Frank Notes

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Rationalization of Prices for Balanced Fertilization

There has been a spectacular increase in fertilizer consumption in the country since the advent of Green Revolution in mid-sixties. Fertilizer consumption jumped from less than a million tonne in mid-1960s to 27 million nutrient tonnes in 2018-19. India ranks second in world fertilizer consumption. But the pattern of fertilizer use is distorted with growing imbalance in use of primary nutrients – nitrogen (N), phosphorus (P) and potash (K). Current NPK use ratio is 7:2.7:1 as opposed to desirable ratio of 4:2:1. Moreover, there is huge variation in fertilizer use across various states in the country. Fertilizer use per hectare is less than 10 kg in some of the North Eastern states, such as, Nagaland as against 213 kg in Punjab or 262 kg in Telangana. There is need for increasing per hectare use in areas where there is potential for growth, especially in Eastern India. Likewise, there is need to correct the imbalance in use of nutrients. Improper use of plant nutrients has caused multi-nutrient deficiency in the soils resulting in deteriorating soil health and stagnant crop yields.

Each nutrient has specific role or function to perform in the growth and development of plants. Deficiency of any of the essential nutrients makes it difficult for the plant to complete its life cycle. Balanced fertilization refers to the application of essential plant nutrients in optimum quantities and proportions based on the soil test recommendations.

Over the years, various steps have been taken by the Government of India to promote balanced fertilization. A Task Force on Balanced Use of Fertilizers was set up by the government in 2006 to relook at the policy on use of fertilizers. The Task Force recommended for restoration of NPK use ratio at the macro level by increasing the use of nutrients P & K instead of reducing the intake of nitrogen. At the micro level, the application of nutrient has to be soil, crop and climate specific. It also suggested to strengthen soil testing laboratories, fertilizer quality control laboratories, efforts for promotion of green manures, vermi compost, enriched organic manures, micronutrients and expansion of area under fertigation. The Committee also felt the need for recognition of sulphur at par with NPK for subsidy and also the extension of subsidy to other secondary and micronutrients. The pricing mechanism needed to be made conducive for balanced fertilization by adjusting the pricing and subsidy on nutrient basis.

Government of India adopted a number of recommendations of the Task Force while formulating its policies for promotion of balanced fertilization during the later period. These *inter-alia* included policy for customized fertilizers and encouragement of fortified and coated fertilizers in 2008 and nutrient based subsidy (NBS) policy for P & K fertilizers in 2010. Importance of sulphur, boron and zinc has been recognized in NBS policy. Price of sulphur is used in computation of subsidy rates under NBS. There is additional subsidy of Rs. 300 per tonne on boron and Rs. 500 per tonne on zinc in fertilizers fortified with these micronutrients.

Further, to promote balanced use of nutrients, Government of India launched Soil Health Card Scheme in February 2015. The underlying objective of the scheme is to issue soil health cards to farmers which will carry crop-wise recommendations of nutrients and fertilizers required for the individual farm to promote judicious use of inputs. Results of soil tests and recommendations are displayed in cards. In cycle I (2015-17), 25.35 million soil samples were collected and tested. In Cycle II (2017-19), 27.14 million soil samples were collected and 25.86 million soil samples were tested. India has 1586 (including 354 mobile) soil testing laboratories with a total capacity for analyzing about 15.3 million soil samples per annum. There is need for expansion in soil testing capacity. Even more important is that capacities of existing laboratories need to be strengthened so that these can analyse entire range of macro, secondary and micronutrients.

About 82% of nitrogen application in the country is through urea. In order to increase use efficiency of urea, Government of India made it mandatory to

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produce 100% neem coated urea. Similarly, entire quantity of imported urea has to be coated with neem oil. Neem coating impacts slow release characteristics to urea leading to higher use efficiency. Neem also acts as natural pesticides. It also helped to check diversion of highly subsidised urea to non-agricultural use.

Further, in order to ensure balanced use of fertilizers and reduce the consumption of urea, Government of India decided to introduce 45 kg bag of urea in place of 50 kg bag from 2018.

All the steps taken by the government so far are in right direction but have proven to be insufficient to promote balanced use of plant nutrients. Government implemented NBS policy for P & K fertilizers in 2010 selectively without bringing urea under its ambit. Second, there has been almost stagnant retail price of urea for about 15 years. On the other hand, fixed subsidy on P & K fertilizers has been brought down gradually leading to high retail prices of these products. This has led to significant distortion in prices of fertilizer products and thereby NPK use ratio. The distortion in NPK use ratio is essentially due to disproportionately low price of urea in India vis-à-vis other fertilizers. As per the latest data available for second half of 2018, retail price of urea in China is US $352 per metric tonne (MT), Pakistan US$ 254 per MT, Bangladesh US$ 192 per MT as against only US$ 80 per MT in India.

The DAP to urea price ratio in Bangladesh is 1.58:1, China 1.32:1 and in Pakistan 1.96:1 as against 4.74: 1 in India. Prior to implementation of NBS for P & K fertilizers, the ratio of DAP to urea price was 1.94:1.

Thus farmers prefer to use more of cheap urea at the cost of P & K fertilizers. Consumption of urea increased from 26.7 million tonnes in 2009-10 to 28.1 million tonnes in 2010-11 and crossed 30.6 million tonnes in next 3 years. During 2018-19, consumption of urea is estimated at 32 million tonnes. On the other hand, demand for P & K fertilizers remains depressed. This is reflected in distorted NPK use ratio which worsened from 4.3:2.0:1 in 2009-10 to 8.2:3.2:1 in 2012-13 and 7:2.7:1 in 2018-19. It is obvious that distortion in farmer's price of urea vis-à-vis other fertilizers is proving to be an overriding factor in determining the NPK use ratio.

Growing nitrogen use is a cause of concern in many countries. China is reported to have decided to freeze the consumption of nitrogen at the existing level. Bangladesh has made correction in prices of fertilizers to ensure balance in NPK use ratio. The issue of sustainable nitrogen management has taken center stage at the level of United Nations as well. United Nations Environment Agency in its fourth meeting in Nairobi in March this year adopted a resolution on 'Sustainable Nitrogen Management'. The resolution emphasizes on the need for better management of global nitrogen cycle. This has direct implication for use of nitrogen in agriculture and will require initiatives for better nutrient management practices in agriculture.

Fertilizer consumption has grown many fold in India over the years. Notwithstanding the fact that Government of India has taken various steps to promote balanced fertilization, imbalance use of N, P & K is continuing. There is need for correction in retail prices of fertilizers in the interest of soil health and agriculture productivity. Urea price has remained unchanged for more than a decade. A gradual increase in urea price in small increments is warranted. Subsidy on P & K fertilizers under NBS policy should also be suitably adjusted. It will still be better if urea is brought under NBS policy. This will automatically lead to price rationalization of nitrogen vis-à-vis P & K fertilizers. The objective of policy correction should be to restore the price ratio of DAP: urea close to 2:1 and MOP: urea close to 1:1. This will lead to rational use of the three primary nutrients.

In addition to balanced use of primary nutrients, there is need to increase the use of secondary and micronutrients. The half hearted support to Zinc and Boron under present policies has not been able to achieve desirable use of micronutrients. There should also be encouragement to use of organic manure. Integrated use of various sources of nutrients is the need of the hour for achieving higher agricultural productivity in a sustained manner. Finally, extension machinery of the state governments is needed to be strengthened to continuously educate the farmers regarding balanced use of nutrients. One has also to keep in mind the global concern regarding efficient use of nitrogen in agriculture. Hence, course correction in present fertilizer pricing and subsidy can hardly be overemphasized.■