bengal	1	0.23	0.31	1	0.23	0.35
Manipur	1	—	0.64	1	—	0.38
Tripura	1	0.27	0.32	1	0.45	0.67
Andaman <sup>+</sup>	1	0.18	0.11	—	—	—
Nagaland	1	0.25	3.50	1	0.81	0.18
<b>All-India</b>	<b>1</b>	<b>0.24</b>	<b>0.15</b>	<b>1</b>	<b>0.24</b>	<b>0.15</b>

<sup>+</sup> Only nitrogenous fertilisers were distributed.  
Ref : Chapter IV.

Table 11

Seasonwise/Regionwise consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O—1969-70 to 1972-73 (April-March)

('000 tonnes)

Region	Season	1969-70			1970-71			1971-72*			1972-73*		
		Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
South	N	261	243	504	230	264	494	257	286	543	290	320	610
	P <sub>2</sub> O <sub>5</sub>	89	69	158	90	76	166	118	93	204	143	113	256
	K <sub>2</sub> O	34	49	83	49	52	101	63	71	134	80	88	168
West	N	87	71	168	108	109	217	114	132	246	140	163	303
	P <sub>2</sub> O <sub>5</sub>	40	30	70	59	46	105	63	66	129	70	70	140
	K <sub>2</sub> O	12	19	31	19	23	42	29	22	51	34	26	60
Central	N	147	227	374	148	238	386	184	292	476	232	350	582
	P <sub>2</sub> O <sub>5</sub>	37	84	121	36	75	111	40	85	125	47	103	150
	K <sub>2</sub> O	17	42	59	13	37	50	14	53	67	21	70	91
North	N	57	141	198	76	166	242	97	209	306	118	243	361
	P <sub>2</sub> O <sub>5</sub>	5	22	27	6	35	41	10	52	62	19	74	93
	K <sub>2</sub> O	1	7	8	2	8	10	4	12	16	8	17	25
East	N	67	59	126	64	83	147	84	106	190	114	130	244
	P <sub>2</sub> O <sub>5</sub>	18	26	44	13	26	39	15	30	45	21	40	61
	K <sub>2</sub> O	11	17	28	10	15	25	10	25	35	14	32	46
All-India	N	619	741	1,360	626	860	1,487	736	1,025	1,761	894	1,206	2,100
	P <sub>2</sub> O <sub>5</sub>	189	231	420	204	258	462	239	326	565	300	400	700
	K <sub>2</sub> O	75	134	209	93	135	228	120	183	303	157	233	390

\*Estimated  
Ref : Chapter V

## **APPENDICES**

## End-productwise capacity created before and during Plan Periods 1906 to 1972-73 (April-March)

Fertiliser	Before First Plan 1906-1951	I Plan 1951-52 to 1955-56	II Plan 1956-57 to 1960-61	III Plan 1961-62 to 1965-66	Annual Plans			Fourth Plan upto 1972-73			
					1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73**
.....tonnes of material.....											
1. Ammonium sulphate (20.6 per cent N)	254,730 (6)	355,000 (1)	53,800 (2)	—	28,000 (1)	186,610 (2)	100,000 (1)	—	—	35,000*	—
<b>Cumulative Total</b>	<b>254,730</b> (6)	<b>609,730</b> (7)	<b>663,530</b> (9)	<b>662,930<sup>1</sup></b> (8)	<b>690,930</b> (9)	<b>870,830<sup>2</sup></b> (10)	<b>970,830</b> (11)	<b>970,830</b> (11)	<b>970,830</b> (11)	<b>1,005,830</b> (11)	<b>1,005,830</b> (11)
2. Urea (46 per cent N)	—	—	23,470 (1)	253,000 (2)	—	280,500 (2)	474,320 (3)	100,000* 450,000 (1)	—	210,000 (1)	1,000,000 (3)
<b>Cumulative Total</b>	—	—	<b>23,470</b> (1)	<b>276,470</b> (3)	<b>276,470</b> (3)	<b>555,970</b> (5)	<b>1,031,290</b> (8)	<b>1,581,290</b> (9)	<b>1,581,290</b> (9)	<b>1,791,290</b> (9)	<b>2,791,290</b> (10)
3. Ammonium sulphate nitrate (26 per cent N)	—	—	121,209 (1)	121,920 (1)	121,920 (1)	121,920 (1)	121,920 (1)	121,920 (1)	121,920 (1)	121,920 (1)	121,920 (1)
4. Calcium ammonium nitrate (25 per cent N)	—	—	380,000 (1)	297,000 (1)	—	—	—	240,000*	—	—	—
<b>Cumulative Total</b>	—	—	<b>380,000</b> (1)	<b>677,000</b> (2)	<b>677,000</b> (2)	<b>617,000<sup>@</sup></b> (2)	<b>560,000<sup>@</sup></b> (2)	<b>800,000</b> (2)	<b>800,000</b> (2)	<b>800,000</b> (2)	<b>800,000</b> (2)
5. Ammonium chloride (25 per cent N)	—	—	8,000 <sup>+</sup> (1)	17,000* 40,640 (1)	—	—	—	—	—	—	—
<b>Cumulative Total</b>	—	—	<b>8,000<sup>+</sup></b> (1)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)	<b>65,640</b> (2)
6. Single superphosphate (16 per cent P <sub>2</sub> O <sub>5</sub> )	464,710 (12)	—	184,010 (5)	470,450 (10)	218,700 (2)	—	—	—	—	—	—
<b>Cumulative Total</b>	<b>464,710</b> (12)	<b>464,710</b> (12)	<b>648,720</b> (17)	<b>1,119,170</b> (27)	<b>1,337,870</b> (29)	<b>1,378,870</b> (28) <sup>++</sup>	<b>1,378,870</b> (28)	<b>1,378,870</b> (28)	<b>1,378,870</b> (28)	<b>1,378,870</b> (28)	<b>1,378,870</b> (28)
7. Triple superphosphate (45 per cent P <sub>2</sub> O <sub>5</sub> )	—	—	—	—	27,000 (1)	—	—	—	—	—	—
<b>Cumulative Total</b>	—	—	—	—	<b>27,000</b> (1)	<b>27,000</b> (1)	<b>27,000</b> (1)	<b>27,000</b> (1)	<b>27,000</b> (1)	<b>27,000</b> (1)	<b>27,000</b> (1)
8. Ammonium phosphate sulphate	—	—	16,500 (1)	118,500* 51,480 (1)	—	—	—	—	—	46,000*	—
<b>Cumulative Total</b>	—	—	<b>16,500</b> (1)	<b>186,480</b> (2)	<b>186,480</b> (2)	<b>186,480</b> (2)	<b>186,480</b> (2)	<b>186,480</b> (2)	<b>186,480</b> (2)	<b>232,480</b> (2)	<b>232,480</b> (2)

(Continued)

Appendix I (a)  
(Concluded)

## End-productwise capacity created before and during Plan Periods 1906 to 1972-73 (April-March)

Fertiliser	Before I Plan 1906-1951	I Plan 1951-52 to 1955-56	II Plan 1956-57 to 1960-61	III Plan 1961-62 to 1965-66	Annual Plans			Fourth Plan upto 1972-73				
					1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73**	
.....tonnes of material.....												
9. Diammonium phosphate (18-46-0)	—	—	—	—	—	108,000 (1)	—	—	—	—	—	—
<b>Cumulative Total</b>	—	—	—	—	—	108,000 (1)	108,000 (1)	108,000 (1)	108,000 (1)	108,000 (1)	108,000 (1)	108,000 (1)
10. Nitrophosphate	—	—	—	270,000 (1)	—	—	—	—	—	—	—	—
<b>Cumulative Total</b>	—	—	—	270,000 (1)	270,000 (1)	180,000 (1)	180,000 (1)	180,000 (1)	180,000 (1)	180,000 (1)	180,000 (1)	180,000 (1)
11. Urea ammonium phosphate	—	—	—	—	—	260,000 (1)	—	—	—	—	—	150,000 (1)
<b>Cumulative Total</b>	—	—	—	—	—	260,000 (1)	260,000 (1)	260,000 (1)	260,000 (1)	260,000 (1)	260,000 (1)	400,000 (2)
12. N.P.K. complex fertiliser	—	—	—	—	—	—	—	—	—	—	360,000 (1)	360,000 (2)
<b>Cumulative Total</b>												
	<b>N</b>	<b>53,474</b>	<b>125,604</b>	<b>261,723</b>	<b>523,671</b>	<b>529,439</b>	<b>796,033</b>	<b>1,020,570</b>	<b>1,333,570</b>	<b>1,333,570</b>	<b>1,503,240</b>	<b>2,005,240</b>
	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>74,354</b>	<b>74,325</b>	<b>107,095</b>	<b>251,463</b>	<b>298,605</b>	<b>428,545</b>	<b>428,545</b>	<b>428,545</b>	<b>428,545</b>	<b>508,845</b>	<b>550,845</b>

\* Expansion

@ On account of change over of grade from 16-13-0 to 20-20-0

@ On account of change over of grade of FCI, Nangal &amp; HSL, Rourkela from 20.5 per cent N to 25 per cent N

+ Not meant for agricultural purposes

1 One by-product A/S factory was closed down during this period

2 One synthetic A/S factory was closed down during this period

3 Constitutes 270,000 tonnes of NPK (17-17-17) and 90,000 tonnes of NPK (14-28-14)

++ Due to merger of capacity at Mundwa with Lone Kalbhore—both of W.I.C.

\*\* Anticipated by 31.3.71.

## Factorywise, productwise installed capacity of fertilisers as on January 1, 1972

(tonn)

Region/State/Factory	Ammonium sulphate (20.6%N)	Ammonium sulphate nitrate (20.0%N)	Calcium ammonium nitrate (25.0%N) Urea (46%N)	Ammonium chloride (25%N)	Ammonium phosphate sulphate (16-20-0)& (20-20-0)	Diammonium phosphate (18-46-0)	Nitro-phosphate (20-20-0)	Urea-ammonium phosphate (28-28-0) and NPK mixtures (17-17-17) (14-28-14)	Super-phosphate (16% P <sub>2</sub> O <sub>5</sub> )	Triple-super phosphate (45% P <sub>2</sub> O <sub>5</sub> )	Total	
											N	P <sub>2</sub> O <sub>5</sub>
<b>SOUTH</b>	273,610	—	380,500	25,000	232,480	—	—	(445,000) 260,000	548,900	—	425,850	3,00,000
<b>Andhra Pradesh</b>	—	—	(16,500)	—	—	—	—	(260,000)***	(177,030)	—	(80,260)	(101,320)
Coromandel Fertilisers Ltd., Visakhapatnam	—	—	16,500	—	—	—	—	260,000***	—	—	80,260	73,000
Hyderabad Chemicals & Fertilisers Ltd., Maula Ali	—	—	—	—	—	—	—	—	41,900	—	—	6,700
Andhra Fertilisers Limited, Tadepalli	—	—	—	—	—	—	—	—	50,800	—	—	8,130
Andhra Sugars Ltd., Tanuku	—	—	—	—	—	—	—	—	33,530	—	—	5,360
Krishna Industrial Corporation, Nidadavole	—	—	—	—	—	—	—	—	50,800	—	—	8,130
<b>Kerala</b>	(235,000)	—	—	(25,000)	(181,000)	—	—	—	(44,710)	—	(91,800)	(43,350)
The Fertilisers & Chemicals, Travancore Ltd., Alwaye*	235,000	—	—	25,000**	181,000φ	—	—	—	44,710	—	91,800	43,350
<b>Mysore</b>	—	—	—	—	—	—	—	—	(74,170)	—	—	(11,860)
Mysore Chemicals & Fertilisers Ltd., Belagula	—	—	—	—	—	—	—	—	33,530	—	—	5,360
Chamundi Chemicals & Fertilisers Ltd., Munirabad	—	—	—	—	—	—	—	—	40,640	—	—	6,500
<b>Tamil Nadu</b>	(38,610)	—	(364,000)	—	(51,480)	—	—	(445,000)§	(252,990)	—	(253,790)	(143,470)
Neyveli Lignite Corporation Ltd., Neyveli	—	—	154,000	—	—	—	—	—	—	—	70,000	—
E.I.D. Parry Ltd., Ennore & Ranipet	38,610	—	—	—	51,480‡	—	—	—	50,800	—	16,190	18,430
Blue Mountain Estates & Industries Ltd., Ennore	—	—	—	—	—	—	—	—	44,710	—	—	7,150
Coimbatore Pioneer Fertilisers Ltd., Coimbatore	—	—	—	—	—	—	—	—	40,640	—	—	6,500
Premier Fertilisers Ltd., Cuddalore	—	—	—	—	—	—	—	—	40,640	—	—	6,500
Shaw Wallace & Co. Ltd., Avadi	—	—	—	—	—	—	—	—	76,200	—	—	12,190
Madras Fertilizers Ltd., Manali*	—	—	210,000	—	—	—	—	445,000§	—	—	167,600	92,700
<b>WEST</b>	180,600	—	463,000	—	—	108,000	180,000 ▶	—	348,730	27,000	306,010	155,850
<b>Gujarat</b>	(148,000)	—	(364,000)	—	—	(108,000)	—	—	(121,070)	—	(218,290)	(71,210)
Gujarat State Fertilizers Co. Ltd., Baroda	148,000	—	364,000	—	—	108,000	—	—	—	—	218,290	51,840
Adarsh Chemicals & Fertilisers Ltd., Udhna	—	—	—	—	—	—	—	—	54,000	—	—	8,640
Alembic Chemical Works Co. Ltd., Baroda	—	—	—	—	—	—	—	—	33,540	—	—	5,370
Anil Starch Product Ltd., Bhavnagar	—	—	—	—	—	—	—	—	33,530	—	—	,360

(Continued)

## Appendix 1 (b)

(Continued)

## Factorywise, productwise installed capacity of fertilisers as on January 1, 1972

(tonnes)

Region/State/Factory	Ammonium sulphate (20.6%N)	Ammonium sulphate nitrate (20.0%N)	Calcium ammonium nitrate (25.0%N)	Urea (46%N)	Ammonium chloride (25%N)	Ammonium phosphate sulphate (16-20-0) & (20-20-0)	Diammonium phosphate (18-46-0)	Nitro-phosphate (20-20-0)	Urea-ammonium phosphate (28-28-0) and NPK mixtures (17-17-17) (14-28-14)	Super-phosphate (16% P <sub>2</sub> O <sub>5</sub> )	Triple-super-phosphate (45% P <sub>2</sub> O <sub>5</sub> )	Total	
												N	P <sub>2</sub> O <sub>5</sub>
<b>Madhya Pradesh</b>	(32,600)	—	—	—	—	—	—	—	—	(75,000)	—	(6,720)	(12,000)
Hindustan Steel Ltd., Bhilai	32,600	—	—	—	—	—	—	—	—	—	—	6,720	—
Dharamsi Morarji Chemical Co. Ltd., Kumhari	—	—	—	—	—	—	—	—	—	75,000	—	—	12,000
<b>Maharashtra</b>	—	—	—	(99,000)	—	—	—	(180,000)	—	(152,660)	(27,000)	(81,000)	(72,640)
The Fertilizer Corporation of India Ltd., Trombay	—	—	—	99,000	—	—	—	180,000	—	—	—	81,000	36,000
Bharat Fertiliser Industries Ltd., Bombay	—	—	—	—	—	—	—	—	—	22,500	—	—	3,600
Dharamsi Morarji Chemical Co. Ltd., Ambernath	—	—	—	—	—	—	—	—	—	73,160	27,000	—	23,860
Eastern Chemical Co. Ltd., Bombay	—	—	—	—	—	—	—	—	—	10,000	—	—	1,600
Western Chemical Industries Ltd., Bombay	—	—	—	—	—	—	—	—	—	14,000	—	—	2,300
West India Chem. Ltd., Loni-Kalbhore	—	—	—	—	—	—	—	—	—	33,000	—	—	5,280
<b>NORTH</b>	—	—	320,000	869,320	40,640	—	—	—	—	281,160	—	481,160	44,980
<b>Punjab</b>	—	—	(320,000)	—	—	—	—	—	—	—	—	(80,000)	—
The Fertilizer Corporation of India Ltd., Nangal	—	—	320,000	—	—	—	—	—	—	—	—	80,000	—
<b>Rajasthan</b>	—	—	—	(240,000)	—	—	—	—	—	(76,200)	—	(111,000)	(12,190)
Hindustan Zinc Ltd., Debari	—	—	—	—	—	—	—	—	—	76,200	—	—	12,190
Shriram Chemical Industries, Kota	—	—	—	240,000	—	—	—	—	—	—	—	111,000	—
<b>Uttar Pradesh</b>	—	—	—	(629,320)	(40,640)	—	—	—	—	(60,960)	—	(290,160)	(9,750)
The Fertilizer Corp. of India Ltd., Gorakhpur	—	—	—	179,320	—	—	—	—	—	—	—	80,000	—
New Central Jute Mills Co. Ltd., Varanasi	—	—	—	—	40,640	—	—	—	—	—	—	10,160	—
Ralli Chemicals Ltd., Magarwara	—	—	—	—	—	—	—	—	—	60,960	—	—	9,750
Indian Explosives Ltd., Kanpur	—	—	—	450,000	—	—	—	—	—	—	—	200,000	—
<b>Delhi</b>	—	—	—	—	—	—	—	—	—	144,000	—	—	(23,040)
D.C.M. Chemical Works, Delhi	—	—	—	—	—	—	—	—	—	144,000	—	—	23,040
<b>EAST</b>	551,620	121,920	480,000	78,470	—	—	—	—	—	194,610	—	301,710	31,140
<b>Assam</b>	(100,000)	—	—	(55,000)	—	—	—	—	—	(33,530)	—	(44,800)	(5,360)
The Fert. Corp. of India Ltd., Namrup	100,000	—	—	55,000	—	—	—	—	—	—	—	44,800	—
Associated Industries (Assam) Ltd., Chandrapur	—	—	—	—	—	—	—	—	—	33,530	—	—	5,360

(Continued)



Appendix I (b)  
(Concluded)

Factorywise, productwise installed capacity of fertilisers as on January 1, 1972

(tonnes)

Region/State/Factory	Ammonium sulphate (20.6%N)	Ammonium sulphate nitrate (20.0%N)	Calcium ammonium nitrate (25.0%N)	Urea (46%N)	Ammonium chloride (25%N)	Ammonium phosphate sulphate (16-20-0) & (20-20-0)	Diammonium phosphate (18-46-0)	Nitro-phosphate (20-20-0)	Urea-ammonium phosphate (28-28-0) and NPK mixtures (17-17-17) (14-28-14)	Super-phosphate (16% P <sub>2</sub> O <sub>5</sub> )	Triple-super phosphate (45% P <sub>2</sub> O <sub>5</sub> )	Total	
												N	P <sub>2</sub> O <sub>5</sub>
<b>Bihar</b>	(379,420)	(121,920)	—	(23,470)	—	—	—	—	—	(23,480)	—	(122,030)	(3,760)
The Fertilizer Corporation of India Ltd., Sindri	355,000	121,920	—	23,470	—	—	—	—	—	—	—	117,000	—
Burrakur Coal Co. Ltd., Bansjora	1,320	—	—	—	—	—	—	—	—	—	—	270	—
Tata Iron & Steel Co. Ltd., Jamshedpur	23,100	—	—	—	—	—	—	—	—	—	—	4,760	—
Bihar State Superphosphate Fact., Sindri	—	—	—	—	—	—	—	—	—	23,480	—	—	3,760
<b>Orissa</b>	(28,000)	—	(480,000)	—	—	—	—	—	—	—	—	(125,770)	—
Hindustan Steel Ltd., Rourkela	28,000	—	480,000	—	—	—	—	—	—	—	—	125,770	—
<b>West Bengal</b>	(44,200)	—	—	—	—	—	—	—	—	(137,600)	—	(9,110)	(22,020)
Hindustan Steel Ltd., Durgapur	21,200	—	—	—	—	—	—	—	—	—	—	4,370	—
Indian Iron & Steel Co. Ltd., Kulti	23,000	—	—	—	—	—	—	—	—	—	—	4,740	—
Jayshree Chem. & Fert. Ltd., Khardah	—	—	—	—	—	—	—	—	—	50,000	—	—	8,000
Phosphate Co. Ltd., Rishra	—	—	—	—	—	—	—	—	—	87,600	—	—	14,020
<b>All-India</b>	<b>1005,830</b>	<b>121,920</b>	<b>800,000</b>	<b>1791,290</b>	<b>65,640</b>	<b>232,480</b>	<b>108,000</b>	<b>180,000</b>	<b>260,000***</b> <b>445,000S</b>	<b>1373,400</b>	<b>27,000</b>	<b>1514,730</b>	<b>531,970</b>

Note : \* Includes fourth stage expansion for 22,000 tonnes of N and 9,200 tonnes of P<sub>2</sub>O<sub>5</sub> commissioned during September 1971.

\*\* This material is not used for agricultural purposes.

\*\*\* This capacity is of urea ammonium phosphate of M/s Coromandel Fertilisers Ltd., Vizag, A.P. They are producing UAP of three different grades, details of which are given in the Appendix pertaining to production.

φ Of grade 20-20-0.

⊕ Of grade 16-20-0.

+ Went into production during October 1971.

S Two types of 2 NPK complex fertilisers are involved in this capacity (14-28-14) 1,55,000 m. tonnes and (17-17-17) 2,90,000 m. tonnes.

Ref: "Summary and Conclusions" and Chapter I.

## Appendix 1 (c)

*Manufacturers and installed capacity of granulated  
fertiliser mixtures (as on January 1, 1972)*

Name of factory	Installed capacity per annum (metric tons)	Date of commissioning
<b>(i) IN PRODUCTION</b>		
<b>West</b>	557,000	
<b>Gujarat</b>	140,000	
1. Granulated Fertilisers and Feeds Private Ltd., Bhavnagar	50,000	June 1969
2. Associated Cement Co. Ltd., Sevalia, Dist. Khaira	45,000@	1971
3. Shivrajpur Syndicate Ltd., Shivrajpur	45,000@	1971
<b>Maharashtra</b>	417,000	
1. Dewa Fertilisers and Feeds Ltd., Thana	40,000	Early 1969
2. Kolhapur District Granulated Fertilisers Cooperative Factory Ltd., Gadmudshingi, (Dist. Kolhapur)	50,000	March 1969
3. Maharashtra State Cooperative Marketing Federation Ltd., Chikalthana (Dist. Aurangabad)	45,000	August 1970
4. Shetkari Sahakari Sangh Ltd., Rukdi, (Dist. Kolhapur)	30,000	April 1968
5. Vidharbha Cooperative Marketing Society Ltd., Badnera, (Dist. Nagpur)	54,000	June 1969
6. Bharat Fertiliser Industries Ltd., Bombay	33,000	April 1964
7. Deccan Sales Corporation, Bhandup, Bombay	45,000	1965
8. Godawari Pravara Canal Coop. Project and Sales Union Ltd., Kopargaon, (Dist. Ahmednagar)	45,000@	Sep. 1970
9. Krishi Organic Chemical Industries Pvt. Ltd., Miraj	30,000	Nov. 1970
10. Maharashtra Agro-Industries Development Cooperation, Rasayani, Kolaba (I Plant)	45,000	Nov. 1970

(Contd.)

*Manufacturers and installed capacity of granulated  
fertiliser mixtures (as on January, 1, 1972) (Concl'd.)*

Name of factory	Installed capacity per annum (metric tons)	Date of commissioning
<b>North</b>	216,000	
<b>Punjab</b>	81,000	
1. Phosphate Co. Ltd., Rajpura	36,000	March 1971
2. Punjab Fertilisers, Dhanderi Kalan	45,000	October 1971
<b>Rajasthan</b>	90,000	
1. Jeevan Fertilisers & Chemicals Co. Pvt. Ltd., Kota	45,000	Feb. 1970
2. Sri Ganganagar Fertiliser Corporation, Sri Ganganagar	45,000	Sep. 1970
<b>East</b>	123,000	
<b>Bihar</b>		
1. Bihar State Cooperative Marketing Union Ltd., Patna	30,000	June 1971
<b>Orissa</b>		
1. Orissa State Cooperative Marketing Society Ltd., Bargarh	45,000	July 1971
<b>West Bengal</b>		
1. Phosphate Co. Ltd., Rishra	48,000	Early 1968
<b>South</b>	135,000	
<b>Andhra Pradesh</b>		
1. Associated Cement Co. Ltd., Kistna, (Distt. Guntur)	45,000	1971
<b>Mysore</b>		
1. Raichur Agricultural Produce Cooperative Marketing Society Ltd., Raichur	45,000	Nov. 1970
<b>Tamil Nadu</b>		
1. Tamil Nadu Cooperative Marketing Federation Ltd., Mannargudi	45,000	Feb. 1971
<b>All-India</b>	<b>1,031,000</b>	

Ref: "Summary and Conclusions"

## Production of nitrogenous fertilisers

('000 tonnes)

Fertiliser	Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	
Ammonium sulphate	<b>South</b>	73	92	142	111	122	130	
	Kerala	73	84	126	92	105		
	Mysore	—	—	—	—	—		
	Tamil Nadu	—	8	16	19	17		
	<b>West</b>	21	57	104	94	129	130	
	Gujarat	—	34	71	65	102		
	Madhya Pradesh	21	23	27	29	27		
	<b>North</b>	—	—	—	—	—	—	
	<b>East</b>	343	285	349	392	375	325	
	Assam	—	—	34	67	61		
	Bihar	320	251	271	284	280		
	Orissa	1 <sup>4</sup>	11	14	10	7		
	West Bengal	22	23	30	31	27		
	<b>All-India</b>		437	434	595	597	626	585
Ammonium sulphate nitrate	<b>South</b>	—	—	—	—	—	—	
	<b>West</b>	—	—	—	—	—	—	
	<b>North</b>	—	—	—	—	—	—	
	<b>East</b>	61	62	45	46	34	36	
	Bihar	61	62	45	46	34		
<b>All-India</b>		61	62	45	46	34	36	
Urea	<b>South</b>	61	91	114	88	107	130	
	Andhra Pradesh	—	15	22	5	37		
	Tamil Nadu	61	76	92	83	70		
	<b>West</b>	51	142	161	274 <sup>5</sup>	342	370	
	Gujarat	6	77	101	216	283		
	Maharashtra	51	65	60	58	59		
	<b>East</b>	19	17	26	43	45	50	
	Assam	—	—	12	27	31		
	Bihar	19	17	14	16	14		
	<b>North</b>	—	14	157	440	615	700	
	Uttar Pradesh	—	14	122	242 <sup>6</sup>	367		
	Rajasthan	—	—	35	198	248		
	<b>All-India</b>		131	264	458	845	1,109	1,250

(Contd.)

## Production of nitrogenous fertilisers (Concl'd.)

('000 tonnes)

Fertiliser	Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	
Calcium ammonium nitrate (1. of 20.5% N) (2. of 25% N <sup>3</sup> )	<b>South</b>	—	—	—	—	—	—	
	<b>West</b>	—	—	—	—	—	—	
	<b>North</b>	1	371	42	—	—	—	
	2	—	278	306	310	189	260	
	<b>Punjab</b>	1	371	42	—	—	—	
	2	—	278	306	310	189	—	
	<b>East</b>	1	191	219	124	—	—	
	2	—	—	80	96	131	200	
	<b>Orissa</b>	1	191	219	124	—	131	
	2	—	—	80	96	—	—	
	<b>All-India</b>	1	562	261	124	—	—	
	2	—	278	386	406	320	460	
	Ammonium chloride	<b>South</b> <sup>2</sup>	—	—	—	—	—	—
		<b>West</b>	—	—	—	—	—	—
<b>North</b>		14	16	16	15	23	25	
Uttar Pradesh		14	16	16	15	23	—	
<b>East</b>		—	—	—	—	—	—	
<b>All-India</b>		14	16	16	15	23	25	

Note : \*Estimated

- The production at FACT, Alwaye is not meant for agricultural purposes.
- The production of 25 per cent N grade CAN started at FCI-Nangal, Punjab from August 1967 and at Hindustan Steel Ltd., Rourkela from Dec. 1968.
- Started production of by-product ammonium sulphate in the Rourkela Steel Plant from March 1967.
- Includes contribution from GSFC, Baroda expansion which was commissioned in June 1969.
- Includes contribution from Indian Explosives Ltd., Kanpur, which went into production in December 1969.

(a) More than 250 tonnes but less than 500 tonnes.

(b) Less than 250 tonnes.

Ref : Chapter I.

## Appendix III

Production of superphosphate  
(a) Single superphosphate

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
Superphosphate (16 per cent W.S. P <sub>2</sub> O <sub>5</sub> )						
<b>South</b>	<b>322</b>	<b>334</b>	<b>229</b>	<b>231</b>	<b>224</b>	<b>300</b>
Andhra Pradesh	69	84	71	53	56	
Kerala	45	45	25	30	25	
Mysore	58	54	14	1	2	
Tamil Nadu	150	151	119	147	141	
<b>West</b>	<b>226</b>	<b>265</b>	<b>208</b>	<b>212</b>	<b>246</b>	<b>275</b>
Gujarat	75	81	61	41	64	
Madhya Pradesh	77	71	40	53	65	
Maharashtra	74	113	107	118	117	
<b>North</b>	<b>65</b>	<b>139</b>	<b>124</b>	<b>117</b>	<b>129</b>	<b>165</b>
Rajasthan	—	40	39	46	51	
Uttar Pradesh	24	42	41	18	21	
Delhi	41	57	44	53	57	
<b>East</b>	<b>92</b>	<b>130</b>	<b>51</b>	<b>56</b>	<b>56</b>	<b>100</b>
Assam	15	10	—	9	2	
Bihar	23	35	2	13	4	
West Bengal	54	85	49	34	50	
<b>All-India</b>	<b>705</b>	<b>868</b>	<b>612</b>	<b>616</b>	<b>655</b>	<b>840</b>

(Of grade 17%, 17.5%<sup>+</sup> and 18%<sup>++</sup> W.S. P<sub>2</sub>O<sub>5</sub>)

<b>South</b>	<b>8</b>	<b>11</b>	—	—	—
Andhra Pradesh	—	2 <sup>-</sup>	—	—	—
Tamil Nadu	8 <sup>++</sup>	b <sup>+</sup>	—	—	—
		9 <sup>++</sup>			
<b>West</b>	—	<b>3</b>	<b>1</b>	<b>a</b>	—
Maharashtra	—	3 <sup>++</sup>	1 <sup>++</sup>	a <sup>++</sup>	—
<b>North</b>	—	<b>2</b>	—	—	—
Uttar Pradesh	—	2	—	—	—
<b>East</b>	—	<b>12</b>	<b>5</b>	—	—
Assam	—	12 <sup>+</sup>	3 <sup>++</sup>	—	—
			2 <sup>+</sup>		
<b>All-India</b>	<b>8</b>	<b>28</b>	<b>6</b>	<b>a</b>	—

(Contd.)

Production of superphosphate  
(a) Single superphosphate (Concl'd.)

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
(Of grade 18.5%, 19% <sup>@</sup> and 21% <sup>**</sup> W.S. P <sub>2</sub> O <sub>5</sub> )						
<b>South</b>	—	<b>1**</b>	—	—	—	—
Tamil Nadu	—	1**	—	—	—	—
<b>West</b>	<b>12</b>	<b>b</b>	<b>2</b>	—	—	—
Maharashtra	12	b	2	—	—	—
<b>North</b>	<b>4@</b>	—	—	—	—	—
Uttar Pradesh	4@	—	—	—	—	—
<b>East</b>	—	<b>1@</b>	<b>7</b>	<b>13</b>	<b>10</b>	—
Assam	—	—	7	13	10	—
West Bengal	—	1@	—	—	—	—
<b>All-India</b>	<b>16</b>	<b>2</b>	<b>9</b>	<b>13</b>	<b>10</b>	—

\*Estimated (all grades).

## (b) Triple superphosphate

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
(45 per cent P <sub>2</sub> O <sub>5</sub> )						
<b>South</b>	—	—	—	—	—	—
<b>West</b>	—	<b>2</b>	<b>3</b>	<b>7</b>	<b>8</b>	<b>10</b>
Maharashtra	—	2	3	7	8	
<b>North</b>	—	—	—	—	—	—
<b>East</b>	—	—	—	—	—	—
<b>All-India</b>	—	<b>2</b>	<b>3</b>	<b>7</b>	<b>8</b>	<b>10</b>

Note : \*Estimated.

a = more than 250 but less than 500 tonnes

b = Less than 250 tonnes

Ref : Chapter I

## Production of complex fertilisers

('000 tonnes)

Fertiliser	Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*	
Ammonium phosphate sulphate (16-20-0)	<b>South</b>	<b>85</b>	<b>90</b>	<b>103</b>	<b>3 &amp; 83</b>	<b>4@</b>	<b>93</b>	
	Kerala	54	38	71	43	4@	61	
	Tamil Nadu	31	52	32	3 & 40		32	
	<b>West</b>	—	—	—	—	—	—	
	<b>North</b>	—	—	—	—	—	—	
	<b>East</b>	—	—	—	—	—	—	
	<b>All-India</b>	<b>85</b>	<b>90</b>	<b>103</b>	<b>3 &amp; 83</b>	<b>4@</b>	<b>92</b>	
Nitrophosphate (16-30-0)	<b>South</b>	—	—	—	—	—	—	
	<b>West</b>	<b>81</b>	<b>2</b>	—	—	—	—	
	Maharashtra	81	2	—	—	—	—	
	<b>North</b>	—	—	—	—	—	—	
	<b>East</b>	—	—	—	—	—	—	
	<b>All-India</b>	<b>81</b>	<b>2</b>	—	—	—	—	
Nitrophosphate <sup>1</sup> (20-20-0)	<b>South</b>	—	—	—	—	—	—	
	<b>West</b>	—	<b>90</b>	<b>86</b>	<b>15</b>	—	<b>200</b>	
	Maharashtra	—	90	86	15	—	—	
	<b>North</b>	—	—	—	—	—	—	
	<b>East</b>	—	—	—	—	—	—	
	<b>All-India</b>	—	<b>90</b>	<b>86</b>	<b>15</b>	—	<b>200<sup>2</sup></b>	
Urea ammonium phosphate (28-28-0)	<b>South</b>	—	<b>31</b>	<b>155</b>	<b>5@ 188</b>	<b>23@ 9@@</b>	<b>175 62@ 10@</b>	<b>225</b>
	Andhra Pradesh	—	31	155	5@ 188	23@ 9@@	175 63@ 10@@	—
	<b>West</b>	—	—	—	—	—	—	—
	<b>North</b>	—	—	—	—	—	—	—
	<b>East</b>	—	—	—	—	—	—	—
	<b>All-India</b>	—	<b>31</b>	<b>155</b>	<b>5@ 188</b>	<b>23@ 9@@</b>	<b>175 63@ 10@@</b>	<b>225<sup>2</sup></b>

(Contd.)

## Production of complex fertilisers (Concl'd.)

('000 tonnes)

Fertiliser	Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
Diammonium phosphate (20-48-0)	<b>South</b>	—	—	—	—	—	—
	<b>West</b>	<b>b</b>	<b>36</b>	<b>55φ</b>	<b>53φφ</b>	<b>51φφ</b>	<b>50</b>
	Gujarat	b	36	55φ	53φφ	51φφ	—
	<b>North</b>	—	—	—	—	—	—
	<b>East</b>	—	—	—	—	—	—
	<b>All-India</b>	<b>b</b>	<b>36</b>	<b>55φ</b>	<b>53φφ</b>	<b>51φφ</b>	<b>50</b>
NPK complex fertiliser (17-17-17) & (14-28-14)	<b>South</b>	—	—	—	—	—	<b>125</b>
	<b>West</b>	—	—	—	—	—	—
	<b>North</b>	—	—	—	—	—	—
	<b>East</b>	—	—	—	—	—	—
	<b>All-India</b>	—	—	—	—	—	<b>125</b>

Note :—

\* Estimated; φ of grade 20-20-0; @@ of grade 22-22-11; &amp; of grade 14-14-14.

φ This figure is composed of 19,931 tonnes of grade (18-46-0) and 34,726 tonnes of grade (20-48-0).

φφ From 26th January, 1969, GSFC has switched over to production of 18-46-0 grade diammonium phosphate instead of 20-48-0 grade.

1 The production of nitrophosphate (20-20-0) started in August, 1967 at FCI, Bombay. Besides nitrophosphate (20-20-0), other grades of complex fertilisers were produced during the years 1967-68 to 1970-71, gradewise break-up of which is given below.

2 Estimate for 1971-72 takes into account the production of all grades.

('000 tonnes)

Grade	Quantity (Material)			
	1967-68	1968-69	1969-70	1970-71
1. 21-10-0	1	—	—	—
2. 20-10-0	—	a	—	—
3. 19-19-0	a	—	—	—
4. 18-18-9	1	8	22	22
5. 17-17-0	1	—	—	—
6. 15-15-0	—	4	59	76
7. 15-15-7.5	1	—	—	—
8. 15-7.5-15	—	4	—	—
9. 15-7.5-10	—	a	—	—
10. 14-10.5-14	—	a	12	—
11. 20-20-2	—	—	—	67
<b>Total</b>	<b>4</b>	<b>17</b>	<b>93</b>	<b>165</b>

Note : a = More than 250 tonnes but less than 500 tonnes

b = Less than 250 tonnes.

Ref : Chapter 1.

## Appendix V

## Distribution of ammonium sulphate

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>592</b>	<b>537</b>	<b>557</b>	<b>345</b>	<b>300</b>	<b>300</b>
Andhra Pradesh	306	176	190	208	110	
Kerala	52	43	45	12	18	
Mysore	74	103	152	47	69	
Tamil Nadu	111	167	97	59	59	
Pondicherry	3	4	a	b	b	
UPASI	35	25	46	14	25	
Coffee Board	5	11	15	1	12	
Rubber Board	6	7	10	4	7	
Food Corpn. of India	—	—	—	—	—	
Cardamom Board	a	1	2	—	b	
<b>West</b>	<b>237</b>	<b>224</b>	<b>323</b>	<b>138</b>	<b>210<sup>1</sup></b>	<b>150</b>
Gujarat	43	57	59	57	65	
Madhya Pradesh	9	39	38	37	21	
Maharashtra	182	125	224	44	32	
Goa	3	3	2	b	b	
Dadra & Nagar Haveli	b	b	b	—	—	
<b>North</b>	<b>248</b>	<b>333</b>	<b>455</b>	<b>32</b>	<b>153<sup>2</sup></b>	<b>60</b>
Haryana	8	20	19	—	b	
Jammu & Kashmir	36	24	4	5	4	
Punjab	38	102	146	2	1	
Rajasthan	20	18	4	a	1	
Uttar Pradesh	144	167	278	25	39	
Himachal Pradesh	1	2	2	b	6	
Delhi	1	b	2	a	2	
<b>East</b>	<b>302</b>	<b>272</b>	<b>249</b>	<b>246</b>	<b>297</b>	<b>275</b>
Assam**	6	—	25	70	69	
Bihar	134	114	64	76	86	
Orissa	16	b	8	23	34	
West Bengal	63	75	92	70	108	
Manipur	—	1	—	—	—	
Tripura	—	—	—	—	—	
Andaman	—	—	—	a	b	
NEFA	—	—	—	—	—	
Nagaland	b	—	—	—	b	
Tea (NE)	83	82	60	7	—	
<b>Total</b>	<b>1,379</b>	<b>1,366</b>	<b>1,584</b>	<b>761</b>	<b>960</b>	<b>785</b>
Others	8	6	7	62	19	15
<b>All-India</b>	<b>1,387</b>	<b>1,372</b>	<b>1,593</b>	<b>823</b>	<b>979</b>	<b>800</b>

(Contd.)

## Distribution of ammonium sulphate (Concl.)

Note : \* Estimated \*\*Includes Meghalaya

<sup>1</sup> West Zonal total includes 92,184 tonnes of supplies made by pool; of which 5,572 tonnes to State Warehousing Corporation, M.P. and 86,612 tonnes to Food Corporation of India, Bombay.

<sup>2</sup> North Zonal total includes 99,901 tonnes of supplies made by pool to different agencies: 69,206 tonnes supplies made to State Warehousing Corporation, Rajasthan and 30,695 tonnes to State Warehousing Corporation, Uttar Pradesh.

(a) More than 250 tonnes but less than 500 tonnes.

(b) Less than 250 tonnes

Ref : Chapter II.

## Appendix VI

*Distribution of ammonium sulphate nitrate*

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>38</b>	<b>35</b>	<b>28</b>	<b>28</b>	<b>48<sup>1</sup></b>	<b>20</b>
Andhra Pradesh	15	17	19	28	39	
Kerala	—	b	—	—	—	
Mysore	5	6	a	b	1	
Tamil Nadu	8	5	1	b	1	
Pondicherry	—	—	—	—	—	
UPASI	1	a	2	—	—	
Coffee Board	9	7	6	—	—	
Rubber Board	a	a	a	—	a	
<b>West</b>	<b>9</b>	<b>10</b>	<b>3</b>	<b>10</b>	<b>6<sup>2</sup></b>	<b>3</b>
Gujarat	—	—	a	7	4	
Madhya Pradesh	—	—	a	1	1	
Maharashtra	9	10	3	2	1	
<b>North</b>	<b>18</b>	<b>36</b>	<b>8</b>	<b>3</b>	<b>7</b>	<b>6</b>
Haryana	—	—	—	—	b	
Punjab	—	8	a	—	b	
Rajasthan	—	—	—	—	—	
Uttar Pradesh	18	28	8	3	7	
Delhi	—	—	b	—	b	
<b>East</b>	<b>17</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>3</b>
Bihar	15	3	a	—	1	
Orissa	—	—	b	1	5	
West Bengal	2	a	3	—	b	
Tea (NE)	—	—	b	—	—	
<b>Total</b>	<b>82</b>	<b>84</b>	<b>42</b>	<b>42</b>	<b>67</b>	<b>32</b>
Others	—	—	1	2	—	—
<b>All-India</b>	<b>82</b>	<b>84</b>	<b>43</b>	<b>44</b>	<b>67</b>	<b>32</b>

1 South Zonal total includes 6,041 tonnes of supply made by pool to Food Corporation of India, Madras.

2 West Zonal total includes 455 tonnes of supply made by pool to Food Corporation of India, Bombay

\* Estimated

Note : a = More than 250 tonnes but less than 500 tonnes.  
b = Less than 250 tonnes.

Ref: Chapter II.

## Distribution of urea (Concl.)

Distribution of urea						
Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	71-72*
<b>South</b>	<b>368</b>	<b>463</b>	<b>403</b>	<b>499</b>	<b>449<sup>1</sup></b>	<b>470</b>
Andhra Pradesh	162	192	72	247	89	
Kerala	31	27	38	98	5	
Mysore	55	80	135	26	15	
Tamil Nadu	112	158	149	126	84	
Pondicherry	a	2	1	b	1	
UPASI	3	1	3	1	1	
Coffee Board	5	3	5	1	2	
Rubber Board	b	b	a	a	b	
Cardamom Board	—	—	—	—	—	
<b>West</b>	<b>120</b>	<b>221</b>	<b>263</b>	<b>302</b>	<b>416<sup>2</sup></b>	<b>450</b>
Gujarat	42	86	75	124	173	
Madhya Pradesh	3	30	50	70	94	
Maharashtra	75	105	137	107	68	
Goa	a	b	1	1	—	
Dadra & Nagar Haveli	b	b	b	b	—	
<b>North</b>	<b>87</b>	<b>309</b>	<b>527</b>	<b>419</b>	<b>651<sup>3</sup></b>	<b>970</b>
Haryana	a	27	39	49	78	
Jammu & Kashmir	a	3	—	—	7	
Punjab	10	47	84	158	174	
Rajasthan	3	28	37	25	60	
Uttar Pradesh	74	203	365	187	310	
Himachal Pradesh	b	1	—	—	3	
Delhi	a	b	2	b	3	
Chandigarh	—	a	—	—	—	
<b>East</b>	<b>65</b>	<b>101</b>	<b>93</b>	<b>76</b>	<b>175</b>	<b>120</b>
Assam	1	1	2	2	3	
Bihar	36	56	40	37	100	
Orissa	4	1	1	5	5	
West Bengal	23	42	46	32	34	
Manipur	a	1	4	—	1	
Tripura	b	b	a	b	—	
Andamans	—	—	—	b	—	
Tea (NE)	1	b	b	—	—	
Dandakaranya	—	b	—	—	—	
Nagaland	—	—	b	b	b	
<b>Total</b>	<b>640</b>	<b>1,094</b>	<b>1,286</b>	<b>1,296</b>	<b>1,691</b>	<b>2,010</b>
Others	a	a	1	20	8	50
<b>All-India</b>	<b>640</b>	<b>1,094</b>	<b>1,287</b>	<b>1,316</b>	<b>1,699</b>	<b>2,060</b>

(Contd.)

Note : \* Estimated

+ Includes Meghalaya

a = Less than 500 but more than 250 tonnes.

b = Less than 250 tonnes.

1 South Zonal total includes 197,236 tonnes of supplies made by agencies other than State Government and 55,046 tonnes of supplies made by pool to different agencies.

2 West Zonal total includes 14,910 tonnes of supplies made to Zuari Agro Chemicals and 66,500 tonnes of supplies made by pool to different agencies.

3 North Zonal total includes 6,332 tonnes of supplies made to F.C.I., Nangal and 9,945 tonnes of supplies made by pool to different agencies.

4 East Zonal total includes 33,737 tonnes of supplies made to F.C.I., Calcutta and 900 tonnes of supplies made by pool to Food Corporation of India, Calcutta.

Ref: Chapter II.



## Appendix VIII

(a) Distribution of calcium ammonium nitrate (20.5% N)@

('000 tonnes)

Region/State	1966-67	1967-68	1968-69
<b>South</b>	<b>96</b>	<b>40</b>	<b>36</b>
Andhra Pradesh	27	22	26
Kerala	9	2	b
Mysore	12	6	1
Tamil Nadu	31	a	—
Pondicherry	—	—	—
UPASI	1	2	b
Coffee Board	16	8	9
<b>West</b>	<b>13</b>	<b>14</b>	<b>—</b>
Gujarat	—	—	—
Madhya Pradesh	—	—	—
Maharashtra	13	14	—
Goa	—	—	—
<b>North</b>	<b>381</b>	<b>93</b>	<b>77</b>
Haryana	58**	17	—
Jammu & Kashmir	4	3	—
Punjab	238	31	—
Rajasthan	19	3	16
Uttar Pradesh	54	37	61
Himachal Pradesh	5	1	—
Delhi	3	1	—
<b>East</b>	<b>30</b>	<b>59</b>	<b>8</b>
Assam <sup>++</sup>	—	—	—
Bihar	10	6	1
Orissa	15	50	4
West Bengal	4	3	2
Manipur	1	—	—
Tripura	—	a	1
Andamans	—	—	—
Dandakaranya	—	a	b
<b>All-India</b>	<b>520</b> +22 <sup>+</sup>	<b>206</b> +41 <sup>+</sup>	<b>121</b>

Ref: Chapter II.

(Continued)

## Appendix VIII (Concluded)

## (b) Distribution of calcium ammonium nitrate (25% N &amp; 26% N)

('000 tonnes)

Region/State	Imported					Indigenous				
	of grade 26% N					of grade 25% N				
	1967-68	1968-69	1969-70	1970-71	1971-72*	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>58</b>	<b>17</b>	<b>10</b>	<b>28</b>	<b>75</b>	<b>1</b>	<b>14</b>	<b>49</b>	<b>42</b>	<b>98</b>
Andhra Pradesh	17	16	7	12		1	8	37	42	
Kerala	—	—	3	b		—	—	b	—	
Mysore	18	b	—	a		—	1	3	—	
Tamil Nadu	21	b	—	a		—	a	a	—	
UPASI	—	b	—	9		—	1	—	—	
Coffee Board	2	1	—	5		—	4	9	—	
Rubber Board	—	—	—	—		—	—	—	—	
<b>West</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>25<sup>1</sup></b>	<b>1</b>	<b>—</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>
Gujarat	7	—	3	8		—	b	a	—	
Madhya Pradesh	—	b	3	—		—	1	1	a	
Maharashtra	4	1	b	—		—	1	1	b	
Dadra & Nagar Haveli	—	—	—	—		—	—	—	—	
<b>North</b>	<b>47</b>	<b>43</b>	<b>36</b>	<b>180<sup>2</sup></b>	<b>275</b>	<b>265</b>	<b>338</b>	<b>326</b>	<b>220</b>	<b>305</b>
Haryana	5	3	—	2		62	79	8	54	
Himachal Pradesh	4	1	—	—		8	11	11	4	
Jammu & Kashmir	a	2	—	—		4	1	—	—	
Punjab	18	18	19	93		148	201	224	115	
Rajasthan	6	11	—	—		16	3	11	8	
Uttar Pradesh	14	7	14	84		22	38	22	33	
Delhi	—	1	3	1		5	5	8	6	
Chandigarh	—	—	—	—		—	—	2	—	
<b>East</b>	<b>14</b>	<b>—</b>	<b>8</b>	<b>17</b>	<b>35</b>	<b>b</b>	<b>29</b>	<b>44</b>	<b>38</b>	<b>65</b>
Assam++	—	—	—	—		—	—	b	—	
Bihar	14	—	4	8		—	b	3	3	
Orissa	—	—	—	8		b	29	39	34	
West Bengal	—	—	4	a		—	—	2	1	
Tripura	—	—	—	1		—	—	a	—	
Dandakaranya	—	—	—	—		—	—	b	—	
Others	—	—	b	—	6	—	b	b	2	
<b>All-India</b>	<b>130</b>	<b>61</b>	<b>60</b>	<b>250</b>	<b>392</b>	<b>266</b>	<b>383</b>	<b>422</b>	<b>303</b>	<b>470</b>

Note : \* Estimated.

\*\* This figure is from November 1966 to June 1967; prior to this they are in the Punjab.

+ The Statewise break-up of this quantity is not available.

++ Includes Meghalaya.

@ No distribution is made during 1969-70, as indigenous production has been switched over from 20.5 per cent N to 25.0 per cent N.

1 West Zonal total includes 16,733 tonnes of supplies made by pool to Food Corporation of India, Bombay.

2 North Zonal total includes 182 tonnes supplies made by pool to State Warehousing Corporation, U.P. and 6 tonnes by other agencies.

a = More than 250 tonnes but less than 500 tonnes

b = Less than 250 tonnes.

Ref: Chapter II.

## Appendix IX

*Distribution of ammonium chloride+*

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>13</b>	<b>30</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>1</b>
Andhra Pradesh	10	11	2	1	1	
Kerala	—	—	6	—	—	
Mysore	3	17	—	—	b	
Tamil Nadu	—	2	—	—	—	
<b>West</b>	<b>12</b>	<b>9</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>3</b>
Gujarat	1	b	i	a	a	
Madhya Pradesh	—	—	b	1	2	
Maharashtra	11	9	10	3	5	
Dadra & Nagar Haveli	a	—	—	—	—	
<b>North</b>	<b>5</b>	<b>16</b>	<b>32</b>	<b>3</b>	<b>14</b>	<b>15</b>
Haryana	—	—	b	b	1	
Uttar Pradesh	5	16	32	3	13	
Punjab	—	—	—	b	b	
Rajasthan	—	—	—	b	b	
Delhi	—	—	—	—	b	
<b>East</b>	<b>a</b>	<b>13</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>3</b>
Bihar	—	10	1	2	2	
West Bengal	a	3	1	1	3	
Orissa	—	—	—	b	b	
<b>Total</b>	<b>30</b>	<b>68</b>	<b>53</b>	<b>11</b>	<b>27</b>	<b>22</b>
Industrial uses <sup>++</sup>	3	3	1	1	3	3
<b>All-India</b>	<b>33</b>	<b>71</b>	<b>54</b>	<b>12</b>	<b>30</b>	<b>25</b>

Note : \* Estimated.

+ For agricultural use only.

++ For industrial use at the factory site.

a = More than 250 tonnes but less than 500 tonnes.

b = Less than 250 tonnes.

Ref : Chapter II

## Appendix X

*Distribution of Chilean natural nitrate of soda*

(tonnes)

Region/State	1965-66	1966-67
<b>South</b>	<b>1,831</b>	<b>6</b>
Andhra Pradesh	500	—
Kerala	40	—
Mysore	786	6
Tamil Nadu	145	—
<b>West</b>	<b>2,859</b>	<b>5</b>
Gujarat	280	—
Maharashtra	2,579	5
Goa	—	—
<b>North</b>	—	—
<b>East</b>	<b>485</b>	<b>6</b>
West Bengal	485	6
<b>All-India</b>	<b>5,175</b>	<b>17</b>

Note : There were no imports of Chilean natural nitrate of soda after 1966-67.

Ref : Chapter II.

## Appendix XI

## (a) Distribution of ammonium phosphate sulphate (16-20-0)

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>81</b>	<b>84</b>	<b>109</b>	<b>86</b>	<b>90</b>	<b>110</b>
Andhra Pradesh	14	12	17	(4) 8	13	
Kerala	18	13	24	(2) 18	22	
Mysore	9	14	25	(b) 22	20	
Tamil Nadu	40	45	43	(1) 38	35	
Pondicherry	—	—	b	(1) b	b	
<b>West</b>	<b>1</b>	<b>1</b>	<b>a</b>	<b>b</b>	<b>b</b>	<b>b</b>
Gujarat	a	—	—	b	—	
Madhya Pradesh	—	—	—	—	—	
Maharashtra	b	1	a	b	b	
Goa	b	b	—	—	—	
<b>North</b>	<b>b</b>	—	—	—	<b>b</b>	—
Haryana	—	—	—	—	—	
Punjab	—	—	—	—	—	
Rajasthan	—	—	—	—	—	
Uttar Pradesh	b	—	—	—	b	
Himachal Pradesh	—	—	—	—	—	
Delhi	b	—	—	—	—	
<b>East</b>	<b>b</b>	<b>b</b>	<b>b</b>	<b>b</b>	<b>b</b>	—
Assam <sup>+</sup>	b	b	—	—	—	—
Bihar	—	—	b	b	b	
Orissa	—	—	—	—	—	
West Bengal	b	b	b	—	b	
<b>Total</b>	<b>82</b>	<b>85</b>	<b>109</b>	<b>86(4)</b>	<b>90</b>	<b>110</b>
Others	—	b	—	—	—	—
<b>All-India</b>	<b>82</b>	<b>86</b>	<b>109</b>	<b>86(4)</b>	<b>90</b>	<b>110</b>

Note : \* Estimated

+ Includes Meghalaya

Figures given in brackets are of grade (20-20-0)

a = More than 250 tonnes but less than 500 tonnes.

b = Less than 250 tonnes.

(Continued)

Ref : Chapter II.

**Appendix XI**  
(Concluded)

*(b) Distribution of ammonium phosphate (20-20-0)φ*  
(<sup>0</sup>000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71
<b>South</b>	<b>97</b>	<b>99</b>	<b>35</b>	<b>a</b>	<b>b</b>
Andhra Pradesh	82	56	35	a	—
Mysore	9	29	b	—	—
Tamil Nadu	5	13	—	—	b
Pondicherry	1	1	—	—	—
Coffee Board	—	—	a	—	—
<b>West</b>	<b>31</b>	<b>47</b>	<b>1</b>	<b>—</b>	<b>1</b>
Gujarat	16	3	—	—	—
Madhya Pradesh	6	2	—	—	—
Maharashtra	8	40	1	—	—
Goa	1	2	—	—	1
<b>North</b>	<b>29</b>	<b>49</b>	<b>9</b>	<b>b</b>	<b>—</b>
Haryana	—	a	—	—	—
Jammu & Kashmir	—	—	—	—	—
Punjab	4	18	1	—	—
Rajasthan	6	2	—	—	—
Uttar Pradesh	18	28	8	b	—
Himachal Pradesh	1	1	—	—	—
Delhi	—	—	—	—	—
<b>East</b>	<b>29</b>	<b>8</b>	<b>9</b>	<b>—</b>	<b>—</b>
Assam <sup>+</sup>	—	—	—	—	—
Bihar	10	1	2	—	—
Orissa	12	—	—	—	—
West Bengal	7	7	7	—	—
Dandakaranya	—	a	—	—	—
Manipur	—	—	—	—	—
Andamans	—	—	—	—	—
<b>All-India</b>	<b>186</b>	<b>203</b>	<b>54</b>	<b>a</b>	<b>1</b>

+ Includes Meghalaya.

φ Ammonium phosphate (20-20-0) is an imported material. No distribution is anticipated to be made during 1970-71

Ref: Chapter II.

## Appendix XII

## Distribution of nitrophosphate

('000 tonnes)

Region/State	1966-67++	1967-68++	1967-68**	1968-69	1969-70 $\phi$	1970-71 $\phi$	1971-72*
<b>South</b>	<b>42</b>	<b>9</b>	<b>38</b>	<b>52</b>	<b>9</b>	<b>14</b>	<b>58</b>
Andhra Pradesh	24	8	35	37	8	12	
Kerala	b	—	b	b	b	a	
Mysore	11	a	2	14	1	1	
Tamil Nadu	7	1	1	1	—	b	
<b>West</b>	<b>25</b>	<b>2</b>	<b>13</b>	<b>58</b>	<b>15</b>	<b>45</b>	<b>104</b>
Gujarat	3	a	b	—	1	16	
Madhya Pradesh	—	b	b	—	—	1	
Maharashtra	22	2	13	58	14	28	
<b>North</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>b</b>	<b>a</b>	<b>2</b>	<b>8</b>
Haryana	b	—	—	—	—	—	b
Punjab	3	1	5	—	—	—	2
Uttar Pradesh	—	—	b	b	a	2	
Delhi	—	—	—	—	—	b	
<b>East</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>b</b>	<b>—</b>	<b>30</b>
Assam	—	—	—	b	b	a	
Bihar	—	—	—	—	—	—	9
West Bengal	—	—	b	1	1	2	
Orissa	—	—	—	—	2	2	
<b>Total</b>	<b>70</b>	<b>12</b>	<b>56</b>	<b>111</b>	<b>27</b>	<b>75</b>	<b>200</b>
Others	a	b	1	b	—	—	—
<b>All India</b>	<b>70</b>	<b>12</b>	<b>57</b>	<b>111</b>	<b>27</b>	<b>75</b>	<b>200</b>

- a. Less than 500 tonnes but more than 250 tonnes.  
b. Less than 250 tonnes.  
\* Estimated (all goods)  
++ Figures for the years are of 16-13-0 grade nitrophosphate.  
\*\* From July 1967 onwards F.C.I., Trombay, has switched over to 20-20-0 grade of nitrophosphate.  
 $\phi$  Besides the grade of 20-20-0 nitrophosphate, different grades of complex fertilisers were distributed as follows :—

Year	Grade	South	West	North	East	Total
{ 1969-70	15-7.5-10	66	—	—	—	66
{ 1970-71	15-7.5-10	—	—	—	—	—
{ 1969-70	15-7.5-15	517	—	—	—	517
{ 1970-71	15-7.5-15	52	—	—	—	52
{ 1969-70	15-15-15	19,305	14,115	177	2,346	35,943
{ 1970-71	15-15-15	30,562	26,741	4,754	15,118	77,175
{ 1969-70	18-18-9	1,684	16,058	110	—	17,852
{ 1970-71	18-18-9	2,237	17,173	1,152	572	21,134
{ 1969-70	20-10-0	17	—	—	—	17
{ 1970-71	20-10-0	—	—	—	—	—
{ 1969-70	14-10.5-14	10,096	—	—	—	10,096
{ 1970-71	14-10.5-14	2,825	—	—	—	2,825

Ref. Chapter II.

## Appendix XIII

(a) Distribution of diammonium phosphate  
(18-46-0)

('000 tonnes)

Region/State	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>161</b>	<b>4</b>	<b>2</b>	<b>1<sup>1</sup></b>	<b>5</b>
Andhra Pradesh	22	a	b	—	—
Kerala	13	1	—	—	—
Mysore	55	1	b	—	—
Tamil Nadu	69	2	2	—	—
Pondicherry	2	—	—	—	—
<b>West</b>	<b>69</b>	<b>52</b>	<b>63</b>	<b>92<sup>2</sup></b>	<b>90</b>
Gujarat	b	19	47	52	—
Madhya Pradesh	2	4	1	7	—
Maharashtra	66	29	15	b	—
Goa	1	b	b	—	—
<b>North</b>	<b>174</b>	<b>116</b>	<b>22</b>	<b>48<sup>3</sup></b>	<b>225</b>
Haryana	7	3	—	—	—
Jammu & Kashmir	25	a	—	—	—
Punjab	42	22	6	17	—
Rajasthan	9	1	3	5	—
Uttar Pradesh	87	90	13	19	—
Himachal Pradesh	4	b	—	—	—
<b>East</b>	<b>48</b>	<b>5</b>	<b>3</b>	<b>1<sup>4</sup></b>	<b>30</b>
Bihar	43	b	1	—	—
Orissa	3	—	—	—	—
West Bengal	2	5	1	1	—
Manipur	a	—	—	—	—
Andamans	—	—	b	—	—
Others	—	—	1	b	—
<b>All-India</b>	<b>452</b>	<b>177</b>	<b>91</b>	<b>143</b>	<b>350</b>

Note : \* Estimated.

a = More than 250 but less than 500 tonnes; b = less than 250 tonnes.

1 892 tonnes of supply made by pool to Food Corporation of India, Madras.

2 West Zonal total includes 22,317 tonnes of supplies made to F.C.I., Trombay and 10,776 tonnes of supplies made by pool to different agencies.

3 North Zonal total includes 7,616 tonnes of supplies made by pool to different agencies.

4 East Zonal total includes 69 tonnes of supply made by pool to Food Corporation of India, Calcutta.

From 1968-69 onwards, the above figures of diammonium phosphate (18-46-0) is composed of imported as well as indigenous material. For details, please see footnote to Appendix XIII (b).

Ref : Chapter II.

(Continued)



**Appendix XIII**  
(Concluded)

(b) *Distribution of diammonium phosphate*  
(20-48-0)

('000 tonnes)

Region/State	1967-68	1968-69*
<b>South</b>	—	1
Andhra Pradesh	—	1
Kerala	—	b
Mysore	—	b
Tamil Nadu	—	b
<b>West</b>	30	23
Gujarat	30	22
Madhya Pradesh	—	b
Maharashtra	b	1
<b>North</b>	—	—
Punjab	—	—
Rajasthan	—	—
Uttar Pradesh	—	—
<b>East</b>	—	—
<b>All-India</b>	<b>30</b>	<b>24</b>

Note : Production of DAP (20-48-0) started in June 1967 but actual distribution began from July 1967.

\* These figures are for seven months—June 1968 to January 1969, as there was no production and distribution of grade 20-48-0 diammonium phosphate after January 1969. From February 1969 diammonium phosphate of grade (18 46-0) was produced and distributed which is included in Appendix XIII (a).

b = Less than 250 tonnes.

Ref : Chapter II.

**Appendix XIV**

*(a) Distribution of NPK complex fertilisers  
(17-17-17 & 14-28-14)*

('000 tonnes)

Region/State	1971-72*
<b>South</b>	<b>120</b>
<b>West</b>	—
<b>North</b>	—
<b>East</b>	—
<b>All-India</b>	<b>120</b>

Note : \* Estimated.

1. Exclusively manufactured grades.

2. See also Appendices XI and XV for indigenous NPK complexes.

Ref : Chapter II.

*(Continued)*

**Appendix XIV**  
(Concluded)

*(b) Distribution of NPK complex fertilisers (imported)*  
(‘000 tonnes)

Region/State	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>106</b>	<b>26</b>	<b>44</b>	<b>61<sup>1</sup></b>	<b>50</b>
Andhra Pradesh	9	4	14	2 <sup>1</sup>	
Kerala	—	b	18	1	
Mysore	12	5	2	1	
Tamil Nadu	85	13	10	1	
Pondicherry	b	—	—	—	
UPASI	—	2	—	—	
Coffee Board	—	2	—	—	
<b>West</b>	—	<b>1</b>	<b>5</b>	<b>58<sup>2</sup></b>	<b>65</b>
Madhya Pradesh	—	1	5	5	
Goa	—	—	—	—	
<b>North</b>	<b>11</b>	<b>24</b>	<b>25</b>	<b>38<sup>3</sup></b>	<b>85</b>
Punjab	—	8	2	3	
Uttar Pradesh	11	16	23	32	
<b>East</b>	—	<b>a</b>	<b>2</b>	<b>2</b>	—
Bihar	—	—	—	—	
Manipur	—	—	b	—	
West Bengal	—	a	1	—	
Tea Board	—	—	1	—	
Orissa	—	—	—	1	
Nagaland	—	—	—	b	
<b>All-India</b>	<b>117</b>	<b>51</b>	<b>76</b>	<b>159</b>	<b>200</b>

Note : NPK complex fertilisers of various grades were imported from 1966-67.

\* Estimated (all grades).

a = More than 250 tonnes but less than 500 tonnes.

b = Less than 250 tonnes.

1. South Zonal total includes 55,842 tonnes of supply made by agencies other than State Govt. to F.A.C.T., Alwaye and Madras Fertilizers. Ltd. Manali.
2. West Zonal total includes 25,069 tonnes of supply made by agencies other than State Govt. and 28,015 tonnes of supply made by pool to Food Corporation of India, Bombay.
3. North Zonal total includes 1,906 tonnes of supply made by pool to different agencies.

Ref : Chapter II.

## Appendix XV

*Distribution of urea ammonium phosphate  
(28-28-0)\**

('000 tonnes)

Region/State	1967-68	1968-69	1969-70	1970-71	1971-72 <sup>§</sup>
South	31	118	88	56	90
Andhra Pradesh	31	118	88	56	
West	—	—	—	—	—
North	—	—	—	—	—
East	—	—	—	—	—
Others	—	—	27	108	200
<b>All-India</b>	<b>31</b>	<b>118</b>	<b>115<sup>1</sup></b>	<b>164<sup>2</sup></b>	<b>290</b>

<sup>1</sup> Its production and distribution started in February, 1968.

<sup>§</sup> Estimated (all grades).

<sup>1</sup> In addition, 19,458 tonnes of grade 20-20-0 and 6,305 tonnes of grade 22-22-11 were also distributed.

<sup>2</sup> In addition, 45,788 tonnes of grade 20-20-0 and 6,609 tonnes of grade 22-22-11 were also distributed.

Ref : Chapter II.

## Appendix XVI

*Distribution of basic slag (18 per cent P<sub>2</sub>O<sub>5</sub>)*

('000 tonnes)

Region/State	1966-67	1967-68
<b>South</b>	<b>11</b>	<b>b</b>
Kerala	1	—
Mysore	10	b
<b>West</b>	—	—
<b>North</b>	—	—
<b>East</b>	—	—
<b>All-India</b>	<b>11</b>	<b>b</b>

Note : Basic slag is imported and distributed by the Ministry of Agriculture. There was no import and distribution of basic slag after 1967-68.

b=Less than 250 tonnes.

Ref : Chapter II.

## Appendix XVII

(a) Distribution of superphosphate (16 per cent W.S. P<sub>2</sub>O<sub>5</sub>)

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>246</b>	<b>260</b>	<b>204</b>	<b>241</b>	<b>208</b>	<b>250</b>
Andhra Pradesh	77	110	80	99	86	
Kerala	24	20	15	12	8	
Mysore	61	67	64	64	58	
Tamil Nadu	84	63	45	65	56	
Pondicherry	b	b	a	1	b	
<b>West</b>	<b>217</b>	<b>230</b>	<b>221</b>	<b>223</b>	<b>317</b>	<b>400</b>
Gujarat	87	105	87	74	101	
Madhya Pradesh	50	45	63	76	137	
Maharashtra	80	80	71	73	79	
Dadra & Nagar Haveli	b	b	b	—	—	
<b>North</b>	<b>75</b>	<b>159</b>	<b>103</b>	<b>110</b>	<b>51</b>	<b>65</b>
Haryana	3	4	1	1	1	
Jammu & Kashmir	5	7	—	—	—	
Punjab	25	65	39	49	18	
Rajasthan	5	19	4	40	21	
Uttar Pradesh	34	62	52	19	10	
Himachal Pradesh	2	2	7	1	1	
Delhi	1	b	a	a	a	
<b>East</b>	<b>91</b>	<b>99</b>	<b>69</b>	<b>68</b>	<b>58</b>	<b>60</b>
Assam <sup>+</sup>	16	9	9	10	4	
Bihar	28	40	11	13	13	
Orissa	7	1	6	6	5	
West Bengal	40	48	43	39	35	
Manipur	—	1	b	—	—	
Tripura	a	a	—	b	1	
Andamans	b	—	—	—	—	
Nagaland	b	b	b	—	b	
NEFA	b	—	—	—	—	
<b>Total</b>	<b>629</b>	<b>748</b>	<b>597</b>	<b>642</b>	<b>634</b>	<b>775</b>
Used in mixtures	68	41	41	41	49	45
<b>All-India</b>	<b>697</b>	<b>789</b>	<b>638</b>	<b>683</b>	<b>683</b>	<b>820</b>

\*Estimated.

+ Includes Meghalaya.

Note : a=More than 250 tonnes but less than 500 tonnes.

b=Less than 250 tonnes.

(Contd.)

Ref : Chapter II.

## Appendix XVII

## (b) Distribution of superphosphate (higher grades) (Concluded)

(tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>5,780</b>	<b>2,284</b>	<b>559,41</b>	—	—	—
Andhra Pradesh	22φφ	—	559 <sup>++</sup>	—	—	—
Kerala	126φφ	—	—	—	—	—
Mysore	22φφ	—	—	—	—	—
Tamil Nadu	5,610φφ	2,284 <sup>**</sup>	41 <sup>**</sup>	—	—	—
<b>West</b>	<b>12,630</b>	<b>531,49</b>	<b>1,010</b>	<b>2,310<sup>**</sup></b>	—	—
Gujarat	12,630φ	—	—	—	—	—
Maharashtra	—	531 <sup>**</sup> 49φ	1,010 <sup>**</sup>	2,310 <sup>**</sup>	—	—
<b>North</b>	<b>250</b>	—	—	—	—	—
Uttar Pradesh	250φφ	—	—	—	—	—
<b>East</b>	—	<b>662</b>	<b>223,49,20</b>	—	<b>479φ</b>	<b>250φ</b>
Assam@	—	542φφ	223 <sup>**</sup> 20φφφ 49 <sup>‡</sup>	—	479φ	—
West Bengal	—	120φφ	—	—	—	—
Used in mixtures	218 <sup>**</sup>	665 <sup>‡</sup> 178 <sup>**</sup> 115φφφ	554 <sup>+</sup> 22 <sup>**</sup> 458φ 406φφφ	426φ188φφφ	—	—
<b>All-India</b>	<b>5,998<sup>**</sup></b> 12,630φ 250φφ	<b>4,484<sup>***</sup></b> 1,152 <sup>‡</sup>	<b>426φφφφ</b> 1,296 <sup>**</sup> 458φ	<b>2,310<sup>**</sup></b> 426φ 188φφφ	<b>479φ</b>	<b>250φ</b>

\* Estimated      \*\* of 18% W.S. P<sub>2</sub>O<sub>5</sub> grade superphosphate.\*\*\* Consists of 665 tonnes of 17.5% W.S. P<sub>2</sub>O<sub>5</sub> superphosphate,  
2,293 tonnes of 18% W.S. P<sub>2</sub>O<sub>5</sub> superphosphate,  
49 tonnes of 18.5% W.S. P<sub>2</sub>O<sub>5</sub> superphosphate,  
662 tonnes of 19% W.S. P<sub>2</sub>O<sub>5</sub> superphosphate, and  
115 tonnes of 21% W.S. P<sub>2</sub>O<sub>5</sub> superphosphate.φ of 18.5% W.S. P<sub>2</sub>O<sub>5</sub> grade superphosphate.φφ of 19% W.S. P<sub>2</sub>O<sub>5</sub> grade superphosphate.φφφ of 21% W.S. P<sub>2</sub>O<sub>5</sub> grade superphosphate.‡ of 17.5% W.S. P<sub>2</sub>O<sub>5</sub> grade superphosphate.

@ Includes Meghalaya.

Ref: Chapter II.

## Appendix XVIII

*Distribution of triple superphosphate (45 per cent W.S. P<sub>2</sub>O<sub>5</sub>)*

(tonnes)

Region/State	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>71</b>	<b>281</b>	<b>685</b>	<b>526</b>	<b>2,000</b>
Andhra Pradesh	—	106	301	224	
Kerala	—	1	1	30	
Mysore	70	130	220	125	
Tamil Nadu	1	44	163	147	
<b>West</b>	<b>99</b>	<b>1,780</b>	<b>2,223</b>	<b>4,365</b>	<b>2,500</b>
Gujarat	66	389	236	351	
Madhya Pradesh	—	1	23	1,764	
Maharashtra	33	1,390	1,964	2,250	
<b>North</b>	<b>—</b>	<b>280</b>	<b>2,133</b>	<b>4,411</b>	<b>5,000</b>
Haryana	—	22	—	—	
Punjab	—	72	1,960	4,207	
Rajasthan	—	—	20	27	
Uttar Pradesh	—	125	151	177	
Delhi	—	21	1	—	
Himachal Pradesh	—	40	1	—	
<b>East</b>	<b>—</b>	<b>141</b>	<b>132</b>	<b>25</b>	<b>500</b>
Bihar	—	44	92	11	
Orissa	—	77	20	12	
West Bengal	—	20	20	2	
Used in mixtures	14	6	—	—	
<b>All-India</b>	<b>184</b>	<b>2,488</b>	<b>5,173</b>	<b>9,327</b>	<b>10,000</b>

\*Estimated.

Note : The distribution of triple superphosphate started from April, 1968.

Ref : Chapter II.



## Appendix XIX

## Distribution of muriate of potash

('000 tonnes)

Region/State	*** 1966-67	1967-68 (60%K <sub>2</sub> O)	1967-68 (50%K <sub>2</sub> O)	1968-69 (60%K <sub>2</sub> O)	1968-69 (50%K <sub>2</sub> O)	1969-70 (60%K <sub>2</sub> O)	1970-71 (60%K <sub>2</sub> O)	1971-72* (60%K <sub>2</sub> O)
<b>South</b>	<b>108</b>	<b>116</b>	<b>13</b>	<b>101</b>	<b>3</b>	<b>99</b>	<b>109</b>	<b>170</b>
Andhra Pradesh	6	4	1	5	3	13	14	
Kerala	32	29	6	41	b	30	32	
Mysore	22	31	2	18	a	16	20	
Tamil Nadu	48	51	4	37	b	40	43	
Pondicherry	—	1	—	—	—	b	a	
<b>West</b>	<b>38</b>	<b>46</b>	<b>2</b>	<b>48</b>	<b>—</b>	<b>62</b>	<b>75</b>	<b>75</b>
Gujarat	3	5	b	6	—	7	13	
Madhya Pradesh	2	6	—	5	—	5	8	
Maharashtra	33	34	2	36	—	50	54	
Goa	a	1	—	1	—	b	b	
<b>North</b>	<b>31</b>	<b>104</b>	<b>b</b>	<b>61</b>	<b>—</b>	<b>40</b>	<b>36</b>	<b>80</b>
Haryana	a	4	—	5	—	a	a	
Jammu & Kashmir	3	17	—	—	—	—	—	
Punjab	9	12	—	5	—	19	8	
Rajasthan	1	2	—	2	—	1	2	
Uttar Pradesh	18	69	b	49	—	20	25	
Delhi	—	—	—	b	—	b	1	
Himachal Pradesh	—	a	—	—	—	b	b	
<b>East</b>	<b>29</b>	<b>22</b>	<b>10</b>	<b>23</b>	<b>3</b>	<b>25</b>	<b>47</b>	<b>50</b>
Assam@	2	1	—	2	—	3	6	
Bihar	5	5	b	5	—	4	12	
Orissa	3	4	—	1	—	2	4	
West Bengal	19	12	10	15	3	16	25	
Manipur	—	—	—	b	—	b	a	
Tripura	—	—	—	b	—	b	a	
Nagaland	b	—	—	—	—	b	—	
Dandakaranya	—	b	—	—	—	—	—	
Andamans	—	—	—	—	—	b	—	
<b>Total</b>	<b>206</b>	<b>288</b>	<b>25</b>	<b>233</b>	<b>6</b>	<b>226</b>	<b>267</b>	<b>375</b>
Used in Industry	—	3	—	7	—	1	—	—
<b>All-India</b>	<b>206</b>	<b>291</b>	<b>25</b>	<b>240</b>	<b>6</b>	<b>227</b>	<b>267</b>	<b>375</b>

\* Estimated.

@ Includes Meghalaya.

\*\*\* Figures for this year are composed of muriate of potash of grade 60 per cent K<sub>2</sub>O and 50 per cent K<sub>2</sub>O (Breakup is not available).

Note : (a) More than 250 tonnes but less than 500 tonnes.

(b) Less than 250 tonnes.

Ref : Chapter II.

## Appendix XX

*Distribution of sulphate of potash*

('000 tonnes)

Region/State	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72*
<b>South</b>	<b>14</b>	<b>a</b>	<b>b</b>	<b>8</b>	<b>9</b>	<b>2</b>
Andhra Pradesh	13	—	b	6	8	
Kerala	—	—	—	—	b	
Mysore	b	—	—	2	1	
Tamil Nadu	1	—	—	a	b	
UPASI	—	b	—	—	—	
Coffee Board	—	a	—	—	—	
<b>West</b>	<b>4</b>	—	—	<b>1</b>	<b>2</b>	<b>a</b>
Gujarat	2	—	—	b	1	
Maharashtra	2	—	—	1	1	
<b>North</b>	<b>b</b>	<b>4</b>	<b>14</b>	—	<b>b</b>	<b>b</b>
Punjab	—	2	—	—	—	
Rajasthan	b	—	—	—	—	
Uttar Pradesh	—	2	14	—	—	
Delhi	b	—	—	—	—	
Himachal Pradesh	—	—	—	—	b	
<b>East</b>	—	—	—	—	—	<b>b</b>
Assam@	—	—	—	—	—	
Bihar	—	—	—	—	—	
West Bengal	—	—	—	—	—	
<b>All-India</b>	<b>18</b>	<b>4</b>	<b>14</b>	<b>9</b>	<b>11</b>	<b>2</b>

\* Estimated.

@ Includes Meghalaya.

Note : During 1967, 1968-69 and 1969-70 only Central Fertiliser Pool has distributed sulphate of potash and estimates represent only of this source.

a = More than 250 tonnes but less than 500 tonnes.

b = Less than 250 tonnes.

Ref : Chapter II.

## Appendix XXI

## HYVP achievements 1966-67 to 1969-70 and targets for 1970-71

('000 acres)

Zone/State	1966-67			1967-68			1968-69			1969-70			1970-71*
	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total	Total
<b>South</b>	<b>629</b>	<b>942</b>	<b>1,571</b>	<b>1,408</b>	<b>1,369</b>	<b>2,777</b>	<b>2,058</b>	<b>1,475</b>	<b>3,533</b>	<b>3,047</b>	<b>3,092</b>	<b>6,139</b>	<b>8,190</b>
Andhra Pradesh	152	648	800	200	860	1,060	374	301	675	712	759	1,471	2,070
Kerala	80	94	174	132	44	176	113	303	416	180	410	590	698
Mysore	93	88	181	240	138	378	420	320	740	659	311	970	1,356
Tamil Nadu	300	108	408	820	315	1,135	1,139	551	1,690	1,452	1,594	3,046	4,001
Pondicherry	4	4	8	16	12	28	12	—	12	44	18	62	64
<b>West</b>	<b>548</b>	<b>511</b>	<b>1,059</b>	<b>1,523</b>	<b>1,332</b>	<b>2,855</b>	<b>3,156</b>	<b>904</b>	<b>4,060</b>	<b>3,330</b>	<b>946</b>	<b>4,276</b>	<b>6,345</b>
Gujarat	61	35	96	381	452	833	523	480	1,003	664	130	794	1,346
Madhya Pradesh	171	42	213	186	112	298	457	200	657	680	681	1,061	1,278
Maharashtra	312	431	743	948	756	1,704	2,164	224	2,388	1,976	402	2,378	3,691
Goa	4	3	7	8	12	20	12	—	12	10	33	43	30
<b>North</b>	<b>377</b>	<b>1,181</b>	<b>1,558</b>	<b>991</b>	<b>6,281</b>	<b>7,272</b>	<b>2,027</b>	<b>10,039</b>	<b>12,066</b>	<b>3,620</b>	<b>12,640</b>	<b>16,260</b>	<b>15,292</b>
Haryana	—	32	32	—	250	250	172	640	812	404	1,100	1,504	1,745
Punjab	65	201	266	240	1,579	1,819	187	2,500	2,687	520	3,500	4,020	4,402
Rajasthan	21	23	44	100	310	410	250	471	721	602	721	1,323	1,681
Jammu & Kashmir	20	2	22	101	70	171	311	90	401	325	90	415	509
Delhi	1	3	4	9	13	22	16	67	83	29	75	104	114
Uttar Pradesh	266	197	1,183	536	4,031	4,567	1,071	6,214	7,285	1,657	7,009	8,666	6,440
Himachal Pradesh	4	3	7	5	28	33	20	57	77	83	145	228	398
Chandigarh	—	—	—	—	—	—	—	—	—	—	—	—	3
<b>East</b>	<b>264</b>	<b>208</b>	<b>472</b>	<b>928</b>	<b>1,123</b>	<b>2,051</b>	<b>1,291</b>	<b>1,656</b>	<b>2,947</b>	<b>2,132</b>	<b>2,286</b>	<b>4,418</b>	<b>5,830</b>
Assam@	6	3	9	53	9	62	127	44	171	241	60	301	420
Bihar	175	71	246	437	824	1,261	551	957	1,508	776	1,290	2,066	2,598
Orissa	44	81	125	175	142	317	115	270	385	170	279	449	660
West Bengal	39	53	92	260	148	408	498	385	883	945	654	1,599	2,100
Tripura	—	—	—	1	—	1	—	—	—	—	2	2	24
Manipur	—	—	—	2	—	2	—	—	—	—	1	1	20
NEFA	—	—	—	—	—	—	—	—	—	—	—	—	—
Nagaland	—	—	—	—	—	—	—	—	—	—	—	—	13
Dadra and Nagar Haveli	—	—	—	—	—	—	—	—	—	—	—	—	3
Andamans	—	—	—	—	—	—	—	—	—	—	—	—	1
<b>All-India</b>													
<b>Achievement</b>	<b>1,818</b>	<b>2,842</b>	<b>4,660</b>	<b>4,850</b>	<b>10,105</b>	<b>14,955</b>	<b>8,532</b>	<b>14,074</b>	<b>22,606</b>	<b>12,129</b>	<b>18,964</b>	<b>31,093</b>	<b>—</b>
<b>Target</b>	<b>2,652</b>	<b>4,429</b>	<b>7,081</b>	<b>7,857</b>	<b>10,160</b>	<b>18,017</b>	<b>13,108</b>	<b>14,437</b>	<b>27,545</b>	<b>13,000</b>	<b>14,000</b>	<b>27,000</b>	<b>36,092</b>
<b>Achievement as percent- tage to target</b>	<b>68.6</b>	<b>64.2</b>	<b>65.8</b>	<b>61.7</b>	<b>99.5</b>	<b>83.0</b>	<b>65.1</b>	<b>97.5</b>	<b>82.1</b>	<b>93.3</b>	<b>135.5</b>	<b>115.2</b>	<b>—</b>

\*Target fixed by Government of India.

@ Includes Meghalaya.

Ref : Chapter II and Chapter III.

## Appendix XXII

*Multiple cropping programme*

('000 hectares)

State/Union Territories	Actual achievement				Anticipated coverage 1971-72
	1967-68	1968-69	1969-70	1970-71	
<b>South</b>	<b>780.2</b>	<b>1,215.5</b>	<b>1,686.7</b>	<b>2,012.5</b>	<b>2,447.3</b>
Andhra Pradesh	476.1	662.3	844.5	1,006.4	1,208.4
Kerala	21.1	47.0	55.9	76.1	86.2
Mysore	202.4	274.1	375.3	476.5	577.7
Tamil Nadu	80.6	223.9	402.8	443.3	564.8
Pondicherry	@	8.2	8.2	10.2	10.2
<b>West</b>	<b>529.2</b>	<b>698.6</b>	<b>866.2</b>	<b>1,016.1</b>	<b>1,257.0</b>
Gujarat	465.6	569.2	625.9	674.5	743.3
Madhya Pradesh	30.4	69.3	130.0	190.8	312.3
Maharashtra	33.2	55.5	105.7	146.2	196.8
Goa, Daman & Diu	@	4.6	4.6	4.6	4.6
<b>North</b>	<b>1,451.0</b>	<b>2,455.8</b>	<b>3,190.6</b>	<b>3,807.8</b>	<b>4,550.7</b>
Haryana	—	20.3	133.6	214.6	295.6
Himachal Pradesh	22.2@	10.2	10.2	15.2	15.2
Jammu & Kashmir	47.0	60.7	106.9	139.3	187.9
Punjab	202.4	311.7	481.7	609.6	737.1
Rajasthan	113.4	240.5	416.2	497.2	699.6
Uttar Pradesh	1,066.0	1,772.1	2,001.7	2,281.1	2,564.5
Delhi	@	40.3	40.3	50.8	50.8
<b>East</b>	<b>983.4</b>	<b>1,728.3</b>	<b>2,751.3</b>	<b>3,480.1</b>	<b>4,285.6</b>
Assam	68.0	89.1	149.8	190.3	251.0
Bihar	591.1	917.8	1,288.6	1,632.7	2,037.5
Orissa	153.0	318.2	551.8	786.7	989.1
West Bengal	171.3	403.2	757.0	866.3	1,003.9
NEFA	—	—	4.1	4.1	4.1
	—	—	27.1*	27.1*	49.4*
<b>All-India</b>	<b>3,743.8</b>	<b>6,098.2</b>	<b>8,521.9</b>	<b>10,343.6</b>	<b>12,590.0</b>

@ Combined figure for all Union Territories

\* Breakup is not available. This is a consolidated figure of the Union Territories.

Ref : Chapter II and Chapter III.