Frank Notes

SSP Industry : The Way Forward

Phosphorus is one of the essential primary nutrient required for normal growth of crop. Single Super Phosphate (SSP) is the oldest known commercial fertilizer that has been supplying this important nutrient to various crops. Along with phosphorus, it also provides two secondary nutrients i.e. sulphur and calcium. Besides, it can also act as a carrier for other secondary and micro nutrients like magnesium, boron, zinc, iron, etc. The spread of SSP plants all across the country has provided distinct advantage of effectively meeting the demand of these vital nutrients in a very short span of time. The agronomic benefits of SSP have been very well demonstrated and documented by various agricultural institutes, industries and research organizations.

Production of SSP started way back in 1906 in India. Since then there has been continuous addition in production capacity through expansion and installation of new plants. There are 102 SSP plants out of which 93 plants are in operation with a total installed capacity of 12.25 million MT as on 1st November 2023. Production of SSP was 5.65 million MT during 2022-23, which was less than half of its installed production capacity. It may be noted that production of SSP in the last five years improved from 3.91 million MT in 2017-18 to 5.65 million MT in 2022-23. However, during April to December 2023, production and consumption of SSP was 3.57 million MT and 4.04 million MT, respectively and showed a considerable decline compared to the same period of last year. There is a need for an analysis to understand the reasons for the recent decline in production and consumption of SSP in India.

In recent times, there has been a thrust by the Government of India to improve the quality and promote the use of SSP among the farmers. The SSP was brought under nutrient based subsidy (NBS) scheme in 2010 and treated at par with the other P&K fertilizers. This did augur well for the SSP industry and provided relief for some time. Production went up from 3.09 million MT in 2009-10 to 4.32 million MT in 2011-12 but again dipped to 3.91 million MT in 2017-18. Again in 2021, in the wake of rising global raw material prices of phosphatic fertilizers and finished products, the need for improving production of SSP was felt. Accordingly, the Government emphasized on promoting the use of indigenous SSP fertilizer. One of the initiatives taken by the Department of Fertilizers (DOF) in September, 2022 was bringing new guidelines for improving productivity and quality of production. Subsequently, FAI organized a workshop in January, 2023, wherein Hon'ble Union Minister for Chemicals & Fertilizers and Health & Family Welfare advised FAI to form a Task Force to ensure quality production of SSP. The industry responded quickly by creating a Task Force under the aegis of FAI for enabling industry to implement the requirements under guidelines issued by DOF and thereby improving the image of the SSP as a quality product among the farmers. This concerted efforts resulted in adequate availability of quality product to the farmers and led to increased consumption.

The guidelines also provided for implementation of basic automation like digital flow meters for acid and water, digital weigh rock phosphate feeder, and their integration with programmable logic controller as the process controls used to be on manual mode. The automation aimed to help in controlling the operation at a set value thus providing the inputs in right proportion. It helps in minimizing loss of raw materials, improving the productivity of the plant and ensuring quality of the product. The other directive is to have NABL accredited laboratory in the plant premises to carry out reliable analysis of the product so that only product conforming to FCO standards is despatched from the plant. Along with these, other measures for environmental control have to be implemented. Many plants have already complied with the requirements and others are in the process of implementation. However, there may be some delay in completing automation as per the guidelines due to procurement and delivery of equipment on time.

SSP is produced by reacting rock phosphate with sulphuric acid. Earlier, the SSP industry was using filler for the production of granulated single super phosphate (GSSP). However, from September 2022 onwards, the Government through implementation of new guidelines restricted its usage. As a result, production of GSSP without filler leads to higher P_2O_5 content in the final product as prescribed in FCO thereby resulting in financial losses to the industry. It may be noted that PDIL was of the view that phospho gypsum/ bentonite sulphur or any other suitable filler can be allowed for production of GSSP. Earlier, ICAR had also recommended that filler can be used to adjust the P_2O_5 content in GSSP. There is a need to revisit the guidelines and allow the use of filler in GSSP.

The SSP industry like other sectors of the economy is also feeling the pressure of geopolitical scenario. Since the domestic availability of rock phosphate is not

In view of limited availability of 30% P_2O_5 rock phosphate and its high prices in the international market, DOF may allow 26% P_2O_5 rock phosphate to manufacture SSP containing 15% available P_2O_5 and notifying the same in FCO.

sufficient, SSP plants have to import a large quantity of rock phosphate for its production. The wide fluctuation in the international prices of rock phosphate during 2022-23 has adversely affected the viability of the SSP industry. The NBS rates are not sufficient to cover the price volatility leading to losses to the industry. It may be highlighted that the SSP plants operate on a smaller scale and hence unable to absorb such large financial shock.

At present, SSP industry is procuring the rock phosphate in small lots as per the requirement of individual company. The high cost of imported rock phosphate can be addressed to a great extent if the industry purchases the rock phosphate in large quantity jointly, either by forming an SPV or through an aggregator. This would not only ensure the regular availability of rock phosphate at competitive price but also reduce the production cost.

The plants are located all across the country. Some are near the ports while majority of them are in the hinterland. In the past, based on the local demand of SSP, the investments were made by the industry. The major movement of SSP fertilizers is by road. Currently, SSP industry is entitled for primary freight subsidy as per the policy, if the material is moved by the company as per the approved monthly movement plan of DoF. However, the freight subsidy as notified by the DoF in September 2022 favours the units located near the ports/ RSMML mines. The plants near the port benefit from both *i.e.* inward freight cost and outward freight subsidy. While plants at hinterland have to incur higher inward freight cost for bringing imported rock phosphate to their plants and also pay freight for moving the materials within 200 km, which is not covered under freight subsidy. There is a need for a detailed study in order to have an equitable freight policy. FAI is of the opinion that a lump sum freight subsidy (Rs.1200 MT^{-1} as per the IMC recommendation) should be allowed to all SSP plants irrespective of their location.

SSP has been considered a poor farmer's fertilizer because it is cost effective and multi-nutrient carrier and hence it's use among the farmers should be encouraged. Promoting use of SSP will also play an important role strategically as it is an indigenous product and India being largely dependent on import of phosphate for raw material/ intermediates and finished products, SSP can also help in reducing import dependence to some extent. This will help in stabilizing the international prices of rock phosphate, phosphoric acid, DAP and NP/ NPK complex fertilizers.

More concerted efforts are needed on part of the Government, industry and other stakeholders to educate farmers through extension activities to increase its usage. Fortification of SSP with various micro-nutrients for addressing the multiple-nutrient deficiency in soil is becoming more relevant considering not only the crop but for human health as well. In addition, it would also help to promote efficient fertilizer use and thereby reducing environmental impact. The industry has been making available SSP fortified with Zn or B or Zn+B to the farmers. Further, SSP fortified with Zn+B+Mg and Zn+B+Fe have been incorporated in FCO. It would be desirable to include such fortified fertilizers in NBS scheme as it would help the farmers in correcting nutrient deficiency in soil. The current subsidy on Zn and B is quite inadequate which needs to be increased looking to the market prices of Zn and B. In complex fertilizer segment, various NP/ NPK grades with lower P_2O_5 concentrations are available. Similarly, SSP with lower P_2O_5 concentration can be permitted. It is worthwhile to mention that earlier under FCO, SSP with 14.0% P_2O_5 was included which was later discontinued. Keeping in view the limited availability of 30% P_2O_5 grade rock phosphate and higher prices in the international market, DOF may allow the use of 26% P_2O_5 rock phosphate in order to produce mini SSP (15% available P_2O_5). The inclusion of mini SSP in FCO will help to reduce the production cost and make it cheaper to the farmers.

The way forward to make SSP affordable to the farmers requires secured raw material supply at affordable prices, higher NBS rates and equitable freight subsidy. Introduction of mini SSP, use of fillers for adjusting grade and policy support to fortified SSP will also help in increasing its consumption. Such steps will improve the health of the SSP industry and attract more investment in the sector as well as place India in a much stronger position with respect to its import dependence on phosphatic fertilizers.

This special issue is brought out with a specific focus on the SSP Industry. The issue comprises of eight articles providing the status of the SSP plants, improvement in production technology, quality and environmental performance, marketing strategies and importance of SSP in agriculture. This issue will be helpful to those engaged in SSP fertilizer production, sales & distribution, promotion, use, policy and other aspects of the SSP industry. ■