

## ANNUAL REVIEW OF FERTILIZER PRODUCTION AND CONSUMPTION 2022-23 HIGHLIGHTS

### Increase in production

- **Fertilizer nutrients:** Production in 2022-23: N: 15.74 million MT (+13.5%), P<sub>2</sub>O<sub>5</sub>: 5.01 million MT (+6.3%), N+P<sub>2</sub>O<sub>5</sub>: 20.75 million MT (+11.6%).
- **Fertilizer products:** Production during 2022-23: Urea: 28.50 million MT (+13.6%); DAP: 4.35 million MT (+3.0%); SSP: 5.65 million MT (+5.5%); NP/NPKs: 9.29 million MT (+11.9%), Total products: 48.69 million MT (+11.3%).

### Mixed growth in imports

- **Imports of fertilizer products in 2022-23:** Urea: 7.58 million MT (-17.0%); DAP: 6.58 million MT (+20.5%); NP/NPKs: 2.75 million MT (+135.2%); MOP: 1.87 million MT (-24.1%), Total products: 19.27 million MT (+4.7%).

### Retail prices of fertilizers

- Basic retail price (MRP) of urea remained unchanged at Rs.5360/- per tonne. Size of bag rationalized from 50 kg to 45 kg. Price per bag of urea of 45 kg fixed at Rs. 242/- w.e.f. 1<sup>st</sup> March 2018. 5% extra for coating of urea with *neem* oil and 5% GST is also additional.
- MRP of P & K fertilizers is market driven under NBS policy.

### Mixed growth in fertilizer consumption

- **Consumption of nutrients in 2022-23:** N: 20.21 million MT (+4.0%); P<sub>2</sub>O<sub>5</sub>: 7.92 million MT (+1.2%); K<sub>2</sub>O: 1.72 million MT (-32.2%); Total (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O): 29.84 million MT (+0.2%).
- **Consumption of fertilizer products in 2022-23:** Urea: 35.73 million MT (+4.5%); DAP: 10.53 million MT (+13.6%); MOP: 1.63 million MT (-33.6%); NP/NPK complex fertilizers: 10.07 million MT (-12.2%); SSP: 5.02 million MT (-11.7%); Total products: 63.92 million MT (-0.03%).

### NPK use ratio widened

- All-India NPK use ratio widened from 7.7:3.1:1 during 2021-22 to 11.8:4.6:1 during 2022-23.

### Per hectare use marginally up

- Per hectare use of total fertilizer nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) marginally up from 141 kg in 2021-22 to 141.2 kg in 2022-23.

### 92% consumption in 13 states

- Uttar Pradesh had the largest share (17.6%), followed by Maharashtra (9.5%), Madhya Pradesh (9.4%), Karnataka (6.9%), Punjab (6.3%), Rajasthan and Gujarat (6.1% each), Andhra Pradesh (5.9%), Telangana (5.7%), Bihar (5.5%), West Bengal (5.4%), Haryana (4.5%) and Tamil Nadu (3.5%).

### Normal monsoon at the country level

- Rainfall was 106% of the LPA during Southwest monsoon 2022.
- Out of 36 meteorological sub-divisions, 30 received excess/normal rainfall and remaining 6 sub-divisions received deficient rainfall.

### Production of major crops up

- **Production of major crops in 2022-23:** Food grains: 330.5 million MT (+4.7%); oilseeds 41.0 million MT (+8.0%), sugarcane 494.2 million MT (+12.5%); cotton 34.3 million bales (+10.4%) and jute & mesta 9.5 million bales -6.5%).

### Fertilizer Policies

#### ◆ Payment situation

- Budget allocation for 2022-23 was increased significantly to Rs. 2,25,222 crores from the level of original BE of Rs. 1,05,222 crores. This facilitated timely payment of DBT subsidy.

#### ◆ Urea

- Policy for minimum fixed cost and updation of fixed cost for urea units remained under consideration of the Government.
- Deliberations with DoF on updation of fixed cost for urea units are continuing.

#### ◆ P & K fertilizers

- GoI increased NBS rates on P&K fertilizers for the period April to September 2022 to insulate farmers from abnormal increase in international prices of fertilizers and raw materials. However, keeping in view the downward trends in the international prices of fertilizers and raw materials, GoI reduced NBS rates for October 2022 to March 2023. ■

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# ANNUAL REVIEW OF FERTILIZER PRODUCTION AND CONSUMPTION 2022-23

## EXECUTIVE SUMMARY

Year 2022-23 marked a beginning with comfortable inventory of fertilizers in different distribution channels. Weather was normal during monsoon period. However, there were issues of distribution and timing of rains in some areas. Sown area under *khari*f crops was down but in *rabi*, it was marginally up. Surge in the prices of raw materials and finished fertilizers in the international market since the beginning of the year, resulted in decline in imports of some fertilizers. There had been increase in domestic production of fertilizers but the total sale of fertilizers almost remained at the previous year's level. Availability of fertilizers from opening stock, domestic production and imports was adequate to take care of the demand for 2022-23. This has resulted higher agricultural production during the year.

### SOUTHWEST MONSOON

Southwest monsoon 2022 set in over Kerala on 29<sup>th</sup> May, 2022 against normal date of 1<sup>st</sup> June but covered the entire country by 2<sup>nd</sup> July, 2022. Overall rainfall from 1<sup>st</sup> June to 30<sup>th</sup> September, 2022 was 106% of long period average (LPA). Out of 36 meteorological sub-divisions, 30 sub-divisions received normal to excess rains and remaining 6 sub-divisions received deficient rains during the period.

Water storage position in major reservoirs was comfortable in 2022. Live storage available in 143 reservoirs as on 29<sup>th</sup> September, 2022 was 154.18 BCM as against 142.37 BCM during the corresponding period in the previous year. This was 108% of the last year and 113% of the normal storage.

### FERTILIZER CONSUMPTION

Total fertilizer nutrient consumption (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) was estimated at 29.84 million metric tonnes (million MT) as against 29.80 million MT in the previous year registering a

marginal growth of 0.2%. The consumption of N and P<sub>2</sub>O<sub>5</sub> at 20.21 million MT and 7.92 million MT during 2022-23 registered increase of 4% and 1.2%, respectively, over 2021-22. However, consumption of K<sub>2</sub>O at 1.72 million MT witnessed a sharp decline of 32.2% during the period.

In terms of product, All-India estimated consumption (based on DBT sale) of urea at 35.73 million MT, DAP at 10.53 million MT during 2022-23 recorded increase of 4.5% and 13.6%, respectively, over 2021-22. However, consumption of NP/NPK complex fertilizers at 10.07 million MT, MOP at 1.63 million MT and SSP at 5.02 million MT witnessed decline of 12.2%, 33.6% and 11.7%, respectively, during the period. Total consumption of all fertilizer products at 63.92 million MT during 2022-23 showed a decline of 0.03% over 2021-22.

All-India NPK use ratio widened from 7.7:3.1:1 during 2021-22 to 11.8:4.6:1 during 2022-23.

Per hectare use of total nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) improved marginally from 141.0 kg in 2021-22 to 141.2 kg in 2022-23.

### FERTILIZER INVENTORY

Taking into considerable stock at all levels from plant/port to last mile, there was comfortable availability of fertilizers from opening inventory during 2022-23. Inventory of urea at various points was about 6.2 million MT at the beginning of 2022-23. Inventory of DAP and NP/NPKs together was about 4.6 million MT, SSP 1.7 million MT and MOP 0.6 million MT.

### PRODUCTION OF FERTILIZERS

Fertilizer production at 20.75 million MT (N+P<sub>2</sub>O<sub>5</sub>) during 2022-23 recorded an increase of 11.6% over 2021-22. Production of nitrogen (N) increased by 13.5% to 15.74 million MT and phosphate (P<sub>2</sub>O<sub>5</sub>) increased by 6.3% to 5.01 million MT in 2022-23.

In terms of products, production of urea at 28.50 million MT, DAP at 4.35 million MT, NP/NPK complex fertilizers at 9.29 million MT and SSP at 5.65 million MT during 2022-23 recorded increase of 13.6%, 3%, 11.9% and 5.5%, respectively, over 2021-22.

### **GAS AVAILABILITY**

Supply of domestic gas to fertilizer plants has fallen gradually over the years. This has made fertilizer plants more and more dependent on imported LNG. Supply of domestic gas declined further from 8.0 MMSCMD in 2021-22 to 7.4 MMSCMD in 2022-23. Thus domestic gas constituted only 15.7% of total gas consumed during the year.

### **IMPORT OF FERTILIZERS**

There had been increase in import of DAP and NP/NPK complex fertilizers and decline in urea and MOP during 2022-23 over 2021-22. Import of DAP increased from 5.46 million MT during 2021-22 to 6.58 million MT during 2022-23, representing a growth of 20.5%. Import of NP/NPK complex fertilizers increased from 1.17 million MT to 2.75 million MT during the same period. However, import of urea and MOP reduced from 9.14 and 2.46 million MT during 2021-22 to 7.58 and 1.87 million MT during 2022-23, representing reduction of 17% and 24.1%, respectively, during the period.

### **RETAIL PRICES OF FERTILIZERS**

The basic retail price of urea remained unchanged at Rs.5360 per tonne since November 2012. With effect from 25<sup>th</sup> May, 2015, Government of India (GOI) made it mandatory for all indigenous urea manufacturers to produce 100% *neem* coated urea of their total urea production. The same policy is applied for imported urea at the port. GoI allowed the manufacturers/importers to charge 5% extra on the MRP of urea. Therefore, the retail price of *neem* coated urea (excluding tax) works out to Rs. 5628 per tonne.

Government has made it mandatory to resize urea bag from 50 kg to 45 kg. Department of Agriculture, Cooperation and Farmers Welfare

notified price per bag of urea of 45 kg at Rs. 242/- *w.e.f.* 1<sup>st</sup> March 2018 from Rs. 268/- per bag of 50 kg earlier.

The retail prices of P & K fertilizers covered under NBS scheme are market driven and announced by the fertilizer companies from time to time. In view of considerable increase in prices of P&K fertilizers and raw materials used for production of phosphatic fertilizers and Government initiatives to insulate the farmers from hike in such prices by providing additional subsidy, Department of Fertilizers fixed the MRPs of DAP and NP/NPK complex fertilizers to be made available to the farmers at affordable MRPs during 2022-23.

### **PRODUCTION OF MAJOR CROPS**

Total production of food grains is estimated to be 330.53 million MT, about 14.92 million MT (4.7%) higher than the previous year's level. Among food grain crops, production of rice, wheat, coarse cereals and pulses are estimated to increase by 4.7%, 4.6%, 7.1% and 0.7%, respectively, during 2022-23 over 2021-22. Increase in production of oilseeds, sugarcane and cotton is estimated to be 8.0%, 12.5% and 10.4%, respectively. However, production of jute & mesta is estimated to decline by 6.5% during the period.

### **POLICY AND PAYMENT ISSUES**

Policy for minimum fixed cost and updation of fixed cost for urea units remained under consideration of the Government. Deliberations of a Committee constituted by DoF to updation of fixed cost for urea units are continuing.

Budget allocation for 2022-23 was increased significantly to Rs. 2,25,222 crore from the level of original BE of Rs. 1,05,222 crore. This facilitated timely payment of DBT subsidy.

GoI increased NBS rates on P&K fertilizers for the period April to September 2022 to insulate farmers from abnormal increase in international prices of fertilizers and raw materials. However, keeping in view the downward trends in the international prices of fertilizers and raw materials, GoI reduced NBS rates for October 2022 to March 2023.

## OUTLOOK FOR 2023-24

### POLICY AND PAYMENT ISSUES

Subsidy rates for *kharif* 2023 under NBS Policy were reduced in view of downward trends in the prices of fertilizers and raw materials in the international market.

The budget allocation for fertilizer subsidy is Rs.1,75,103 crores for the year 2023-24. Budget for urea subsidy is Rs. 1,31,100 crores which is lower by Rs. 22,998 crores than the revised BE for 2022-23. Similarly, the subsidy for P&K fertilizers has also been reduced by Rs. 27,122 crores. Adequacy of allocation will depend on actual international prices of energy, fertilizers and raw materials during the year.

### SOUTH-WEST MONSOON

Onset of Southwest monsoon 2023 was longest delay in four years reached the coast of Kerala on 8<sup>th</sup> June 2023. Rainfall during the first month of the monsoon season *i.e.* June 2023 was 9% below LPA. However, the monsoon progressed gradually and covered the entire country by 2<sup>nd</sup> July, 2023. Rains received during July 2023 was 13% above LPA. However, during August 2023, rainfall was 36% below LPA. Overall, the cumulative rains received during 1<sup>st</sup> June to 31<sup>st</sup> August, 2023 was 10% below LPA. Out of the total 36 meteorological sub-divisions, 24 constituting 70 per cent of the total area of the country received excess/normal rains. Out of 714 reported districts, only 58 per cent districts received normal to excess rains during the period.

Live storage available in 150 reservoirs was 113.42 BCM as on 31<sup>st</sup> August, 2023 as against 146.83 BCM on the same date in the previous year. Current year's storage accounts 77% of the last year's storage and 91% of the normal storage.

### CROP SITUATION

As per the available information, total sown area under all *kharif* crops was 105.4 million hectares (million ha) as on 25<sup>th</sup> August, 2023 compared to 105.0 million ha during the corresponding period in the previous year. This was marginally up by 0.3% over the corresponding period in the previous year.

### FERTILIZER SALE

Among the major fertilizers, sale of urea, DAP and NP/NPKs recorded positive growth while MOP and SSP marked negative growth during April-July 2023. Sale of urea at 10.71 million MT, DAP at 3.43 million MT and NP/NPKs at 2.76 million MT during April-July 2023 recorded increase of 2.8%, 9.4% and 6.5%, respectively, over April-July 2022. However, sale of MOP at 0.36 million MT and SSP at 1.70 million MT witnessed decline of 10.4% and 6.9%, respectively, during the same period.

### PROSPECTS OF FERTILIZER CONSUMPTION

Overall Southwest monsoon 2023 is anticipated to be normal. This is likely to increase cropped area during the remaining period of *kharif* 2023. Normal Southwest monsoon is likely to leave good moisture contents in the soil for ensuing *rabi* crop season. Water availability in the reservoirs at the end of *kharif* season is also likely to be comfortable. Overall growth in consumption of fertilizers for the full year 2023-24 is expected to register an increase over the previous year. ■

## Annual Review of Fertilizer Production and Consumption 2022-23

### 1.0 POLICIES RELATED TO FERTILIZER SECTOR

#### 1.1 Issues of Urea Industry

FAI has been unwavering in its efforts to address the key issues within the existing urea policy framework, encompassing concerns such as the minimum fixed cost, expansion of fixed costs beyond the Modified NPS-III policy, and the linking of fixed cost with appropriate cost index to address future increases. It also covered the issue of successive mopping up of improvement in energy efficiency, need for recognition of investment in energy improvement projects and incentives for coal using units. These issues along with measures for increasing allocation of domestic gas were also submitted for deliberations of the Committee and Sub-committee constituted by the Department of Fertilizers (DoF) on urea policy.

In the 2<sup>nd</sup> meeting of the Committee held on June 23, 2022, the draft report from the Sub-committee was unveiled, advocating not only for necessary policy corrections but also suggesting medium-term measures such as the NBS policy for urea, pricing of existing units based on IPP, and direct gas payment arrangements by DoF. The report also acknowledged the potential utilization of green ammonia in the P & K sector while raising concerns about the impact of incorporating natural gas into the GST regime. Subsequently, a meeting was convened on December 14, 2022, between DoF and representatives of the urea industry, wherein NBS model for urea was proposed by DoF. Seeking industry feedback through FAI, industry suggestions were submitted to DoF on December 28, 2022. Subsequent meeting held on January 10, 2023, chaired by the Secretary (Fertilizers) and attended by FAI representatives, delved deeper into the proposed NBS for urea, focusing on compensation aligned with unit based import parity basis. Secretary (Fertilizers) mentioned that they will consider only one average energy norm instead of three norms for calculating any losses to be made under proposed NBS for urea. Secretary (Fertilizers) also mentioned that the proposal is at initial stage of discussion and it will take some time to firm up the proposal and get it approved. Following this meeting, FAI submitted a supplementary note on January 25, 2023, emphasizing the importance of production adaptability and the sale of surplus ammonia and value-added products under the proposed NBS

Policy. In response to DoF's observations regarding not allowing diversion of any part of urea production at least upto re-assessed capacity (RAC) for non-agricultural purposes, FAI suggested to allow sale of surplus ammonia or any other value added or by-products without any gain sharing with the Government after the unit has achieved production of 100% of RAC. The existing gain sharing formula for surplus ammonia for technical reasons and after achieving production upto 100% of RAC should also be done away with.

##### 1.1.1 Minimum Fixed Cost

Continuously committed to resolving key concerns, FAI has persistently engaged with the DoF regarding pivotal issues including minimum fixed cost, further augmentation of fixed cost beyond Modified NPS-III policy, and linking of fixed cost with an appropriate cost index for future contingencies. A separate Committee in DoF has been constituted to review the fixed cost issues and the same is carrying various exercises in this regard. FAI submitted information to DoF regarding profitability from urea business based on data received from urea units for the period from 2014-15 to 2020-21 including the provisions of Modified NPS-III policy amended on 30<sup>th</sup> March, 2020. Profitability data of urea units was submitted to DoF in response to a query raised during a meeting of the Committee on fixed cost. This information has been helpful in underlining poor profitability from urea operations under existing policies.

##### 1.1.2 Escalation Claims

Amidst the consistent and significant upward trajectory in gas pool prices observed throughout the fiscal years 2021-22 and 2022-23, alongside the delay in the processing of quarterly escalation claims by the DoF, FAI has been actively engaged in advocating for the prompt resolution of pending escalation claims. In pursuit of this, FAI sent a formal communication dated July 27, 2022, to the DoF, urging for the expeditious handling of escalation claims for the years 2020-21 and 2021-22. Moreover, FAI also appealed for an adhoc increase in subsidy rates to offset the substantial rise in gas pool prices during the fourth quarter of 2021-22 and the first quarter of 2022-23, in comparison to the third quarter of 2021-22. This plea stems from the significant surge in energy costs, which escalated by approximately Rs. 15,000 per tonne of urea in the first quarter of 2022-23 when

juxtaposed with the energy costs recorded in the third quarter of 2021-22.

### 1.1.3 Further Increase in Fixed Cost

The Modified NPS-III policy, amended and approved in March 2020, had a retrospective implementation from the fiscal year 2014-15 onward. This revision granted a modest increase of Rs. 350 per tonne of urea in fixed costs, with the intention of partially addressing the escalating costs in four specific elements: salaries & wages, contract labour, repair & maintenance, and selling expenses. This increase was allowed based on a cost analysis up to the fiscal year 2008-09. However, subsequent to that period, there has been a significant and notable increase in these four cost components, surpassing the levels observed in 2008-09. Apart from these chosen cost elements, there has also been a considerable escalation in other fixed cost elements over the benchmark year of 2002-03 for the NPS-III policy, which has persisted for about two decades without recognition. Furthermore, though the government has acknowledged improvements in energy efficiency under the NPS policy, the fixed costs associated with investments made in energy improvement projects have not been incorporated into the overall fixed cost structure. This situation highlights the urgent need for a comprehensive update of all aspects of fixed costs to ensure the continued viability of existing urea production units. Despite these challenges, these units have consistently provided urea at significantly lower costs compared to imported alternatives, and relative advantage of domestic production has increased significantly.

FAI has been actively advocating for an update in the fixed cost, surpassing the nominal relief initially provided through the Modified NPS-III policy. The government is well aware of the proposed increase in fixed costs for all urea units, which remain well within their purview. Deliberations on these matters have been extensively carried out across various platforms, including Working Groups convened under the *Chintan Shivir*, Committees, and Sub-committees constituted with reviewing and formulating new urea policies. Additionally, a Taskforce has been diligently undertaking various initiatives associated with this subject.

### 1.1.4 Production of Urea beyond Reassessed Capacity

On June 5, 2023, FAI convened a virtual meeting with the CEOs of various Urea industry entities to deliberate on matters concerning urea production beyond Re-Assessed Capacity (RAC) and other related issues. Following this discussion, FAI sent a

letter dated June 7, 2023, to Joint Secretary, DoF. The letter highlights the current circumstances wherein international urea prices have experienced a sharp decline, while domestic gas prices remain elevated due to their correlation with crude oil prices. This confluence of factors is projected to push the production costs of domestic urea units beyond the Import Parity Prices (IPP), thereby negatively impacting production beyond the established RAC. The reduction in production beyond RAC holds certain significant implications:

- (i) Many urea plants will have to shut down in last quarter of the year affecting the financials of urea companies which are already suffering under-recoveries even for production even up to RAC.
- (ii) Ammonia-urea plants work under highly corrosive conditions and their preservation during shutdown requires very special measures. There is always risk to the health of plant and machinery during any prolonged shut-down.
- (iii) Urea units will not be able to off-take gas and will be subjected to penalties under 'take or pay' and 'ship or pay' clauses of gas supply contracts. It will also create huge surplus of gas (mostly imported) and it will be difficult for gas suppliers to find market for this surplus gas. This will also affect operation of gas grid.
- (iv) In the event of reduction in domestic production by several million tonnes, international prices of urea are likely to go up significantly, all other conditions remaining same.

In view of the above, in order to ensure continuous production beyond RAC, FAI requested the DoF to consider the following:

- i. The import parity cap may be removed under prevailing conditions
- ii. The pooled price of natural gas should be continued to be considered as in past years for production beyond RAC.

It was also mentioned in FAI letter about the circular of the Department dated 7<sup>th</sup> April, 2017 wherein 'para 2' states that in case of adverse impact on the production beyond RAC due to fluctuation in import parity price, DoF is authorized to take an appropriate decision in consultation with Department of Expenditure.



In this context, a similar letter was also sent to Secretary (Fertilizers) on July 7, 2023. FAI requested the Secretary to spare time to meet a small delegation of urea industry to discuss the issues related to production beyond RAC.

With FAI request, Secretary (Fertilizers) hold a meeting with a small delegation of the urea industry and FAI on August 2, 2023 regarding the issues on production of urea beyond RAC and on procurement of natural gas from IGX portal. Representatives of urea industry have explained the issues and concern. Secretary (Fertilizers) stated that all possible options need to be explored for increasing the domestic production of urea. For a concrete proposal, the projected cost of imported urea and natural gas during the remaining period of financial year also needs to be analyzed.

With regard to procurement of natural gas from IGX portal, Secretary (Fertilizers) mentioned that the issue on the subject requires more analysis and asked FAI to examine the issue in details and submit the findings to DoF within months.

#### 1.1.5 Extension of Revised Energy Norms

DoF notified the extension of the revised energy norms of NUP-2015 for 14 urea manufacturing units on 18<sup>th</sup> November, 2022. Government extended 2015 norms till 31<sup>st</sup> March, 2023 with additional penalty of 2% imposed on all the units which are not Target Energy Norms (TEN) compliant *w.e.f.* 1<sup>st</sup> October, 2022. This additional penalty along with the penalty imposed earlier will be in effect till 31<sup>st</sup> March, 2023, by which date all units should mandatorily be TEN compliant and no further extension will be allowed. Further, in case of the six nominated urea manufacturing units are not able to meet the TEN even by the extended timeline of 31<sup>st</sup> March, 2023, DoF would move a proposal after in depth examination for consideration of Department of Expenditure and the said proposal would be examined on its own merit.

### 1.2 Policies Related to P&K Fertilizers

#### 1.2.1 NBS Policy for Kharif 2022

The international prices of finished fertilizers and raw materials increased significantly during the major part of 2022-23. In order to keep the P&K fertilizer prices affordable to the farmers, DoF issued a notification on 27<sup>th</sup> April, 2022 and enhanced the subsidy rates for P&K fertilizers under NBS policy for *kharif* 2022. The per kg NBS rates of N, P, K and S increased from Rs. 18.789, Rs. 45.323, Rs. 10.116 and Rs. 2.374 during *rabi* 2021-22 to Rs. 91.96, Rs. 72.74, Rs. 25.31 and Rs. 6.94, respectively, for *kharif* 2022. Accordingly, subsidy per MT of DAP and MOP increased from Rs. 33,000 and Rs. 6,070 during *rabi* 2021-22 to Rs. 50,013 and Rs. 15,186, respectively,

for *kharif* 2022. Subsidy on NP/NPK grades of fertilizers ranged between Rs. 27,947 and Rs. 46,116 per MT for *kharif* 2022. However, subsidy on SSP and Potash Derived from Molasses (PDM) remained unchanged at Rs. 7,513 per MT and Rs. 1,467 per MT, respectively, for *kharif* 2022. The per tonne additional subsidy for fortified fertilizers with boron and zinc continued and remained unchanged at Rs. 300 and Rs. 500, respectively.

#### 1.2.2 NBS Policy for Rabi 2022-23

Government took cognizance of situation in international market and accordingly, the rates of NBS subsidy were revised for *rabi* 2022-23 vide notification dated 2<sup>nd</sup> November, 2022. The per kg NBS rates for N increased while P, K and S reduced. The per kg NBS rates of N, P, K and S revised to Rs. 98.02, Rs. 66.93, Rs. 23.65 and Rs. 6.12, respectively, for *rabi* 2022-23. Accordingly, subsidy per MT of DAP and MOP reduced to Rs. 48,433 and Rs. 14,188, respectively, for *rabi* 2022-23. Subsidy on NP/NPK grades of fertilizers ranged between Rs. 26,864 and Rs. 46,188 per MT for *rabi* 2022-23. However, subsidy on SSP and PDM remained unchanged at Rs. 7,513 per MT and Rs. 1,467 per MT, respectively. The per tonne additional subsidy for fortified fertilizers with boron and zinc continued and remained unchanged at Rs. 300 and Rs. 500, respectively.

In response to apprehension that NBS subsidy rates for January to March, 2023 might be revised downwards in view of declining international price trends, FAI wrote a letter to Secretary (Fertilizers) on 9<sup>th</sup> January, 2023 requesting him therein for continuing with the same subsidy rates till March 2023 in view of huge losses suffered in the earlier periods which were yet to be fully compensated and also in view of the negative impact on stocks procured at higher prices. In response to FAI request, DoF provided an opportunity to make a presentation before Inter Ministerial Committee (IMC) held on 11<sup>th</sup> January, 2023 wherein Chairman-FAI made a virtual presentation substantiating with relevant data for a few companies and requesting for continuing with the existing rates.

However, keeping in view the downward trends in the prices of fertilizers and raw materials in the international market but above pre-crisis levels, DoF revised the NBS rates of P&K fertilizers for *rabi* 2022-23 from 1<sup>st</sup> January, 2023 to 31<sup>st</sup> March, 2023 on 18<sup>th</sup> May, 2023. The per kg NBS rates for N and K increased while P and S reduced. The per kg NBS rates of N, P, K and S revised to Rs. 99.27, Rs. 49.94, Rs. 25.70 and Rs. 2.84, respectively, for *rabi* 2022-23 applicable from 1<sup>st</sup> January, 2023 to 31<sup>st</sup> March, 2023. Accordingly, subsidy per MT of DAP reduced to Rs. 40,841 per MT for the said period. However, subsidy on MOP increased to Rs. 15,420 per MT during the period. The subsidy on NP/NPK grades of fertilizers

ranged between Rs. 23,826 per MT and Rs. 41,779 per MT during the period. However, subsidy on SSP and Potash Derived from Molasses remained unchanged at Rs. 7,513 per MT and Rs. 1,467 per MT, respectively. The per tonne additional subsidy for fortified fertilizers with boron and zinc continued and remained unchanged at Rs. 300 and Rs. 500, respectively.

### 1.2.3 NBS Policy for Kharif 2023

DoF vide O.M. dated 18<sup>th</sup> May, 2023 notified NBS rates for P&K fertilizers for *kharif* 2023 (from 1<sup>st</sup> April to 30<sup>th</sup> September, 2023). The per kg NBS rates of N, P, K and S has been reduced. The per kg NBS rates of N, P, K and S has been fixed at Rs. 76.49, Rs. 41.03, Rs. 15.91 and Rs. 2.80, respectively, for *kharif* 2023. Accordingly, subsidy per MT of DAP, MOP and SSP has been fixed at Rs. 32,641, Rs. 9,547 and Rs. 6,872, respectively, for the said period. Similarly, subsidy on NP/NPK grades of fertilizers ranged between Rs. 18,077 per MT and Rs. 32,906 per MT during the period. Subsidy on Potash Derived from Molasses increased to Rs. 2,307 per MT. The per tonne additional subsidy for fortified fertilizers with boron and zinc continued and remained unchanged at Rs. 300 and Rs. 500, respectively.

### 1.2.4 Constitution of New Committee on P&K Fertilizers

With the approval of Chairman, FAI, a committee has been constituted in the FAI Board Meeting held on 7<sup>th</sup> December, 2022 to deliberate on issues of the P&K fertilizer sector consisting of six Board members and DG, FAI under the Chairmanship of Chairman, FAI.

Further, on 9<sup>th</sup> February, 2023, FAI organized a meeting of all CEOs of P&K fertilizer companies wherein the issues of the P&K segment covering both imported and domestic production were discussed in detail. Based on the discussion, a letter dated 23<sup>rd</sup> February, 2023 was submitted to the DoF.

### 1.2.5 Committee on P&K Fertilizers

During the meeting of representatives of P&K fertilizer companies with the Hon'ble Union Minister of Chemicals & Fertilizers and Health & Family Welfare held on 7<sup>th</sup> February, 2023, FAI vide its letter dated 9<sup>th</sup> February, 2023 has recommended four representatives of the industry as members of the 'Committee on P&K fertilizers' of the DoF.

### 1.2.6 Reasonableness of Profit/MRP

DoF constituted a committee on 28<sup>th</sup> April, 2023 to review the reasonable profit and indigenous investment in the P&K sector. The members comprise of Additional Secretary, Joint Secretary from DoF and DG, FAI. The committee had preliminary review meeting on 1<sup>st</sup> May, 2023. It was

suggested during the meeting to have the views of the industry on the reasonableness of MRP/Profit.

The views of the industry were summarized and presented to the committee on 8<sup>th</sup> May, 2023. FAI suggested that the current formula for calculating the reasonableness of MRP which is inclusive of GST conflicts with margin workings. Reasonableness % should exclude GST % while determining reasonableness margin. Any reasonableness criteria should be prospective and not retrospective. Reasonableness criteria to be applied at business level (Indigenous and Imported separately) and not at product level. GST excluding 12% should be applied at overall portfolio level instead of product-wise. Reasonableness of margin to be evaluated once in a year based on the cost audit statements furnished by the companies. Differential rates for reasonableness margin can be considered for domestic player's v/s importers.

During the meeting, the FAI highlighted several crucial points, including the reasoning behind discounts and the constraints related to establishing a profit pool. FAI also proposed modifications to the cost data format for both domestically produced and imported products. The matter is still under consideration of the Government.

### 1.2.7 Measures to Promote Indigenous Investments in P&K Fertilizer Sector

With a request by DoF, FAI sent a mail to Joint Secretary, DoF, on 24<sup>th</sup> February, 2023 regarding the suggestions of fertilizer industry on measures to promote indigenous investments in P&K fertilizer sector. Among various suggestions, it has been suggested that to promote investment in fertilizer sector, there should be possibility of earning reasonable margin to attract fresh investment. There is need of fast track approval process for setting up phosphoric acid and NP/NPK fertilizer granulation plants, rationalizing customs duties on raw materials/intermediates, facilitating companies to explore rock phosphate reserve within India and abroad to leverage on sovereign relationship in securing investments, etc.

### 1.2.8 Potash Derived from Molasses

DoF issued an Office Memorandum on 12<sup>th</sup> July, 2022 regarding the guidelines relating to Potash Derived from Molasses (0-0-14.5-0) under NBS scheme. The main points in the guidelines are as stated below:

- a) Manufacturers of granulated Potash Derived from Molasses shall be provided subsidy under NBS Scheme.
- b) Granulated Potash derived from Molasses with a minimum 14.5% of K<sub>2</sub>O content as per FCO

1985 as amended from time to time will be allowed for claiming subsidy.

- c) The subsidy on Potash Derived from Molasses will be inclusive of the freight subsidy.
- d) With regard to marketing arrangement, the manufacturer of Potash Derived from Molasses shall be eligible for sale by entering into marketing arrangement with marketers under intimation to DoF and the fertilizer manufacturers including importers which are registered under the subsidy scheme of DoF shall be considered as marketer of Potash Derived from Molasses.
- e) Regarding quality, manufacturer/marketer/retailer/dealer will be jointly liable for ensuring/maintaining quality of the fertilizer as per the extant rules/guidelines issued by DoF. Quality testing will be done by the manufacturer in the NABL accredited labs/State Government registered labs.

### 1.2.9 SSP Industry

In order to increase the production and usage of SSP, FAI suggested various measures to the Joint Secretary, DoF, such as allow the use of 29% grade rock phosphate as primary rock for manufacturing SSP, notify the NBS rate of SSP in line with other P&K fertilizers, allow two referee samples of rock phosphate for testing as permitted in case of finished fertilizers under FCO and moderate the harsh graded penalties proposed in case of failure of SSP samples.

DoF asked FAI to submit a concept note each on 'SSP Park' and 'Strategic Reserves of Fertilizers'. FAI discussed the matter with the industry and the feedback on both the aspects were submitted to Joint Secretary, DoF on September 19, 2022. FAI welcomed the idea of establishment of SSP parks for creating large scale production facility to take advantage of scale of production and contribute significantly to phosphatic fertilizer requirement of the country. There was also an apprehension of the additional demand for selling the production coming out from such SSP Parks. It was suggested to DoF that National Promotion Programme may be launched to increase the usage of SSP. The location of SSP Park should be based on the raw material availability, inward freight of the imported materials, outward freight of the finished product and the market for the SSP.

With regard to 'Strategic Reserves of Fertilizers', the P&K fertilizers companies can import on government account and inventory carrying cost may be reimbursed to them. State Marketing Federations can also be directed to purchase the

material from the industry and keep the strategic reserves in different states. A long-term arrangement can also be made with the overseas fertilizer suppliers in order to ensure consistent and timely supply in the country. FAI further suggested that there should be a discussion with the all stakeholders before finalizing the policy on 'SSP Park' and 'Strategic Reserves of Fertilizers'.

### 1.3 Other Policy Related Issues

#### 1.3.1 Implementation of One Nation One Fertilizer

DoF issued an OM on 24<sup>th</sup> August, 2022 to implement 'One Nation One Fertilizer' by introducing single brand for fertilizers and logo under fertilizer subsidy scheme namely "Pradhanmantri Bhartiya Janurvarak Pariyojna (PMBJP). The single brand name for Urea, DAP, MOP and NPKs, etc. would be Bharat Urea, Bharat DAP, Bharat MOP and Bharat NPK, etc. respectively, for all fertilizer companies, State trading entities and fertilizer marketing entities.

Further, on 1<sup>st</sup> November, 2022, DoF informed all fertilizer companies that the design of urea bag and logo forwarded earlier must be adopted by fertilizer manufacturers/importers within the following timelines:

S.No.	Type of Fertilizer	Timeline
1.	Imported Urea	30 <sup>th</sup> November, 2022
2.	Indigenous Urea	30 <sup>th</sup> November, 2022
3.	Imported P&K	30 <sup>th</sup> November, 2022
4.	Indigenous P&K	31 <sup>st</sup> December, 2022

The release of fertilizer subsidy to companies will be considered only for fertilizers dispatched in the new bags after the aforesaid cut-off dates.

#### 1.3.2 Pradhan Mantri Krishi Samridhhi Kendras

The fertilizer industry welcomed the initiative taken by the GoI to establish the PMKSKs throughout the country so that farmers get the technical knowledge along with quality products under one roof. As per the communication sent to fertilizer manufacturers in different states, the basis of allotment for PMKSK to SSP industry was based on per cent market share on volume basis making it too difficult to implement for SSP industry as number being too large.

As the SSP industry, being mostly MSME and small companies, dealing in a low nutrient fertilizer with minimum margins neither have the desired infrastructure nor in a position to absorb such additional high cost required for establishment of PMKSKs. It was requested to DoF, if at all the SSP industry has to participate in this noble initiative,

allotment of the PMKSK to the SSP industry should be made either on the basis of percent nutrient share or on the basis of subsidy share. A detailed working on PMKSK for the SSP industry was shared with DoF.

### **1.3.3 Phosphogypsum**

Secretary (Fertilizers) took a meeting and informed that there was huge legacy stock of phosphogypsum (PG) produced by the fertilizer plants and there were issues in transportation due to non-availability of rakes. The fertilizer industry is facing challenges for its disposal as the legacy stocks were piling up and affecting the availability of the space at the plant site. Secretary was of the view to prepare a roadmap for its usage in circular economy. During the meeting, DoF desired that FAI should submit a proposal for promotion of use of PG by the various industries including the freight element and priority category associated with it. FAI suggested that Railway needs to reduce the freight for PG considering it as fertilizer. The PG used in cement and building materials to be revised to class LR3. This would help to maximise the despatches of PG to end users at competitive price. Although, CPCB has approved the utilization of PG for agriculture, manufacture of cement and building material, however, it should be declared as clean cargo by MoEFCC or hassle free movement instead of low risk category.

### **1.3.4 Strategic Reserve Under NBS Policy for Decontrol P&K Fertilizers**

In response to a proposal by DoF for creating and maintaining strategic reserves under NBS Policy for decontrolled P & K fertilizers, FAI submitted a Note containing industry suggestions on the subject to the Joint Secretary, DoF, on 20<sup>th</sup> January, 2023 based on inputs received from the industry members.

### **1.3.5 PLI Scheme for Fertilizer Sector**

The Department of Fertilizers is actively formulating a Production Linked Incentive (PLI) scheme for the fertilizer sector, to which the Fertiliser Association of India contributed by presenting recommendations. Subsequently, a hybrid meeting convened on February 28, 2023, involving key stakeholders from both the industry and DoF, in which the Joint Secretary, DoF and Directors of various departments along with representatives from FAI discussed the PLI scheme's potential sub-areas for promotion, which encompass existing plants, new products, technology advancements, capital investment support, organic/bio-fertilizers, and eco-friendly green technology. This collaborative effort

underscores the commitment to advancing the fertilizer sector's growth and innovation through the proposed PLI initiative.

Industry members mentioned that in case of P&K sector, lot of capacity is under-utilized. Factors affecting the production of the existing plants were brought to the notice of DoF. It was emphasized that adequate compensation under the present policy framework will also help industry to improve its productivity. Members present in the meeting suggested that existing production facilities specially in DAP/NPK and SSP fertilizer industry may be considered for PLI above a baseline production. Import of rock phosphate from sources such as Syria to be facilitated. Government may also participate in the mining projects for rock phosphate and potash abroad. Capital investment for new NP/NPK projects, intermediates like sulphuric acid and phosphoric acid and beneficiation of rock phosphate and energy saving projects in urea plants should be considered for PLI. Bio-organic based fertilizers should also be encouraged.

For green ammonia and green technology, MNRE has already having a PLI scheme to support the upstream stakeholders for making renewable energy competitive. However, viability gap funding will be needed for meeting the obligation of use of green ammonia in fertilizer industry. DoF requested each member present in the meeting to also provide their comments in writing. FAI prepared a note on investment in joint ventures in mining projects of rock phosphate and potash and sent to DoF.

### **1.3.6 SSP Quality Control Mechanism**

As per the directives of the Hon'ble Union Minister for Chemicals and Fertilizers & Health and Family Welfare, a Workshop on SSP Industry – The Way Forward was held on January 12, 2023. The Hon'ble Minister in his inaugural address advised FAI to form a Task Force (TF) on SSP to ensure that the quality SSP should be supplied by the industry to the farmers. Accordingly, a TF on SSP was constituted under the Chairmanship of CMD, Narmada Bio-chem Limited, on January 20, 2023 with the following three major objectives:

- a) To improve the SSP quality as per FCO specifications
- b) To increase SSP production in the country
- c) To promote SSP usage in the country

As a result, SOP was prepared with respect to sampling and analysis of SSP by the TF members to self-regulate the quality of SSP. It was made clear that the quality control mechanism does not have any conflict with existing system under FCO and

being operated in self-regulatory environment.

The TF members in its meeting held on February 7, 2023 decided that there was a need to organize a nationwide campaign to promote SSP usage among the farmers adopting physical approach. The members also decided to support the various SSP initiatives like sampling, testing, promotion of SSP among farmers, etc. All the activities of the TF were brought to the notice of DoF from time to time. Members of the TF and FAI officials have been regularly drawing the samples from the retail points across the country and getting it analysed in a reputed NABL accredited lab. It has been observed that there was an improvement in the overall quality of SSP.

In a meeting of SSP Task Force held on March 24, 2023, it was decided that a SPV to be formed under the leadership of Chairman of TF with the responsibility to take the initiative of importing rock phosphate on behalf of the SSP industry. The move was to ensure the uninterrupted supply of rock phosphate at competitive price to the manufacturers.

#### 1.4 Budget Allocation and Payment Related Issues

##### 1.4.1 FAI Pre-Budget Memorandum

FAI submitted fertilizer industry pre-budget memorandum for Union Budget 2023-24 containing industry suggestions regarding taxation issued facing the industry covering indirect & direct taxes and also budget allocation for fertilizer subsidy.

Representation to Hon'ble Finance Minister regarding various issues faced by the fertilizer sector under the GST law was submitted for the consideration in GST Council, as GST is not a part of the Union Budget exercise. It was requested to allow refund of unutilized ITC in respect of both inputs and input services, reduce GST rate on micro-nutrients from 12% to 5%, exempting importers from payment of IGST under reverse charge basis on ocean freight service for CIF contracts and exempting transportation service of fertilizers by road and rail from GST. Similar letter was sent to DoF.

Fertilizer industry suggestions for Union Budget 2023-24 pertaining to Direct Taxes were submitted to the Ministry of Finance. Similar letter was sent to the Joint Secretary, DoF requesting for taking up the issues of fertilizer industry with the Finance Ministry. Suggestions like, taxing of foreign dividend received from joint ventures/subsidiaries by fertilizer cooperatives in India, abolition of surcharge on income tax for cooperatives, exemption from capital gains tax against transfer of capital assets to wholly own subsidiaries of cooperatives were submitted.

FAI's suggestions on customs duty were submitted

to the Department of Revenue. The representation *inter-alia* sought exemption from customs duty on fertilizer raw materials/intermediates like rock phosphate, sulphur, phosphoric acid, ammonia, sulphuric acid, etc. Similar letter was sent to the Joint Secretary, DoF, requesting for taking up these issues with the Ministry of Finance.

##### 1.4.2 Budget Allocation for 2021-22, 2022-23 and 2023-24

The **Table** on budget allocation depicts subsidy outgo for 2021-22, Budget Estimate (BE) and Revised Estimate (RE) for 2022-23 and BE for 2023-24.

##### 1.4.3 Budget Allocation for 2022-23

Government has been providing sufficient funds for fertilizer subsidy for last three years. During the year 2022-23, the government had budgeted Rs.1,05,222 crores for fertilizer subsidy. But, the unusual spike in international prices caused disruption in the availability and prices of raw materials and finished fertilizers. This led to a huge increase in subsidy requirement to insulate the farmers and agriculture from skyrocketing fertilizer prices. The total subsidy on fertilizers was increased to Rs. 2,25,222 crores in revised budget estimates for 2022-23, a rise of Rs. 1,20,000 crores as against the original budget allocation.

##### 1.4.4 Budget Allocation for 2023-24

The budget allocation for fertilizer subsidy is Rs.1,75,103 crores for the year 2023-24. Budget for urea subsidy is Rs. 1,31,100 crores which is lower by Rs. 22,998 crores than the revised BE for 2022-23. Similarly, the subsidy for P&K fertilizers has also been reduced by Rs. 27,122 crores. Adequacy of allocation will depend on actual international prices of energy, fertilizers and raw materials during the year.

##### 1.4.5 Payment Related Issues

Continuing its proactive approach, FAI consistently pursued matters related to the P&K segment, as evidenced by a December 27, 2022 letter to the Secretary (Fertilizers). In this communication, FAI presented considerations for determining NBS subsidy rates for *kharif* 2023 season and simultaneously requested compensation for losses due to DAP import between October 25, 2021 and March 31, 2022 and during the financial year 2022-23 supported by individual company cost data. Subsequently, FAI supplied a presentation to DoF, highlighting DAP losses during the said period and pipeline stock issues, along with factors contributing to losses.

#### 1.5 Other Taxation Issues

##### 1.5.1 GST Issues

FAI initiated a comprehensive effort regarding GST matters by addressing a letter to the Secretary,

<b>Fertilizer Subsidy – Budget provision and actual</b>				
				(Rs. Crore)
Item	2021-22 (Actual)	2022-23 (Budget)	2022-23 (Revised)	2023-24 (Budget)
<b>Urea Subsidy</b>				
- Payment for Indigenous Urea	56537.56	46596.78	118457.24	104063.18
- Payment for Import of Urea	48432.56	20590.00	38894.15	31000.00
- Direct Benefit Transfer(DBT) in Fertilizer Subsidy	11.78	15.54	15.54	16.94
- Recovery	-3993.77	-3980.00	-3269.00	-3980.00
<i>Net</i>	<b>100988.13</b>	<b>63222.32</b>	<b>154097.93</b>	<b>131100.12</b>
<b>Nutrient Based Subsidy</b>				
- Payment for Indigenous P and K Fertilizers	31931.46	25200.00	42089.67	25500.00
- Payment for Imported P and K Fertilizers	20794.80	16800.00	29032.56	18500.00
- Payment for City Compost	43.71	-	-	-
<b>Total- Nutrient Based Subsidy</b>	<b>52769.97</b>	<b>42000.00</b>	<b>71122.23</b>	<b>44000.00</b>
<b>Scheme for promotion of flagging of merchant ships in India</b>	-	-	2.16	3.25
<b>Total Subsidy</b>	<b>153758.10</b>	<b>105222.32</b>	<b>225222.32</b>	<b>175103.37</b>
Source: Union Budget – 2023-24				

Department of Revenue on September 23, 2022, encompassing concerns like non-refund of unutilized Input Tax Credit due to fertilizer subsidies, and shared the same with DoF. Subsequently, on November 21, 2022, FAI pursued the issue further by seeking clarification from the CBIC Commissioner while sharing relevant documents with both departments. In-person discussions with Joint Secretary, DoF followed on November 23, 2022, leading to an official communication to the Department of Revenue on December 2, 2022. Despite these efforts, awaited clarifications from the Finance Ministry were not received. It prompted FAI to send a reminder to the Department of Fertilizers on January 20, 2023, pressing for a swift resolution.

Further, FAI addressed a letter dated 10<sup>th</sup> March, 2023 to the Chairman, Central Board of Indirect Taxes & Customs and referring FAI's earlier representations dated 23<sup>rd</sup> September, 2022 and 21<sup>st</sup> November, 2022 on the subject submitted to the Finance Ministry. It was requested that when eligibility for refund of inverted duty structure is fulfilled as per Section 54 of the CGST Act, there cannot be artificial bifurcations made beyond the formula prescribed under Rule 89(5) of the CGST on account of subsidy, nature of inputs, etc.

### **1.5.2 Supreme Court Decision on IGST on Ocean Freight on Reverse Charge Basis w.r.t. CIF Import Contracts**

The levy of IGST on reverse charge basis on Ocean freight related to imports made on CIF contracts was resulting in double taxation. First, as part of CIF value of imports and again separately on Ocean freight portion (service of transportation) on reverse

charge basis. This matter was dealt with earlier by the Hon'ble Gujarat High Court in the Petition of M/s Mohit Minerals Pvt. Ltd. However, the Centre filed an Appeal in the Hon'ble Supreme Court against the judgment of the Gujarat High Court. The Hon'ble Supreme Court agreed with the Judgment of the Gujarat High Court that a tax on supply of service, which has already been included by the legislation as a tax on the composite supply of goods, cannot be allowed. The Apex Court also observed that levy imposed on the 'service' aspect of the transaction is in violation of the principle of 'composite supply'. Since the Indian importer is liable to pay IGST on 'composite supply' comprising supply of goods and supply of services of transportation, insurance, etc. in a CIF contract; a separate levy on the Indian importer for the 'supply of service' by the shipping company, would be in violation of the GST Law. This decision should provide much needed relief to the industry.

Supreme Court Judgement in May 2022 has declared levy of IGST on Ocean Freight on reverse charge basis in CIF import contracts, ultra vires. Further, the Gujarat High Court in July, 2022 in a petition related to M/s. Louis Dreyfus Company India Private Ltd. has directed the Central Government that if any IGST amount is collected, the same shall be refunded within six weeks along with statutory rate of interest.

### **1.5.3 Refund against unutilized input tax credit (ITC) against GST paid on input services on account of inverted duty structure under Rule 89(5)**

Hitherto, a large portion of GST on input services used to remain unutilized due to inverted duty structure in fertilizer sector. Refund against

unutilized ITC on input services was not allowed as per formula prescribed under Rule 89(5). FAI had represented on the issue with the Finance Ministry and the GST Council. Supreme Court in a judgement related to VKC Footsteps India Private Limited suggested GST Council to consider redressing the issue by suitable amendments in Rule 89(5). Subsequently, the GST Council in its 47<sup>th</sup> meeting held during 28<sup>th</sup> and 29<sup>th</sup> June, 2022, proposed to amend the formula to provide some relief.

The formula for refund has since been amended vide CBIC's notification no. 14/2022-Central Tax dated 5<sup>th</sup> July, 2022. The old formula and the amended formula for refund under rule 89(5) are given below:

Old Formula under Rule 89(5) of CGST Rules:

Maximum Refund Amount = {(Turnover of inverted rates supply of goods and services) x Net ITC/Adjusted Total Turnover} - {tax payable on such inverted rated supply of goods and services}

Newly amended Formula under Rule 89(5) of CGST Rules vide amendment dated 05.07.2022:

Maximum Refund Amount = {(Turnover of inverted rates supply of goods and services) x Net ITC/Adjusted Total Turnover} - {tax payable on such inverted rated supply of goods and services \* (Net ITC / ITC availed on Inputs & Input services)}

Thus, this has reduced the amount to be deducted from the entire amount of tax payable on such inverted rated supply of goods and services, to proportionate in the same ratio in which ITC has been claimed on inputs and input services. This will increase the amount of refund allowed.

#### 1.5.4 Constitution of FAI Committee on GST

As decided in the 407<sup>th</sup> Board Meeting of FAI held on 20<sup>th</sup> March, 2023, a Committee on GST has been constituted in consultation with the Chairman, FAI. The Committee comprised of the nine functional executives of fertilizer companies.

The Committee would deliberate on all GST related issues of fertilizer industry and take up the issues with the concerned Government departments through FAI. The issues *inter-alia* include non-refund of accumulated ITC due to subsidy under inverted duty structure, non-refund of ITC due to services, imported urea like GST dispensation for imported P&K fertilizers and other related issues.

In the subsequent meetings, members decided that for the time being FAI would continue to pursue on priority the issue for a clarification for refund of unutilized ITC arising due to subsidy on fertilizers under inverted duty structure.

#### 1.5.5 Meeting with Member GST, CBIC

As a result of FAI representations and follow up, Mr. Shashank Priya, Member GST, CBIC has given appointment on 23<sup>rd</sup> June, 2023 for a meeting with senior officials of fertilizer industry to discuss the GST issues of the sector. The representatives apprised him the problems of the GST which is impacting adversely the fertilizer sector under the GST law regarding computation of refund in inverted duty structure in case of P&K fertilizers and others. Member had a patient hearing and said that his department is in process to resolve the issue.

It was expected that the issue would be placed for discussion in the 50<sup>th</sup> GST Council meeting held on 11<sup>th</sup> July, 2023. Unfortunately, the issue was not discussed in the meeting.

## 2.0 FERTILIZER PRODUCTION

### 2.1 General

The revival of several public sector plants by the Government of India has led to increase in the production of fertilizer products by 11.3% in the year 2022-23. Production in terms of nutrients went up significantly from 18.582 million tonnes (million MT) in 2021-22 to 20.746 million MT in 2022-23, a growth of 11.6%. Production of nitrogen (N) increased by 13.5% to 15.738 million MT. Production of phosphate (P<sub>2</sub>O<sub>5</sub>) showed healthy increase by 6.3% to 5.008 million MT during 2022-23 over 2021-22. In terms of products, production of urea increased from 25.076 million MT in 2021-22 to 28.495 million MT in 2022-23. The production of DAP grew by 3.0% from 4.222 million MT to 4.347 million MT during the period. Similarly, production of SSP also increased by 5.5% from 5.351 million MT to 5.646 million MT during the same period. Production of complex fertilizers showed healthy recovery from 8.307 million MT in 2021-22 to 9.293 million MT in 2022-23.

Three new urea plants of HURL contributed about 1.2 million MT to the urea production. The contribution was only partial as two plants commence production only in the last quarter of 2022-23. The production of the plants excluding these plants was also higher. However, production of some plants suffered due to equipment and maintenance related problems. Production of complex fertilizers was higher than previous year. It could have been much more but suffered due to lack of availability of sufficient quantity of imported raw materials and high cost.

### 2.2 Installed Capacity

Data on number of plants, installed capacity and production in terms of nutrients are given in **Table 1**. Similar data for SSP as products are given in **Table 2**.

All India production capacity of nitrogen increased by 1939 thousand MT from a total of 15.346 million MT during 2021-22 to 17.285 million MT at the end of the year 2022-23. The increase in capacity was mainly due to revival of one ammonia-urea plant of HURL at Barauni, Bihar and commissioning of one urea plant of HURL at Sindri, Jharkhand during October/November 2022. Therefore, effective capacity was 16.54 million MT.

The installed production capacity of  $P_2O_5$  also increased nominally by 184 thousand MT from a total of 7.099 million MT during 2021-22 to 7.283 million MT during 2022-23. The increase in capacity was mainly due to commissioning of one NP/NPK complex fertilizer plant at Meghnagar, Madhya Pradesh and two new SSP plants during the year. There was also closure of one plant at Dahej. After excluding capacity of the idle/closed plants, total operating (effective) capacity of  $P_2O_5$  was arrived at 7.089 million MT as on 31<sup>st</sup> March 2023 compared to 6.931 million MT a year before.

### 2.3 Capacity Utilization

Capacity utilization of nitrogen has increased from 91.9% in 2021-22 to 95.2% in 2022-23. Capacity

utilization of  $P_2O_5$  increase from 68.0% to 70.6% during the same period.

Capacity utilization of SSP plants improved from 48.0% in 2021-22 to 49.6% in 2022-23 which is reflected in higher production of SSP during 2022-23.

Capacity utilization of nitrogen remained the highest in north zone. It improved from 103.1% to 104.8% during the period under review. Capacity utilization of nitrogen in west zone and south zone rose from 96.4% to 99.9% and from 70.8% to 83.6%, respectively, during the same period. East zone plants for nitrogen production witnessed a decrease in capacity utilization from 83% to 74.7% during the period. Capacity utilization of phosphatic plants in east zone improved for the fourth consecutive year. It increased from 89.7% in 2021-22 to 93.3% in 2022-23. South zone and west zone also registered a positive growth in capacity utilization, increasing from 58.7% to 64.2% and from 63.1% to 64.1%, respectively, during the period under review. While, north zone registered a decline from 58.1% in 2021-22 to 53.7% in 2022-23. Hence,

Zone	Nitrogen (N)								Phosphate ( $P_2O_5$ )							
	2021-22				2022-23(P)				2021-22				2022-23(P)			
	No. of plants	Capacity	Production	Capacity utilization (%)	No. of plants	Capacity	Production	Capacity utilization (%)	No. of plants	Capacity	Production	Capacity utilization (%)	No. of plants	Capacity	Production	Capacity utilization (%)
East	10	1482.8	1028.1	83.0	12	2652.3	1472.6	74.7	11	1623.9	1456.6	89.7	11	1623.9	1514.9	93.3
North	11	4159.5	4288.9	103.1	12	4743.9	4970.8	104.8	7	129.0	62.7	58.1	7	129.0	58.0	53.7
South	14	3094.0	2190.2	70.8	14	3179.6	2648.1	83.6	25	1967.9	1150.6	58.7	25	1967.9	1254.8	64.2
West	21	6609.4	6363.0	96.4	22	6709.0	6646.3	99.9	76	3378.1	2041.8	63.1	79	3562.5	2180.0	64.1
<b>All India</b>	<b>56</b>	<b>15345.7</b>	<b>13870.2</b>	<b>91.9</b>	<b>60</b>	<b>17284.8</b>	<b>15737.8</b>	<b>95.2</b>	<b>119</b>	<b>7099.0</b>	<b>4711.7</b>	<b>68.0</b>	<b>122</b>	<b>7283.4</b>	<b>5007.7</b>	<b>70.6</b>
		<b>(15093.2)</b>				<b>(16537.4)</b>				<b>(6930.5)</b>				<b>(7088.9)</b>		

Note : Figures in parentheses are operating capacities. Capacity utilization is based on operating capacity. (P) = Provisional.

Zone	2021-22			2022-23 (P)		
	Capacity	Production	Capacity utilization (%)	Capacity	Production	Capacity utilization (%)
East	967.8	530.7	54.8	967.8	581.6	60.1
North	806.5	391.7	58.1	806.5	362.4	53.7
South	1,346.9	349.6	26.9	1,346.9	439.6	34.6
West	8,928.5	4,079.2	49.8	9,128.5	4,262.6	50.3
<b>All India</b>	<b>12,049.7</b>	<b>5,351.2</b>	<b>48.0</b>	<b>12,249.7</b>	<b>5,646.2</b>	<b>49.6</b>
	<b>(11,140.7)</b>			<b>(11,377.9)</b>		

(P) = Provisional.  
 Note : 1. Figures in parentheses are operating capacities. Capacity utilization is based on operating capacity.  
 2. Totals may not exactly tally due to rounding of figures.



<b>Table 3. Number of plants in various ranges of capacity utilization - N &amp; P<sub>2</sub>O<sub>5</sub> in 2021-22 and 2022-23 (April-March)</b>				
Capacity utilization range (%)	N		P <sub>2</sub> O <sub>5</sub>	
	2021-22	2022-23	2021-22 <sup>@</sup>	2022-23 <sup>@</sup>
Above 100	18	24	5 (1)	7 (1)
> 90 to 100	14	7	4 (1)	3 (2)
> 80 to 90	6	11	9 (7)	8 (6)
> 70 to 80	4	2	9 (7)	11 (10)
> 60 to 70	3	5	12 (10)	9 (9)
> 50 to 60	1	1	15 (14)	22 (19)
> 40 to 50	3	2	18 (16)	16 (14)
Upto 40	5	5	38 (35)	37 (32)
Nil/ Not Available	2	3	9 (9)	9 (9)
<b>Total number of plants</b>	<b>56</b>	<b>60</b>	<b>119 (100)</b>	<b>122 (102)</b>

( ) = Figures in parentheses are for SSP plants.  
 @ = Include DAP/NP/NPK plants.  
 Note: Figures for 2022-23 are provisional.

except north zone, phosphatic plants in other three zones continued to operate at improved capacity utilization.

**Table 3** shows the number of nitrogen and phosphate plants achieving various levels of capacity utilization. Number of nitrogen plants increased from 56 in 2021-22 to 60 in 2022-23. During 2022-23, there were 24 plants operating at more than 100% capacity utilization while 7 plants achieved capacity utilization between 90% to 100%. In the category of phosphatic fertilizers, there was increase from 119 to 122 plants. Seven plants achieved capacity utilization higher than 100% in 2022-23 which include only one SSP plant. Most of the plants operated in the range between 40 to 60% capacity utilization.

#### 2.4 Share of Products

Urea continues to contribute higher to Nitrogen production with a share of 83.3% in total N production during 2022-23 which is almost same as in previous year (**Table 4**). Share of complex fertilizers including DAP in N production declined marginally from 15.7% in 2021-22 to 15.5% in 2022-23. While share of NP/NPK fertilizers in nitrogen production increased, share of DAP decreased. This is due to more increase in production of NP/NPKs compared to DAP. During 2022-23, DAP remained dominant product accounting for 39.9% of total of P<sub>2</sub>O<sub>5</sub> production while other NP/NPK products contributed 42.1% and SSP 18.0%. The relative contribution of DAP and NP/NPK fertilizers to P<sub>2</sub>O<sub>5</sub> production witnessed trend similar to nitrogen where share of NP/NPK increased from 40.6% in 2021-22 to 42.1% in 2022-23. The share of DAP

declined from 41.2% to 39.9% during the same period. Share of SSP decreased marginally in phosphate production from 18.2% to 18.0% during the period.

#### 2.5 Share of Feedstock/Raw Materials

**Table 5** shows production of nitrogen based on different sources of inputs. Excluding external ammonia (which is mainly imported), natural gas accounted for nearly 100% production of N in the country in 2022-23. One plant, however, continued to operate partially on naphtha due to delay in connectivity of pipeline. External ammonia accounted for 13.5% of N production, all of which was used for production of complex fertilizers.

Production of phosphatic fertilizers utilized rock phosphate or intermediate phosphoric acid. Nearly, 90% rock phosphate was imported and accounted for nearly 50% phosphate production in the country. Imported phosphoric acid and domestic rock phosphate contributed to the balance production of the nutrient phosphate.

#### 2.6 Sector-wise Performance

Fertilizer production plants are in all major sectors of economy viz., public, private and cooperative sectors. **Table 6** gives sector wise performance and their share of contribution to fertilizer production in the country. About 45% of N production capacity is in private sector, followed by public (34.1%) and cooperatives (21.0%) in 2022-23. Due to commissioning of 3 urea plants during 2022-23 in public sector, share of public sector in N production capacity increased from 26.9% in 2021-22 to 34.1% in 2022-23. In production capacity of P<sub>2</sub>O<sub>5</sub>, dominance of private sector is more pronounced with share of

<b>Table 4. Percentage share of fertilizer products to total nutrient production in 2021-22 and 2022-23 (April-March)</b>				
Fertilizer	% share of total nutrient			
	2021-22		2022-23 (P)	
	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>
<b>I. Straight nitrogenous</b>	84.3	-	84.5	-
1. Urea	83.2	-	83.3	-
2. Others	1.1	-	1.2	-
<b>II. Straight phosphatic</b>	-	18.2	-	18.0
1. Single superphosphate	-	18.2	-	18.0
2. Others	-	-	-	-
<b>III. Complex fertilizers</b>	15.7	81.8	15.5	82.0
1. DAP	5.5	41.2	5.0	39.9
2. NP/NPKs	10.2	40.6	10.5	42.1
<b>Grand total (I+II+III)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(P) = Provisional.

Feedstock/ Intermediate	Capacity		Production		Capacity utilization	
	2021-22	2022-23 (P)	2021-22	2022-23 (P)	2021-22	2022-23 (P)
Gas	85.0	86.3	86.2	86.3	93.5	95.6
Naphtha	-	-	-	-	-	-
External ammonia	14.8	13.5	13.6	13.5	83.6	93.5
Others*	0.3	0.3	0.2	0.1	53.9	53.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>91.9</b>	<b>95.2</b>

\* = Others include COG and other sources. (P) = Provisional

Sector	Share of capacity				Share of production				Capacity utilization			
	2021-22		2022-23 (P)		2021-22		2022-23 (P)		2021-22		2022-23 (P)	
	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>
Public	26.9	4.1	34.1	4.0	24.7	5.4	28.2	5.3	82.8	87.6	85.4	90.7
Cooperative	23.7	24.1	21.0	23.5	26.9	35.5	25.7	36.1	102.7	97.8	111.3	105.6
Private	49.4	71.8	44.9	72.5	48.4	59.0	46.0	58.6	91.7	56.5	94.1	57.7
<b>Total</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>	<b>100.0</b>	<b>100.0</b>	<b>91.9</b>	<b>68.0</b>	<b>95.2</b>	<b>70.6</b>

(P) = Provisional.

72.5%. Cooperative sector and public sector accounted for 23.5% and 4.0% share in production capacity, respectively.

Capacity utilization of N was the highest at 111.3% in cooperative sector during 2022-23. This is a marked improvement from 102.7% in the previous year. The capacity utilization of both public and private sector plants improved at 85.4% and 94.1%, respectively. In P<sub>2</sub>O<sub>5</sub>, marked improvement in cooperative sector was noted where capacity utilization increased from 97.8% in 2021-22 to 105.6% in 2022-23. The public and private sectors also showed improvement in capacity utilization in 2022-23 compared to 2021-22.

Share of private sector in production of N was 46.0% and 58.6% in production of P<sub>2</sub>O<sub>5</sub>. Cooperative sector accounted for 25.7% of N production and 36.1% of P<sub>2</sub>O<sub>5</sub> production. Public sector contributed 28.2% and 5.3% to the production of N and P<sub>2</sub>O<sub>5</sub>, respectively, which is proportionate to its share in capacity of these two nutrients.

## 2.7 Reasons for Loss of Production

Production of major fertilizer products fell short of targets for the year 2022-23. Production of urea was lower by almost 2 million MT at 28.50 million MT compared to target of 30.52 million MT. Among the

existing urea operating plants, one plant in Assam continued to remain under shutdown condition during the entire year due to failure in ammonia synthesis section. Another plant in Rajasthan lost production due to extended planned turnaround, power failure due to problem in gas turbine generator, leakages in urea reactor, etc. A plant lost production due to prolonged outage due breakdown of gas turbine driven process air compressor. A few other urea plants suffered equipment problems. The contribution of two new urea plant was partial as they commenced production only in the last quarter of the financial year.

Some of the DAP/NP/NPK fertilizer plants suffered loss in production due to raw material limitations. There had also been considerable increase in prices of raw materials/intermediates during the year. In spite of several challenges, production of both DAP and NP/NPK complex fertilizers was higher compared to previous year.

## 2.8 Supply of Natural Gas

Natural gas is essential input both as feed and fuel for production of nitrogen containing fertilizers including straight fertilizers like urea and ammonium sulphate and various grades of complex fertilizers. Earlier priority of fertilizer sector in allocation of domestic natural gas has been dispensed with. The natural gas from new findings is auctioned and given to the highest bidder. The

share of domestic gas in total gas utilization in fertilizer sector has dwindled gradually over the years. Domestic gas share declined from 17.7% in 2021-22 to 15.7% in 2022-23 (the data excludes the supply to three plants i.e. HURL, RFCL and SPIC). In absolute terms, average supply of domestic gas declined from 8.0 MMSCMD in 2021-22 to 7.4 MMSCMD in 2022-23. **Figure 1** shows the trend in consumption of domestic gas in fertilizer sector.

Government has established a pool account for supply of natural gas to urea sector. The weighted average cost of gas in the pool every month is taken as input for calculation of cost of production of urea units and hence subsidy for each unit. The cost of pooled gas has been going up due to increase in share of imported LNG which is usually more expensive than domestic gas. GAIL as pool operator should be mandated to maximize the supply of domestic gas to fertilizer sector. This will help to reduce the cost of domestic urea and hence the out go from public exchequer on account of subsidy.

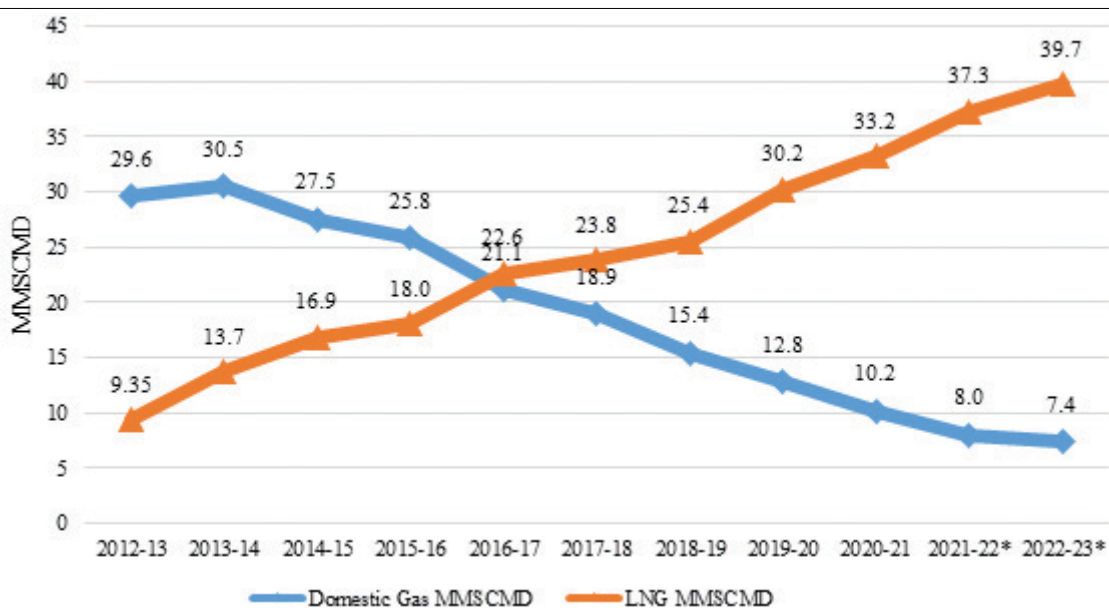
## 2.9 Efforts for Improving Efficiency of Fertilizer Plants

Fertilizer production is a continuous operation. Any forced shutdown has huge penalty in terms of loss of energy and loss of production. Plant management's endeavour always remains to improve reliability so that plant operates without any interruption. Therefore, plants carry out maintenance activities which include routine maintenance on daily/monthly/yearly basis and replacement of old and inefficient equipment with

more efficient one and modification of other equipment periodically. During the year 2022-23, many plants implemented measures to improve their energy efficiency and reliability. Some of the illustrative important measures implemented by a few plants are given here.

MCFL, Mangalore post conversion to natural gas revamped its ammonia and urea plants which brought down energy consumption significantly. KFL, Shahjahanpur implemented the energy saving schemes including replacement of synthesis gas turbine and installation of S-50 reactor in ammonia plant. In urea plant, 17 reactor trays were replaced with supercup trays. The better trays removed from this reactor were installed in the second reactor to increase the trays from 11 to 15. IFFCO's ammonia and urea plants at Aonla and Phulpur completed all the energy saving projects which resulted in improved production and energy efficiency. The commissioning of gas turbine generators for power and steam generation in three plants of NFL, contributed to the improved energy efficiency. To improve the reliability of urea plant, SPIC replaced old titanium lined reactor with tray type reactor with Safurex as material of construction.

There was improved production from DAP and NP/NPK fertilizer plants. Greenstar has improved the capacity of phosphoric acid plant by installing additional filters and installed a new 20000 tonnes capacity ammonia storage tank. RCF installed a fixed sphereodizer which has helped to maintain the sustained load.



**Figure 1. Supply of natural gas to fertilizer (urea) sector**

\*(Excluding RFCL, & SPIC and HURL, Gorakhpur)

Note: The share of domestic gas was 7.0 MMSCMD in 2022-23 excluding data for the supply to three urea plants of HURL, SPIC and RFCL for which data were not available.

**Table 7 (a). Nutrient-wise consumption, production and gap from 2010-11 to 2022-23 (April-March)**

('000 tonnes)

Year	Consumption					Production			Gap		
	N	P <sub>2</sub> O <sub>5</sub>	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	N	P <sub>2</sub> O <sub>5</sub>	N+P <sub>2</sub> O <sub>5</sub>	N	P <sub>2</sub> O <sub>5</sub>	N+P <sub>2</sub> O <sub>5</sub>
2010-11	16,558.2	8,049.7	24,607.9	3,514.3	28,122.2	12,178.6	4,371.2	16,549.8	4,379.6	3,678.5	8,058.1
2011-12	17,300.3	7,914.3	25,214.5	2,575.5	27,790.0	12,288.3	4,363.7	16,652.0	5,012.0	3,550.6	8,562.5
2012-13	16,820.9	6,653.4	23,474.4	2,061.8	25,536.2	12,237.3	3,826.0	16,063.3	4,583.6	2,827.4	7,411.1
2013-14	16,750.1	5,633.5	22,383.6	2,098.9	24,482.4	12,408.6	3,972.0	16,380.6	4,341.5	1,661.5	6,003.0
2014-15	16,949.6	6,098.9	23,048.5	2,532.9	25,581.4	12,433.7	4,118.9	16,552.6	4,515.9	1,980.0	6,495.9
2015-16	17,372.3	6,978.8	24,351.1	2,401.5	26,752.6	13,475.9	4,425.8	17,901.7	3,896.4	2,553.0	6,449.4
2016-17	16,735.9	6,705.5	23,441.4	2,508.5	25,949.9	13,376.8	4,552.7	17,929.5	3,359.1	2,152.8	5,511.9
2017-18	16,959.3	6,854.4	23,813.7	2,779.7	26,593.4	13,422.6	4,724.4	18,147.0	3,536.7	2,130.0	5,666.7
2018-19	17,637.8	6,910.2	24,547.9	2,680.3	27,228.2	13,336.8	4,590.5	17,927.3	4,301.0	2,319.7	6,620.6
2019-20	19,101.3	7,662.0	26,763.4	2,607.0	29,370.4	13,722.2	4,790.7	18,512.9	5,379.1	2,871.3	8,250.5
2020-21	20,404.0	8,977.9	29,381.9	3,153.7	32,535.6	13,744.5	4,737.2	18,481.7	6,659.5	4,240.7	10,900.2
2021-22	19,438.3	7,828.5	27,266.8	2,529.5	29,796.3	13,870.2	4,711.7	18,581.9	5,568.1	3,116.8	8,684.9
2022-23 (P)	20,207.0	7,921.5	28,128.5	1,715.8	29,844.3	15,737.8	5,007.7	20,745.5	4,469.2	2,913.8	7,383.0

(P) = Provisional. Note:1. Gap does not take into account stocks available at the beginning of the year.  
2. Entire requirement of K<sub>2</sub>O is met through imports.

**Table 7 (b). Import of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O from 2010-11 to 2022-23 (April-March)**

('000 tonnes)

Year	N	P <sub>2</sub> O <sub>5</sub>	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
2010-11	4,569.6	3,738.7	8,308.3	3,899.5	12,207.8
2011-12	5,577.6	4,263.6	9,841.2	2,557.8	12,399.0
2012-13	4,801.0	2,797.2	7,598.2	1,573.7	9,171.9
2013-14	3,920.3	1,588.2	5,508.5	1,954.4	7,462.9
2014-15	4,813.0	1,902.9	6,715.9	2,588.0	9,303.9
2015-16	5,081.3	2,899.5	7,980.8	2,075.9	10,056.7
2016-17	3,411.7	2,129.0	5,540.7	2,341.1	7,881.8
2017-18	3,618.4	2,044.6	5,663.0	2,925.2	8,588.2
2018-19	4,716.7	3,167.2	7,883.9	2,648.4	10,532.3
2019-20	5,209.0	2,413.2	7,622.2	2,309.4	9,931.6
2020-21	5,662.3	2,543.5	8,205.8	2,690.7	10,896.5
2021-22	5,384.2	2,781.1	8,165.3	1,658.7	9,824.0
2022-23 (P)	5,171.4	3,661.1	8,829.6	1,427.2	10,259.7

(P) = Provisional.

Overall the efficiency of the fertilizer plants was better than previous year. This was a result of replacement of old equipment and operating plants at optimum conditions for high efficiency and reliability and ensuring higher level of safety.

### 3.0 FERTILIZER IMPORT

#### 3.1 Imports

Production of fertilizers from domestic sources has been increasing over the years. However, it is insufficient to fulfil the entire demand for fertilizers in the country. About 30% of the total requirement of fertilizer materials is fulfilled through imports. During 2022-23, gap of nitrogen (N) was 4.47 million MT and phosphate (P<sub>2</sub>O<sub>5</sub>) 2.91 million MT (**Table 7a**). Entire requirement of potash (K<sub>2</sub>O) is fulfilled through imports. During 2022-23, import of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O was 5.17, 3.66 and 1.43 million MT, respectively (**Table 7b**).

In terms of fertilizer products, there had been increase in import of DAP and NP/NPK complex fertilizers and decline in urea and MOP during 2022-23 over 2021-22. Import of DAP increased from 5.46 million MT during 2021-22 to 6.58 million MT during 2022-23, representing a growth of 20.5%. Import of NP/NPK complex fertilizers increased from 1.17 million MT to 2.75 million MT during the same period. However, import of urea and MOP reduced from 9.14 and 2.46 million MT during 2021-22 to 7.58 and 1.87 million MT during 2022-23, representing reduction of 17% and 24.1%, respectively, during the period. **Table 8** shows production, consumption and import of urea, DAP and MOP from 2010-11 to 2022-23.

### 4.0 INVENTORY OF FERTILIZERS

Taking into considerable stock at all levels from plant/port to last mile, there was comfortable availability of fertilizers from opening inventory during 2022-23. Inventory of urea at various points was about 6.2 million MT at the beginning of 2022-23. Inventory of DAP and NP/NPKs together was about 4.6 million MT, SSP 1.7 million MT and MOP 0.6 million MT during the period. Additional production from 5 new urea plants (viz. Matix, Ramagundam and 3 units of HURL) ensured availability of urea more secured during 2022-23.

### 5.0 WEATHER

The monsoon is very essential for agriculture and for the Indian economy. In many ways, it is considered the lifeline of India's agri-based economy. Among the four monsoon seasons, viz., pre-monsoon, southwest monsoon, post-monsoon and winter or north-east monsoon; south west monsoon is the main rainy season in India. About

Year	Urea			DAP			MOP	
	Consumption	Production	Import	Consumption	Production	Import	Consumption*	Import
2010-11	28,112.5	21,872.5	6,610.0	10,869.9	3,545.6	7,411.0	3,931.6	6,357.0
2011-12	29,565.3	21,992.3	7,834.0	10,191.2	3,951.3	6,905.2	3,028.9	3,984.6
2012-13	30,002.2	22,586.6	8,044.0	9,154.1	3,646.8	5,702.3	2,211.0	2,496.1
2013-14	30,600.5	22,718.7	7,088.0	7,357.4	3,628.2	3,261.1	2,280.4	3,180.0
2014-15	30,610.0	22,592.9	8,749.0	7,625.6	3,445.4	3,853.0	2,853.4	4,197.0
2015-16	30,634.8	24,461.3	8,474.0	9,107.2	3,821.8	6,008.0	2,466.9	3,243.0
2016-17	29,613.6	24,200.8	5,481.0	8,963.5	4,333.4	4,385.0	2,863.2	3,736.0
2017-18	29,894.4	24,026.0	5,975.0	9,294.1	4,654.0	4,217.0	3,158.2	4,736.0
2018-19	31,418.1	23,899.2	7,481.0	9,211.1	3,898.6	6,602.0	2,956.6	4,214.0
2019-20	33,695.4	24,455.2	9,123.0	10,099.8	4,549.5	4,870.0	2,787.5	3,670.0
2020-21	35,042.5	24,603.1	9,826.0	11,911.5	3,773.8	4,882.0	3,424.9	4,227.0
2021-22	34,180.1	25,075.7	9,136.0	9,272.0	4,221.9	5,462.0	2,456.5	2,460.0
2022-23 (P)	35,725.1	28,495.3	7,580.0	10,530.7	4,346.7	6,583.0	1,631.5	1,866.0

(P) = Provisional \* = for direct application.  
 Note: In the absence of productwise consumption data, DBT sale figures assumed as consumption for 2022-23.

Item	2014	2015	2016	2017	2018	2019	2020	2021	2022
Excess/Normal	25	20	27	30	24	31	31	30	30
Deficient/Scanty	11	16	9	6	12	5	5	6	6
<b>Total</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>
% of districts with normal to excess rains	55	51	68	66	62	77	75	77	72
% of LPA rainfall	88	86	97	95	91	110	109	99	106
Excess = +20% or more	Normal = +19% to -19%		Scanty = -60% or less		Deficient = -20% to -59%				

75% of the total rains are received during southwest monsoon and 13% during post-monsoon seasons. Remaining quantities of rainfall are received during pre-monsoon and winter monsoon periods. Rainfall and its distribution over time and space is the basic factor which influences fertilizer demand.

### 5.1 Southwest monsoon

Southwest monsoon 2022 set in over Kerala on 29<sup>th</sup> May, 2022 against normal date of 1<sup>st</sup> June and covered the entire country by 2<sup>nd</sup> July, 2022. There had been very uneven inter-month variations in the distribution of rainfall. The rainfall during June 2022 was 8% lower than long period average (LPA). Rainfall received during July, August and September 2022 was 17%, 4% and 8%, respectively, above LPA. This was the fourth successive southwest monsoon year when the country witnessed a normal rainfall. Quantitatively, all India rainfall was 92.5 cm as against the LPA of 86.9 cm during the season. The cumulative rainfall during the season was 6% above the LPA.

Out of 36 meteorological sub-divisions, 30 received normal to excess rains (Table 9). Out of 694 reported districts, 72% districts received normal to excess rains during the period. Uneven distribution of rains during the entire period of southwest monsoon had created concerns over adverse impact on *kharif* crops. The sub-divisions which received deficient rains include East Uttar Pradesh (30% below LPA); West Uttar Pradesh (25% below LPA); Bihar (31% below LPA); Jharkhand (20% below LPA);

Gangetic West Bengal (25% below LPA); and Nagaland, Manipur, Mizoram & Tripura (28% below LPA). Most of these areas are very crucial for Indian agriculture. Paddy planting had been impacted in these areas. Southwest monsoon withdrew from the entire country on 23<sup>rd</sup> October, 2022.

Water storage position in major reservoirs was comfortable in 2022. Total live storage capacity in 143 reservoirs in the country was 177.46 billion cubic meter (BCM). Live storage available in these reservoirs was 154.18 BCM as on 29<sup>th</sup> September, 2022 as against 142.37 BCM on the same date in the previous year. Live storage during the period was 108% of the last year and 113% of the normal storage.

### 5.2 Post-monsoon

Post-monsoon season is the major period of rainfall activity over south peninsula, particularly in the eastern half comprising of the meteorological sub-divisions of Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu and Puducherry. For Tamil Nadu, post-monsoon is the main rainy season accounting for about 48% of the annual rainfall. Coastal districts of Tamil Nadu get nearly 60% and the interior districts get about 40-50% of the annual rainfall during the season.

Rainfall during the post-monsoon season 2022 was 19% higher than the LPA. Out of 36 meteorological sub-divisions, 30 sub-divisions received normal to excess rains and remaining 6 sub-divisions received deficient rainfall during the season. Performance of

Monsoon - period	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
March-May	27	34	24	18	19	13	28	32	18
June-September	25	20	27	30	24	31	31	30	30
October-December	12	10	10	19	5	32	20	31	30
January-February	18	6	10	3	16	18	14	28	4

the four monsoon seasons is shown in Table 10.

## 6.0 FERTILIZER CONSUMPTION

### 6.1 All-India Consumption

#### Growth in 2022-23

The consumption figures for 2022-23 are yet to be finalized by the Government. Therefore, DBT sale figures of fertilizers are assumed as consumption for 2022-23. Based on the sale figures, consumption of fertilizer nutrients for 2022-23 was almost at the level of 2021-22. Consumption of fertilizer nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) estimated at 29.84 million MT during 2022-23, registered a marginal growth of 0.2% over 2021-22.

The consumption of N and P<sub>2</sub>O<sub>5</sub> at 20.21 million MT and 7.92 million MT during 2022-23 registered increase of 4% and 1.2%, respectively, over 2021-22. However, consumption of K<sub>2</sub>O at 1.72 million MT witnessed a sharp decline of 32.2% during the period.

In terms of product, All-India estimated consumption (based on DBT sale) of urea at 35.73 million MT, DAP at 10.53 million MT during 2022-23 recorded increase of 4.5% and 13.6%, respectively, over 2021-22. However, consumption of NP/NPK complex fertilizers at 10.07 million MT, MOP at 1.63 million MT and SSP at 5.02 million MT witnessed sharp decline of 12.2%, 33.6% and 11.7%, respectively, during the period. Total consumption of all fertilizer products at 63.92 million MT during 2022-23 showed a decline of 0.03% over 2021-22 (Table 11).

#### Season-wise Performance

##### Kharif 2022

Southwest monsoon became active over most parts of India during July 2022. However, uneven distribution of rains during the entire period of Southwest monsoon had created concerns over adverse impact on *kharif* crops. Consumption of total fertilizer nutrients during *kharif* 2022 witnessed a decline of 0.8% over *kharif* 2021. Consumption of N and P<sub>2</sub>O<sub>5</sub> increased while K<sub>2</sub>O declined during the season. Consumption of N and P<sub>2</sub>O<sub>5</sub> increased by 3.7% and 4.2%, respectively, during *kharif* 2022 over *kharif* 2021. However, consumption of K<sub>2</sub>O showed a sharp decline of 45.1% during the season. Consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O was in order of 9.79, 3.87 and 0.77 million MT, respectively, during *kharif* 2022.

##### Rabi 2022-23

Consumption of total fertilizer nutrients during *rabi*

Table 11. Sale\* of fertilizer products in 2021-22 and 2022-23 (April-March) (Provisional)

Fertilizers	Grade	('000 tonnes)	
		2021-22	2022-23
<b>I. Straight nitrogenous</b>			
1. Ammonium sulphate	20.6% N	803.2	842.9
2. Urea	46 % N	34,180.1	35,725.1
3. Ammonium chloride	25 % N	30.5	62.1
<b>II. Straight phosphatic</b>			
1. Single superphosphate	16 % P <sub>2</sub> O <sub>5</sub>	5,681.4	5,017.5
2. Triple superphosphate	46 % P <sub>2</sub> O <sub>5</sub>	-	-
3. Rock phosphate	20 % P <sub>2</sub> O <sub>5</sub>	36.1	38.0
<b>III. Straight potassic</b>			
1. Muriate of potash	60 % K <sub>2</sub> O	2,456.5	1,631.5
2. Sulphate of potash	50 % K <sub>2</sub> O	-	-
<b>IV. Complex</b>			
Diammonium phosphate	18-46-0	9,272.0	10,530.7
Mono Ammonium Phosphate	11-52-0	-	-
Total NP/NPK Complex ferts. (other than DAP/MAP)		11,478.9	10,073.3
<b>Total Product</b>		<b>63,938.7</b>	<b>63,921.1</b>

\*DBT sale = Sale by retailers through PoS machines to farmers.

2022-23 registered a marginal growth of 1.1% over *rabi* 2021-22. Consumption of N increased by 4.1% while P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O declined by 1.5% and 16.2%, respectively, during *rabi* 2022-23 over *rabi* 2021-22. Consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O was in order of 10.42, 4.05 and 0.95 million MT, respectively, during *rabi* 2022-23.

#### NPK Use Ratio and Per Hectare Consumption

NPK use ratio widened during 2022-23 due to sharp decline in consumption of K<sub>2</sub>O. All-India NPK use ratio widened from 7.7:3.1:1 during 2021-22 to 11.8:4.6:1 during 2022-23. Per hectare use of total nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) improved marginally from 141.0 kg in 2021-22 to 141.2 kg in 2022-23.

#### 6.2 Zone-wise Comments

Consumption of total fertilizer nutrients increased marginally in east and west zones by 1% and 1.2%, respectively, during 2022-23 over 2021-22. However, it declined in north and south zones by 0.3% and 1.2%, respectively, during the period (Table 12). Per hectare consumption of fertilizer nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) in 2022-23 was the highest in north zone (197.8 kg), followed by south (181.6 kg), east (142.1 kg), and west (100.4 kg). There is a wide variation in NPK use ratio among the zones. During 2022-23,

Table 12. Season-wise consumption of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O from 2020-21 to 2022-23 and

S. No.	Zone/State	Nutrient	Consumption ('000 tonnes)								
			2020-21			2021-22			2022-23(P)		
			Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
I.	EAST	N	1,384.35	1,387.94	2,772.29	1,229.72	1,420.47	2,650.19	1,241.73	1,493.07	2,734.80
		P <sub>2</sub> O <sub>5</sub>	533.74	743.56	1,277.30	459.23	619.30	1,078.53	438.95	664.28	1,103.23
		K <sub>2</sub> O	273.01	457.32	730.33	229.82	281.88	511.70	161.58	282.03	443.61
		Total	2,191.10	2,588.82	4,779.92	1,918.77	2,321.65	4,240.42	1,842.27	2,439.38	4,281.64
1	Arunachal Pradesh	N	-	-	-	-	-	-	0.13	0.23	0.36
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	-	-	-	-	-	-	0.13	0.23	0.36
2	Assam	N	90.54	85.09	175.63	88.50	89.96	178.46	85.93	92.05	177.98
		P <sub>2</sub> O <sub>5</sub>	24.37	30.39	54.76	22.74	25.51	48.25	19.63	29.68	49.32
		K <sub>2</sub> O	21.58	27.65	49.23	21.08	13.83	34.91	14.32	14.36	28.68
		Total	136.49	143.13	279.62	132.32	129.30	261.62	119.88	136.09	255.97
3	Bihar	N	563.10	722.18	1,285.28	489.38	669.90	1,159.28	480.16	707.30	1,187.47
		P <sub>2</sub> O <sub>5</sub>	151.74	306.23	457.97	122.09	231.85	353.94	121.12	245.22	366.33
		K <sub>2</sub> O	44.10	123.61	167.71	33.18	67.07	100.25	18.20	64.00	82.20
		Total	758.94	1,152.02	1,910.96	644.65	968.82	1,613.47	619.48	1,016.52	1,636.00
4	Jharkhand	N	102.10	42.09	144.19	86.64	55.31	141.95	74.46	63.81	138.27
		P <sub>2</sub> O <sub>5</sub>	39.00	19.24	58.24	36.17	17.04	53.21	25.83	21.46	47.29
		K <sub>2</sub> O	3.34	2.39	5.73	3.25	3.41	6.66	2.15	2.40	4.55
		Total	144.44	63.72	208.16	126.06	75.76	201.82	102.44	87.67	190.11
5	Manipur	N	7.49	3.23	10.72	6.38	3.21	9.59	9.06	6.17	15.23
		P <sub>2</sub> O <sub>5</sub>	1.07	1.47	2.54	1.95	0.70	2.65	2.55	1.56	4.11
		K <sub>2</sub> O	0.50	1.11	1.61	0.04	0.10	0.14	0.75	1.55	2.30
		Total	9.06	5.81	14.87	8.37	4.01	12.38	12.36	9.29	21.65
6	Meghalaya	N	-	-	-	-	-	-	-	-	-
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	-	-	-	-	-	-	-	-	-
7	Mizoram	N	0.54	0.45	0.99	0.09	1.15	1.24	2.99	1.87	4.86
		P <sub>2</sub> O <sub>5</sub>	0.09	0.04	0.13	0.02	-	0.02	0.59	-	0.59
		K <sub>2</sub> O	-	-	-	-	-	-	-	0.04	0.04
		Total	0.63	0.49	1.12	0.11	1.15	1.26	3.58	1.91	5.49
8	Nagaland	N	0.23	0.07	0.30	0.07	0.17	0.24	0.14	0.10	0.24
		P <sub>2</sub> O <sub>5</sub>	0.04	-	0.04	-	-	-	-	0.001	0.001
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	0.27	0.07	0.34	0.07	0.17	0.24	0.14	0.10	0.24
9	Odisha	N	254.50	92.74	347.24	241.96	109.73	351.69	245.91	103.70	349.60
		P <sub>2</sub> O <sub>5</sub>	129.61	49.28	178.89	122.20	46.51	168.71	104.85	47.19	152.04
		K <sub>2</sub> O	58.76	26.31	85.07	53.41	13.57	66.98	27.83	12.06	39.88
		Total	442.87	168.33	611.20	417.57	169.81	587.38	378.58	162.94	541.52
10	Sikkim	N	-	-	-	-	-	-	-	-	-
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	-	-	-	-	-	-	-	-	-

total by states and percentage variation (April-March) (continued)											
± % variation over previous season/year											
2020-21			2021-22			2022-23(P)			Nutrient	Zone / State	S. No.
Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total			
16.8	-9.2	2.2	-11.2	2.3	-4.4	1.0	5.1	3.2	N	EAST	I.
42.7	-2.9	12.0	-14.0	-16.7	-15.6	-4.4	7.3	2.3	P <sub>2</sub> O <sub>5</sub>		
33.6	4.3	13.6	-15.8	-38.4	-29.9	-29.7	0.1	-13.3	K <sub>2</sub> O		
24.3	-5.3	6.3	-12.4	-10.3	-11.3	-4.0	5.1	1.0	Total		
-	-	-	-	-	-	-	-	-	N	Arunachal Pradesh	1
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		
-2.5	-4.2	-3.4	-2.3	5.7	1.6	-2.9	2.3	-0.3	N	Assam	2
22.9	0.3	9.2	-6.7	-16.1	-11.9	-13.7	16.4	2.2	P <sub>2</sub> O <sub>5</sub>		
-0.1	11.2	5.9	-2.3	-50.0	-29.1	-32.1	3.8	-17.8	K <sub>2</sub> O		
1.6	-0.6	0.5	-3.1	-9.7	-6.4	-9.4	5.3	-2.2	Total		
24.0	-7.6	4.0	-13.1	-7.2	-9.8	-1.9	5.6	2.4	N	Bihar	3
50.7	-5.1	8.2	-19.5	-24.3	-22.7	-0.8	5.8	3.5	P <sub>2</sub> O <sub>5</sub>		
37.2	-4.7	3.6	-24.8	-45.7	-40.2	-45.1	-4.6	-18.0	K <sub>2</sub> O		
29.3	-6.6	5.0	-15.1	-15.9	-15.6	-3.9	4.9	1.4	Total		
51.9	-34.9	9.3	-15.1	31.4	-1.6	-14.1	15.4	-2.6	N	Jharkhand	4
68.9	-12.9	28.9	-7.3	-11.4	-8.6	-28.6	25.9	-11.1	P <sub>2</sub> O <sub>5</sub>		
116.9	-21.6	24.8	-2.7	42.7	16.2	-33.9	-29.6	-31.7	K <sub>2</sub> O		
57.3	-29.1	14.6	-12.7	18.9	-3.0	-18.7	15.7	-5.8	Total		
-32.2	81.5	-16.4	-14.8	-0.6	-10.5	42.0	92.3	58.8	N	Manipur	5
-30.1	-32.3	-31.4	82.2	-52.4	4.3	30.8	123.3	55.2	P <sub>2</sub> O <sub>5</sub>		
51.5	70.8	64.3	-92.0	-91.0	-91.3	1772.5	1450.0	1542.1	K <sub>2</sub> O		
-29.8	26.3	-15.0	-7.6	-31.0	-16.7	47.7	131.5	74.8	Total		
-	-	-	-	-	-	-	-	-	N	Meghalaya	6
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		
-81.3	-48.9	-73.7	-83.3	155.6	25.3	3216.7	63.0	291.9	N	Mizoram	7
28.6	-71.4	-38.1	-77.8	-100.0	-84.6	2865.0	#DIV/0!	2865.0	P <sub>2</sub> O <sub>5</sub>		
-100.0	-	-100.0	-	-	-	-	-	-	K <sub>2</sub> O		
-79.3	-52.0	-72.5	-82.5	134.7	12.5	3152.7	66.1	335.6	Total		
-28.1	-56.3	-37.5	-69.6	142.9	-20.0	102.9	-41.8	0.4	N	Nagaland	8
-20.0	-100.0	-50.0	-100.0	-	-100.0	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-27.0	-63.2	-39.3	-74.1	142.9	-29.4	102.9	-41.2	0.8	Total		
7.0	-16.0	-0.3	-4.9	18.3	1.3	1.6	-5.5	-0.6	N	Odisha	9
28.9	-2.7	18.3	-5.7	-5.6	-5.7	-14.2	1.5	-9.9	P <sub>2</sub> O <sub>5</sub>		
22.8	-2.9	13.5	-9.1	-48.4	-21.3	-47.9	-11.1	-40.5	K <sub>2</sub> O		
14.7	-10.5	6.4	-5.7	0.9	-3.9	-9.3	-4.0	-7.8	Total		
-	-	-	-	-	-	-	-	-	N	Sikkim	10
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		



Table 12. Season-wise consumption of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O from 2020-21 to 2022-23 and

S. No.	Zone/State	Nutrient	Consumption ('000 tonnes)								
			2020-21			2021-22			2022-23(P)		
			Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
11	Tripura	N	4.65	2.63	7.28	5.92	5.39	11.31	5.29	4.29	9.58
		P <sub>2</sub> O <sub>5</sub>	3.25	2.93	6.18	2.79	3.44	6.23	2.37	2.21	4.57
		K <sub>2</sub> O	1.33	1.26	2.59	0.83	0.99	1.82	0.68	0.93	1.60
		Total	9.23	6.82	16.05	9.54	9.82	19.36	8.33	7.42	15.76
12	West Bengal	N	361.20	439.46	800.66	310.78	485.65	796.43	337.66	513.55	851.21
		P <sub>2</sub> O <sub>5</sub>	184.57	333.98	518.55	151.27	294.25	445.52	162.01	316.97	478.98
		K <sub>2</sub> O	143.40	274.99	418.39	118.03	182.91	300.94	97.67	186.70	284.36
		Total	689.17	1,048.43	1,737.60	580.08	962.81	1,542.89	597.34	1,017.21	1,614.55
<b>II. NORTH</b>		<b>N</b>	<b>3,271.22</b>	<b>3,577.93</b>	<b>6,849.15</b>	<b>3,076.22</b>	<b>3,536.64</b>	<b>6,612.86</b>	<b>3,194.93</b>	<b>3,494.77</b>	<b>6,689.70</b>
		<b>P<sub>2</sub>O<sub>5</sub></b>	<b>761.41</b>	<b>1,446.01</b>	<b>2,207.42</b>	<b>610.59</b>	<b>1,315.79</b>	<b>1,926.38</b>	<b>774.77</b>	<b>1,170.00</b>	<b>1,944.77</b>
		<b>K<sub>2</sub>O</b>	<b>163.91</b>	<b>216.89</b>	<b>380.80</b>	<b>137.62</b>	<b>182.66</b>	<b>320.28</b>	<b>70.47</b>	<b>124.81</b>	<b>195.28</b>
		<b>Total</b>	<b>4,196.54</b>	<b>5,240.83</b>	<b>9,437.37</b>	<b>3,824.43</b>	<b>5,035.09</b>	<b>8,859.52</b>	<b>4,040.17</b>	<b>4,789.58</b>	<b>8,829.74</b>
1	Haryana	N	453.41	653.61	1,107.02	476.99	575.25	1,052.24	494.69	550.84	1,045.52
		P <sub>2</sub> O <sub>5</sub>	112.79	205.65	318.44	108.33	168.12	276.45	144.70	142.80	287.49
		K <sub>2</sub> O	23.56	15.63	39.19	26.14	19.17	45.31	11.93	12.08	24.01
		Total	589.76	874.89	1,464.65	611.46	762.54	1,374.00	651.31	705.71	1,357.02
2	Himachal Pradesh	N	19.47	18.27	37.74	17.42	20.85	38.27	20.60	18.26	38.86
		P <sub>2</sub> O <sub>5</sub>	4.20	7.06	11.26	4.27	4.90	9.17	4.03	6.86	10.89
		K <sub>2</sub> O	3.32	6.93	10.25	3.09	5.45	8.54	2.85	5.25	8.10
		Total	26.99	32.26	59.25	24.78	31.20	55.98	27.48	30.37	57.85
3	Jammu & Kashmir	N	82.65	31.44	114.09	50.53	34.88	85.41	46.53	35.74	82.27
		P <sub>2</sub> O <sub>5</sub>	28.45	9.10	37.55	11.46	10.17	21.63	10.57	11.36	21.94
		K <sub>2</sub> O	19.15	9.69	28.84	8.92	4.12	13.04	3.78	6.55	10.33
		Total	130.25	50.23	180.48	70.91	49.17	120.08	60.88	53.65	114.53
4	Punjab	N	710.17	785.01	1,495.18	769.45	804.44	1,573.89	737.06	754.76	1,491.81
		P <sub>2</sub> O <sub>5</sub>	109.28	273.37	382.65	130.63	225.28	355.91	157.92	210.90	368.82
		K <sub>2</sub> O	28.14	27.28	55.42	33.18	26.79	59.97	12.47	16.88	29.34
		Total	847.59	1,085.66	1,933.25	933.26	1,056.51	1,989.77	907.45	982.53	1,889.98
5	Uttar Pradesh	N	1,936.09	2,027.64	3,963.73	1,701.40	2,044.10	3,745.50	1,833.90	2,078.62	3,912.53
		P <sub>2</sub> O <sub>5</sub>	493.64	933.19	1,426.83	346.14	890.92	1,237.06	445.07	778.89	1,223.96
		K <sub>2</sub> O	86.14	152.29	238.43	62.74	123.77	186.51	38.41	81.19	119.60
		Total	2,515.87	3,113.12	5,628.99	2,110.28	3,058.79	5,169.07	2,317.38	2,938.70	5,256.08
6	Uttarakhand	N	65.83	54.85	120.68	54.96	49.78	104.74	56.30	48.77	105.08
		P <sub>2</sub> O <sub>5</sub>	12.41	16.58	28.99	9.26	15.18	24.44	11.66	17.54	29.20
		K <sub>2</sub> O	3.45	4.92	8.37	3.51	3.24	6.75	1.01	2.76	3.76
		Total	81.69	76.35	158.04	67.73	68.20	135.93	68.97	69.07	138.04
7	Chandigarh	N	-	-	-	-	-	-	-	-	-
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	-	-	-	-	-	-	-	-	-
8	Delhi	N	3.60	7.11	10.71	5.47	7.34	12.81	5.85	7.79	13.63
		P <sub>2</sub> O <sub>5</sub>	0.64	1.06	1.70	0.50	1.22	1.72	0.82	1.65	2.47
		K <sub>2</sub> O	0.15	0.15	0.30	0.04	0.12	0.16	0.03	0.11	0.14
		Total	4.39	8.32	12.71	6.01	8.68	14.69	6.70	9.55	16.24

total by states and percentage variation (April-March) (continued)											
± % variation over previous season/year											
2020-21			2021-22			2022-23(P)			Nutrient	Zone / State	S. No.
Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total			
272.0	-64.8	-16.6	27.3	104.9	55.4	-10.6	-20.4	-15.3	N	Tripura	11
46.4	-13.6	10.2	-14.2	17.4	0.8	-15.2	-35.9	-26.6	P <sub>2</sub> O <sub>5</sub>		
-39.8	-59.0	-50.9	-37.6	-21.4	-29.7	-18.4	-6.5	-11.9	K <sub>2</sub> O		
62.5	-51.1	-18.2	3.4	44.0	20.6	-12.6	-24.4	-18.6	Total		
13.8	-7.0	1.3	-14.0	10.5	-0.5	8.6	5.7	6.9	N	West Bengal	12
46.6	-0.2	12.6	-18.0	-11.9	-14.1	7.1	7.7	7.5	P <sub>2</sub> O <sub>5</sub>		
45.5	10.0	20.0	-17.7	-33.5	-28.1	-17.3	2.1	-5.5	K <sub>2</sub> O		
27.2	-0.8	8.7	-15.8	-8.2	-11.2	3.0	5.7	4.6	Total		
<b>11.3</b>	<b>-0.5</b>	<b>4.8</b>	<b>-6.0</b>	<b>-1.2</b>	<b>-3.4</b>	<b>3.9</b>	<b>-1.2</b>	<b>1.2</b>	<b>N</b>	<b>NORTH</b>	<b>II.</b>
<b>43.9</b>	<b>1.6</b>	<b>13.0</b>	<b>-19.8</b>	<b>-9.0</b>	<b>-12.7</b>	<b>26.9</b>	<b>-11.1</b>	<b>1.0</b>	<b>P<sub>2</sub>O<sub>5</sub></b>		
<b>43.0</b>	<b>7.1</b>	<b>20.1</b>	<b>-16.0</b>	<b>-15.8</b>	<b>-15.9</b>	<b>-48.8</b>	<b>-31.7</b>	<b>-39.0</b>	<b>K<sub>2</sub>O</b>		
<b>17.1</b>	<b>0.4</b>	<b>7.2</b>	<b>-8.9</b>	<b>-3.9</b>	<b>-6.1</b>	<b>5.6</b>	<b>-4.9</b>	<b>-0.3</b>	<b>Total</b>		
6.8	1.3	3.5	5.2	-12.0	-4.9	3.7	-4.2	-0.6	N	Haryana	1
12.7	1.4	5.1	-4.0	-18.2	-13.2	33.6	-15.1	4.0	P <sub>2</sub> O <sub>5</sub>		
1.9	5.9	3.5	11.0	22.6	15.6	-54.4	-37.0	-47.0	K <sub>2</sub> O		
7.7	1.4	3.8	3.7	-12.8	-6.2	6.5	-7.5	-1.2	Total		
16.1	-15.1	-1.4	-10.5	14.1	1.4	18.3	-12.4	1.5	N	Himachal Pradesh	2
41.4	-4.7	8.5	1.7	-30.6	-18.6	-5.6	40.0	18.8	P <sub>2</sub> O <sub>5</sub>		
50.9	-10.5	3.1	-6.9	-21.4	-16.7	-7.9	-3.6	-5.1	K <sub>2</sub> O		
23.0	-12.0	1.1	-8.2	-3.3	-5.5	10.9	-2.7	3.3	Total		
166.1	59.1	124.5	-38.9	10.9	-25.1	-7.9	2.5	-3.7	N	Jammu & Kashmir	3
200.1	23.8	123.1	-59.7	11.8	-42.4	-7.7	11.7	1.4	P <sub>2</sub> O <sub>5</sub>		
99.1	517.2	157.7	-53.4	-57.5	-54.8	-57.6	58.9	-20.8	K <sub>2</sub> O		
159.7	75.1	128.9	-45.6	-2.1	-33.5	-14.1	9.1	-4.6	Total		
5.9	-5.3	-0.3	8.3	2.5	5.3	-4.2	-6.2	-5.2	N	Punjab	4
31.7	-2.4	5.4	19.5	-17.6	-7.0	20.9	-6.4	3.6	P <sub>2</sub> O <sub>5</sub>		
32.8	24.9	28.8	17.9	-1.8	8.2	-62.4	-37.0	-51.1	K <sub>2</sub> O		
9.4	-4.0	1.4	10.1	-2.7	2.9	-2.8	-7.0	-5.0	Total		
12.4	0.5	6.0	-12.1	0.8	-5.5	7.8	1.7	4.5	N	Uttar Pradesh	5
52.8	3.3	16.3	-29.9	-4.5	-13.3	28.6	-12.6	-1.1	P <sub>2</sub> O <sub>5</sub>		
55.6	1.2	15.8	-27.2	-18.7	-21.8	-38.8	-34.4	-35.9	K <sub>2</sub> O		
19.7	1.4	8.8	-16.1	-1.7	-8.2	9.8	-3.9	1.7	Total		
-4.6	-0.1	-2.6	-16.5	-9.2	-13.2	2.4	-2.0	0.3	N	Uttarakhand	6
26.0	-20.6	-5.7	-25.4	-8.4	-15.7	25.9	15.5	19.5	P <sub>2</sub> O <sub>5</sub>		
19.4	-16.9	-5.0	1.7	-34.1	-19.4	-71.3	-14.9	-44.3	K <sub>2</sub> O		
-0.04	-6.5	-3.3	-17.1	-10.7	-14.0	1.8	1.3	1.5	Total		
-	-	-	-	-	-	-	-	-	N	Chandigarh	7
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		
-22.2	-7.1	-12.8	51.9	3.2	19.6	6.9	6.1	6.4	N	Delhi	8
10.3	-27.9	-17.1	-21.9	15.1	1.2	63.8	35.4	43.7	P <sub>2</sub> O <sub>5</sub>		
-28.6	25.0	-9.1	-73.3	-20.0	-46.7	-27.5	-7.5	-12.5	K <sub>2</sub> O		
-19.0	-10.0	-13.3	36.9	4.3	15.6	11.4	10.0	10.6	Total		

Table 12. Season-wise consumption of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O from 2020-21 to 2022-23 and

S. No.	Zone/State	Nutrient	Consumption ('000 tonnes)									
			2020-21			2021-22			2022-23(P)			
			Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total	
<b>III. SOUTH</b>			<b>N</b>	<b>2,299.86</b>	<b>1,930.46</b>	<b>4,230.32</b>	<b>2,187.01</b>	<b>1,927.17</b>	<b>4,114.18</b>	<b>2,094.17</b>	<b>2,145.87</b>	<b>4,240.05</b>
			<b>P<sub>2</sub>O<sub>5</sub></b>	<b>1,158.74</b>	<b>932.08</b>	<b>2,090.82</b>	<b>1,067.26</b>	<b>821.02</b>	<b>1,888.28</b>	<b>1,013.62</b>	<b>916.15</b>	<b>1,929.77</b>
			<b>K<sub>2</sub>O</b>	<b>524.89</b>	<b>554.60</b>	<b>1,079.49</b>	<b>503.03</b>	<b>330.71</b>	<b>833.74</b>	<b>279.78</b>	<b>304.15</b>	<b>583.93</b>
			<b>Total</b>	<b>3,983.49</b>	<b>3,417.14</b>	<b>7,400.63</b>	<b>3,757.30</b>	<b>3,078.90</b>	<b>6,836.20</b>	<b>3,387.58</b>	<b>3,366.17</b>	<b>6,753.75</b>
1	Andhra Pradesh	N	511.05	628.58	1,139.63	418.01	590.88	1,008.89	414.26	657.50	1,071.76	
		P <sub>2</sub> O <sub>5</sub>	279.29	339.30	618.59	232.69	273.84	506.53	232.80	316.21	549.01	
		K <sub>2</sub> O	107.79	159.93	267.72	89.59	94.57	184.16	57.28	91.00	148.28	
		Total	898.13	1,127.81	2,025.94	740.29	959.29	1,699.58	704.34	1,064.71	1,769.05	
2	Telangana	N	708.17	461.56	1,169.73	633.47	471.34	1,104.81	604.20	587.37	1,191.57	
		P <sub>2</sub> O <sub>5</sub>	299.08	175.51	474.59	260.92	162.99	423.91	258.92	192.58	451.50	
		K <sub>2</sub> O	84.96	88.26	173.22	66.48	41.21	107.69	29.49	39.97	69.46	
		Total	1,092.21	725.33	1,817.54	960.87	675.54	1,636.41	892.61	819.92	1,712.53	
3	Karnataka	N	753.65	425.80	1,179.45	775.67	461.83	1,237.50	758.25	482.52	1,240.77	
		P <sub>2</sub> O <sub>5</sub>	438.22	249.99	688.21	421.10	228.39	649.49	384.52	239.76	624.28	
		K <sub>2</sub> O	203.53	151.65	355.18	211.76	93.62	305.38	113.24	80.47	193.71	
		Total	1,395.40	827.44	2,222.84	1,408.53	783.84	2,192.37	1,256.02	802.74	2,058.76	
4	Kerala	N	44.29	43.77	88.06	42.03	36.22	78.25	36.81	37.02	73.83	
		P <sub>2</sub> O <sub>5</sub>	19.91	18.05	37.96	17.99	13.72	31.71	15.41	13.75	29.16	
		K <sub>2</sub> O	37.63	37.47	75.10	34.66	21.48	56.14	26.41	25.05	51.46	
		Total	101.83	99.29	201.12	94.68	71.42	166.10	78.64	75.82	154.46	
5	Tamil Nadu	N	278.46	366.39	644.85	313.71	362.26	675.97	276.17	376.52	652.69	
		P <sub>2</sub> O <sub>5</sub>	121.24	148.08	269.32	133.36	140.94	274.30	121.03	152.65	273.69	
		K <sub>2</sub> O	90.33	116.39	206.72	99.88	79.45	179.33	52.98	67.31	120.29	
		Total	490.03	630.86	1,120.89	546.95	582.65	1,129.60	450.18	596.48	1,046.67	
6	Puducherry	N	4.24	4.23	8.47	3.93	4.55	8.48	4.36	4.92	9.28	
		P <sub>2</sub> O <sub>5</sub>	1.00	1.15	2.15	0.97	0.97	1.94	0.79	1.14	1.94	
		K <sub>2</sub> O	0.65	0.90	1.55	0.66	0.38	1.04	0.33	0.31	0.65	
		Total	5.89	6.28	12.17	5.56	5.90	11.46	5.49	6.38	11.87	
7	A & N Islands	N	-	0.13	0.13	0.19	0.09	0.28	0.11	0.04	0.15	
		P <sub>2</sub> O <sub>5</sub>	-	-	-	0.23	0.17	0.40	0.14	0.06	0.20	
		K <sub>2</sub> O	-	-	-	-	-	-	0.05	0.03	0.08	
		Total	-	0.13	0.13	0.42	0.26	0.68	0.30	0.12	0.43	
8	Lakshadweep	N	-	-	-	-	-	-	-	-	-	
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-	
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-	
		Total	-	-	-	-	-	-	-	-	-	
<b>IV. WEST</b>			<b>N</b>	<b>3,318.76</b>	<b>3,233.40</b>	<b>6,552.16</b>	<b>2,941.98</b>	<b>3,119.14</b>	<b>6,061.12</b>	<b>3,257.52</b>	<b>3,284.29</b>	<b>6,541.80</b>
			<b>P<sub>2</sub>O<sub>5</sub></b>	<b>1,831.98</b>	<b>1,570.41</b>	<b>3,402.39</b>	<b>1,580.04</b>	<b>1,355.25</b>	<b>2,935.29</b>	<b>1,645.30</b>	<b>1,298.43</b>	<b>2,943.74</b>
			<b>K<sub>2</sub>O</b>	<b>530.48</b>	<b>432.60</b>	<b>963.08</b>	<b>525.00</b>	<b>338.72</b>	<b>863.72</b>	<b>254.07</b>	<b>238.88</b>	<b>492.95</b>
			<b>Total</b>	<b>5,681.22</b>	<b>5,236.41</b>	<b>10,917.63</b>	<b>5,047.02</b>	<b>4,813.11</b>	<b>9,860.13</b>	<b>5,156.89</b>	<b>4,821.60</b>	<b>9,978.48</b>
1	Gujarat	N	617.57	732.10	1,349.67	519.74	695.55	1,215.29	597.39	743.79	1,341.18	
		P <sub>2</sub> O <sub>5</sub>	208.37	262.43	470.80	170.73	211.90	382.63	202.97	192.47	395.44	
		K <sub>2</sub> O	48.63	88.29	136.92	45.61	56.32	101.93	26.05	48.22	74.27	
		Total	874.57	1,082.82	1,957.39	736.08	963.77	1,699.85	826.41	984.47	1,810.88	

total by states and percentage variation (April-March) (continued)											
± % variation over previous season/year									Nutrient	Zone / State	S. No.
2020-21			2021-22			2022-23(P)					
Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total			
38.6	-3.2	15.8	-4.9	-0.2	-2.7	-4.2	11.3	3.1	N	SOUTH	III.
44.1	5.3	23.8	-7.9	-11.9	-9.7	-5.0	11.6	2.2	P <sub>2</sub> O <sub>5</sub>		
47.4	12.0	26.8	-4.2	-40.4	-22.8	-44.4	-8.0	-30.0	K <sub>2</sub> O		
41.3	1.2	19.5	-5.7	-9.9	-7.6	-9.8	9.3	-1.2	Total		
31.6	6.1	16.2	-18.2	-6.0	-11.5	-0.9	11.3	6.2	N	Andhra Pradesh	1
40.0	16.7	26.2	-16.7	-19.3	-18.1	0.0	15.5	8.4	P <sub>2</sub> O <sub>5</sub>		
39.4	18.9	26.4	-16.9	-40.9	-31.2	-36.1	-3.8	-19.5	K <sub>2</sub> O		
35.0	10.8	20.4	-17.6	-14.9	-16.1	-4.9	11.0	4.1	Total		
37.5	-2.2	18.5	-10.5	2.1	-5.5	-4.6	24.6	7.9	N	Telangana	2
39.4	13.1	28.4	-12.8	-7.1	-10.7	-0.8	18.2	6.5	P <sub>2</sub> O <sub>5</sub>		
64.2	24.9	41.5	-21.8	-53.3	-37.8	-55.6	-3.0	-35.5	K <sub>2</sub> O		
39.8	3.9	22.9	-12.0	-6.9	-10.0	-7.1	21.4	4.7	Total		
43.1	-13.2	15.9	2.9	8.5	4.9	-2.2	4.5	0.3	N	Karnataka	3
47.1	-4.7	22.8	-3.9	-8.6	-5.6	-8.7	5.0	-3.9	P <sub>2</sub> O <sub>5</sub>		
45.6	5.9	25.5	4.0	-38.3	-14.0	-46.5	-14.1	-36.6	K <sub>2</sub> O		
44.7	-7.7	19.4	0.9	-5.3	-1.4	-10.8	2.4	-6.1	Total		
22.1	1.8	11.1	-5.1	-17.2	-11.1	-12.4	2.2	-5.7	N	Kerala	4
23.4	2.4	12.4	-9.6	-24.0	-16.5	-14.3	0.2	-8.0	P <sub>2</sub> O <sub>5</sub>		
32.0	12.4	21.5	-7.9	-42.7	-25.2	-23.8	16.6	-8.3	K <sub>2</sub> O		
25.8	5.7	15.0	-7.0	-28.1	-17.4	-16.9	6.2	-7.0	Total		
45.9	-6.4	10.7	12.7	-1.1	4.8	-12.0	3.9	-3.4	N	Tamil Nadu	5
61.0	-6.4	15.3	10.0	-4.8	1.8	-9.2	8.3	-0.2	P <sub>2</sub> O <sub>5</sub>		
55.0	3.0	20.7	10.6	-31.7	-13.2	-47.0	-15.3	-32.9	K <sub>2</sub> O		
51.1	-4.8	13.5	11.6	-7.6	0.8	-17.7	2.4	-7.3	Total		
96.3	-8.4	24.9	-7.3	7.6	0.1	11.0	8.2	9.5	N	Puducherry	6
69.5	-7.3	17.5	-3.0	-15.7	-9.8	-18.1	17.7	-0.2	P <sub>2</sub> O <sub>5</sub>		
109.7	50.0	70.3	1.5	-57.8	-32.9	-49.5	-17.6	-37.9	K <sub>2</sub> O		
92.5	-2.8	27.8	-5.6	-6.1	-5.8	-1.3	8.1	3.5	Total		
-	-	-	-	-30.8	115.4	-41.1	-60.0	-47.1	N	A & N Islands	7
-	-	-	-	-	-	-39.6	-65.9	-50.8	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	100.0	423.1	-27.9	-52.7	-37.4	Total		
-	-	-	-	-	-	-	-	-	N	Lakshadweep	8
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		
21.2	-6.6	5.7	-11.4	-3.5	-7.5	10.7	5.3	7.9	N	WEST	IV.
41.0	-0.7	18.1	-13.8	-13.7	-13.7	4.1	-4.2	0.3	P <sub>2</sub> O <sub>5</sub>		
32.0	9.8	21.0	-1.0	-21.7	-10.3	-51.6	-29.5	-42.9	K <sub>2</sub> O		
28.0	-3.7	10.6	-11.2	-8.1	-9.7	2.2	0.2	1.2	Total		
2.3	5.6	4.1	-15.8	-5.0	-10.0	14.9	6.9	10.4	N	Gujarat	1
19.8	26.4	23.4	-18.1	-19.3	-18.7	18.9	-9.2	3.3	P <sub>2</sub> O <sub>5</sub>		
7.0	29.6	20.5	-6.2	-36.2	-25.6	-42.9	-14.4	-27.1	K <sub>2</sub> O		
6.3	11.8	9.2	-15.8	-11.0	-13.2	12.3	2.1	6.5	Total		

Table 12. Season-wise consumption of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O from 2020-21 to 2022-23 and

S. No.	Zone/State	Nutrient	Consumption ('000 tonnes)								
			2020-21			2021-22			2022-23(P)		
			Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
2	Madhya Pradesh	N	766.79	965.91	1,732.70	690.89	937.91	1,628.80	815.32	1,002.29	1,817.61
		P <sub>2</sub> O <sub>5</sub>	480.29	540.33	1,020.62	410.50	479.71	890.21	452.85	459.51	912.36
		K <sub>2</sub> O	63.96	76.24	140.20	60.75	71.97	132.72	32.91	41.73	74.64
		Total	1,311.04	1,582.48	2,893.52	1,162.14	1,489.59	2,651.73	1,301.08	1,503.53	2,804.62
3	Chhattisgarh	N	392.60	132.49	525.09	354.39	100.29	454.68	347.36	116.79	464.15
		P <sub>2</sub> O <sub>5</sub>	208.51	63.48	271.99	190.40	44.31	234.71	159.91	51.53	211.44
		K <sub>2</sub> O	55.70	18.83	74.53	56.20	12.42	68.62	27.12	7.49	34.61
		Total	656.81	214.80	871.61	600.99	157.02	758.01	534.39	175.81	710.20
4	Maharashtra	N	1,075.66	624.19	1,699.85	965.63	628.37	1,594.00	905.42	691.61	1,597.03
		P <sub>2</sub> O <sub>5</sub>	732.73	395.20	1,127.93	631.14	381.05	1,012.19	541.71	388.37	930.08
		K <sub>2</sub> O	351.86	233.95	585.81	349.64	179.74	529.38	162.21	134.00	296.21
		Total	2,160.25	1,253.34	3,413.59	1,946.41	1,189.16	3,135.57	1,609.35	1,213.98	2,823.32
5	Rajasthan	N	464.44	778.11	1,242.55	410.04	756.51	1,166.55	590.92	729.29	1,320.21
		P <sub>2</sub> O <sub>5</sub>	201.13	308.64	509.77	176.66	238.03	414.69	287.20	206.22	493.43
		K <sub>2</sub> O	9.78	14.88	24.66	12.11	18.03	30.14	5.37	7.22	12.59
		Total	675.35	1,101.63	1,776.98	598.81	1,012.57	1,611.38	883.50	942.73	1,826.23
6	Goa	N	1.20	0.58	1.78	1.05	0.46	1.51	0.78	0.48	1.26
		P <sub>2</sub> O <sub>5</sub>	0.60	0.33	0.93	0.51	0.22	0.73	0.56	0.32	0.89
		K <sub>2</sub> O	0.55	0.41	0.96	0.69	0.24	0.93	0.40	0.23	0.63
		Total	2.35	1.32	3.67	2.25	0.92	3.17	1.74	1.03	2.77
7	Daman & Diu	N	-	-	-	-	-	-	-	-	-
		P <sub>2</sub> O <sub>5</sub>	-	-	-	-	-	-	-	-	-
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	-	-	-	-	-	-	-	-	-
8	Dadra & Nagar Haveli	N	0.50	0.02	0.52	0.24	0.05	0.29	0.31	0.05	0.36
		P <sub>2</sub> O <sub>5</sub>	0.35	-	0.35	0.10	0.03	0.13	0.11	0.01	0.12
		K <sub>2</sub> O	-	-	-	-	-	-	-	-	-
		Total	0.85	0.02	0.87	0.34	0.08	0.42	0.42	0.05	0.47
<b>All India</b>		N	<b>10,274.22</b>	<b>10,129.75</b>	<b>20,403.97</b>	<b>9,434.91</b>	<b>10,003.40</b>	<b>19,438.31</b>	<b>9,788.35</b>	<b>10,417.99</b>	<b>20,206.34</b>
		P <sub>2</sub> O <sub>5</sub>	<b>4,285.87</b>	<b>4,692.07</b>	<b>8,977.94</b>	<b>3,717.13</b>	<b>4,111.37</b>	<b>7,828.50</b>	<b>3,872.65</b>	<b>4,048.86</b>	<b>7,921.51</b>
		K <sub>2</sub> O	<b>1,492.29</b>	<b>1,661.41</b>	<b>3,153.70</b>	<b>1,395.48</b>	<b>1,133.97</b>	<b>2,529.45</b>	<b>765.90</b>	<b>949.87</b>	<b>1,715.77</b>
		<b>Total</b>	<b>16,052.38</b>	<b>16,483.23</b>	<b>32,535.61</b>	<b>14,547.52</b>	<b>15,248.74</b>	<b>29,796.26</b>	<b>14,426.89</b>	<b>15,416.72</b>	<b>29,843.61</b>

(P) = Provisional.

Note : 1. Fertilizer consumption by Plantation crops in east and south zones is included in the total of respective states.

2. Due to rounding off, total for the State/Zone/All-India (horizontal &amp; vertical) may not exactly tally.

3. DBT sale assumed as consumption.

NPK use ratio in east zone was 6.2:2.5:1, south 7.3:3.3:1 and west 13.3:6.0:1 as against 34.3:10.0:1 in north zone.

### 6.3 State-wise Comments

Among 21 major fertilizer consuming states, only 10 states registered positive growth in fertilizer consumption during 2022-23 over 2021-22.

Remaining 11 states witnessed negative growth during the period (Table 13). Out of total nutrient consumption of 29.84 million MT in the country, Uttar Pradesh had the largest share (17.6%), followed by Maharashtra (9.5%), Madhya Pradesh (9.4%), Karnataka (6.9%), Punjab (6.3%), Rajasthan and Gujarat (6.1% each), Andhra Pradesh (5.9%), Telangana (5.7%), Bihar (5.5%) and West Bengal

total by states and percentage variation (April-March) (concluded)											
± % variation over previous season/year									Nutrient	Zone / State	S. No.
2020-21			2021-22			2022-23(P)					
Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total			
36.7	-13.2	3.6	-9.9	-2.9	-6.0	18.0	6.9	11.6	N	Madhya Pradesh	2
60.4	-9.2	14.1	-14.5	-11.2	-12.8	10.3	-4.2	2.5	P <sub>2</sub> O <sub>5</sub>		
49.9	3.9	20.8	-5.0	-5.6	-5.3	-45.8	-42.0	-43.8	K <sub>2</sub> O		
45.2	-11.1	7.8	-11.4	-5.9	-8.4	12.0	0.9	5.8	Total		
14.0	25.7	16.8	-9.7	-24.3	-13.4	-2.0	16.5	2.1	N	Chhattisgarh	3
17.5	32.2	20.6	-8.7	-30.2	-13.7	-16.0	16.3	-9.9	P <sub>2</sub> O <sub>5</sub>		
14.4	39.9	19.9	0.9	-34.0	-7.9	-51.7	-39.7	-49.6	K <sub>2</sub> O		
15.1	28.7	18.2	-8.5	-26.9	-13.0	-11.1	12.0	-6.3	Total		
30.0	-14.9	8.9	-10.2	0.7	-6.2	-6.2	10.1	0.2	N	Maharashtra	4
49.2	-3.0	25.6	-13.9	-3.6	-10.3	-14.2	1.9	-8.1	P <sub>2</sub> O <sub>5</sub>		
37.8	3.1	21.5	-0.6	-23.2	-9.6	-53.6	-25.4	-44.0	K <sub>2</sub> O		
37.3	-8.3	16.1	-9.9	-5.1	-8.1	-17.3	2.1	-10.0	Total		
15.6	-4.6	2.1	-11.7	-2.8	-6.1	44.1	-3.6	13.2	N	Rajasthan	5
28.6	-4.3	6.4	-12.2	-22.9	-18.7	62.6	-13.4	19.0	P <sub>2</sub> O <sub>5</sub>		
6.0	26.9	17.7	23.8	21.2	22.2	-55.6	-60.0	-58.2	K <sub>2</sub> O		
19.0	-4.2	3.5	-11.3	-8.1	-9.3	47.5	-6.9	13.3	Total		
50.0	7.4	32.8	-12.5	-20.7	-15.2	-25.5	3.3	-16.8	N	Goa	6
3.4	10.0	5.7	-15.0	-33.3	-21.5	10.4	46.4	21.2	P <sub>2</sub> O <sub>5</sub>		
-14.1	10.8	-5.0	25.5	-41.5	-3.1	-42.8	-3.3	-32.6	K <sub>2</sub> O		
16.3	9.1	13.6	-4.3	-30.3	-13.6	-22.7	11.8	-12.6	Total		
-	-	-	-	-	-	-	-	-	N	Daman & Diu	7
-	-	-	-	-	-	-	-	-	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
-	-	-	-	-	-	-	-	-	Total		
127.3	-81.8	57.6	-52.0	150.0	-44.2	30.4	-10.0	23.4	N	Dadra & Nagar Haveli	8
150.0	-100.0	66.7	-71.4	-	-62.9	7.0	-70.0	-10.8	P <sub>2</sub> O <sub>5</sub>		
-	-	-	-	-	-	-	-	-	K <sub>2</sub> O		
136.1	-88.9	61.1	-60.0	300.0	-51.7	23.5	-32.5	12.9	Total		
20.6	-4.2	6.8	-8.2	-1.2	-4.7	3.7	4.1	4.0	N	All India	
42.6	0.8	17.2	-13.3	-12.4	-12.8	4.2	-1.5	1.2	P <sub>2</sub> O <sub>5</sub>		
38.6	8.6	21.0	-6.5	-31.7	-19.8	-45.1	-16.2	-32.2	K <sub>2</sub> O		
27.3	-1.7	10.8	-9.4	-7.5	-8.4	-0.8	1.1	0.2	Total		

Source: 1. Ministry of Agriculture & Farmers Welfare, Government of India.  
2. State Departments of Agriculture.

(5.4%). These 11 states accounted for about 84% of the total consumption in the country. Haryana (4.5%) and Tamil Nadu (3.5%) were the next in the order. In other words, these 13 states accounted for about 92% of total consumption in the country. Balance 8% was shared by the remaining states/UTs (Table 14).

There was a wide variation in the use of fertilizers among various states. The per hectare use of total fertilizer nutrients varied from as low as 0.5 kg in Nagaland to as high as 242.8 kg in Andhra Pradesh. All-India per hectare consumption of total nutrients was 141.2 kg in 2022-23. The major states which had consumption higher (kg ha<sup>-1</sup>) than All-India

**Table 13. States according to descending order of contribution to total increase in consumption (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) 2022-23 over 2021-22 and 2021-22 over 2020-21**

Ranking in terms of increase in consumption 2022-23 over 2021-22	States	2022-23(P) over 2021-22			Ranking in terms of increase in consumption 2021-22 over 2020-21	States	2021-22(P) over 2020-21		
		Increase in absolute terms ('000 MT)	Share in contribution to total increase (%)	Cumulative share (%)			Increase in absolute terms ('000 MT)	Share in contribution to total increase (%)	Cumulative share (%)
<b>States with Positive Growth</b>									
1	Rajasthan	214.85	26.54	26.54	1	Punjab	56.52	86.65	86.65
2	Madhya Pradesh	152.89	18.89	45.43	2	Tamil Nadu	8.71	13.35	100.00
3	Gujarat	111.03	13.72	59.14					
4	Uttar Pradesh	87.01	10.75	69.89					
5	Telangana	76.11	9.40	79.29					
6	West Bengal	71.66	8.85	88.14					
7	Andhra Pradesh	69.47	8.58	96.73					
8	Bihar	22.53	2.78	99.51					
9	Uttarakhand	2.10	0.26	99.77					
10	Himachal Pradesh	1.87	0.23	100.00					
<b>Sub Total</b>		<b>809.53</b>					<b>65.23</b>		
<b>States with Negative Growth</b>									
1	Jammu & Kashmir	-5.55	0.72	0.72	1	Himachal Pradesh	-3.27	0.12	0.12
2	Assam	-5.65	0.73	1.45	2	Jharkhand	-6.34	0.23	0.34
3	Kerala	-11.64	1.50	2.95	3	Assam	-18.00	0.64	0.98
4	Jharkhand	-11.71	1.51	4.47	4	Uttarakhand	-22.11	0.79	1.77
5	Haryana	-16.98	2.19	6.66	5	Odisha	-23.82	0.85	2.62
6	Odisha	-45.86	5.93	12.59	6	Karnataka	-30.47	1.09	3.71
7	Chhattisgarh	-47.81	6.18	18.77	7	Kerala	-35.02	1.25	4.95
8	Tamil Nadu	-82.93	10.72	29.48	8	Jammu & Kashmir	-60.40	2.15	7.11
9	Punjab	-99.79	12.90	42.38	9	Haryana	-90.65	3.23	10.34
10	Karnataka	-133.61	17.27	59.65	10	Chhattisgarh	-113.60	4.05	14.39
11	Maharashtra	-312.25	40.35	100.00	11	Rajasthan	-165.60	5.90	20.29
					12	Telangana	-181.13	6.45	26.74
					13	West Bengal	-194.71	6.94	33.68
					14	Madhya Pradesh	-241.79	8.62	42.30
					15	Gujarat	-257.54	9.18	51.47
					16	Maharashtra	-278.02	9.91	61.38
					17	Bihar	-297.49	10.60	71.98
					18	Andhra Pradesh	-326.36	11.63	83.61
					19	Uttar Pradesh	-459.92	16.39	100.00
<b>Sub Total</b>		<b>773.79</b>					<b>2806.24</b>		
<b>All India</b>		<b>47.35 \$</b>					<b>-2739.35 \$</b>		

(P) = Provisional. \$ = Includes small states/UTs/Plantations.

Note: For consumption figures, see Table 12.

average include, Andhra Pradesh (242.8), Punjab (241.1), Telangana (229.0), Bihar (224.2), Haryana (205.1), Uttar Pradesh (193.9), Tamil Nadu (176.1), West Bengal (159.9) and Karnataka (148.9). In the remaining states, per hectare consumption was lower than the All-India average of 141.2 kg. **Table 15** shows the state-wise consumption of plant nutrients per hectare of gross cropped area.

As mentioned earlier, All-India NPK use ratio was 11.8:4.6:1 during 2022-23. However, NPK use ratio widely varied among various states. While NPK use ratio was around 5.4:3.1:1 in Maharashtra, it was 104.9:39.2:1 in Rajasthan during 2022-23. The state-wise details of the ratio of N and P<sub>2</sub>O<sub>5</sub> in relation to K<sub>2</sub>O are shown in **Table 16**.

The details of state-wise review of fertilizer

**Table 14. States according to descending order of share of consumption to All-India consumption (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) in 2021-22 and 2022-23**

Ranking		States	Share of All India total (%)	
2021-22	2022-23 (P)		2021-22	2022-23 (P)
1	1	Uttar Pradesh	17.3	17.6
2	2	Maharashtra	10.5	9.5
3	3	Madhya Pradesh	8.9	9.4
4	4	Karnataka	7.4	6.9
5	5	Punjab	6.7	6.3
10	6	Rajasthan	5.4	6.1
6	7	Gujarat	5.7	6.1
7	8	Andhra Pradesh	5.7	5.9
8	9	Telangana	5.5	5.7
9	10	Bihar	5.4	5.5
11	11	West Bengal	5.2	5.4
12	12	Haryana	4.6	4.5
13	13	Tamil Nadu	3.8	3.5
14	14	Chhattisgarh	2.5	2.4
15	15	Odisha	2.0	1.8
16	16	Assam	0.9	0.9
17	17	Jharkhand	0.7	0.6
18	18	Kerala	0.6	0.5
19	19	Uttarakhand	0.5	0.5
20	20	Jammu & Kashmir	0.4	0.4
21	21	Himachal Pradesh	0.2	0.2

(P) = Provisional.

Note: 1. For consumption figures, see Table 12.

2. Share of All-India consumption relates to ranking of states in individual years.

consumption, weather & crop situation and fertilizer sale points during 2022-23 are presented in the following paragraphs.

## I. EAST ZONE

### i) Assam

#### Fertilizer Consumption

Consumption of total fertilizer nutrients (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O) in Assam at 256 thousand tonnes (thousand MT) in 2022-23 showed a decline of 2.2% over 2021-22. Consumption of total fertilizer nutrient declined in *kharif* season but increased in the *rabi* season. It declined by 9.4% in *kharif* 2022 and increased by 5.3% in *rabi* 2022-23 over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 51:49 during 2021-22 to 47:53 during 2022-23.

Consumption of N and K<sub>2</sub>O registered decline whereas P<sub>2</sub>O<sub>5</sub> showed an increase during 2022-23 over 2021-22. Consumption of N at 178 thousand MT and K<sub>2</sub>O at 28.7 thousand MT witnessed decline

of 0.3% and 17.8%, respectively, during the period. However, consumption of P<sub>2</sub>O<sub>5</sub> at 49.3 thousand MT registered an increase of 2.2% during the period. NPK use ratio changed from 5.1:1.4:1 during 2021-22 to 6.2:1.7:1 during 2022-23. Per hectare use of fertilizer nutrients declined from 65.8 kg during 2021-22 to 64.4 kg during 2022-23.

### Weather and Crop Situation

Total rainfall was normal in southwest monsoon 2022 (June-September) at 1601 mm as against 1762 mm normal rains. Out of 27 districts in the state, 19 districts received normal and 8 received deficient rains during the season. During *kharif* 2022, sown area under rice, sugarcane and jute & mesta was down by 99, 1 and 11 thousand ha, respectively, over *kharif* 2021. However, sown area under pulses and oilseeds was higher by 11 and 8 thousand ha, respectively, during the season.

During post-monsoon 2022 (October-December), rainfall was normal at 226 mm as against 190 mm normal rains. Out of 27 districts, 8 received normal, 16 received excess to large excess and 3 received deficient rains during the season. During *rabi* 2022-23, sown area under rice was lower by 32 thousand ha over *rabi* 2021-22. However, sown area under wheat, pulses, coarse cereals, and oilseeds increased by 3, 1, 2 and 12 thousand ha, respectively, during the period.

### Sale Points

Out of 2,768 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 95% and the balance 5% was of cooperative and other institutional channels.

### ii) Bihar

#### Fertilizer Consumption

Consumption of total fertilizer nutrients in Bihar at 1.636 million MT in 2022-23 registered an increase of 1.4% over the previous year. It declined in *kharif* 2022 by 3.9% but increased in *rabi* 2022-23 by 4.9% over the corresponding seasons of the previous year. *Kharif:rabi* share in consumption of total nutrients changed from 40:60 during 2021-22 to 38:62 during 2022-23.

During 2022-23, consumption of N and P<sub>2</sub>O<sub>5</sub> increased whereas K<sub>2</sub>O declined. Consumption of N at 1.187 million MT and P<sub>2</sub>O<sub>5</sub> at 0.366 million MT during 2022-23 increased by 2.4% and 3.5%, respectively, over 2021-22. However, consumption of K<sub>2</sub>O at 82.2 thousand MT witnessed a sharp decline of 18% during the period. NPK use ratio widened from 11.6:3.5:1 during 2021-22 to 14.4:4.5:1 during 2022-23. Consumption of total nutrients per



Table 15. Consumption of plant nutrients per unit of gross cropped area from 2020-21 to 2022-23 (Provisional)												
Zone/State	2020-21				2021-22				2022-23 (P)			
	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	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>East</b>	<b>92.0</b>	<b>42.4</b>	<b>24.2</b>	<b>158.6</b>	<b>87.9</b>	<b>35.8</b>	<b>17.0</b>	<b>140.7</b>	<b>90.7</b>	<b>36.6</b>	<b>14.7</b>	<b>142.1</b>
Arunachal Pradesh	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Assam	44.2	13.8	12.4	70.3	44.9	12.1	8.8	65.8	44.8	12.4	7.2	64.4
Bihar	176.1	62.8	23.0	261.9	158.9	48.5	13.7	221.1	162.7	50.2	11.3	224.2
Jharkhand	81.9	33.1	3.3	118.3	80.7	30.2	3.8	114.7	78.6	26.9	2.6	108.0
Manipur	32.4	7.7	4.9	44.9	28.9	8.0	0.4	37.4	46.0	12.4	6.9	65.3
Meghalaya	-	-	-	-	-	-	-	-	-	-	-	-
Mizoram	5.1	0.7	-	5.7	6.4	0.1	-	6.5	24.9	3.0	0.2	28.1
Nagaland	0.6	0.1	-	0.6	0.5	-	-	0.5	0.5	0.0	-	0.5
Odisha	74.4	38.3	18.2	130.9	75.3	36.1	14.3	125.8	74.9	32.6	8.5	116.0
Sikkim	-	-	-	-	-	-	-	-	-	-	-	-
Tripura	14.9	12.7	5.3	33.0	23.2	12.8	3.7	39.8	19.7	9.4	3.3	32.4
West Bengal	79.3	51.3	41.4	172.0	78.9	44.1	29.8	152.8	84.3	47.4	28.2	159.9
<b>North</b>	<b>153.5</b>	<b>49.5</b>	<b>8.5</b>	<b>211.5</b>	<b>148.2</b>	<b>43.2</b>	<b>7.2</b>	<b>198.5</b>	<b>149.9</b>	<b>43.6</b>	<b>4.4</b>	<b>197.8</b>
Haryana	167.3	48.1	5.9	221.3	159.0	41.8	6.8	207.6	158.0	43.4	3.6	205.1
Himachal Pradesh	42.3	12.6	11.5	66.4	42.9	10.3	9.6	62.8	43.6	12.2	9.1	64.9
Jammu & Kashmir	104.7	34.5	26.5	165.6	78.4	19.8	12.0	110.2	75.5	20.1	9.5	105.1
Punjab	190.8	48.8	7.1	246.7	200.8	45.4	7.7	253.9	190.3	47.1	3.7	241.1
Uttar Pradesh	146.2	52.6	8.8	207.6	138.2	45.6	6.9	190.7	144.3	45.1	4.4	193.9
Uttarakhand	117.8	28.3	8.2	154.3	102.3	23.9	6.6	132.7	102.6	28.5	3.7	134.8
Chandigarh	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	185.8	29.5	5.2	220.5	222.2	29.8	2.8	254.8	236.5	42.9	2.4	281.8
<b>South</b>	<b>113.7</b>	<b>56.2</b>	<b>29.0</b>	<b>198.9</b>	<b>110.6</b>	<b>50.8</b>	<b>22.4</b>	<b>183.8</b>	<b>114.0</b>	<b>51.9</b>	<b>15.7</b>	<b>181.6</b>
Andhra Pradesh	156.4	84.9	36.7	278.0	138.5	69.5	25.3	233.2	147.1	75.3	20.3	242.8
Telangana	156.4	63.5	23.2	243.0	147.7	56.7	14.4	218.8	159.3	60.4	9.3	229.0
Karnataka	85.3	49.8	25.7	160.7	89.5	47.0	22.1	158.5	89.7	45.1	14.0	148.9
Kerala	34.0	14.7	29.0	77.8	30.3	12.3	21.7	64.2	28.5	11.3	19.9	59.7
Tamil Nadu	108.5	45.3	34.8	188.6	113.8	46.2	30.2	190.1	109.8	46.1	20.2	176.1
Puducherry	311.3	79.0	57.0	447.2	311.6	71.3	38.2	421.1	341.1	71.1	23.7	436.0
A & N Islands	2.9	-	-	2.9	6.2	8.8	-	14.9	3.3	4.3	1.8	9.4
Lakshadweep	-	-	-	-	-	-	-	-	-	-	-	-
<b>West</b>	<b>65.9</b>	<b>34.2</b>	<b>9.7</b>	<b>109.9</b>	<b>61.0</b>	<b>29.5</b>	<b>8.7</b>	<b>99.2</b>	<b>65.8</b>	<b>29.6</b>	<b>5.0</b>	<b>100.4</b>
Gujarat	97.7	34.1	9.9	141.7	88.0	27.7	7.4	123.0	97.1	28.6	5.4	131.1
Madhya Pradesh	61.3	36.1	5.0	102.3	57.6	31.5	4.7	93.8	64.3	32.3	2.6	99.2
Chhattisgarh	91.6	47.4	13.0	152.0	79.3	40.9	12.0	132.2	80.9	36.9	6.0	123.8
Maharashtra	71.3	47.3	24.6	143.1	66.8	42.4	22.2	131.4	66.9	39.0	12.4	118.3
Rajasthan	45.2	18.5	0.9	64.6	42.4	15.1	1.1	58.6	48.0	17.9	0.5	66.4
Goa	12.1	6.3	6.6	25.0	10.3	5.0	6.3	21.6	8.6	6.0	4.3	18.9
Daman & Diu	-	-	-	-	-	-	-	-	-	-	-	-
D & N Haveli	26.1	17.6	-	43.7	14.6	6.5	-	21.1	18.0	5.8	-	23.8
<b>All India</b>	<b>96.5</b>	<b>42.5</b>	<b>14.9</b>	<b>153.9</b>	<b>92.0</b>	<b>37.0</b>	<b>12.0</b>	<b>141.0</b>	<b>95.6</b>	<b>37.5</b>	<b>8.1</b>	<b>141.2</b>

Note: 1. Consumption of plant nutrients per hectare have been worked out on the basis of latest gross cropped area available for 2019-20.  
2. Due to rounding of figures, totals may not exactly tally.

Table 16. Consumption ratio of N & P <sub>2</sub> O <sub>5</sub> in relation to K <sub>2</sub> O from 2020-21 to 2022-23									
Zone/State	2020-21			2021-22			2022-23 (P)		
	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	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
<b>East</b>	<b>3.8</b>	<b>1.7</b>	<b>1</b>	<b>5.2</b>	<b>2.1</b>	<b>1</b>	<b>6.2</b>	<b>2.5</b>	<b>1</b>
Arunachal Pradesh	-	-	-	-	-	-	-	-	-
Assam	3.6	1.1	1	5.1	1.4	1	6.2	1.7	1
Bihar	7.7	2.7	1	11.6	3.5	1	14.4	4.5	1
Jharkhand	25.2	10.2	1	21.3	8.0	1	30.4	10.4	1
Manipur	6.7	1.6	1	68.5	18.9	1	6.6	1.8	1
Meghalaya	-	-	-	-	-	-	-	-	-
Mizoram	-	-	-	-	-	-	135.0	16.5	1
Nagaland	-	-	-	-	-	-	-	-	-
Odisha	4.1	2.1	1	5.3	2.5	1	8.8	3.8	1
Sikkim	-	-	-	-	-	-	-	-	-
Tripura	2.8	2.4	1	6.2	3.4	1	6.0	2.9	1
West Bengal	1.9	1.2	1	2.6	1.5	1	3.0	1.7	1
<b>North</b>	<b>18.0</b>	<b>5.8</b>	<b>1</b>	<b>20.6</b>	<b>6.0</b>	<b>1</b>	<b>34.3</b>	<b>10.0</b>	<b>1</b>
Haryana	28.2	8.1	1	23.2	6.1	1	43.5	12.0	1
Himachal Pradesh	3.7	1.1	1	4.5	1.1	1	4.8	1.3	1
Jammu & Kashmir	4.0	1.3	1	6.5	1.7	1	8.0	2.1	1
Punjab	27.0	6.9	1	26.2	5.9	1	50.8	12.6	1
Uttar Pradesh	16.6	6.0	1	20.1	6.6	1	32.7	10.2	1
Uttarakhand	14.4	3.5	1	15.5	3.6	1	27.9	7.8	1
Delhi	35.7	5.7	1	80.1	10.8	1	97.4	17.7	1
<b>South</b>	<b>3.9</b>	<b>1.9</b>	<b>1</b>	<b>4.9</b>	<b>2.3</b>	<b>1</b>	<b>7.3</b>	<b>3.3</b>	<b>1</b>
Andhra Pradesh	4.3	2.3	1	5.5	2.8	1	7.2	3.7	1
Telangana	6.8	2.7	1	10.3	3.9	1	17.2	6.5	1
Karnataka	3.3	1.9	1	4.1	2.1	1	6.4	3.2	1
Kerala	1.2	0.5	1	1.4	0.6	1	1.4	0.6	1
Tamil Nadu	3.1	1.3	1	3.8	1.5	1	5.4	2.3	1
Puducherry	5.5	1.4	1	8.2	1.9	1	14.4	3.0	1
A & N Islands	-	-	-	-	-	-	1.8	2.4	1
<b>West</b>	<b>6.8</b>	<b>3.5</b>	<b>1</b>	<b>7.0</b>	<b>3.4</b>	<b>1</b>	<b>13.3</b>	<b>6.0</b>	<b>1</b>
Gujarat	9.9	3.4	1	11.9	3.8	1	18.1	5.3	1
Madhya Pradesh	12.4	7.3	1	12.3	6.7	1	24.4	12.2	1
Chhattisgarh	7.0	3.6	1	6.6	3.4	1	13.4	6.1	1
Maharashtra	2.9	1.9	1	3.0	1.9	1	5.4	3.1	1
Rajasthan	50.4	20.7	1	38.7	13.8	1	104.9	39.2	1
Goa	1.9	1.0	1	1.6	0.8	1	2.0	1.4	1
Daman & Diu	-	-	-	-	-	-	-	-	-
D & N Haveli	-	-	-	-	-	-	-	-	-
<b>All India</b>	<b>6.5</b>	<b>2.8</b>	<b>1</b>	<b>7.7</b>	<b>3.1</b>	<b>1</b>	<b>11.8</b>	<b>4.6</b>	<b>1</b>

(P) = Provisional.

hectare of gross cropped area increased from 221.1 kg during 2021-22 to 224.2 kg during 2022-23.

### Weather and Crop Situation

The state received deficient rains during southwest monsoon 2022 at 683 mm. Out of 38 districts in the state, only 5 received normal and remaining 33 received deficient rains during the season. During *kharif 2022*, sown area under rice, pulses, coarse cereals and sugarcane declined by 197, 25, 51 and 29 thousand ha, respectively, over *kharif 2021*. However, sown area under oilseeds and jute & mesta increased by 6 and 14 thousand ha, respectively, during the season.

During post-monsoon 2022, state received excess rains at 82 mm. Out of 38 districts, as many as 20 districts received excess to large excess, 12 received normal and 6 received deficient to large deficient

rains during the period. During *rabi 2022-23*, sown area under wheat increased by 94 thousand ha, rice by 2 thousand ha, pulses & coarse cereals by 56 thousand ha each and oilseeds by 33 thousand ha over *rabi 2021-22*.

### Sale Points

Out of 23,317 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 86% and the balance 14% was of cooperative and other institutional channels.

### iii) Jharkhand

#### Fertilizer Consumption

Total consumption of fertilizer nutrients at 190.1 thousand MT during 2022-23 witnessed a decline of 5.8% over the previous year. Consumption of fertilizer nutrients during *kharif 2022* was 18.7%

lower but in *rabi* 2022-23, it was higher by 15.7% over the corresponding seasons of the previous year. Accordingly, *kharif:rabi* share in total fertilizer consumption changed from 62:38 during 2021-22 to 54:46 during 2022-23.

Consumption of all three nutrients declined during 2022-23 over 2021-22. Consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O at 138.3, 47.3 and 4.6 thousand MT during 2022-23 registered decline of 2.5%, 11.1% and 31.7% respectively, over 2021-22. NPK use ratio widened from 21.3:8.0:1 during 2021-22 to 30.4:10.4:1 during 2022-23. Per hectare consumption of total fertilizer nutrients reduced from 114.7 kg during 2021-22 to 108 kg during 2022-23.

#### Weather and Crop Situation

Rains received during southwest monsoon 2022 at 818 mm was deficient. Out of 24 districts, only 8 districts received normal and remaining 16 received deficient rains during the season. During *kharif* 2022, coverage of sown area under rice, pulses, coarse cereals and oilseeds reduced by 922, 129, 68 and 6 thousand ha, respectively, over *kharif* 2021.

During post-monsoon, the state received normal rains at 92 mm. Out of 24 districts, 14 received normal, 6 received excess to large excess and 4 received deficient rains during the season. During *rabi* 2022-23, sown area under wheat, pulses, coarse cereals and oilseeds declined by 31, 43, 1 and 28 thousand ha, respectively, over *rabi* 2021-22.

#### Sale Points

Out of 4,690 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 86% and the balance 14% was of cooperative and other institutional channels.

#### iv) Odisha

##### Fertilizer Consumption

Consumption of total fertilizer nutrients at 0.542 million MT during 2022-23 witnessed a decline of 7.8% over 2021-22. Consumption of fertilizer nutrients declined in both the seasons. It declined by 9.3% in *kharif* 2022 and 4% in *rabi* 2022-23 over the corresponding seasons of the previous year. *Kharif:rabi* share in total fertilizer consumption changed marginally from 71:29 in 2021-22 to 70:30 in 2022-23.

Overall consumption of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O at 349.6, 152 and 39.9 thousand MT during 2022-23 registered decline of 0.6%, 9.9% and 40.5%, respectively, over 2021-22. NPK use ratio widened from 5.3:2.5:1 in 2021-22 to 8.8:3.8:1 during 2022-23. Per hectare consumption of fertilizer nutrients reduced from 125.8 kg in 2021-22 to 116 kg in 2022-23.

#### Weather and Crop Situation

The cumulative rainfall received in the state during

southwest monsoon 2022 was normal at 1197 mm. Out of 30 districts in the state, 25 received normal, 4 received excess and 1 received deficient rains during the season. During *kharif* 2022, sown area under rice, pulses and oilseeds declined by 20, 12 and 51 thousand ha, respectively, over *kharif* 2021. However, sown area under coarse cereals, sugarcane and cotton increased by 30, 2 and 20 thousand ha, respectively, during the season.

During the post-monsoon season, state received normal rains at 126 mm. Out of 30 districts, 21 received normal, 1 received excess and 8 received deficient to large deficient rains during the season. During *rabi* 2022-23, sown area under rice, pulses, coarse cereals and oilseeds increased by 22, 273, 4 and 39 thousand ha, respectively, over *rabi* 2021-22.

#### Sale Points

Out of 11,383 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 76% and the balance 24% was of cooperative and other institutional channels.

#### v) West Bengal

##### Fertilizer Consumption

Total fertilizer nutrient consumption in West Bengal increased by 4.6%, from 1.543 million MT during 2021-22 to 1.615 million MT during 2022-23. Total nutrient consumption increased in both the seasons. It increased by 3% and 5.7% in *kharif* 2022 and *rabi* 2022-23, respectively, over the corresponding seasons of the previous year. *Kharif:rabi* share in total fertilizer consumption changed marginally from 38:62 during 2021-22 to 37:63 during 2022-23.

Consumption of N at 0.851 million MT and P<sub>2</sub>O<sub>5</sub> at 0.479 million MT during 2022-23 recorded increase of 6.9% and 7.5%, respectively, over 2021-22. However, consumption of K<sub>2</sub>O at 0.284 million MT witnessed a decline of 5.5% during the period. NPK use ratio changed from 2.6:1.5:1 during 2021-22 to 3.0:1.7:1 during 2022-23. Per hectare use of total fertilizer nutrients increased from 152.8 kg to 159.9 kg during the period.

#### Weather and Crop Situation

Rains received during southwest monsoon 2022 was normal at 1887 mm in Sub-Himalayan West Bengal sub-division. Gangetic West Bengal sub-division received deficient rains at 871 mm. Out of 19 districts in the state, 7 received normal and 12 received deficient rains during the season. During *kharif* 2022, sown area under rice reduced by 365 thousand ha and sugarcane and jute & mesta by 3 thousand ha each over *kharif* 2021. However, area under pulses and coarse cereals increased by 6 and 1 thousand ha, respectively, during the season.

During post-monsoon, the state received excess rains at 203 mm in Sub Himalayan West Bengal and

deficient rains at 109 mm in Gangetic West Bengal sub-divisions. Out of 19 districts, 6 received normal, 2 received excess and 11 received deficient rains during the season. During *rabi* 2022-23, sown area coverage under rice, coarse cereals, pulses and oilseeds increased by 120, 10, 16 and 50 thousand ha, respectively, over *rabi* 2021-22. However, sown area under wheat declined by 9 thousand ha, during the season.

### Sale Points

Out of 25,480 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 92% and the balance 8% was of cooperative and other institutional channels.

## II. NORTH ZONE

### i) Haryana

#### Fertilizer consumption

Consumption of total fertilizer nutrients in Haryana declined by 1.2%, from a total of 1.374 million MT during 2021-22 to 1.357 million MT during 2022-23. Total nutrient consumption increased in *kharif* 2022 by 6.5% but declined in *rabi* 2022-23 by 7.5% over the corresponding seasons of the previous year. Accordingly, *kharif:rabi* share in total fertilizer nutrient consumption changed from 45:55 during 2021-22 to 48:52 during 2022-23.

On nutrient basis, consumption of N at 1.046 million MT and K<sub>2</sub>O at 24 thousand MT during 2022-23 declined by 0.6% and 47%, respectively, over 2021-22. However, consumption of P<sub>2</sub>O<sub>5</sub> at 287 thousand MT increased by 4% during the period. NPK use ratio broadened from 23.2:6.1:1 during 2021-22 to 43.5:12:1 during 2022-23. Per hectare consumption of total fertilizer nutrients reduced from 207.6 kg during 2021-22 to 205.1 kg during 2022-23.

#### Weather and Crop Situation

Overall rainfall received during the southwest monsoon 2022 was normal at 465 mm. Out of 22 districts in the state, 9 received normal, 9 received excess, 1 received large excess and 3 had deficient rains during the season. During *kharif* 2022, sown area under rice and coarse cereals increased by 94 and 60 thousand ha, respectively, over *kharif* 2021. However, sown area under pulses, oilseeds, sugarcane and cotton declined by 38, 8, 4 and 38 thousand ha, respectively, during the season.

During post-monsoon, total rains received was excess at 37 mm. Out of 22 districts, 6 received normal, 8 received large excess and 8 districts received deficient to large deficient rains during the season. During *rabi* 2022-23, sown area under pulses and coarse cereals increased by 1 and 3 thousand ha, respectively, over *rabi* 2021-22. However, sown area under wheat and oilseeds declined by 11 and 24 thousand ha, respectively, during the season.

### Sale Points

Out of 8,550 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 76% and in cooperative and other institutional channels, it was 24%.

### ii) Himachal Pradesh

#### Fertilizer Consumption

Consumption of total fertilizer nutrients in Himachal Pradesh increased by 3.3% in 2022-23 over the previous year. Total fertilizer nutrient consumption was 58 thousand MT during 2022-23 compared to 56 thousand MT in the previous year. Total consumption of fertilizer nutrients increased by 10.9% in *kharif* 2022 but declined by 2.7% in *rabi* 2022-23 over the respective seasons of the previous year. *Kharif:rabi* share in total fertilizer consumption changed from 44:56 during 2021-22 to 48:52 during 2022-23.

Nutrient-wise breakup shows increase in N and P<sub>2</sub>O<sub>5</sub> consumption and decline in K<sub>2</sub>O consumption during 2022-23 over 2021-22. Consumption of N and P<sub>2</sub>O<sub>5</sub> at 38.9 and 10.9 thousand MT during 2022-23 registered increase of 1.5% and 18.8%, respectively, over 2021-22. However, consumption of K<sub>2</sub>O at 8.1 thousand MT declined by 5.1% during the period. NPK use ratio changed from 4.5:1.1:1 during 2021-22 to 4.8:1.3:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 62.8 kg in 2021-22 to 64.9 kg in 2022-23.

#### Weather and Crop Situation

The state received 715 mm rainfall during southwest monsoon 2022 which was normal. Out of 12 districts in the state, 8 received normal, 2 received excess and 2 received deficient rains during the season. During *kharif* 2022, sown area under rice and coarse cereals increased by 14 thousand ha each over *kharif* 2021.

During post-monsoon, the state received normal rains at 64 mm. Out of 12 districts, 6 received normal, 1 received excess, 2 received deficient and 3 received large deficient rains during the period. During *rabi* 2022-23, sown area under pulses increased by 3 thousand ha over *rabi* 2021-22. However, sown area under wheat, coarse cereals and oilseeds declined by 10, 3 and 4 thousand ha, respectively, during the season.

### Sale Points

Out of 2,143 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 25% and in cooperative and other institutional channels, it was 75%.

### iii) Jammu & Kashmir

#### Fertilizer Consumption

Consumption of total fertilizer nutrients in the state witnessed a decline of 4.6%, from a total of 120.1

thousand MT during 2021-22 to 114.5 thousand MT during 2022-23. Total fertilizer nutrient consumption declined in *khariif* but increased in *rabi* season. Consumption of total nutrients registered sharp decline of 14.1% during *khariif* 2022 and increase of 9.1% during *rabi* 2022-23 over the corresponding seasons of the previous year. Accordingly, *khariif:rabi* share changed from 59:41 during 2021-22 to 53:47 during 2022-23.

On nutrient basis, consumption of N at 82.3 thousand MT and  $K_2O$  at 10.3 thousand MT during 2022-23 showed decline of 3.7% and 20.8%, respectively, over 2021-22. However, consumption of  $P_2O_5$  at 21.9 thousand MT showed an increase of 1.4% over 2021-22. NPK use ratio widened from 6.5:1.7:1 during 2021-22 to 8.0:2.1:1 during 2022-23. Per hectare consumption of total fertilizer nutrients declined from 110.2 kg during 2021-22 to 105.1 kg during 2022-23.

#### Weather and Crop Situation

During southwest monsoon 2022, Jammu & Kashmir and Ladakh sub-division received normal rains at 581 mm. Out of 20 districts in Jammu & Kashmir, 8 received normal, 8 received excess, 3 received deficient and 1 received large deficient rains during the season. During *khariif* 2022, sown area under rice and oilseeds increased by 4 and 1 thousand ha, respectively, over *khariif* 2021. However, area under coarse cereals declined by 8 thousand ha during the period.

During post-monsoon season, Jammu & Kashmir and Ladakh sub-division received normal rains at 115 mm. Out of 20 districts in Jammu & Kashmir, 14 received normal, 2 received excess, 3 received deficient and 1 received large deficient rains during the season. During *rabi* 2022-23, sown area under pulses and oilseeds increased by 5 thousand ha each and wheat by 9 thousand ha over *rabi* 2021-22.

#### Sale Points

Out of 4,712 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 91% and balance 9% in cooperative and other institutional channels.

#### iv) Punjab

##### Fertilizer Consumption

Consumption of total fertilizer nutrients in Punjab at 1.890 million MT during 2022-23 registered a decline of 5% over the previous year. Consumption of total fertilizer nutrients declined in *khariif* 2022 by 2.8% and in *rabi* 2022-23 by 7% over the corresponding seasons of the previous year. *Khariif:rabi* share in total consumption of fertilizer nutrients marginally changed from 47:53 during 2021-22 to 48:52 during 2022-23.

Nutrient-wise analysis shows that consumption of N at 1.492 million MT and  $K_2O$  at 29.3 thousand MT during 2022-23 declined by 5.2% and 51.1%, respectively, over 2021-22. However, consumption of  $P_2O_5$  at 0.369 million MT increased by 3.6% during the period. NPK use ratio broadened from 26.2:5.9:1 during 2021-22 to 50.8:12.6:1 in 2022-23. Per hectare consumption of fertilizer nutrients declined from 253.9 kg during 2021-22 to 241.1 kg during 2022-23.

#### Weather and Crop Situation

The state received normal rainfall at 414 mm during southwest monsoon 2022. Out of 22 districts in the state, 10 received normal, 4 received excess, 1 large excess and 7 received deficient rains during the season. Sown area under coarse cereals increased by 2 thousand ha during *khariif* 2022 over *khariif* 2021. However, sown area under rice, sugarcane and cotton declined by 12, 1 and 6 thousand ha, respectively, during the season.

During post-monsoon, the state received deficient rains at 11 mm only. Out of 22 districts, only 3 received normal to excess, 17 received deficient to large deficient and 2 had no rains during the period. During *rabi* 2022-23, sown area under coarse cereals and oilseeds was up by 1 and 9 thousand ha, respectively, over *rabi* 2021-22. However, sown area under wheat was down by 18 thousand ha during the season.

#### Sale Points

Out of 10,296 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 62% and it was 38% in cooperative and other institutional channels.

#### v) Uttar Pradesh

##### Fertilizer Consumption

Uttar Pradesh is the largest fertilizer consuming state in the country having a share of about 18% of All-India consumption of fertilizer nutrients. During 2022-23, consumption of total fertilizer nutrients in the state marked a positive growth of 1.7% over the previous year. Total consumption of fertilizer nutrients increased from 5.169 million MT during 2021-22 to 5.256 million MT during 2022-23. Consumption of fertilizer nutrients increased in *khariif* 2022 by 9.8% but declined in *rabi* 2022-23 by 3.9% over the corresponding seasons of the previous year. Accordingly, *khariif:rabi* share in total fertilizer nutrient consumption changed from 41:59 during 2021-22 to 44:56 during 2022-23.

On nutrient basis, consumption of N at 3.913 million MT during 2022-23 registered an increase of 4.5% over 2021-22. However, consumption of  $P_2O_5$  at 1.224 million MT and  $K_2O$  at 0.120 million MT witnessed

decline of 1.1% and 35.9%, respectively, over 2021-22. NPK use ratio widened from 20.1:6.6:1 during 2021-22 to 32.7:10.2:1 during 2022-23. Per hectare consumption of fertilizer nutrients increased from 190.7 kg to 193.9 kg during the period.

#### Weather and Crop Situation

During the southwest monsoon 2022, the state received deficient rains in both the sub-divisions *viz.* East Uttar Pradesh at 556 mm and West Uttar Pradesh at 502 mm. Out of 75 districts in the state, rainfall was normal in 17, excess in 5, deficient in 49 and large deficient in 4 districts during the season. During *kharif* 2022, sown area under rice and sugarcane declined by 248 and 35 thousand ha, respectively, over *kharif* 2021. However, sown area under pulses, coarse cereals and oilseeds increased by 23, 37 and 26 thousand ha, respectively, during the season.

During post-monsoon, state received large excess rains in both the sub-divisions, *i.e.* East Uttar Pradesh and West Uttar Pradesh at 150 and 140 mm, respectively. Out of 75 districts, 4 received normal, 65 received large excess, 5 received deficient and 1 received large deficient rains during the season. During *rabi* 2022-23, sown area under wheat and coarse cereals increased by 93 and 51 thousand ha, respectively, over *rabi* 2021-22. However, sown area under pulses and oilseeds declined by 27 and 77 thousand ha, respectively, during the period.

#### Sale Points

Out of 61,394 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 81% and balance 19% in cooperative and other institutional channels.

#### vi) Uttarakhand

##### Fertilizer Consumption

Total consumption of fertilizer nutrients at 138 thousand MT during 2022-23 increased by 1.5% over 2021-22. Consumption of fertilizer nutrients increased in both the seasons. During *kharif* 2022, it increased by 1.8% and in *rabi* 2022-23 by 1.3% over the corresponding seasons of the previous year. *Kharif:rabi* share in total fertilizer consumption remained unchanged at 50:50.

On nutrient basis, consumption of N at 105.1 thousand MT and  $P_2O_5$  at 29.2 thousand MT during 2022-23 registered increase of 0.3% and 19.5%, respectively, over 2021-22. However, consumption of  $K_2O$  at 3.8 thousand MT witnessed a sharp decline of 44.3% during the period. NPK use ratio broadened from 15.5:3.6:1 during 2021-22 to 27.9:7.8:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 132.7 kg to 134.8 kg during the period.

#### Weather and Crop Situation

The state received normal rains at 1128 mm during

the southwest monsoon 2022. Out of 13 districts in the state, 7 received normal, 2 received large excess and 4 received deficient rains during the season. During *kharif* 2022, sown area under rice and coarse cereals increased by 3 thousand ha each, over *kharif* 2021. However, sown area under pulses and sugarcane declined by 17 and 1 thousand ha, respectively, during the period.

During the post-monsoon, the state received 120 mm rains which was large excess. Out of 13 districts, 3 district received normal, 8 received large excess and 2 received deficient rains during the period. During *rabi* 2022-23, sown area under wheat and oilseeds declined by 2 and 1 thousand ha, respectively, over *rabi* 2021-22. However, sown area under pulses increased by 1 thousand ha during the period.

#### Sale Points

Out of 1,104 fertilizer sale points in the state at the beginning of 2022-23, share of private channel, and cooperative & other institutional channels accounts 50% each.

### III. SOUTH ZONE

#### i) Andhra Pradesh

##### Fertilizer Consumption

Consumption of total fertilizer nutrients in Andhra Pradesh witnessed an increase of 4.1%, from 1.700 million MT during 2021-22 to 1.769 million MT during 2022-23. During *kharif* 2022, consumption of fertilizer nutrients declined by 4.9% but increased in *rabi* 2022-23 by 11% over the corresponding seasons of the previous year. Accordingly, *kharif:rabi* share in total fertilizer nutrient consumption changed from 44:56 during 2021-22 to 40:60 during 2022-23.

During 2022-23, consumption of N at 1.072 million MT and  $P_2O_5$  at 0.549 million MT recorded increase of 6.2% and 8.4%, respectively, over 2021-22. However, consumption of  $K_2O$  at 0.148 million MT registered sharp decline of 19.5% during the period. NPK use ratio widened from 5.5:2.8:1 during 2021-22 to 7.2:3.7:1 in 2022-23. Per hectare consumption of total nutrients increased from 233.2 kg to 242.8 kg during the period.

#### Weather and Crop Situation

Rainfall during southwest monsoon 2022 was normal in both the sub-divisions *viz.*, Coastal Andhra Pradesh at 640 mm and Rayalaseema at 486 mm. Out of 13 districts in the state, 10 received normal and 3 received excess rains during the season. Despite normal to excess rains during the southwest monsoon, the sown area under rice, pulses, oilseeds, sugarcane and jute & mesta declined by 100, 32, 59, 37 and 1 thousand ha, respectively, during *kharif* 2022 over *kharif* 2021. However, sown area under coarse cereals and cotton increased by 4 and 160 thousand ha, respectively, during the season.

During post-monsoon, rainfall was normal at 342 mm in Coastal Andhra Pradesh sub-division and excess at 288 mm in Rayalaseema sub-division. Out of 13 districts, 9 received normal, 3 received excess and 1 received deficient rains during the period. During *rabi* 2022-23, sown area under rice, pulses, coarse cereal and oilseeds declined by 124, 185, 13 and 2 thousand ha, respectively, during the period.

#### Sale Points

Out of 11,110 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 78% and remaining 22% in cooperative and institutional channels.

#### ii) Karnataka

##### Fertilizer Consumption

Total fertilizer nutrient consumption registered a decline of 6.1%, from 2.192 million MT during 2021-22 to 2.059 million MT during 2022-23. On seasonal basis, consumption of total nutrients declined by 10.8% in *kharif* 2022 but increased by 2.4% in *rabi* 2022-23 over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 64:36 during 2021-22 to 61:39 during 2022-23.

On nutrient basis, consumption of N at 1.241 million MT during 2022-23 registered an increase of 0.3% over 2021-22. However, consumption of  $P_2O_5$  at 0.624 million MT and  $K_2O$  at 0.194 million MT witnessed decline of 3.9% and 36.6%, respectively, over the previous year. NPK use ratio changed from 4.1:2.1:1 during 2021-22 to 6.4:3.2:1 during 2022-23. Per hectare consumption of total fertilizer nutrients reduced from 158.5 kg to 148.9 kg during the period.

##### Weather and Crop Situation

During southwest monsoon, rainfall was normal in Coastal Karnataka sub-division at 3245 mm and excess in South Interior Karnataka and North Interior Karnataka sub-divisions at 1010 mm and 651 mm, respectively. Out of 30 districts in the state, rainfall was normal in 5, excess in 13 and large excess in 12 districts during the season. Despite normal to excess rains during southwest monsoon, sown area under rice, pulses, coarse cereals and oilseeds declined by 7, 97, 23 and 7 thousand ha, respectively, during *kharif* 2022 over *kharif* 2021. However, sown area under sugarcane and cotton increased by 64 and 179 thousand ha, respectively, during the period.

During post-monsoon, rainfall was excess in North Interior Karnataka sub-division at 169 mm and South Interior Karnataka sub-division at 300 mm. Rainfall was deficient in Coastal Karnataka sub-division at 196 mm. Out of 30 districts, rainfall was normal in 6, excess in 13, large excess in 8 and deficient in 3 districts during the period. During *rabi* 2022-23, sown area under wheat, coarse cereals and oilseeds declined by 2, 63 and 3 thousand ha, respectively, over *rabi* 2021-22. However, sown area

under rice and pulses increased by 4 and 97 thousand ha, respectively, during the period.

#### Sale Points

Out of 13,546 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 75% and remaining 25% in cooperative and institutional channels.

#### (iii) Kerala

##### Fertilizer Consumption

Total fertilizer nutrient consumption at 154.5 thousand MT during 2022-23 in the state registered a decline of 7% over the previous year. Negative growth in consumption was reported in *kharif* but positive in *rabi* season. During *kharif* 2022, total nutrient consumption declined by 16.9% but in *rabi* 2022-23, it increased by 6.2% over the respective seasons of the previous year. *Kharif:rabi* share in total fertilizer nutrient consumption changed from 57:43 during 2021-22 to 51:49 during 2022-23.

On nutrient basis, consumption of all three nutrients declined during 2022-23 over 2021-22. Consumption of N at 73.8 thousand MT,  $P_2O_5$  at 29.2 thousand MT and  $K_2O$  at 51.5 thousand MT during 2022-23 witnessed decline of 5.7%, 8% and 8.3%, respectively, over the previous year. NPK use ratio remained unchanged at the previous year's level of 1.4:0.6:1. Per hectare consumption of total fertilizer nutrients declined from 64.2 kg to 59.7 kg during the period.

##### Weather and Crop Situation

The state received normal rains during southwest monsoon 2022 at 1737 mm. Out of 14 districts in the state, 11 received normal and 3 received deficient rains during the season. During *kharif* 2022, sown area under rice was lower by 2 thousand ha over *kharif* 2021.

During post-monsoon, state received normal rains at 476 mm. Out of 14 districts, 2 received excess, 7 received normal and 5 received deficient rains during the season. During *rabi* 2022-23, area sown under rice was lower by 5 thousand ha over *rabi* 2021-22.

#### Sale Points

Out of 3,052 fertilizer sale points in the state at the beginning of 2022-23, share of private, and cooperative & institutional channels was 55% and 45%, respectively.

#### iv) Tamil Nadu

##### Fertilizer Consumption

Consumption of total fertilizer nutrients in Tamil Nadu during 2022-23 registered a decline of 7.3% over the previous year. Total nutrient consumption declined from 1.130 million MT during 2021-22 to 1.047 million MT during 2022-23. There was sharp decline in consumption during *kharif* but increase in *rabi* seasons. During *kharif* 2022, total fertilizer

nutrient consumption declined by 17.7% whereas it rose by 2.4% during *rabi* 2022-23 over the corresponding seasons of the previous year. Accordingly, *kharif:rabi* share in total fertilizer consumption changed from 48:52 during 2021-22 to 43:57 during 2022-23.

Consumption of all three nutrients showed decline during 2022-23. Consumption of N at 0.653 million MT,  $P_2O_5$  at 0.274 million MT and  $K_2O$  at 0.120 million MT during 2022-23 witnessed decline of 3.4%, 0.2% and 32.9%, respectively, over 2021-22. NPK use ratio changed from 3.8:1.5:1 during 2021-22 to 5.4:2.3:1 during 2022-23. Per hectare consumption of total fertilizer nutrients reduced significantly from 190.1 kg to 176.1 kg during the period.

#### Weather and Crop Situation

During southwest monsoon 2022, the state received excess rains at 477 mm. Out of 38 districts in the state, 8 received normal, 16 received excess, 11 received large excess and 3 received deficient rains during the season. During *kharif* 2022, sown area under rice, sugarcane, coarse cereals, cotton and pulses increased by 4, 5, 7, 5 and 8 thousand ha, respectively, over *kharif* 2021. However, sown area under oilseeds declined by 4 thousand ha during the period.

During post-monsoon, the state received normal rains at 446 mm. Out of 38 districts, 25 received normal, 7 received excess and 6 received deficient rains during the season. During *rabi* 2022-23, sown area under rice and oilseeds increased by 45 and 15 thousand ha, respectively, over *rabi* 2021-22. However, sown area under coarse cereals was down by 1 thousand ha during the period.

#### Sale Points

Out of 13,745 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 67% and remaining 33% belonged to cooperative and institutional channels.

#### v) Telangana

##### Fertilizer Consumption

Total fertilizer nutrients consumption in Telangana showed a positive growth of 4.7% during 2022-23 over 2021-22. Total nutrient consumption increased from 1.636 million MT during 2021-22 to 1.713 million MT during 2022-23. While consumption of total nutrients declined by 7.1% in *kharif* 2022, it increased by 21.4% in *rabi* 2022-23 over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 59:41 during 2021-22 to 52:48 during 2022-23.

Consumption of N at 1.192 million MT and  $P_2O_5$  at 0.452 million MT during 2022-23 recorded increase of 7.9% and 6.5%, respectively, over 2021-22. However, consumption of  $K_2O$  at 69.5 thousand MT registered a sharp decline of 35.5% during the period. NPK use ratio widened from 10.3:3.9:1

during 2021-22 to 17.2:6.5:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 218.8 kg to 229 kg during the period.

#### Weather and Crop Situation

The state received excess rains at 1074 mm during southwest monsoon 2022. Out of 33 districts in the state, 5 received normal, 17 received excess and 11 districts received large excess rains during the monsoon season. During *kharif* 2022, sown area under rice, coarse cereals, oilseeds and sugarcane increased by 97, 58, 17 and 2 thousand ha, respectively, over *kharif* 2021. However, sown area under pulses and cotton declined by 174 and 38 thousand ha, respectively, during the period.

Rainfall received during post-monsoon was normal at 119 mm. Out of 33 districts, 20 districts received normal, 5 received excess and 8 received deficient rains during the season. During *rabi* 2022-23, sown area under rice and coarse cereals increased by 1031 and 115 thousand ha, respectively, over *rabi* 2021-22. However, sown area under pulses and oilseeds declined by 8 and 40 thousand ha, respectively, during the period.

#### Sale Points

Out of 13,241 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 83% and remaining 17% in cooperative and institutional channels.

### IV. WEST ZONE

#### i) Gujarat

##### Fertilizer Consumption

Consumption of total fertilizer nutrients increased by 6.5%, from 1.700 million MT during 2021-22 to 1.811 million MT during 2022-23. Consumption of total fertilizer nutrients increased in both the seasons. It increased by 12.3% in *kharif* 2022 and 2.1% in *rabi* 2022-23 over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 43:57 during 2021-22 to 46:54 during 2022-23.

On nutrient basis, consumption of N at 1.341 million MT and  $P_2O_5$  at 0.395 million MT during 2022-23 recorded increase of 10.4% and 3.3%, respectively, over 2021-22. However, consumption of  $K_2O$  at 74.3 thousand MT registered a sharp decline of 27.1% during the period. NPK use ratio widened from 11.9:3.8:1 during 2021-22 to 18.1:5.3:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 123 kg to 131.1 kg during the period.

#### Weather and Crop Situation

During southwest monsoon 2022, rainfall was normal in Gujarat region and excess in Saurashtra & Kutch sub-divisions. Rains received in Gujarat



region was 1105 mm and it was 753 mm in Saurashtra & Kutch sub-divisions during the season. Out of 33 districts in the state, 17 received normal, 12 received excess, 3 received large excess and 1 received deficient rains during the season. During *kharif 2022*, sown area under rice, coarse cereals, sugarcane and cotton increased by 51, 7, 1 and 295 thousand ha, respectively, over *kharif 2021*. However, sown area under pulses and oilseeds reduced by 84 and 155 thousand ha, respectively, during the period.

During post-monsoon season, rainfall was normal in Gujarat region and large deficient in Saurashtra & Kutch sub-divisions. Gujarat region received 37 mm rains and Saurashtra & Kutch sub-divisions received only 7 mm rains during the season. Out of 33 districts, 3 received normal, 8 received excess, 5 received large excess, 5 received deficient, 10 received large deficient and 2 had no rains during the season. During *rabi 2022-23*, sown area under wheat and coarse cereals increased by 43 and 16 thousand ha, respectively, over *rabi 2021-22*. However, sown area under pulses and oilseeds reduced by 339 and 33 thousand ha, respectively, during the period.

#### Sale Points

Out of 10,228 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 44% and remaining 56% in cooperative and institutional channels.

#### ii) Madhya Pradesh

##### Fertilizer Consumption

Madhya Pradesh is the third largest fertilizer consuming state in the country having a share of about 9.4% to All-India consumption of fertilizer nutrients. Total fertilizer nutrient consumption in the state at 2.805 million MT during 2022-23 recorded an increase of 5.8% over 2021-22. Consumption of total nutrients was positive in both *kharif* and *rabi* seasons. Consumption of fertilizer nutrients during *kharif 2022* rose by 12% and in *rabi 2022-23* by 0.9% over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 44:56 during 2021-22 to 46:54 during 2022-23.

Consumption of N at 1.818 million MT and  $P_2O_5$  at 0.912 million MT during 2022-23 recorded increase of 11.6% and 2.5%, respectively, over 2021-22. However, consumption of  $K_2O$  at 74.6 thousand MT registered a sharp decline of 43.8% during the period. NPK use ratio broadened from 12.3:6.7:1 during 2021-22 to 24.4:12.2:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 93.8 kg to 99.2 kg during the period.

#### Weather and Crop Situation

During southwest monsoon 2022, the rainfall was excess in West Madhya Pradesh sub-division at 1192 mm and normal in East Madhya Pradesh sub-division at 1146 mm. Out of 52 districts in the state, 20 received normal, 27 received excess, 3 received large excess and 2 received deficient rains during the season. During *kharif 2022*, sown area under coarse cereals and pulses increased by 78 and 408 thousand ha, respectively, over *kharif 2021*. However, sown area under rice, sugarcane, oilseeds and cotton declined by 224, 20, 305 and 1 thousand ha, respectively, during the season.

During the post-monsoon, rainfall was large excess rains in West Madhya Pradesh sub-division at 104 mm and excess rains in East Madhya Pradesh sub-division at 88 mm. Out of 52 districts, 6 received normal, 9 received excess and 37 received large excess rains during the season. During *rabi 2022-23*, despite normal to excess rains during the season, sown area under wheat, pulses and coarse cereals declined by 415, 214 and 41 thousand ha, respectively, over *rabi 2021-22*. However, sown area under oilseeds increased by 257 thousand ha during the season.

#### Sale Points

Out of 15,737 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 65% and remaining 35% in cooperative and institutional channels.

#### iii) Chhattisgarh

##### Fertilizer Consumption

Consumption of total fertilizer nutrients registered a decline of 6.3%, from a total of 0.758 million MT during 2021-22 to 0.710 million MT during 2022-23. It declined in *kharif 2022* by 11.1% but increased by 12% in *rabi 2022-23* over the corresponding seasons of the previous year. *Kharif:rabi* share in total consumption changed from 79:21 during 2021-22 to 75:25 during 2022-23.

Consumption of N at 0.464 million MT during 2022-23 registered an increase of 2.1% over 2021-22. However, consumption of  $P_2O_5$  at 0.211 million MT and  $K_2O$  at 34.6 thousand MT witnessed sharp decline of 9.9% and 49.6%, respectively, during the period. NPK use ratio widened from 6.6:3.4:1 during 2021-22 to 13.4:6.1:1 during 2022-23. Per hectare consumption of fertilizer nutrients reduced from 132.2 kg to 123.8 kg during the period.

#### Weather and Crop Situation

Cumulative rains received in the state was normal at 1276 mm during southwest monsoon 2022. Out of 27 districts in the state, 11 received normal, 11

received excess, 1 received large excess and 4 received deficient rains during the season. During *kharif* 2022, sown area under coarse cereals and pulses increased by 59 and 12 thousand ha, respectively, over *kharif* 2021. However, sown area under, rice, oilseeds and sugarcane declined by 74, 31 and 3 thousand ha, respectively, during the period.

During post-monsoon, the state received normal rains at 74 mm. Out of 27 districts, 13 districts received normal, 4 received excess, 1 received large excess and 9 received deficient rains during the season. During *rabi* 2022-23, sown area under rice, wheat, pulses and oilseeds increased by 50, 47, 32 and 65 thousand ha, respectively, over *rabi* 2021-22. However, sown area under coarse cereals declined by 7 thousand ha during the period.

#### Sale Points

Out of 5,713 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 58% and remaining 42% in cooperative and institutional channels.

#### iv) Maharashtra

##### Fertilizer Consumption

Maharashtra is the second largest fertilizer consuming state in the country having a share of about 10% to All-India consumption of fertilizer nutrients. Consumption of fertilizer nutrients reduced from 3.136 million MT during 2021-22 to 2.823 million MT during 2022-23, representing a negative growth of 10%. Total nutrient consumption declined in *kharif* 2022 by 17.3% but in *rabi* 2022-23, it increased by 2.1% over the respective seasons of the previous year. *Kharif:rabi* share in total consumption changed from 62:38 during 2021-22 to 57:43 during 2022-23.

Consumption of N at 1.597 million MT during 2022-23 registered a marginal increase of 0.2% over 2021-22. However, consumption of  $P_2O_5$  at 0.930 million MT and  $K_2O$  at 0.296 million MT witnessed decline of 8.1% and 44%, respectively, during the period. NPK use ratio changed from 3.0:1.9:1 during 2021-22 to 5.4:3.1:1 during 2022-23. Per hectare consumption of fertilizer nutrients reduced from 131.4 kg to 118.3 kg during the period.

##### Weather and Crop Situation

During southwest monsoon 2022, Madhya Maharashtra, Vidarbha and Marathawada sub-divisions received excess rains at 942 mm, 1228 mm and 794 mm, respectively, during the season. Out of total 36 districts in the state, 17 received normal, 18 received excess and 1 received large excess rains during the season. During *kharif* 2022, sown area

under rice, oilseeds, cotton and sugarcane increased by 8, 244, 272 and 120 thousand ha, respectively, over *kharif* 2021. However, sown area under coarse cereals and pulses declined by 170 and 351 thousand ha, respectively, during the period.

During post-monsoon, rainfall was normal in Vidarbha sub-division at 88 mm and excess in both Marathawada sub-division at 134 mm and Madhya Maharashtra sub-division at 161 mm during the season. Out of total 36 districts, 6 received normal, 19 received excess, 9 received large excess and 2 received deficient rains during the season. During *rabi* 2022-23, sown area under wheat, pulses and oilseeds increased by 103, 285 and 22 thousand ha, respectively, over *rabi* 2021-22. However, sown area under coarse cereals declined by 19 thousand ha during the period.

#### Sale Points

Out of 34,500 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 92% and remaining 8% in cooperative and institutional channels.

#### v) Rajasthan

##### Fertilizer Consumption

The consumption of total fertilizer nutrients at 1.826 million MT during 2022-23, recorded an increase of 13.3% over the previous year. Consumption of total fertilizer nutrients in *kharif* 2022 increased considerably by 47.5% but declined in *rabi* 2022-23 by 6.9% over the corresponding seasons in the previous year. Accordingly, *kharif:rabi* share in total fertilizer consumption changed from 37:63 during 2021-22 to 48:52 during 2022-23.

On nutrient basis, consumption of N at 1.320 million MT and  $P_2O_5$  at 0.493 million MT during 2022-23 recorded increase of 13.2% and 19% respectively, over 2021-22. However, consumption of  $K_2O$  at 12.6 thousand MT witnessed a sharp decline of 58.2% during the period. NPK use ratio broadened from 38.7:13.8:1 during 2021-22 to 104.9:39.2:1 during 2022-23. Per hectare consumption of total fertilizer nutrients increased from 58.6 kg to 66.4 kg during the period.

##### Weather and Crop Situation

During southwest monsoon 2022, rainfall was excess in both the sub-divisions. Rains received in East Rajasthan sub-division was at 780 mm and West Rajasthan sub-division at 446 mm. Out of total 33 districts in the state, 12 received normal, 17 received excess and 4 received large excess rains during the season. During *kharif* 2022, sown area under rice, coarse cereals, oilseeds and cotton increased by 37, 827, 128 and 54 thousand ha, respectively, over *kharif* 2021. However, sown area

under pulses was down by 67 thousand ha during the period.

During the post-monsoon, rainfall was large deficient in West Rajasthan sub-division at 4 mm only while large excess in East Rajasthan sub-division at 69 mm during the season. Out of 33 districts, 2 received normal, 6 received excess, 14 received large excess, 3 received deficient, 6 received large deficient and 2 had no rains during the season. During *rabi* 2022-23, sown area under wheat, pulses, coarse cereals and oilseeds increased by 252, 106, 93 and 443 thousand ha, respectively, over *rabi* 2021-22.

### Sale Points

Out of 14,609 fertilizer sale points in the state at the beginning of 2022-23, share of private channel was 67% and remaining 33% in cooperative and institutional channels.

## 7.0 CONSUMPTION PRODUCTION BALANCE

### 7.1 All India

The difference between consumption and domestic production is expressed as deficit or surplus. If production of fertilizers is in excess of consumption, then it is a surplus situation. On the other hand, if consumption of fertilizers is higher than production, then it is a situation of deficit.

In India, nitrogenous and phosphatic fertilizers are indigenously produced. The gap between total requirement and indigenous production is fulfilled through imports of these fertilizers. The country is deficient in the production of both N and  $P_2O_5$  compared to consumption. During 2022-23, total consumption and production of nitrogen increased by 0.768 and 1.868 million MT, respectively, over the previous year. Higher increase in production compared to consumption, narrowed the deficit from 5.568 million MT in 2021-22 to 4.469 million MT in 2022-23.

Similarly, in case of  $P_2O_5$ , consumption and production increased by 94 and 296 thousand MT, respectively, during 2022-23 over 2021-22. Consequently, deficit reduced from 3.117 million MT in 2021-22 to 2.914 million MT in 2022-23 due to higher increase in production compared to consumption. Zone-wise consumption, production and surplus/ deficit of N and  $P_2O_5$  for 2021-22 and 2022-23 are presented in **Table 17**.

### 7.2 East Zone

The production of N is short of consumption in the East zone. During 2022-23, two new ammonia-urea plants at Barauni (Bihar) and Sindri (Jharkhand) commissioned at the mid of the year. With this, there are 5 urea plants in East zone. But one plant of

BVFCL, Namrup could not operate during 2022-23 due to equipment failures in ammonia synthesis section. However, production of N increased by 445 thousand MT during 2022-23 over 2021-22. As against this, consumption of N increased by 85 thousand MT during the period. Consequently, the deficit in N reduced from 1.622 million MT in 2021-22 to 1.262 million MT in 2022-23.

East zone has 3 large sized DAP/complex fertilizer plants and 8 SSP plants. The zone continued to remain surplus in  $P_2O_5$  production during 2022-23. The surplus of  $P_2O_5$  in the east zone increased from 378 thousand MT in 2021-22 to 412 thousand MT in 2022-23 due to proportionately higher increase in production compared to consumption.

### 7.3 North Zone

North zone is deficient in both N and  $P_2O_5$ . During 2022-23, a new ammonia-urea plant at Gorakhpur (Uttar Pradesh) commenced commercial production of urea. Though the zone has a large number of nitrogen producing plants but at the same time, it comprises of high fertilizer consuming states such as, Uttar Pradesh, Punjab and Haryana. The deficit of N declined from 2.324 million MT during 2021-22

**Table 17. Zone-wise consumption, production and surplus/ deficit of N and  $P_2O_5$  - 2021-22 and 2022-23 (April/March)**

Zone	N		$P_2O_5$	
	2021-22	2022-23	2021-22	2022-23
('000 tonnes)				
<b>East</b>				
1. Consumption	2650	2735	1079	1103
2. Production	1028	1473	1457	1515
3. Surplus(+)/ Deficit (-)	-1622	-1262	378	412
<b>North</b>				
1. Consumption	6613	6690	1926	1945
2. Production	4289	4971	63	58
3. Surplus(+)/ Deficit (-)	-2324	-1719	-1864	-1887
<b>South</b>				
1. Consumption	4114	4240	1888	1930
2. Production	2190	2648	1151	1255
3. Surplus(+)/ Deficit (-)	-1924	-1592	-738	-675
<b>West</b>				
1. Consumption	6061	6542	2935	2944
2. Production	6363	6646	2042	2180
3. Surplus(+)/ Deficit (-)	302	105	-894	-764
<b>All-India</b>				
1. Consumption	19438	20206	7828	7922
2. Production	13870	15738	4712	5008
3. Surplus(+)/ Deficit (-)	-5568	-4469	-3117	-2914

Note :

- (1) Consumption figures for 2022-23 are provisional.
- (2) Entire requirement of  $K_2O$  is met through imports.
- (3) All-India totals may not exactly tally due to rounding of figures.

to 1.719 million MT during 2022-23. The reduction in deficit was on account of more increase in production compared to consumption.

The production of  $P_2O_5$  in the north zone is low and it is only through SSP as there is no DAP/ NP/NPK plant in the zone. There are 7 SSP operating plants in the North zone. During 2022-23, the deficit in  $P_2O_5$  increased to 1.887 million MT from 1.864 million MT during 2021-22. The rise in deficit was due to increase in consumption against reduction in production.

#### 7.4 South Zone

The south zone has 6 urea operating plants and 8 DAP/NP/NPK plants. In addition, there are 17 SSP, 2 ammonium sulphate and 1 ammonium chloride plants in the zone. Nevertheless, the zone is deficient in both N and  $P_2O_5$ . During 2022-23, the deficit in N declined to 1.592 million MT from 1.924 million MT in 2021-22 due to higher increase in production compared to consumption.

Similarly, the deficit in  $P_2O_5$  also declined from 0.738 million MT during 2021-22 to 0.675 million MT during 2022-23. This was due to proportionately higher increase in production compared to consumption.

#### 7.5 West Zone

The west zone is surplus in N but deficient in  $P_2O_5$ . West zone has the largest number of nitrogenous and phosphatic fertilizer plants. There are 13 urea and 9 DAP/NP/NPK plants located in the zone. In addition, there are 70 SSP plants and 4 ammonium sulphate plants in the zone. The share of the west

zone in all India production of N and  $P_2O_5$  was 42% and 44%, respectively, during 2022-23. The surplus of N in the west zone reduced from 302 thousand MT in 2021-22 to 105 thousand MT in 2022-23 due to proportionately higher increase in consumption compared to production.

In case of  $P_2O_5$ , the deficit reduced from 0.894 million MT in 2021-22 to 0.764 million MT during 2022-23. This was due to higher increase in production compared to consumption.

Thus, only west zone is surplus in nitrogen and only east zone is surplus in phosphate. North and South zones are deficit both in nitrogen and phosphate. This is also reflected in substantial deficit in both N and  $P_2O_5$  at national level.

### 8.0 PRODUCTION OF FOOD GRAINS AND COMMERCIAL CROPS

As per the 3<sup>rd</sup> Advance Estimates of crop production for 2022-23, total production of food grains is estimated to be 330.53 million MT, about 14.92 million MT (4.7%) higher than the previous year's level. Among food grain crops, production of rice, wheat, coarse cereals and pulses are estimated to increase by 4.7%, 4.6%, 7.1% and 0.7%, respectively, during 2022-23 over 2021-22. Increase in production of oilseeds, sugarcane and cotton is estimated to be 8.0%, 12.5% and 10.4%, respectively. However, production of jute & mesta is estimated to decline by 6.5% during the period (Table 18).

### 9. AGRICULTURAL DEVELOPMENT PROGRAMMES

Agriculture plays a vital role in India's economy. 54.6 % of the total workforce is engaged in

Table 18 - Production of foodgrains and cash crops from 2020-21 to 2022-23

Crop/Season	(Million tonnes)					
	2020-21		2021-22		2022-23	
	Target	Final Estimate	Target	Final Estimate	Target	3 <sup>rd</sup> Advance Estimate
1. Rice	119.6	124.4	121.1	129.5	130.5	135.5
2. Wheat	108.0	109.6	110.0	107.7	112.0	112.7
3. Coarse cereals	47.8	51.3	51.2	51.1	56.0	54.7
4. Total pulses	25.6	25.5	25.0	27.3	29.6	27.5
<b>Total Foodgrains</b>	<b>301.0</b>	<b>310.7</b>	<b>307.3</b>	<b>315.6</b>	<b>328.0</b>	<b>330.5</b>
(i) Kharif	149.4	150.6	151.4	155.4	163.2	170.3*
(ii) Rabi	151.7	160.2	155.9	160.3	164.9	160.2
5. Sugarcane	390.0	405.4	397.0	439.4	415.0	494.2
6. Oilseeds	37.0	35.9	38.4	38.0	41.3	41.0
-Out of which						
(i) Groundnut	9.1	10.2	9.9	10.1	10.4	10.3
(ii) Soyabean	14.7	12.6	14.8	13.0	14.8	15.0
(iii) Rapeseed & Mustard	9.4	10.2	10.2	12.0	12.1	12.5
7. Cotton @	36.0	35.2	37.0	31.1	37.0	34.3
8. Jute & Mesta \$	10.5	9.4	10.6	10.1	10.5	9.5

@ = Million bales of 170 kg each \$ = Million bales of 180 kg each \*Inclusive of 15.2 million MT for summer crops

Type of seeds	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Breeder seed production	11.02	8.23	8.62	9.04	11.07	10.51	10.43	9.27	9.12	9.35	7.60*
Foundation seed	161.70	174.31	157.62	149.54	220.91	195.42	180.10	222.50	241.21	213.97	238.81
Certified / quality seed production / availability	3285.80	3473.13	3517.66	3435.25	3802.90	4194.11	3988.77	4310.10	4836.63	4988.29	5142.58
* = Target											
Source : Annual Report 2022-23, Department of Agriculture & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India.											

agriculture and allied sector activities (Census 2011) and it accounts for 18.6% of India's GVA at current prices during 2021-22. Given the importance of the agriculture sector, Government of India has taken several steps for its development on a sustainable basis.

### 9.1 Seed Production

Seeds play a vital role for agricultural production. The Indian seeds programme recognizes three generations of seeds, namely breeder, foundation and certified seeds. The details of production of breeder, foundation and certified seeds from 2012-13 to 2022-23 are shown in **Table 19**.

### 9.2 National Mission for Sustainable Agriculture

National Mission for Sustainable Agriculture (NMSA) is one of the eight Missions outlined under the National Action Plan on Climate Change (NAPCC) and aims at promoting sustainable agriculture by devising appropriate adaptation strategies/dimensions. During the 12<sup>th</sup> Five Year Plan, these strategies/dimensions were embedded and mainstreamed into Missions/Programmes/Schemes of the Department of Agriculture and Farmers Welfare (DA&FW) through a process of restructuring and convergence. NMSA, as a programmatic intervention made operational from the year 2014-15, aims at making agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific integrated /composite farming systems; soil and moisture conservation measures; comprehensive soil health management; efficient water management practices and main streaming rainfed technologies. The focus of NMSA is also to promote sustainable agriculture through climate change adaptation measures. The major thrust is enhancing agriculture productivity especially in rainfed areas focusing on integrated farming, soil health management and synergizing resource conservation. From the year 2018-19, NMSA was being implemented as a sub-mission/sub-umbrella scheme under the Umbrella Scheme

of 'Green Revolution-Krishonnati Yojana'. From 2022-23, various programmes/schemes of NMSA has been subsumed under Rashtriya Krishi Vikas Yojana (RKVY) as RKVY- Annual Action Plan based programme.

### 9.3 Soil Health Management

The components under Soil Health Management include setting up of new static Soil Testing Laboratories (STLs), setting up of new Mobile STLs, setting up of Village Level STLs/Mini STLs, strengthening of existing Static/Mobile STLs, setting up of new Fertilizer Quality Control Laboratory (FQCL), strengthening of FQCL, setting up of Bio-fertilizer Production Units (BPU), strengthening of BPU, setting up of Bio-fertilizer & Organic Fertilizer Quality Control Laboratories (BOQCL), strengthening of BOQCL, etc. Under the scheme, setting up 01 New Static STL, & 10 Bio-fertilizer Production Units were sanctioned. A scheme of Soil Health Card (SHC) was launched on 19<sup>th</sup> February, 2015 to provide SHCs to all the farmers in the country. The Card provides information to farmers on soil nutrient status of their soil and recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility. Funds amounting to Rs. 16.92 crore was released under soil health management up to 23<sup>rd</sup> January, 2023.

### 9.4 Rainfed Area Development

Rainfed Area Development (RAD) is being implemented as a component of the National Mission for Sustainable Agriculture (NMSA) from the year 2014-15. RAD adopts an area based approach for development and conservation of natural resources through promoting Integrated Farming Systems (IFS). IFS focuses on multi cropping, rotational cropping, inter-cropping and mixed cropping practices with allied activities like horticulture, livestock, fishery, apiculture, etc. to enable farmers not only in maximizing farm returns

for sustaining livelihood, but also to mitigate the impact of drought, flood or other extreme weather events. The benefits of IFS are (a) Increasing agricultural productivity of rainfed areas in a sustainable manner by adopting an appropriate farming system based approach, (b) To minimize the adverse impact of possible crop failure due to drought, flood or un-even rainfall distribution through diversified and composite farming systems and (c) Enhancement of farmer's income and livelihood support for reduction of poverty in rainfed areas. The total area covered under NMSA-RAD since inception upto 31<sup>st</sup> March, 2022 is 6.74 lakh ha. During 2022-23, an amount of Rs.64.42 crore has been released upto 7<sup>th</sup> February, 2023 to the States for implementation of the programme. Since inception and upto 7<sup>th</sup> February, 2023, an amount of Rs. 1573.98 crore has been released to States under RAD.

### 9.5 Drought Management

Spatial distribution and cold wave/frost quantum of rainfall during southwest monsoon (June-September) mainly determines the incidence of drought in the country, as southwest monsoon (SWM) accounts for more than 70% of annual rainfall. DA&FW closely monitors progress of SWM in the country, in coordination with India Meteorological Department (IMD) and Ministry of Earth Sciences, and keeps a watch over deficient/large deficient rainfall conditions. During the year 2022-23, the State Government of Jharkhand has submitted memorandum seeking financial assistance from National Disaster Response Fund (NDRF) for drought in the State during *Kharif-2022*. Inter-Ministerial Central Team (IMCT) has been constituted to visit the State for assessing loss/damage to crops, etc. and recommend appropriate financial assistance from NDRF. Central Research Institute for Dryland Agriculture (CRIDA), under Indian Council of Agricultural Research, has developed detailed district-wise contingency plans to provide a broad advisory to farmers. These contingency plans prescribe alternate strategies in the event of climate variability by factoring in crops/livestock/aquaculture practices/pattern, soil characteristics, infrastructural facilities, etc. These plans have been developed based on certain simulated models for different weather conditions like occurrence of flood, drought, cyclone, cold wave/frost, etc. CRIDA has so far prepared contingency plans for 650 districts of the country.

### 9.6 Micro Irrigation Fund

Union Finance Minister in the Union Budget 2017-18 announced setting up of a dedicated Micro

Irrigation Fund (MIF) to be instituted with NABARD with an initial corpus of Rs. 5000 crore. The objective of the fund is to facilitate the States in mobilizing resources for expanding coverage of micro irrigation by taking up special and innovative projects and also for incentivising micro irrigation beyond the provisions available under Public Debt Management Cell (PDMC) to encourage farmers to install micro irrigation systems. The Steering Committee of MIF & NABARD has approved grant of loan of Rs 4710.96 crore to the Governments of Andhra Pradesh, Tamil Nadu, Haryana, Gujarat, West Bengal, Punjab, Rajasthan and Uttarakhand till now. NABARD has released an amount of Rs. 2174 crore to the States of Tamil Nadu, Andhra Pradesh, Haryana, Gujarat and Punjab. Interest subvention by Government of India under MIF of Rs. 31.34 crore has been released to NABARD till quarter ending September, 2022. MIF has been proposed to be augmented by additional amount of Rs.5000 crore.

### 9.7 Mission for Integrated Development of Horticulture

Mission for Integrated Development of Horticulture (MIDH) is a centrally sponsored scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew and cocoa. MIDH consists of 5 schemes on Horticulture viz. (i) National Horticulture Mission (NHM), (ii) Horticulture Mission for North East and Himalayan States (HMNEH), (iii) National Horticulture Board (NHB), (iv) Coconut Development Board (CDB), (v) Central Institute of Horticulture (CIH), Nagaland. Under MIDH, Government of India (GOI) contributes 60%, of total outlay for developmental programmes in all the States except States in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern and Himalayan States, GOI contributes 90%. In case of National Horticulture Board, Coconut Development Board, Central Institute for Horticulture, Nagaland and the National Level Agencies (NLA), GOI contributes 100%. The budget allocation of Rs. 1914.38 crore has been earmarked for MIDH during 2022-23. As on 31<sup>st</sup> December, 2022, funds to the tune of Rs. 543.22 crore have been released for implementation of activities of MIDH *i.e.* Rs. 252.35 crore under NHM, Rs. 124.23 crore under HMNEH, Rs. 49.77 crore under CDB, Rs.106.17 crore to NHB, Rs. 7.83 crore to CIH, DCCD & DASD and Rs. 2.87 crore to National Biodiversity Mission.

### 9.8 Rashtriya Krishi Vikas Yojana

The scheme has been revamped as the Rashtriya Krishi Vikas Yojana - Remunerative Approaches for

Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) for implementation from 2017-18 with a major focus on pre & post-harvest infrastructure, besides promoting agri-entrepreneurship, innovations and value addition with the approval of the Union Cabinet on 1<sup>st</sup> November, 2017. A State Level Sanctioning Committee (SLSC) constituted under the Chairmanship of the Chief Secretary of the concerned State/UT is empowered to approve projects under the scheme. The State Department of Agriculture is the nodal Department for implementation of the scheme in the State. The scheme is available for the various activities of agriculture & allied sector such as crop development, horticulture, agricultural mechanization, marketing, pre and post-harvest management, integrated pest management, organic farming, research, extension, etc. As per recommendation of Expenditure Finance Committee, RKVY has re-structured as RKVY cafeteria scheme from 2022-23 onwards merging some schemes of Department of Agriculture and Farmers Welfare which include Soil Health & Fertility, Rainfed Area Development, Paramparagat Krishi Vikas Yojana (PKVY), National Mission on Natural Farming, Per Drop More Crop, Agriculture Mechanization (including Promotion of Agricultural Mechanization and Management of Crop Residue (CRM), Village Haats & GRAAMS and Crop Diversification Programme. RKVY Cafeteria scheme has 3 components Annual Action Plan (AAP), Detailed Project Report (DPR) and Administration, Monitoring and Evaluation including startup. Out of the total allocation of RKVY Cafeteria, a minimum of 65% will be allocated for AAP component, a maximum of 30% for DPR component and up to 5% for Administration, Monitoring and Evaluation purposes including start-ups.

### 9.9 Pradhan Mantri Fasal Bima Yojana

Government of India had formulated the new Crop Insurance Schemes viz. Pradhan Mantri Fasal Bima Yojana (PMFBY), which is being implemented in various States/Union Territories of the country from *Kharif* 2016. The scheme is being implemented through 18 General Insurance Companies including 5 Government Sector Companies. Under PMFBY, a uniform maximum premium of only 2% of the sum insured is paid by farmers for *kharif* crops and 1.5% for *rabi* crops. In case of annual commercial and horticultural crops, the maximum premium to be paid by farmers is upto 5%. The premium rates to be paid by farmers are very low and the balance of actuarial premium is being borne by the Government, to be shared equally by the State & Central Government (except in North Eastern States where the subsidy sharing pattern between Central

and State Government is 90:10) to provide full insured amount to the farmers against crop loss on account of natural calamities.

### 9.10 Pradhan Mantri Kisan Samman Nidhi

The objective of the scheme is to augment the income of families of all land holding farmers subject to certain exclusion criteria relating to higher income status. The scheme was formally launched on 24<sup>th</sup> February, 2019. The scheme was originally started for small & marginal farmers (SMFs) only, possessing a combined holding of upto 2 hectares of land, but later w.e.f. 1<sup>st</sup> April, 2019, the scheme was extended to all farmers, irrespective of the size of their land holdings. The scheme aims to provide a payment of Rs. 6000/- per year to be transferred in three equal instalments of Rs. 2000/- each, every four months directly into the bank accounts of eligible landholding farmer families. For effective implementation of the scheme, detailed operational guidelines have been issued which are amended from time-to-time as and when considered necessary. The scheme is being implemented online through the direct benefit transfer (DBT) mode for which an exclusive web-portal [www.pmkisan.gov.in](http://www.pmkisan.gov.in) has been created. The identification of beneficiaries for the scheme is the sole responsibility of the State/UT Governments which upload their necessary details on the PM-KISAN portal for enabling transfer of benefits to them. The scheme is effective from 1<sup>st</sup> December, 2018. The scheme aims to supplement the financial needs of farmers to enable them to take care of expenses related to agriculture and allied activities as well as domestic needs. This would also protect them from falling in the clutches of moneylenders for meeting expenses and ensure their continuance in farming activities.

### 9.11 Paramparagat Krishi Vikas Yojana

Government has prepared a road map to encourage the farmer for adopting organic farming with launching a new scheme i.e. Paramparagat Krishi Vikas Yojana (PKVY) for promotion of organic farming in our country. PKVY is the first comprehensive scheme launched by the Central Government as a centrally sponsored programme (CSP), where the Central and State Governments share the funding in varying ratio. It is 100% in Union Territories (UTs), 90:10 in North-Eastern and Hilly States and 60:40 in case of all other States. The PKVY Scheme is implemented in a cluster mode with minimum 20 ha size and states have been asked to implement in cluster size of 1000 ha in plain area and 500 ha in hilly area to facilitate marketing of organic produce. All farmers are eligible but within

a group a farmer can avail benefit to a maximum of 2 ha and the limit of assistance is Rs.50, 000 per ha, out of which 62% i.e., Rs. 31,000 is given as incentives to a farmer for organic conversion, organic inputs, on farm inputs, production infrastructure, etc., shall be provided directly through DBT during the conversion period of 3 years. Total fund released under PKVY Scheme is Rs.1758.48 crore during the period 2015-16 to 2022-23 (as on 31<sup>st</sup> February, 2023). Total fund released was Rs 93.25 crore during 2022-23. During 2022-23, funds were released for 5670 new clusters covering an area of 11,3400 ha.

### 9.12 Bhartiya Prakritik Krishi Paddhti

Government of India has already initiated Natural Farming(NF) through implementation of Bhartiya Prakriti Krishi Padhati (BPKP-A sub scheme of PKVY)-since 2020-21 to promote traditional indigenous agroecological farming including zero budget natural farming which has gained huge importance across the country. A total of 4.09 lakh ha area has already been covered in 8 States under BPKP. The BPKP scheme is being upscaled in mission mode as National Mission on Natural Farming (NMNF) to cover 7.5 lakh ha area by developing 15,000 clusters. The scheme has already been appraised by the Expenditure Finance Committee (EFC) on 4<sup>th</sup> October 2022 and is being submitted for the Cabinet approval. The main objectives of NMNF are Centrally sponsored scheme with central Government outlay of Rs. 1584 crore, Nation-wide outreach and training through central & State agencies, one model natural farming cluster in at least one gram panchayat in each block, farmer field school to be the key awareness strategy. States to roll out clusters in selected GPs and clusters to be developed around a champion farmer – Each One Teach One. Targets for the scheme are conduct of 20,000 farmer field schools, development of 15,000 clusters across the country covering of 750,000 ha area & 15 lakh farmers and training of equal number of farmers –**Each One Teach One**, National Centre for Organic & Natural Farming (NCONF) to facilitate certification & training of master trainers, ICAR has identified 425 ICAR-KVKs to be model training and demonstration centres for NF. MANAGE has been designated as “Knowledge partner for NF extension”. NCONF is undertaking large numbers of trainings and have developed necessary training materials, videos, best practices and collected more than 250 success stories. ICAR-KVKs trained more than 85,315 farmers, laid demonstrations at 539 KVKs. ICAR has also initiated research and drafted course curriculum for under and post-graduate courses. The mission has already

been rolled out. A total of 1.48 lakh ha area has been sanctioned to 4 states namely Bihar (52,000 ha area), Jharkhand (4000 ha area), Uttarakhand (6400 ha area) & Uttar Pradesh (85,710 ha area). MANAGE as a knowledge partner has already trained 10,000 master trainers and sensitized 55,600 gram pradhans in the country.

### 9.13 Agriculture Credit

Government announces annual target for agriculture credit in the budget every year. Agricultural credit flow has shown consistent progress every year. The agriculture credit flow target for the year 2021-22 was fixed at Rs. 16,50,000 crore and against this target the achievement was Rs.18,63,363 crore. The agriculture credit flow target for 2022-23 was fixed at Rs.18,50,000 crore.

### 9.14 Doubling Farmers Income

Government constituted an Inter-ministerial Committee in April, 2016 to examine issues relating to “Doubling of Farmers Income” and recommended strategies to achieve the same. The Committee submitted its Report to the Government in September, 2018 containing comprehensive strategy for doubling of farmers’ income through various policies, reforms & programmes. All these policies and programmes are being supported by higher budgetary allocations (from Rs. 21,933.50 crore during BE 2013-14 to Rs. 1,24,000 crore during BE 2022-23), non-budgetary financial resources such as creating Corpus Funds like Micro Irrigation Fund, Agriculture Infrastructure Funds, PM Matasya Sampada Yojana, Animal Husbandry Infrastructure Development Fund, etc. Further, due to implementation of these schemes, programmes and initiatives, there has been record production in foodgrain and in horticulture and other crop sectors, as also in respect of livestock and fisheries. Also the country has witnessed emphatic growth in export of agriculture and allied commodities. The efforts of Government for positive implementation of these schemes are, therefore, yielding good results and the income of the farmers is improving. As part of the ‘Azadi ka Amrit Mahotsav’, Indian Council of Agricultural Research (ICAR) has released a book, which contains compilation of success stories of 75,000 farmers out of innumerable successful farmers whose incomes have increased more than two times.

### 9.15 Atmanirbhar Bharat Abhiyaan

The vision of new India was announced by the Hon’ble Prime Minister Shri Narendra Modi on 12<sup>th</sup> May, 2020. In agriculture, Atmanirbhar Bharat Abhiyaan (ABA) aims to strengthen infrastructure, logistics, capacity building, etc. The components of the ABA for DA&FW are as follows:



#### a. *Agriculture Infrastructure Fund*

Central Sector Scheme of financing facility under Agri Infrastructure Fund(AIF) is operationalised from the year 2020-21 to 2032-33. The aim is creation of infrastructure at the farm gate. The scheme shall provide a medium-long term debt financing facility for investment in viable projects for post-harvest management infrastructure and community farming assets through interest subvention and financial support for credit guarantee. As on 20<sup>th</sup> January 2023, Rs. 15,287 crore have been sanctioned for 20,710 projects. These sanctioned projects have mobilized an investment of Rs. 31,102 crore in agriculture sector. Major projects sanctioned under AIF include 8,505 warehouses, 3,574 primary processing units, 2,372 custom hiring centres, 1,088 sorting & grading units, 803 cold store projects, 163 assaying units and around 3,883 other kinds of post-harvest management projects and community farming assets.

#### b. *The National Beekeeping and Honey Mission*

Government of India has approved a Central Sector Scheme entitled National Beekeeping and Honey Mission (NBHM) with total budget outlay of Rs. 500.00 crore for 3 years from 2020- 21 to 2022-23 under Aatma Nirbhar Bharat Announcement for overall promotion and development of scientific beekeeping and to achieve the goal of in the “Sweet Revolution” country by implementing 3 Mini Missions (MMs)- MM-I, MM-II & MM-III under which thrust will be given on awareness, capacity building/trainings, focus on women empowerment through beekeeping, setting up of requisite infrastructural facilities, viz. Integrated Beekeeping Development Centres (IBDCs), Honeybees Disease Diagnostic Labs, Setting/upgradation of Honey Testing labs, Beekeeping Equipment Manufacturing Units, Custom Hiring Centres, Api therapy Centres, Development of Quality Nucleus Stock Centres & Bee Breeders, etc., Digitization/online registration etc. under MM-I, processing, value addition, market support, etc. under MM-II and R&D under MM-III.

#### 9.16 India Digital Ecosystem on Agriculture

India Digital Ecosystem on Agriculture (IDEA) has been envisaged with a Vision to build a national digital agriculture ecosystem, to elevate Indian Agriculture Sector to higher levels of efficiency and productivity, and to improve the welfare and income of farmers. The important objectives include:

- ◆ To enable the farmers to realize higher income and better profitability through access to right information at the right time, and from innovative solutions.
- ◆ To enable better planning and execution of

policies, programmes, and schemes of the Central and State Governments, and, also of the private sector and farmers producer organizations .

- ◆ To enhance efficiencies in the usage of resources including land, water, seeds, fertilizers, pesticides, and farm machines by providing easier access to information and optimization solutions.

#### 9.17 MKisan-Use of Basic Mobile Telephony

The Department of Agriculture and Farmers Welfare has developed a portal–mkisan (mkisan.gov.in), where, around 5.3 crore farmers are registered and experts/scientists of different departments like IMD, ICAR, State Government, State Agriculture Universities send information to farmers in 12 local languages on a regular basis. Information related to the weather such as likelihood of rainfall, temperature, etc. enables farmers to make informed decision in choice of seed varieties and decide on timing of sowing and harvesting. With market information, farmers are better informed to sell their produce, prevailing market prices and quantity demanded in the market. Thus, they can make informed decisions to sell produce at the right price and at the right time. This helps in reducing distress sales by farmers due to market supply fluctuations. More than 2462 crore SMSs have been sent through mKisan since its inception in 2013.

#### 9.18 Farmers’ Portal ([www.farmer.gov.in](http://www.farmer.gov.in))

Farmers’ Portal is a one stop shop for farmers where a farmer can get relevant information on a range of topics including seeds, fertilizers, pesticides, credit, good practices, dealer network, availability of inputs, agromet advisory, etc. This information can be drilled down through the pictorial view of the Map of India placed on the Home page as well. This centralized repository is the backbone of all mobile apps and SMS advisories. This portal provides information across all stages of crop management right from sowing of seeds till post harvesting. An important feature of this web based portal is that one can drill down to the block level and get information of the particular block.

#### 9.19 Development of Mobile Apps

Spreading agriculture-related information to farmers in the poorest communities has been made easier by proliferation of mobile phones. Mobile apps help to fulfil the larger objective of farmers’ empowerment and facilitates in dissemination of extension services to address food security issues. Various mobile apps have been developed for farmers. Kisan Suvidha, an omnibus mobile app, helps farmers by providing relevant information

on critical parameters – weather, input dealers, market price, plant protection, expert advisories, soil health card, cold storages and godowns, crop insurance etc. An additional tab directly connects the farmer with the Kisan Call Centre where agriculture experts answer their queries. Unique features like extreme weather alerts and market prices of commodities in the nearest area and the maximum price in the State as well as in India have been added to empower farmers in the best possible manner. With the click of a button, farmers can obtain all this information in hand provided they have a smart phone and decent internet connectivity. Total downloads were 13,55,884 up to November 2020.

## 9.20 Development of Real Time Crop Forecasting

Real time crop forecasting system has been initiated. Under the project, an integrated portal is proposed to be developed by integrating the diversity of data sets and methodologies or harmonizing various divisions/organizations with the use of advance digital technology. Monthly crop forecasts are proposed to be released from the data collected through the portal. A Task Force has been constituted under the Co-chairmanship of ADG (Statistics), DA&FW and Sr. Economic & Statistical Advisor, Directorate of Economics & Statistics for development of the system in a time-bound manner.

## 9.21 FAI Initiatives

### 9.21.1 Special Issue of IJF on Precision Agriculture

The April 2022 issue of Indian Journal of Fertilisers (IJF) was brought out as Agriculture Special issue on the theme of “Precision Agriculture”. Its main objective was to present the current status and highlight the increasing need for precision agriculture in India. Nine papers covering important aspects of precision and digital agriculture were published in the special issue.

### 9.21.2 Special Issue of IJF on the Occasion of International Conference

The Indian Society of Dryland Agriculture had organized an International Conference on “Reimagining Rainfed Agro-ecosystems-Challenges and Opportunities” at ICAR-CRIDA, Hyderabad, Telangana during 22-24 December, 2022. To commemorate the occasion, the November 2022 issue of IJF was published as special issue on the theme of the Conference. Eight papers deliberated in the Conference were published in this issue of IJF. The soft copy of this issue was made available to all the delegates of the Conference.

### 9.21.3 Webinar on Foliar Nutrition and its Benefits

The Fertiliser Association of India and International Potash Institute (IPI) jointly organized

one-day, Webinar entitled “Foliar Nutrition and its Benefits” on 7<sup>th</sup> June, 2022 at the FAI House, New Delhi. Dr. S.K. Chaudhari, Deputy Director General (NRM), Indian Council of Agricultural Research, New Delhi was the Chief Guest at the opening session and provided valuable inputs to the delegates. Mr. Shay Mey-Tal, Director, IPI, Switzerland gave the opening remarks. More than 80 delegates representing ICAR, State Agricultural Universities, Ministry of Agriculture and Farmers Welfare, Indian and International Fertilizer Industry participated in the Webinar.

### 9.21.4 Training Programme on Fertilizer and Food Security: Challenges and Way Forward

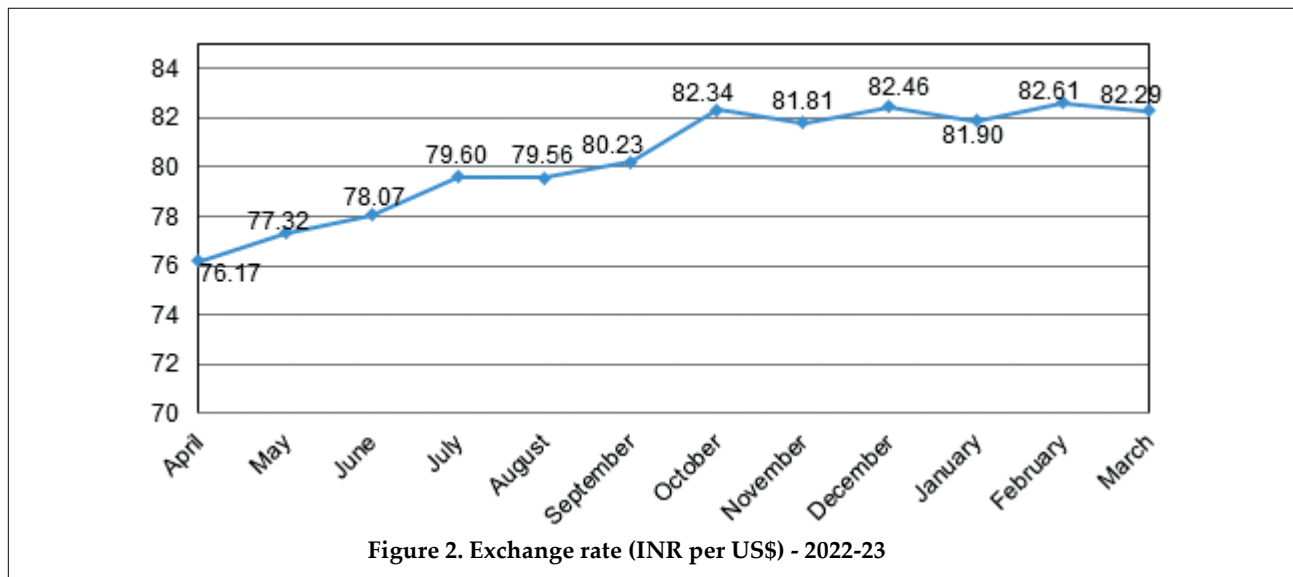
FAI organized a training programme “Fertilizer and Food Security: Challenges and Way Forward” during 18-20 January, 2023 at Hyderabad. Mr. Arvind Chaudhary, Director General, The Fertiliser Association of India, New Delhi inaugurated the programme. The programme was attended by 62 participants representing 20 fertilizer companies. In all, fourteen presentations were made. In his address, Mr. Arvind Chaudhary stated that fertilizer is an important sector of the country. During Covid-19 pandemic, government provided free food for people below poverty line and has extended it by one year. This has been possible as the country is self-sufficient in food-grains production. He mentioned that agri. inputs like irrigation water, seed and fertilizers are very important in crop production. Fertilizer has played and will continue to play an important role in improving soil health and crop productivity.

### 9.21.5 Revised Edition of FCO

FCO 1985 is a dynamic Order and updated Editions of this document have been issued by FAI from time to time incorporating various amendments made by the Government of India. The Twentieth Edition of The Fertiliser (Inorganic, Organic or Mixed) (Control) Order 1985 was brought out in March 2023, which includes amendments issued upto March, 2023.

## 9.22 International Relations

FAI, with its professional services and valuable contributions to the industry over the years, has emerged as an important organisation in the field of agriculture and fertilizers. Its views on concerned issues are widely acclaimed and solicited both nationally and internationally. Apart from its representation and participation in national level research and decision-making forums including Government, FAI maintains cordial relations and exchanges information with number of reputed international organisations. Some of these organisations include Food and Agriculture



Organization, Rome, Italy; The International Fertilizer Association, Paris, France; The Sulphur Institute, Washington DC; The International Potash Institute, Switzerland; International Crops Research Institute for the Semi-Arid Tropics, Hyderabad, India; International Fertilizer Development Centre, Muscle Shoals, USA; International Rice Research Institute, Los Banos, Philippines; International Maize and Wheat Improvement Center, Mexico; International Zinc Association, USA; and many others. This helps to promote better understanding of the global developments and their impact on the Indian fertilizer and agriculture sectors.

## 10.0 EXCHANGE RATE

The cost of production and import of fertilizers is impacted by changes in international prices of raw materials and finished products as well as changes in exchange rates. The average value of rupee against US\$ depreciated during 2022-23 over 2021-22. The average exchange rate of rupee per US\$ was 80.36 in 2022-23 compared to 74.51 during 2021-22. At the beginning of the year *i.e.* April 2022, the value of rupee against US\$ was 76.17 which depreciated during the subsequent months and touched at 82.61 during February 2023. **Figure 2** shows monthly trend in the exchange rate of rupee vis-à-vis US\$ during 2022-23.

## 11.0 INTERNATIONAL PRICES

### 11.1 Raw Materials/Intermediaries

India is heavily dependent on imports of both raw materials and finished fertilizers. During 2022-23, out of the total estimated production of 17.73 million MT of ammonia in the country, about 98% was based on natural gas and 2% on naphtha. Although all naphtha based ammonia-urea plants have

converted their feedstock to natural gas but one plant at Tuticorin is still using naphtha partially as feedstock due to non-availability of gas required by the plant. About 16.25 billion SM<sup>3</sup> (44.5 million SM<sup>3</sup> per day) of LNG was imported during the year to supplement the supply of domestic gas for urea production. In addition, about 2.34 million MT of ammonia was also imported during 2022-23 to supplement the requirement of ammonia for production of DAP/NP/NPK complex fertilizers in the country.

With regard to phosphates, bulk of the requirement of raw materials/intermediates is fulfilled through imports. During 2022-23, about 9.09 million MT of rock phosphate and 1.34 million MT of sulphur were imported by India. The availability of rock phosphate from domestic sources was nearly 1 million MT. Domestic availabilities of sulphur is about 2.0 million MT from various sources. A major portion of these raw materials is used by the fertilizer industry. About 60-65% requirement of phosphoric acid is met through imports. During 2022-23, about 2.69 million MT of phosphoric acid (as P<sub>2</sub>O<sub>5</sub>) was imported. International prices of these raw materials/intermediates play an important role in the cost of production of phosphatic fertilizers. There had been considerable increase in prices of raw materials/intermediates during 2022-23. In spite of several challenges, Indian fertilizer industry had maintained the production level and imports during the year.

#### 11.1.1 Rock phosphate

India imported 9.09 million MT of rock phosphate in 2022-23 as against 9.66 million MT during the previous year. Major exporters of rock phosphate to India include Jordan, Morocco, Egypt, Togo,

Algeria, UAE, Lebanon and Peru. Small quantities are also imported by India from a few other countries.

Year 2022-23 marked with significantly high prices of fertilizers and raw materials/intermediates in the international market. FOB (Morocco) prices of rock phosphate (68%-72% BPL) ranged between US\$ 140-300 per MT during January-March 2022 to US\$ 220-365 per MT during April-June 2022. It increased further to US\$ 275-365 per MT during July-September 2022. It plummeted slightly to US\$ 235-345 per MT during October-December 2022 and US\$ 265-335 per MT during January-March 2023. Similar trends in FOB prices of rock phosphate were observed from other sources, such as, Jordan, Egypt and a few other countries. FOB prices of rock phosphate from different sources on quarterly basis are presented in **Table 20**.

### 11.1.2 Sulphur

During 2022-23, import of sulphur reduced to 1.34 million MT from 1.90 million MT in the previous year. Major suppliers of sulphur to India are Qatar, UAE, Oman, Kuwait and Saudi Arabia. Other suppliers include Iraq, Japan, Korea Republic, Russia and Singapore. Small quantities of sulphur are also imported by India from a few other countries. Sulphur is mostly recovered from petroleum refineries.

Sulphur prices fluctuated during 2022-23. The range of FOB (Middle East) spot prices of sulphur was US\$ 420-485 per MT during 1<sup>st</sup> quarter of 2022-23 which reduced to US\$ 60-430 per MT during 2<sup>nd</sup> quarter of 2022-23. During 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2022-23, it ranged between US\$ 100-190 per MT. FOB prices from other source, such as, Vancouver (Canada) also showed similar trend. FOB prices of sulphur from

**Table 20. FOB prices of rock phosphate and sulphur from 2015 to 2023**

		(US\$ tonne <sup>-1</sup> )					
Year	Quarter	Phosphate Rock Bulk FOB				Sulphur Bulk FOB	
		Morocco (68-72% BPL) Contract	Egypt (60-68% BPL) Spot/Contract	Jordan (66-72% BPL) Contract	Jordan (73-75% BPL) Contract	Middle East Spot	Vancouver Spot
		Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.
2015	Jan./March	110 - 120	62 - 75	105 - 118	128 - 137	150 - 187	140 - 175
	April/June	110 - 120	59 - 75	105 - 124	128 - 137	139 - 165	125 - 175
	July/Sept.	110 - 130	59 - 79	105 - 124	130 - 137	115 - 156	110 - 155
	Oct./Dec.	115 - 130	59 - 79	105 - 124	130 - 137	103 - 135	105 - 127
2016	Jan./March	90 - 140	59 - 79	90 - 124	120 - 137	80 - 128	75 - 127
	April/June	90 - 140	55 - 72	90 - 115	120 - 125	75 - 85	70 - 85
	July/Sept.	90 - 140	45 - 72	85 - 110	110 - 120	64 - 80	65 - 80
	Oct./Dec.	90 - 130	40 - 64	82 - 105	108 - 120	75 - 94	70 - 90
2017	Jan./March	80 - 115	40 - 64	82 - 105	106 - 120	80 - 92	78 - 90
	April/June	80 - 115	45 - 70	84 - 90	106 - 115	72 - 85	72 - 84
	July/Sept.	70 - 100	36 - 65	80 - 95	105 - 115	83 - 117	84 - 105
	Oct./Dec.	70 - 90	36 - 55	70 - 95	95 - 112	116 - 205	100 - 185
2018	Jan./March	70 - 98	36 - 50	70 - 100	95 - 110	110 - 150	110 - 140
	April/June	73 - 103	40 - 54	78 - 105	103 - 115	110 - 138	110 - 130
	July/Sept.	83 - 108	40 - 56	83 - 110	108 - 120	130 - 168	125 - 160
	Oct./Dec.	78 - 115	40 - 56	85 - 110	112 - 120	123 - 175	125 - 165
2019	Jan./March	78 - 120	40 - 56	85 - 110	112 - 120	98 - 120	98 - 130
	April/June	80 - 120	40 - 56	85 - 110	112 - 120	98 - 108	95 - 103
	July/Sept.	75 - 110	40 - 55	52 - 110	105 - 120	45 - 100	50 - 100
	Oct./Dec.	72 - 110	35 - 55	52 - 100	103 - 110	38 - 50	38 - 50
2020	Jan./March	70 - 105	35 - 55	52 - 95	100 - 105	38 - 67	38 - 65
	April/June	70 - 105	35 - 55	52 - 95	100 - 105	50 - 67	53 - 65
	July/Sept.	75 - 107	35 - 55	55 - 100	100 - 110	50 - 70	50 - 70
	Oct./Dec.	78 - 112	35 - 57	65 - 102	105 - 110	67 - 103	60 - 100
2021	Jan./March	78 - 125	37 - 60	68 - 110	105 - 120	98 - 200	95 - 170
	April/June	85 - 155	38 - 62	73 - 135	115 - 150	180 - 190	160 - 185
	July/Sept.	105 - 190	47 - 67	88 - 150	140 - 170	162 - 195	165 - 195
	Oct./Dec.	118 - 225	52 - 90	94 - 165	160 - 190	190 - 300	185 - 275
2022	Jan./March	140 - 300	52 - 98	115 - 220	170 - 260	295 - 440	265 - 410
	April/June	220 - 365	62 - 160	130 - 250	230 - 300	420 - 485	390 - 480
	July/Sept.	275 - 365	95 - 160	160 - 240	240 - 280	60 - 430	65 - 430
	Oct./Dec.	235 - 345	75 - 160	150 - 240	230 - 280	100 - 190	95 - 175
2023	Jan./March	265 - 335	70 - 135	140 - 230	220 - 270	105 - 160	100 - 160
	April/June	265 - 305	70 - 135	130 - 230	220 - 270	60 - 110	60 - 110

Table 21. Average CFR (India) prices of ammonia and phosphoric acid from 2015 to 2023

Year	Quarter	(US\$ tonne <sup>-1</sup> )					
		Ammonia			Phosphoric acid		
		Min.	-	Max.	Min.	-	Max.
2015	Jan./March	430	-	600	765	-	805
	April/June	410	-	480	805	-	810
	July/Sept.	420	-	530	810	-	810
	Oct./Dec.	400	-	505	810	-	810
2016	Jan./March	330	-	400	715	-	715
	April/June	340	-	400	605	-	605
	July/Sept.	180	-	360	605	-	610
	Oct./Dec.	173	-	250	580	-	580
2017	Jan./March	219	-	394	545	-	550
	April/June	215	-	390	570	-	590
	July/Sept.	210	-	300	567	-	572
	Oct./Dec.	255	-	375	567	-	572
2018	Jan./March	280	-	380	678	-	678
	April/June	280	-	314	730	-	730
	July/Sept.	300	-	408	758	-	758
	Oct./Dec.	340	-	390	758	-	768
2019	Jan./March	270	-	350	750	-	750
	April/June	235	-	317	728	-	728
	July/Sept.	225	-	275	655	-	655
	Oct./Dec.	250	-	295	625	-	625
2020	Jan./March	250	-	305	590	-	590
	April/June	195	-	270	607	-	607
	July/Sept.	220	-	295	625	-	625
	Oct./Dec.	265	-	305	689	-	689
2021	Jan./March	265	-	545	795	-	795
	April/June	465	-	648	998	-	998
	July/Sept.	600	-	690	1160	-	1160
	Oct./Dec.	580	-	900	1330	-	1330
2022	Jan./March	835	-	1055	1530	-	1530
	April/June	950	-	1100	1715	-	1715
	July/Sept.	840	-	1025	1715	-	1715
	Oct./Dec.	795	-	930	1175	-	1175
2023	Jan./March	400	-	850	1050	-	1050
	April/June	240	-	415	970	-	970

different sources on quarterly basis are presented in **Table 20**.

### 11.1.3 Ammonia

India imported 2.34 million MT of ammonia in 2022-23 as against 2.31 million MT during the previous year. India imports ammonia from various countries. Major suppliers of ammonia to India are Saudi Arabia, Qatar, Bahrain, Indonesia, China, Oman, Malaysia, Egypt, etc. Other countries which supply ammonia to India include Australia, Japan, UAE and a few other countries.

CFR (India) price of ammonia was in the range of US\$ 465-1055 per MT during the year 2021-22. During April-June 2022, CFR (India) price of ammonia increased significantly to US\$ 950-1100 per MT. It was in the range of US\$ 840-1025 per MT during the 2<sup>nd</sup> quarter (July-September 2022). It reduced marginally in the next quarters and ranged between US\$ 795-930 per MT during the 3<sup>rd</sup> quarter (October-December 2022) and US\$ 400-850 per MT during the 4<sup>th</sup> quarter (January-March 2023) as given in **Table 21**.

### 11.1.4 Phosphoric acid

India imported about 2.69 million MT of phosphoric acid in 2022-23 as against 2.12 million MT during the previous year. Major suppliers of phosphoric acid to India are Morocco, Senegal, Jordan, Egypt, Tunisia, Vietnam and USA. Small quantities are also imported from South Africa, Philippines, USA, Indonesia, China and a few other countries.

CFR (India) price of phosphoric acid was in the range of US\$ 998-1530 per MT during the year 2021-22. During the 1<sup>st</sup> half of 2022-23, *i.e.* April-September 2022, CFR (India) price of phosphoric acid increased significantly to US\$ 1715 per MT. Thereafter, it reduced to US\$ 1175 per MT during the 3<sup>rd</sup> quarter (October-December 2022) and further reduced marginally in the 4<sup>th</sup> quarter (January-March 2023) at US\$ 1050 per MT (**Table 21**).

## 11.2 Finished Fertilizers

Like raw materials and intermediates, prices of the finished fertilizers also moved up during 2022-23. **Table 22** shows the source-wise range of FOB prices.

Table 22. FOB prices of Urea, DAP and MOP from 2015 to 2023

Year	Quarter	Urea										DAP										MOP									
		CIS		M. East		China		US Gulf		CIS		Morocco		Jordan		Saudi Arabia		China		Vancouver		Jordan		CIS							
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
2015	Jan./March	258	325	265	325	268	293	465	487	458	520	482	535	460	490	470	490	460	480	281	330	271	333	267	333						
	April/June	245	296	250	308	263	307	466	475	450	500	480	515	467	480	473	485	460	475	293	320	280	310	278	300						
	July/Sept.	240	287	258	290	258	303	450	475	440	500	477	515	440	482	450	475	440	470	290	319	284	316	272	300						
	Oct./Dec.	230	265	238	263	232	262	390	450	385	480	450	495	430	460	398	470	390	450	280	310	275	315	263	306						
2016	Jan./March	178	232	193	230	196	227	350	400	320	435	355	450	355	440	350	403	335	400	236	318	233	323	223	311						
	April/June	183	208	190	218	200	227	345	360	320	370	335	380	332	350	340	365	331	343	195	315	185	321	190	307						
	July/Sept.	170	193	180	197	188	203	337	345	320	345	330	360	328	338	322	342	310	334	190	305	185	305	180	295						
	Oct./Dec.	185	226	192	235	193	238	315	340	318	343	330	353	310	335	308	328	295	315	190	240	185	240	180	235						
2017	Jan./March	198	255	210	265	223	260	315	375	318	383	330	398	310	368	315	392	340	370	195	240	192	242	180	230						
	April/June	173	216	190	220	208	233	345	370	330	390	360	398	345	368	350	392	340	370	195	239	182	237	182	232						
	July/Sept.	178	258	190	280	222	285	333	345	330	360	325	373	340	355	343	363	336	358	195	239	191	236	184	230						
	Oct./Dec.	205	275	220	288	265	285	340	385	350	390	350	410	350	390	360	420	355	405	207	238	204	242	190	229						
2018	Jan./March	215	242	235	268	280	315	395	415	380	425	390	440	385	415	390	422	405	418	209	249	204	242	190	229						
	April/June	211	262	228	275	290	308	407	420	395	425	402	440	410	423	412	422	406	417	207	265	205	254	182	254						
	July/Sept.	236	279	265	310	278	320	420	439	410	445	407	458	410	420	415	430	412	418	207	270	204	270	187	259						
	Oct./Dec.	260	316	275	349	290	338	417	437	410	450	407	458	395	420	407	435	403	415	247	290	239	278	234	276						
2019	Jan./March	218	275	250	285	280	295	383	420	360	435	388	450	385	400	390	425	380	405	257	294	251	286	249	288						
	April/June	225	269	245	288	283	305	345	363	335	420	331	420	345	385	340	420	335	385	258	289	260	289	250	280						
	July/Sept.	228	267	255	285	253	285	305	345	292	363	310	373	315	345	320	358	312	338	246	283	241	283	232	275						
	Oct./Dec.	205	236	233	261	235	263	260	308	240	330	275	333	281	320	290	325	290	315	227	272	220	270	214	257						
2020	Jan./March	208	237	233	262	239	265	285	315	250	315	275	325	280	305	285	310	285	312	209	273	204	272	189	263						
	April/June	194	227	210	249	225	248	290	310	280	310	291	315	295	305	306	311	304	312	202	277	196	276	187	264						
	July/Sept.	208	255	225	280	225	276	309	345	295	348	300	355	303	360	309	355	306	355	200	227	191	219	178	218						
	Oct./Dec.	225	255	255	273	255	285	345	390	335	395	340	405	350	385	355	365	352	372	196	222	195	215	181	206						
2021	Jan./March	250	362	275	365	285	365	405	590	390	580	375	590	380	530	380	561	390	570	193	226	173	224	175	209						
	April/June	310	445	330	465	320	470	580	675	550	695	530	690	530	610	535	585	533	570	196	262	189	251	178	252						
	July/Sept.	395	590	420	620	395	550	660	690	590	705	630	705	610	660	560	662	560	634	200	506	174	479	167	462						
	Oct./Dec.	650	925	650	960	620	750	670	810	660	890	635	925	645	930	660	910	630	760	199	571	173	547	170	538						
2022	Jan./March	500	890	560	1000	550	900	810	1250	860	1240	875	1260	740	1140	894	1175	-	-	207	833	198	827	186	836						
	April/June	390	820	540	950	500	850	1000	1240	835	1240	1120	1260	980	1140	900	1210	960	960	509	907	532	909	522	918						
	July/Sept.	400	685	490	590	470	650	700	960	660	900	730	1050	730	950	730	940	720	920	521	912	542	912	534	920						
	Oct./Dec.	410	600	-	-	465	650	640	700	660	730	710	880	690	740	700	735	700	730	486	806	462	800	435	799						
2023	Jan./March	240	430	-	-	350	435	610	670	525	700	580	760	580	695	580	690	570	685	399	571	391	574	350	540						
	April/June	225	280	-	-	270	350	435	610	410	650	425	660	440	605	445	620	440	575	273	570	272	563	235	535						

Table 23. Average CFR (India) prices of Urea, DAP and MOP from 2010-11 to 2022-23			
(US\$ tonne <sup>-1</sup> )			
Year	Urea <sup>1</sup>	DAP	MOP
2010-11	JV - 167 Direct - 327.38	593 <sup>2</sup>	370
2011-12	JV - 215.19 Direct - 481.74	650 <sup>2</sup>	478
2012-13	JV - 227.63 Direct - 417.40	580 <sup>2</sup>	492
2013-14	JV - 172.41 Direct - 322.66	475 <sup>2</sup>	375-424
2014-15	JV - 179.66 Direct - 303.94	465 <sup>2</sup>	322
2015-16	JV - 145.83 Direct - 279.02	459 <sup>2</sup>	332
2016-17	JV - 157.50 Direct - 210.42	366 <sup>2</sup>	235
2017-18	Direct - 241.33	379 <sup>3</sup>	240 <sup>1</sup>
2018-19	JV - 180.03 Direct - 305.44	459 <sup>3</sup>	275 <sup>3</sup>
2019-20 (P)	JV - 180.44 Direct - 271.46	334 <sup>3</sup>	286 <sup>3</sup>
2020-21 (P)	Direct - 262.64	369 <sup>3</sup>	239 <sup>3</sup>
2021-22 (P)	Direct - 661.30	741 <sup>3</sup>	359 <sup>3</sup>
2022-23 (P)	Direct - 626.81	805 <sup>3</sup>	590 <sup>3</sup>

(P) = Provisional. CFR = Cost & Freight  
 1 = Weighted average price.  
 2 = Average FOB price + Ocean freight from published documents.  
 3 = Average of monthly CFR.

**Table 23** gives the average CFR (India) prices of Urea, DAP and MOP.

### 11.2.1 Urea

During 2022-23, consumption of urea was 35.7 million MT as against domestic production of 28.5 million MT. Higher demand of urea was fulfilled through imports. Import of urea was 7.6 million MT during 2022-23 compared to 9.1 million MT in the previous year. India imports urea mainly from Oman, China, Finland, Russia, Qatar, S. Arabia, UAE, Algeria and Egypt. A few other countries which supply urea to India include Georgia, Bahrain, Malaysia, Nigeria, Indonesia, Vietnam, etc.

The international FOB prices of urea were in the range of US\$ 310-1000 per MT during 2021-22. Range of FOB spot prices of urea from Middle East and China were in the range of US\$ 500-950 per MT during 1<sup>st</sup> quarter of 2022-23. It reduced to US\$ 465-650 per MT during 2<sup>nd</sup> and 3<sup>rd</sup> quarters. Prices again went down to US\$ 350-435 per MT in the 4<sup>th</sup> quarter (**Table 22**). Similar trends in FOB prices of urea were observed from CIS and other countries. Although the international prices of urea showed

downward trends during 2022-23, still these prices were very high prior to prices of 2021-22.

The weighted average CFR price of urea for the quantities imported by India for the full year 2022-23 was US\$ 626.81 per MT compared to US\$ 661.30 per MT in 2021-22 (**Table 23**). The buyback arrangement of Government of India with JV OMIFCO for urea was ended in July 2020. Henceforth, India had imported urea from OMIFCO at international prices. In February 2022, India had signed a 3-year deal with OMIFCO to import one million MT of urea a year.

### 11.2.2 DAP

During 2022-23, there had been increase in production, import and consumption of DAP. Consumption of DAP increased from 9.27 million MT during 2021-22 to 10.53 million MT during 2022-23. Similarly, production of DAP increased from 4.22 million MT to 4.35 million MT during the period. Import of DAP also increased from 5.46 million MT to 6.58 million MT during the same period. Major suppliers of DAP to India were Saudi Arabia, Morocco, China, Russia, Jordan, Australia, USA, Tunisia and Israel.

The international FOB prices of DAP were in the range of US\$ 530-1260 per MT during 2021-22. FOB price of DAP from Saudi Arabia was US\$ 900-1210 per MT during April-June 2022. Thereafter, it reduced to US\$ 730-940 per MT during July-September 2022 and US\$ 700-735 per MT in the third quarter (October-December 2022). The prices further declined to US\$ 580-690 per MT in the last quarter (January-March 2023). Trend in FOB prices was similar from other sources (**Table 22**). Although the international prices of DAP showed downward trends during 2022-23, still the average price of DAP remained high over 2021-22.

During the full year 2022-23, average CFR (India) price of DAP was US\$ 805 per MT as against US\$ 741 per MT in the previous year (**Table 23**).

### 11.2.3 MOP

Consumption of MOP (for direct application) reduced significantly from 2.46 million MT during 2021-22 to 1.63 million MT during 2022-23 due to its high international prices. Requirement of entire quantity of MOP is being imported. During 2022-23, total import of MOP was 1.87 million MT. Major suppliers of MOP to India were Canada, Russia, Israel, Jordan and Oman.

The range of FOB spot prices of MOP from CIS (Baltic Sea) was US\$ 522-918 per MT during April-June 2022 which increased to US\$ 534-920 per MT during July-

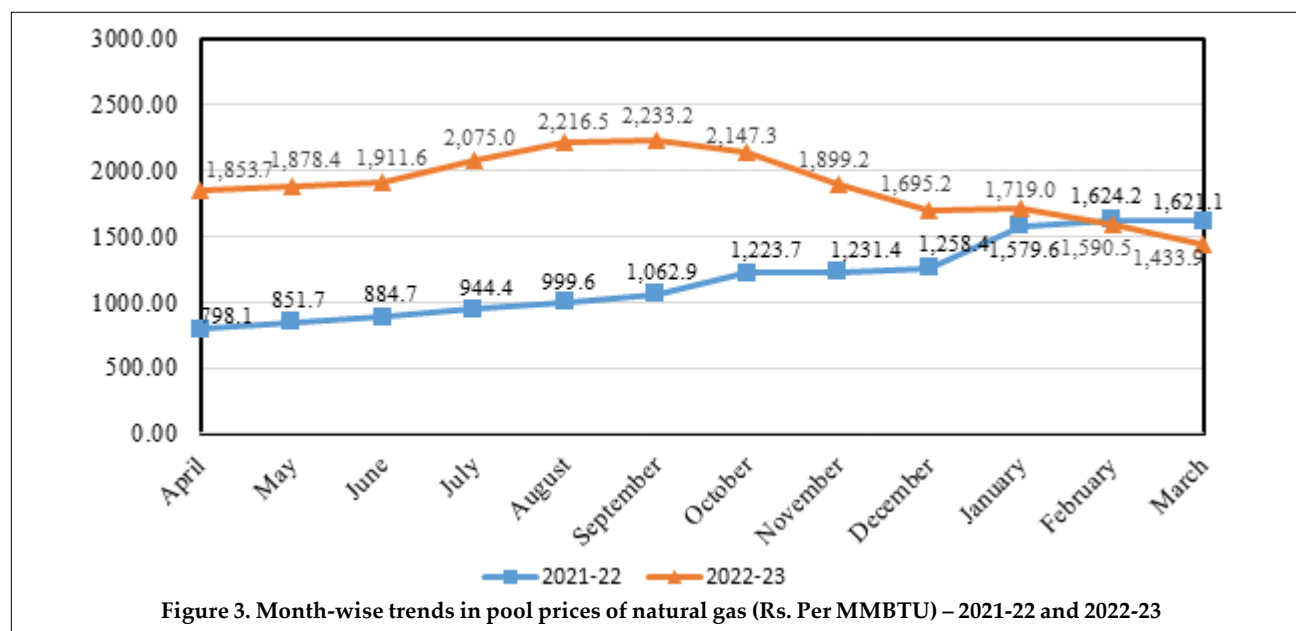


Figure 3. Month-wise trends in pool prices of natural gas (Rs. Per MMBTU) – 2021-22 and 2022-23

September 2022 and these were US\$ 435-799 per MT during October-December 2022 and US\$ 350-540 per MT during January-March 2023 (Table 22). Similar trend in FOB prices was noticed from other source countries.

Average CFR (India) price of MOP for the full year 2022-23 was US\$ 590 per MT against US\$ 359 per MT in 2021-22 (Table 23).

## 12.0 DOMESTIC PRICES

### 12.1 Prices of Natural Gas

Figure 3 represents the month-wise trends in the pool prices of gas for urea sector during 2021-22 and 2022-23. During 2021-22, the average pool price of gas on net calorific value (NCV) was Rs. 1173.33 per MMBTU. In April 2021, it was Rs. 798.1 per MMBTU which continued to increase and touched at Rs. 1624.20 per MMBTU during February 2022. Similarly, during 2022-23, the average pool price of gas on NCV increased to Rs. 1887.78 per MMBTU. During April 2022, it was Rs. 1853.7 per MMBTU which touched at Rs. 2233.2 per MMBTU in September 2022. Thereafter, it started declining and reached at Rs. 1433.9 per MMBTU in March 2023. During the current year, the average pool price of gas is showing downward trend. It reduced from Rs.1417.26 per MMTBU during April 2023 to Rs. 1343.01 per MMBTU (provisional) during June 2023.

## 12.2 Retail Prices of Fertilizers

### 12.2.1 Urea

The retail basic price of urea remained unchanged at Rs.5360 per MT since November 2012. With effect from 25<sup>th</sup> May, 2015, Government of India made it mandatory for all indigenous urea manufacturers

to produce 100% *neem* coated urea of their total urea production. The same policy is applied for imported urea to be *neem* coated at the port. Government of India allowed the manufacturers/importers to charge 5% extra on the MRP of urea. Therefore, the retail price of urea (*i.e. neem* coated urea) works out to Rs. 5628 per MT exclusive of state taxes and GST.

#### 12.2.1.1 Rationalizing the size of urea bag

Government made it mandatory to resize urea bag from 50 kg to 45 kg. In this context, DoF issued a notification on 4<sup>th</sup> September 2017 conveying approval of the Government to introduce 45 kg bag of urea replacing the existing 50 kg bag. A period of six months was given as lead time to implement the introduction of 45 kg bag of urea. Subsequently, Department of Agriculture, Cooperation and Farmers Welfare notified price per bag of urea of 45 kg at Rs. 242/- w.e.f. 1<sup>st</sup> March 2018 from Rs. 268/- per bag of 50 kg earlier. A further period of two months' extension from the date of notification of MRP of 45 kg bag of urea was given as lead time to implement the introduction of 45 kg bag of urea.

#### 12.2.2 P & K fertilizers

The retail prices of P & K fertilizers covered under NBS scheme are market driven and announced by the fertilizer companies from time to time. In view of considerable increase in prices of P&K fertilizers and raw materials used for production of phosphatic fertilizers and Government initiatives to insulate the farmers from hike in such prices by providing additional subsidy, Department of Fertilizers fixed the MRPs of DAP and NP/NPK complex fertilizers to be made available to the farmers at affordable MRPs.



### 13.0 SUBSIDY ON DECONTROLLED PHOSPHATIC AND POTASSIC FERTILIZERS UNDER NBS

Chapter 1 section 1.2.1 and 1.2.2 of the review covered the NBS rates per kg for 2022-23 in respect of P & K fertilizers. There had been significant increase in the international prices of finished fertilizers and raw materials during the major part of 2022-23. To keep the prices of P&K fertilizers affordable to the farmers, DoF issued a notification on 27<sup>th</sup> April, 2022 and enhanced the subsidy rates of such fertilizers falling under NBS policy for *kharif* 2022. The per kg NBS rates of N, P, K and S were increased from Rs. 18.789, Rs. 45.323, Rs. 10.116 and Rs. 2.374 during *rabi* 2021-22 to Rs. 91.96, Rs. 72.74, Rs. 25.31 and Rs. 6.94, respectively, for *kharif* 2022. Accordingly, subsidy per MT on DAP and MOP increased from Rs. 33,000 and Rs. 6,070 per MT during *rabi* 2021-22 to Rs. 50,013 and Rs. 15,186 per MT, respectively, for *kharif* 2022. Subsidy on NP/NPK grades of fertilizers ranged between Rs. 27,947 and Rs. 46,116 per MT for *kharif* 2022. However, subsidy on SSP and Potash Derived from Molasses (PDM) remained unchanged at Rs. 7,513 per MT and Rs. 1,467 per MT, respectively, for the season. The per MT additional subsidy for fortified fertilizers with boron at Rs. 300 and zinc at Rs. 500 continued.

Taking cognizance of situation of the international market, the Government of India revised the rates of NBS for *rabi* 2022-23 vide notification dated 2<sup>nd</sup> November, 2022. The per kg NBS rates of N, P, K and S were revised to Rs. 98.02, Rs. 66.93, Rs. 23.65 and Rs. 6.12, respectively, for *rabi* 2022-23. Accordingly, subsidy per MT on DAP and MOP reduced to Rs. 48,433 and Rs. 14,188 per MT, respectively. Subsidy on NP/NPK grades of fertilizers ranged between Rs. 26,864 and Rs. 46,188 per MT for *rabi* 2022-23. However, subsidy on SSP and PDM remained unchanged at the level of *kharif* 2022. The per MT additional subsidy for fortified fertilizers with boron and zinc also remained the same.

Further, DoF revised the NBS rates of P&K fertilizers for *rabi* 2022-23 from 1<sup>st</sup> January, 2023 to 31<sup>st</sup> March, 2023 on 18<sup>th</sup> May, 2023. The per kg NBS rates for N and K were increased while for P and S were reduced. The per kg NBS rates of N, P, K and S were revised to Rs. 99.27, Rs. 49.94, Rs. 25.70 and Rs. 2.84, respectively, for *rabi* 2022-23 applicable from 1<sup>st</sup> January, 2023 to 31<sup>st</sup> March, 2023. Accordingly, there had been reduction in subsidy on DAP to Rs. 40,841 per MT for the said period. However, subsidy for MOP increased to Rs. 15,420 per MT during the period. Subsidy on NP/NPK grades of fertilizers ranged between Rs. 23,826 per MT and Rs. 41,779 per MT during the period. However, subsidy on SSP, PDM and additional subsidy for fortification of P&K

fertilizers with boron and zinc remained unchanged.

**Part A** of **Table 24** gives the per kg nutrient based subsidy for N, P, K and S for 2022-23. **Part B** of **Table 24** presents the per MT subsidy on various P & K fertilizer products. **Part C** of **Table 24** shows per MT additional subsidy for fertilizers fortified with secondary and micro nutrients.

### 14.0 ECONOMICS OF FERTILIZER USE

The cost benefit ratio of fertilizer to food grain depends upon the selling prices of fertilizers and procurement/support prices of grains. **Table 25** shows physical ratios of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O on paddy and wheat during the period 1971-72 to 2022-23. The Table shows the changes in physical ratios, *i.e.*, kg of paddy and wheat required to buy a kg of nutrient. It may be observed that the physical ratios improved consistently from 2002-03 to 2009-10 due to stagnant retail prices of fertilizers and continued increase in procurement prices. During 2010-11, the physical ratios marginally changed due to nominal increase in retail prices of fertilizers. From 2011-12 to 2015-16, the physical ratios for P & K became considerably unfavourable due to more proportionate increase in MRP of DAP and MOP compared to increase in procurement prices of paddy and wheat. During 2016-17 and 2017-18, the physical ratios improved due to reduction in retail prices of DAP and MOP and increase in MSP of paddy and wheat. However, during 2018-19, it became unfavourable due to proportionately higher increase in retail prices of P & K fertilizers against increase in MSP of paddy and wheat. During 2019-20 to 2021-22, the physical ratios of P improved due to stagnant retail price of DAP. However, in case of K, the physical ratios turned unfavourable due to higher increase in the retail price of MOP compared to increase in the procurement prices of paddy and wheat. During 2022-23, physical ratios of P and K became unfavourable due to proportionately higher increase in retail prices of P & K fertilizers against increase in MSP of paddy and wheat.

In case of urea, the physical ratios turned little unfavourable during 2010-11 due to increase in MRP of urea by about 10% as against nominal increase in MSP of rice and wheat. From 2011-12 and onwards, the physical ratios continued to improve. This was due to increase in MSP for paddy and wheat as against almost stagnant price of urea.

### 15.0 ECONOMICS OF SULPHUR USE

Sulphur is an essential plant nutrient, besides nitrogen, phosphorous and potassium. The results from experimental stations and farmers' fields indicate that the application of 20-40 kg S per hectare in addition to recommended dose of NPK is

Table 24. Nutrient based subsidy for P & K fertilizers - 2022-23			
<b>A. NBS for nutrient N, P, K and S (Rs. per kg.)</b>			
Nutrient	01.04.2022 to 30.09.2022	01.10.2022 to 31.12.2022	01.01.2023 to 31.03.2023
N	91.96	98.02	99.27
P	72.74	66.93	49.94
K	25.31	23.65	25.70
S	6.94	6.12	2.84
<b>B. NBS for different P &amp; K fertilizers (Rs. per tonne)</b>			
Fertilizers	01.04.2022 to 30.09.2022	01.10.2022 to 31.12.2022	01.01.2023 to 31.03.2023
DAP (18-46-0)	50,013	48,433	40,841
MAP (11-52-0-0)	47,940	45,588	36,889
TSP (0-46-0-0)	33,460	30,789	22,972
SSP (0-16-0-11)	7,513	7,513	7,513
MOP (0-0-60-0)	15,186	14,188	15,420
16-20-0-13	30,164	29,866	26,240
20-20-0-13	33,842	33,787	30,211
20-20-0-0	32,940	32,991	29,842
28-28-0-0	46,116	46,188	41,779
16-16-16-0	30,402	30,177	27,986
17-17-17-0	32,302	32,063	29,735
19-19-19-0	36,102	35,835	33,233
10-26-26-0	34,689	33,353	29,593
12-32-16-0	38,362	36,965	32,005
14-28-14-0	36,785	35,775	31,479
14-35-14-0	41,877	40,460	34,975
15-15-15-0	28,502	28,290	26,237
15-15-15-09	29,126	28,841	26,492
24-24-0-0	39,528	39,590	35,810
24-24-0-8*	39,528	39,590	35,810
14-28-0-0	33,242	32,464	27,881
8-21-21	27,947	26,864	23,826
9-24-24	30,808	30,561	27,088
PDM:0-0-14.5-06 (w.e.f. 1.10.2021)	1,467	1,467	1,467
Ammonium Sulphate (20.5-0-0-23)	20,448	21,503	21,004
* = Subsidy on Sulphur not included. PDM = Potash Derived from Molasses.			
<b>C. Per tonne additional subsidy for fortified fertilizers with secondary and micro-nutrients (as per FCO)</b>			
Nutrients for fortification (as per FCO)	Additional subsidy per tonne of fortified fertilizers (Rs.)		
Boron 'Bn'	300		
Zinc 'Zn'	500		

highly economical. The latest available average price of bentonite sulphur was about Rs.59 per kg. As against this, the price of N (as urea) was Rs.12.23 per kg, for P (as DAP) it was Rs.54.14 per kg and for K (as MOP) it was Rs.56.67 per kg during 2022-23. As per the experimental results, the extra yield by application of one kg of sulphur is about 28 kg for

paddy, 24 kg for wheat, 26 kg for maize, 20 kg each for sorghum and mustard and 12 kg for soyabean. **Table 26** shows the crop response to sulphur application and value cost ratio of sulphur for different crops. The value cost ratio of sulphur for various crops ranged from 8.7 to 18.5 showing that economic returns on sulphur application are quite good.

Table 25. Economics of application of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O on paddy and wheat from 1971-72 to 2022-23

Particulars	1971-72	1981-82	1991-92	1992-93	1995-96		2001-02		2002-03	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
			Effective 14.8.91	Effective 25.8.92	Effective (Kharif)	Ratio (Rabi)	Prior to Feb. 28 2002	w.e.f. Feb. 28 2002															
<b>A. FERTILIZER &amp; FOODGRAINS PRICES (Rs./kg.)</b>																							
<b>Nutrient prices (Rs./kg.)</b>																							
1. N based on Urea	2.01	5.11	6.65	6.00	7.22	7.22	10.00	10.50	10.50	10.50	11.54	11.54	11.59	11.65	11.65	12.23*	12.23*	12.23*	12.23*	12.23*	12.23*	12.23*	12.23*
2. P <sub>2</sub> O <sub>5</sub> based on:																							
DAP	1.86	5.83	7.57	11.78	16.96	18.11	15.43	16.22	16.22	16.22	17.11	18.85	47.62	44.35	46.96	48.70	43.27	43.54	54.14	47.61	47.61	47.61	54.14
				to	to	to	to				to	to											
				12.43	18.48	19.45					18.85	39.61											
3. K <sub>2</sub> O based on MOP	0.89	2.17	2.83	7.50	6.03	7.00	7.09	7.43	7.43	7.43	7.43	10.00	28.33	26.67	27.50	26.67	18.33	19.97	26.67	31.67	29.17	32.50	56.67
				to	to	to	to				to	to											
				7.57	8.00						8.43	20.13											
<b>B. PHYSICAL RATIOS</b>																							
<b>Output prices (Rs./kg.) (Crop/Year)</b>																							
4. Procurement prices of paddy	0.53	1.15	2.30	2.70	3.60	3.60	5.30	5.30	5.30	10.00	10.00	10.80	12.50	13.10	13.60	14.10	14.70	15.50	17.50	18.15	18.68	19.40	20.40
5. Procurement prices of wheat	0.76	1.30	2.50	3.30	3.80	3.80	6.20	6.20	6.20	11.00	11.70	12.85	13.50	14.00	14.50	15.25	16.25	17.35	18.40	19.25	19.75	20.15	21.25
<b>PADDY</b>																							
6. Kg. of paddy required to buy 1 kg. N	3.79	4.44	2.89	2.22	2.01	2.01	1.89	1.98	1.98	1.05	1.15	1.07	0.93	0.89	0.86	0.87	0.83	0.79	0.70	0.67	0.65	0.63	0.60
7. Kg. of paddy required to buy 1 kg. P <sub>2</sub> O <sub>5</sub>	3.51	5.07	3.29	4.36	4.71	5.03	2.91	3.06	3.06	1.62	1.71	1.75	3.81	3.39	3.45	3.45	2.94	2.81	3.09	2.62	2.55	2.45	2.65
- as DAP				to	to	to	to				to	to											
				4.60	5.13	5.40					1.89	3.67											
8. Kg. of paddy required to buy 1 kg. K <sub>2</sub> O	1.68	1.89	1.23	2.78	1.68	1.94	1.34	1.40	1.40	0.74	0.74	0.93	2.27	2.04	2.02	1.89	1.25	1.29	1.52	1.74	1.56	1.68	2.78
				to	to	to	to				to	to											
				2.10	2.22						0.84	1.86											
<b>WHEAT</b>																							
9. Kg. of wheat required to buy 1 kg. N	2.64	3.93	2.66	1.82	1.90	1.90	1.61	1.69	1.69	0.95	0.99	0.90	0.86	0.83	0.80	0.80	0.75	0.70	0.66	0.64	0.62	0.61	0.58
10. Kg. of wheat required to buy 1 kg. P <sub>2</sub> O <sub>5</sub>	2.45	4.48	3.03	3.57	4.46	4.77	2.49	2.62	2.62	1.47	1.46	1.47	3.53	3.17	3.24	3.19	2.66	2.51	2.94	2.47	2.41	2.36	2.55
- as DAP				to	to	to	to				to	to											
				3.77	4.86	5.12					1.61	3.08											
11. Kg. of wheat required to buy 1 kg. K <sub>2</sub> O	1.17	1.67	1.13	2.27	1.59	1.84	1.14	1.20	1.20	0.68	0.64	0.78	2.10	1.91	1.90	1.75	1.13	1.15	1.45	1.85	1.48	1.61	2.67
				to	to	to	to				to	to											
				1.99	2.11						0.72	1.57											
* = Price of <i>Neem</i> Coated Urea. Includes 5% extra on basic MRP of urea.																							
W.e.f. 25 <sup>th</sup> May, 2015, Govt has made it mandatory for all indigenous producers of urea to produce 100% of their production of subsidised urea as <i>Neem</i> Coated Urea. The rule is applicable for imported urea also.																							
The government allowed to produce <i>neem</i> coated urea upto a maximum limit as listed below.																							
W.e.f.	% of the company's total production																						
1 <sup>st</sup> June, 2008	20																						
11 <sup>th</sup> January, 2011	35																						
7 <sup>th</sup> January, 2015	Cap/ restriction removed																						
1 <sup>st</sup> April, 2015	75 (Mandatory)																						
25 <sup>th</sup> May, 2015	100 (Mandatory)																						

Crop	Price (2022-23) Rs./kg	Yield increase * kg grain/kg S	Value of grain Rs./kg S	Value: Cost ratio
Paddy	20.40	28	571.2	9.7
Wheat	21.25	24	510.0	8.7
Maize	19.62	26	510.1	8.7
Sorghum	29.70	20	594.0	10.1
Soyabean	43.00	12	516.0	8.8
Mustard	54.50	20	1090.0	18.5
Groundnut	58.50	9	526.5	8.9

\* = Data presented in the TSI/FAI/IFA Symposium on 'Sulphur in Balanced Fertilization' held during October 4-5, 2006 at New Delhi.  
Latest available average price of 1 kg S = Rs. 58.95

## 16.0 RECENT DEVELOPMENTS AND OUTLOOK FOR 2023-24

### 16.1 NBS for P & K Fertilizers

Chapter 1 section 1.2.3 of the review covered the NBS rates per kg for in respect of phosphatic and potassic fertilizers for *kharif* 2023. DoF vide O.M. dated 18<sup>th</sup> May, 2023 notified the NBS rates for P&K fertilizers for *kharif* 2023 (from 1<sup>st</sup> April to 30<sup>th</sup> September, 2023). The per kg NBS rates of N, P, K and S has been reduced. The per kg NBS rates of N, P, K and S has been fixed at Rs. 76.49, Rs. 41.03, Rs. 15.91 and Rs. 2.80, respectively, for *kharif* 2023. Accordingly, subsidy on DAP, MOP and SSP has been fixed at Rs. 32,641, Rs. 9,547 and Rs. 6,872 per MT, respectively, for the said period. Similarly, subsidy on NP/NPK grades of fertilizers ranged between Rs. 18,077 per MT and Rs. 32,906 per MT during the period. Subsidy on PDM increased to Rs. 2,307 per MT. Additional subsidy per MT for fortified fertilizers with boron and zinc continued at the same level of Rs. 300 and Rs. 500, respectively. **Table 27** presents per MT subsidy applicable for the above products.

### 16.2 Weather

Onset of Southwest monsoon 2023 was longest delay in four years reached the coast of Kerala on 8<sup>th</sup> June 2023. The formation of severe cyclonic storm Biparjoy in the Arabian Sea delayed the onset of monsoon.

Rainfall during the first month of the monsoon season *i.e.* June 2023 was 9% below LPA. However, the monsoon progressed gradually and covered the entire country by 2<sup>nd</sup> July, 2023. Rains received during July 2023 was 13% above LPA. However,

<b>A. NBS for nutrient N, P, K and S (Rs. per kg.)</b>	
Nutrient	w.e.f. 1.4.2023 to 30.9.2023
N	76.49
P	41.03
K	15.91
S	2.80
<b>B. NBS for different P &amp; K fertilizers (Rs. per tonne)</b>	
Fertilizers	w.e.f. 1.4.2023 to 30.9.2023
DAP (18-46-0)	32,641
MAP (11-52-0-0)	29,748
TSP (0-46-0-0)	18,872
SSP (0-16-0-11)	6,872
MOP (0-0-60-0)	9,547
16-20-0-13	20,808
20-20-0-13	23,868
20-20-0-0	23,504
28-28-0-0	32,906
16-16-16-0	21,349
17-17-17-0	22,683
19-19-19-0	25,352
10-26-26-0	22,453
12-32-16-0	24,854
14-28-14-0	24,424
14-35-14-0	27,296
15-15-15-0	20,015
15-15-15-09	20,267
24-24-0-0	28,205
24-24-0-8*	28,429
14-28-0-0	22,197
8-21-21	18,077
9-24-24	20,550
PDM:0-0-14.5-06 (w.e.f. 1.10.2021)	2,307
Ammonium Sulphate (20.5-0-0-23)	16,325
PDM = Potash Derived from Molasses. * = Subsidy on Sulphur not included.	
<b>C. Per tonne additional subsidy for fortified fertilizers with secondary and micro-nutrients (as per FCO)</b>	
Nutrients for fortification (as per FCO)	Additional subsidy per tonne of fortified fertilizers (Rs.)
Boron 'Bn'	300
Zinc 'Zn'	500

during August 2023, rainfall was 36% below LPA. Overall, the cumulative rains received during 1<sup>st</sup> June to 31<sup>st</sup> August, 2023 was 10% below LPA. Out of the total 36 meteorological sub-divisions, 24 constituting 70 per cent of the total area of the country received excess/normal rains and remaining 12 received deficient rains during the period. The sub-divisions which received deficient rains include Nagaland, Manipur, Meghalaya & Tripura; Gangetic West Bengal; Jharkhand; Bihar; East Uttar Pradesh; Madhya Maharashtra, Marathwada, Chhattisgarh, Rayalaseema; South Interior Karnataka; Kerala and Lakshadweep. Out of 714 reported districts, 58 per cent districts

received normal to excess rains during the period.

Total live storage capacity in 150 reservoirs monitored by Central Water Commission is 178.78 Billion Cubic Meter (BCM) at full reservoir level. Live storage available in these reservoirs was 113.47 BCM as on 31<sup>st</sup> August, 2023 as against 146.83 BCM on the same date in the previous year. Current year's storage accounts 77% of the last year's storage and 91% of the normal storage.

### 16.3 Crop Situation

As per the available information, total area sown under all *kharif* crops was 105.4 million hectares (million ha) as on 25<sup>th</sup> August, 2023 compared to 105.0 million ha during the corresponding period in the previous year. This was marginally up by 0.3% over the corresponding period in the previous year. Sown area under rice, coarse cereals and sugarcane increased by 4.4%, 1.1% and 0.8%, respectively, over the corresponding period of the previous year. However, sown area under pulses, oilseeds, cotton and jute & mesta declined by 8.3%, 0.9%, 1.8% and 5.7%, respectively, during the period.

### 16.4 Fertilizer Sales

Among the major fertilizers, sale of urea, DAP and NP/NPKs recorded positive growth while MOP and SSP marked negative growth during April-July 2023. Sale of urea at 10.71 million MT, DAP at 3.43 million MT and NP/NPKs at 2.76 million MT during April-July 2023 recorded increase of 2.8%, 9.4% and 6.5%, respectively, over April-July 2022. However, sale of MOP at 0.36 million MT and SSP at 1.70 million MT witnessed decline of 10.4% and 6.9%, respectively, during the same period.

### 16.5 Prospects of Fertilizer Consumption

Overall southwest monsoon 2023 is anticipated to be normal. This is likely to increase cropped area during the remaining period of *kharif* 2023. Normal southwest monsoon is likely to leave good moisture contents in the soil for ensuing *rabi* crop season. Water availability in the reservoirs at the end of *kharif* season is also likely to be comfortable. Overall growth in consumption of fertilizers for the full year 2023-24 is expected to register an increase over the previous year. ■

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