How the next government will push ‘balanced fertilisation’

Capping consumption of urea and DAP to correct worsening plant nutrient imbalance is likely to be on the priority list of the government post the Lok Sabha polls

Written by **Harish Damodaran** Follow
New Delhi | Updated: May 1, 2024 19:21 IST

Farmers in Punjab spreading fertiliser on a field near Ludhiana. (Express Photo by Gurmeet Singh)

Balanced fertilisation — discouraging farmers from applying too much urea, di-ammonium phosphate (DAP) or muriate of potash (MOP), which only have primary nutrients in high concentrations — is likely to be a key policy goal for the government taking over after the Lok Sabha elections.

The fiscal ended March 2024 saw urea consumption hit a record 35.8 million tonnes (mt), 16.9% higher than the 30.6 mt in 2013-14, the year before the Narendra Modi government came to power. The consumption of urea, containing 46% nitrogen (N), actually fell during 2016-17 and 2017-18, which was attributed to the mandatory coating of all urea with neem oil from May 2015.

Neem coating was intended to check illegal diversion of the highly-subsidised urea for non-agricultural uses, including by plywood, dye, cattle feed and synthetic milk makers. Neem oil supposedly also acted as a mild nitrification inhibitor, allowing more gradual release of nitrogen. Improved nitrogen use efficiency, in turn, brought down the number of urea bags required per acre.

All-India Consumption of Fertiliser Products (*in lakh tonnes*)					
	Urea	**DAP**	**MOP***	**NPKS**	**SSP**

2003-04	197.67	56.25	18.41	47.57	25.44
2009-10	266.73	104.92	46.34	80.25	2
2011-12	295.65	101.91	30.29	103.95	4
2013-14	306.00	73.57	22.80	72.64	3
2014-15	306.10	76.26	28.53	82.78	39.89
2015-16	306.35	91.07	24.67	88.21	42.53
2016-17	296.14	89.64	28.63	84.14	37.57
2017-18	298.94	92.94	31.58	85.96	34.39
2018-19	314.18	92.11	29.57	90.28	35.79
2019-20	336.95	101.00	27.87	98.57	44.03
2020-21	350.43	119.11	34.25	118.11	44.89
2021-22	341.80	92.72	24.56	114.79	56.81
2022-23	357.25	104.18	16.32	100.74	50.17
2023-24	357.80	108.12	16.45	110.73	45.44

**For direct application, excluding supply to complex fertiliser units.*

Source: Fertiliser Association of India.

Despite compulsory neem-coating, and the government reducing the bag size from 50 to 45 kg in March 2018, the consumption of urea has only gone up during the last six years (see table).

Nutrient-based subsidy

Fertilisers are basically food for crops, containing nutrients necessary for plant growth and grain yields. Balanced fertilisation means supplying these primary (N, phosphorus-P and potassium-K), secondary (sulphur-S, calcium, magnesium) and micro (iron, zinc, copper, manganese, boron, molybdenum) nutrients in the right

proportion, based on soil type and the crop's own requirement at different growth stages.

The nutrient-based subsidy (NBS) system, instituted in April 2010 by the pre United Progressive Alliance (UPA) government, was expected to promote ba fertilisation. Under it, the government fixed a per-kg subsidy for N, P, K and S. The subsidy on any fertiliser was, thereby, linked to its nutrient content. The underlying idea was to induce product innovation and wean away farmers from urea, DAP (18% N and 46% P content) and MOP (60% K), in favour of complex fertilisers containing N, P, K, S and other nutrients in balanced proportions with lower concentrations.

Also Read | How the rupee has 'strengthened' under Modi government

NBS achieved its objective initially. Between 2009-10 and 2011-12, DAP and MOP consumption declined, while that of NPKS complexes and single super phosphate (SSP: 16% P and 11% S) rose. But NBS failed simply because it excluded urea. With its maximum retail price (MRP) being controlled, and cumulatively raised by just 16.5 per cent – from Rs 4,830 to Rs 5,628 per tonne – post the introduction of NBS, consumption of urea increased both through the UPA's 10 years and the 10 years (so far) of the NDA government.

The challenge

The last couple of years have seen even non-urea fertilisers being brought under price control, first informally and formally since January 2024 in the run-up to the elections. The MRPs of these fertilisers were earlier set by the companies selling

them, with the government merely paying a fixed per-tonne subsidy linked to their nutrient content.

The restoration of controls, industry sources say, has worsened the nutrient imbalances.

The current MRP of DAP, at Rs 1,350 per 50-kg bag, is below the Rs 1,470 for the 10:26:26:0 and 12:32:16:0 NPKS complex fertilisers, notwithstanding their containing less N and P. Even 20:20:0:13, which accounted for nearly 5.4 mt out of the total 11.1 mt of NPKS complexes consumed in 2023-24, is retailing at Rs 1,200-1,225 per bag, only marginally lower than DAP. DAP has, thus, become the "new urea", with farmers inclined to over-apply both.

Also Read | Explained: Tamil Nadu's decentralised industrialisation model

It's been the other way round with MOP. Its MRP of Rs 1,650 per bag now incentivises neither farmers to apply directly nor companies to incorporate it into complexes. The most widely consumed complex fertiliser, 20:20:0:13, contains no K. "That isn't good, considering that potassium boosts the immunity of crops against pests and diseases as well as uptake of nitrogen," a source pointed out.

An immediate challenge, he added, is to ensure proper "price hierarchy" among non-urea fertilisers. That would mean pricing DAP the highest, MOP the lowest and complexes in between. DAP use should be restricted mainly to rice and wheat. Other crops can meet their P requirement through complexes and SSP. The latter's relatively low acceptability — in spite of an MRP of Rs 550-600 per bag — can be addressed by marketing it in granular, not powdered, form. Granules are less prone to adulteration with gypsum or clay, while also enabling slower release of P without drift during application.

The opportunity

India is heavily import-dependent in fertilisers, be it of finished products or intermediates and raw materials. High global prices add to the country's foreign exchange outgo and also the government's subsidy burden.

Landed prices of imported urea, DAP, and MOP have dropped to around $340, $520-525 and $319 per tonne respectively, from their corresponding recent records of

$900-1,000 (in November-January 2021-22), $950-960 (July 2022) and $590 (till March 2023). Even prices of phosphoric acid, a DAP manufacturing input, are down to $948 per tonne, from the $1,715 levels of July-September 2022 following R invasion of Ukraine.

Also Read | Two reasons why food inflation may soften in the months ahead

The above price dips would have been more but for the Houthi rebel attacks in the Red Sea, disrupting vessel movements from the Mediterranean through the Suez Canal. Ships carrying DAP and rock phosphate from Morocco's Jorf Lasfar port, which reached India in 24-26 days, are taking 40 days at present.

The cooling of international prices, nevertheless, gives some flexibility for the next government to rationalise MRPs of fertilisers and promote balanced plant nutrition. This could involve bringing urea under NBS and mitigating the impact of a significant hike in its MRP by increasing the subsidy rates on other nutrients.

The Centre, in January, approved the launch of sulphur-coated urea, containing 37% N and 17% S. Its MRP has been fixed at Rs 266.50 per bag, the same as for regular neem-coated urea. But in this case, the bag will have only 40 kg, as against 45 kg for the latter – in effect, translating into a 12.5% price hike.

One can expect many more such "balanced fertilisation" moves in the months ahead.

First uploaded on: 01-05-2024 at 17:46 IST

TAGS: Explained Economics Express Explained Fertiliser Fertiliser Industry