India Hopes To Have More Fertilizer in '74-5

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Fertilizer use in India during 1974-75 is expected to increase about 8 percent — well below the average annual increase of 31 percent recorded between 1967-68 and 1971-72, but an improvement over the 3 percent gain of 1973-74.

About 3 million nutrient tons of fertilizer are expected to be applied in 1974-75, compared with 2,783,000 tons in 1972-73 and only 1,165,000 tons in 1967-68.

Government surveys indicate that India's farmers would have used 4.4 million nutrient tons of fertilizer this year and 3.8 million tons last year, had supplies been available at prevailing prices. However, the Government's fertilizer consumption estimates consistently have been more than 25 percent above actual use.

Expansion of fertilizer use has been one of the major achievements of the Green Revolution, and it has been closely related to the spread of high-yield varieties of cereals, improved irrigation, and multiple cropping.

Since the physical land area suitable for growing crops is not expected to increase by even 8 percent in the next 10 years, most future production gains must come from higher yields and multiple cropping. Expanding fertilizer use clearly ranks among the major priorities outlined in the Fifth 5-Year Plan (1974-75 through 1979-80).

India's fertilizer situation has changed often in the past decade. The 1966-68 shortage changed to a surplus in 1969-71, but shortages have prevailed since 1972. Stocks of nitrogen fertilizer accumulated during the surplus period are now declining rapidly.

During the late 1960's, fertilizer prices were held relatively constant at levels that encouraged farmers to use more. Striking gains in crop prices received by farmers contributed to a rise in demand for fertilizer, despite higher prices. But Indian farmers still pay less than world prices, primarily because of Government ceiling prices and regulation of marketing margins.

By 1980, India probably will be the world's largest fertilizer importer, with foreign supplies accounting for about 40 percent of the 5.7 million nutrient tons that are expected to be consumed annually. Shortages of feedstocks may prevent India from reaching fertilizer production targets.

But output of fertilizer in 1979-80 may reach 3.3 million nutrient tons (2.5 million nitrogen and 800,000 phosphate) if arrangements can be made to allow foreign investment. This situation still would leave an import need of more than 2 million tons.

Some of the larger fertilizer manufacturing facilities now being built will use coal — one of India's ample resources — and natural gas as feedstocks.

Naphtha, the raw material currently used in the manufacture of about 70 percent of India's nitrogen fertilizers, is a petroleum byproduct. About 1.2 tons of naphtha are required to produce 1 ton of nutrient fertilizer. The price of this raw material accounts for about 35 percent of the direct cost of nitrogen production, and therefore is critical to total fertilizer production cost.

Expanded planting of high-yield varieties of cereals from 4.6 million acres in 1966-67 to about 60.5 million acres in 1973-74 was major factor in rising demand for fertilizer. Higher farm prices, expanded irrigation facilities, and multiple cropping also boosted demand. India's fertilizer output increased from 400,000 nutrient tons to 1.4 million nutrient tons between 1967-68 and 1972-73. Yet India's total fertilizer output has continued to lag behind burgeoning demand.

Fertilizer factoties in India consistently have operated at less than 60 percent of capacity, although the newer plants perform at a somewhat higher level. The opening of new plants should enable India to boost output of nitrogen fertilizer to 1.3 million nutrient tons in 1974-75, and output of phosphate fertilizer to 376,000 nutrient tons.

Both the timing and the volume of monsoon rainfall greatly influence the benefit India derives from fertilizer applied to rice — a crop that received 31 percent of the 1973 fertilizer supply. Fertilizer used by rice farmers during 1973-74 was estimated at 860,000 nutrient tons. Total usage of rice in 1974-75 might reach 1.1 million nutrient tons if monsoon rainfall is favorable.

Another 25 percent of the 1973 total fertilizer supply went to wheat fields, 18 percent to sugarcane, and 12 percent to coarse grains.

It is difficult to predict accurately just how much additional gain could be obtained from extra fertilizer because of the great variations in rainfall. The supplemental grain that might be obtained by applying an additional 1 million nutrient tons of fertilizer in India could range from 3 million tons of grain with poor timing of rainfall to as much as 17 million tons under ideal conditions.

The best response from fertilizer is obtained during the winter growing season on irrigated land. Benefits during the summer monsoon season are usually much lower.

India's plans for a quick boost in grain production are beset by numerous problems. The timing of fertilizer deliveries to growing areas, for example, is of great importance to farmers. Availability of credit — or lack of it — for purchase of fertilizer greatly affects consumer sales. Cooperatives provide most of the financing of fertilizer sales in India.

The Fertilizer Corporation of India (FCI), a public agency, sells fertilizer only for cash. Inability to obtain credit can be a deterrent to purchases by small farmers.

Indian farmers have faced increased taxation of inputs in recent years. In March 1969 a 10 percent excise tax was levied on fertilizer, and in 1972 an additional 5 percent excise was implemented.

Greater output by new fertilizer factories that recently began operating at Goa, Durgapur, and Cochin should boost India's fertilizer output to about 1.7 million nutrient tons in 1974-75. Fertilizer imports are expected to rise from the 1.24 million nutrient tons reported for 1973-74 to about 1.4 million nutrient tons during 1974-75.

Farmers in progressive areas — particularly in Punjab and Haryana — use about 40-45 percent of the optimum rate of fertilizer application, but the average for all India still is less than 25 percent. Farmers are convinced that using fertilizer will improve their yields. Yet few farmers will follow Government research recommendations and apply the optimum amount — the level reached when additional fertilizer does not bring extra profits.

Most farmers prefer granular fertilizer, applied by hand. The situation in the mid-1960's, when many farmers would not use fertilizer, has changed greatly. About half of the farmers now use some fertilizer, compared with less than 15 percent a decade ago.

Excellent opportunities to make profits from growing high-yield varieties of cereals have been a major factor in the booming demand for fertilizer. Higher prices of sugarcane, cotton, tobacco, and coffee also have bolstered demand for fertilizer.

Manufacture of nitrogen fertilizer in India expanded steadily from 309,000 nutrient tons in 1966-67 to 1,054,900 tons in 1972-73, mostly because of the opening of new factories. In the first 9 months of 1973-74, production lagged behind the previous year, but output from the new factory at Goa pushed the 1973-74 total to about 1.07 million nutrient tons.

The country's largest fertilizer factory is near Baroda, Gujarat. It is operated jointly by a private firm and the Governments of India and Gujarat. Output there increased from 40,000 nutrient tons of nitrogen fertilizer in 1967-68 to 203,000 nutrient tons in 1972-73, but shortages of imported naphtha and power problems caused a dip in production in 1973-74.

Fertilizer factories operated privately or jointly by foreign companies and the Indian Government have had a good record of production gains. Privately operated factories at Baroda, Visakhapatnam, Kanpur, and Madras produced 497,000 nutrient tons of fertilizer in 1972-73, compared with only 47,000 tons in 1967-68.

India's manufacturers are beginning to use phosphate mined in Rajasthan. The higher cost of imported phosphates has accelerated plans to mine phosphates in India. About 31 small factories produce superphosphates, and seven larger factories produce complex fertilizer containing phosphate. No potash is mined or produced in India.

The large new factories at Madras, Goa, and Visakhapatnam are capable of producing complex ammonium phosphate fertilizers containing both nitrogen and phosphate.

Factories in India had the capacity to manufacture more than 2.1 million nutrient tons of nitrogen fertilizer in January 1974. The new factory at Goa that began production in late 1973

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