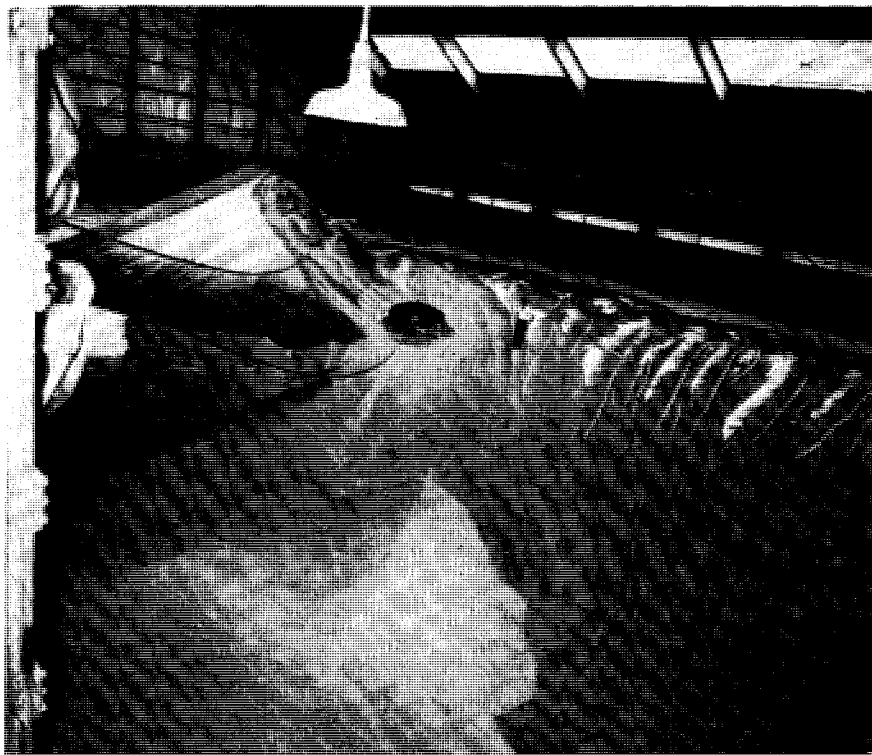


# Concentrated Super on the Rise

**Storage and shipping costs give the advantage to more and more concentrated phosphates, but older materials and plants that make them are by no means finished**



Storage is a traditional problem for the fertilizer industry with its great tonnages and seasonal use. Concentrated super has an advantage over normal in less cost per unit of plant nutrient

**T**HE STRIKING INCREASE in triple or concentrated superphosphate production capacity during the past three years has brought rumors that normal superphosphate is on the way out. The facts at present give this idea little support. Neither do most expert opinions and outlooks. But the development is having the effect of reducing production and shipping of normal super.

Estimates by USDA of increases in production capacity between January 1, 1952 and July 1, 1955 are: normal super, 4%; concentrated super, 187%; and miscellaneous phosphates, 52%.

There is no suggestion that normal-super producers are going out of business. The greatest share of normal is used in the producer's mixing plants. For them, there is less advantage in building a concentrated super plant or buying concentrated

from another producer. Furthermore, if they want a product more concentrated than their normal, they can get it by adding some concentrated superphosphate to bring  $P_2O_5$  up to 20% or more or by use of phosphoric acid with sulfuric to go virtually to concentrated super. Some triple apparently is being made in ordinary super plants using furnace acid.

Enriched super, while it may never become a dominating factor, is growing.

## **Sales to Mixers Down**

Admittedly, some large normal super producers, who manufacture for sale to mixers and application direct are feeling a sag in demand.

Freight cost is an important basic factor reducing the amount of ordinary super

shipped from basic manufacturers to mixers in some areas. As a simple matter of dollars and cents, it costs less to ship  $P_2O_5$  as concentrated superphosphate. The old problem of off-season storage also gives some advantage to the concentrated material.

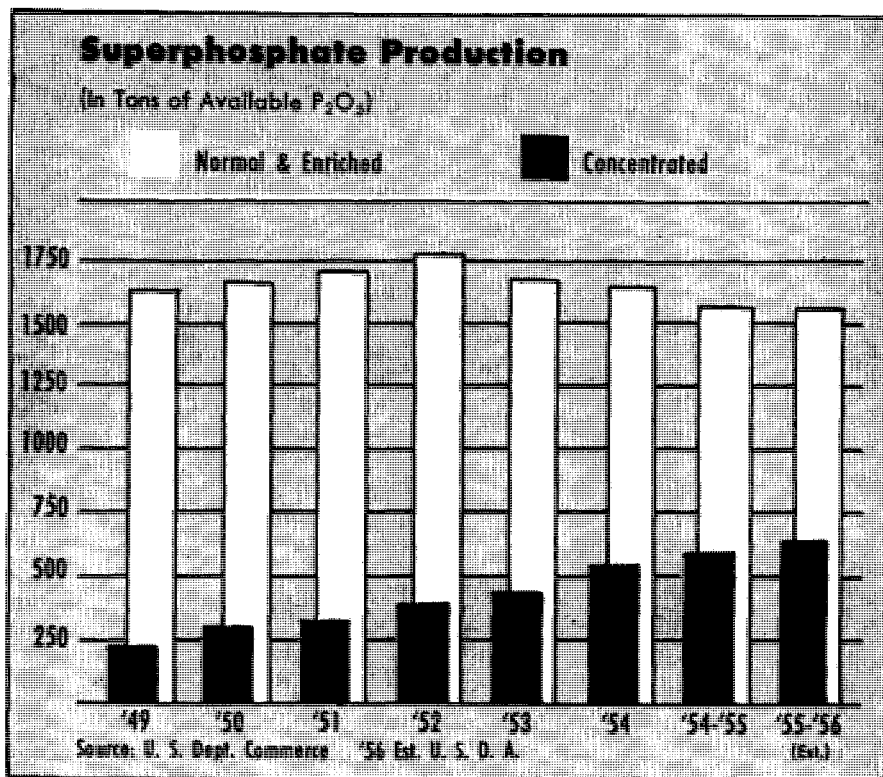
In the first half of 1955, 30% of total fertilizer  $P_2O_5$  production was concentrated, while the year before it was only 23%. This was further significant in that during March and April 1955 new record highs were established in disposition (shipments plus producer's consumption) of phosphate fertilizers. Totals were in the vicinity of 310,000 tons in each of those months, during which, normally, about 25% of the year's shipment and consumption take place.

## **Geographical Variations**

Relative demand for the various types of phosphates is, of course, strongly influenced by variation of geographical needs and opinions. Sulfur content for example, is claimed as an advantage for super. This appears to be a valid argument in some parts of the Southeast, particularly the less industrial; but it is a very doubtful advantage in the Midwest. In the Far West, ammonium phosphate, 11-48-0, is a popular form for dry mixes, about even with concentrated super. But for direct application to the soil, it doesn't have the 1:1 or higher N: $P_2O_5$  ratio preferred in the West for direct application. In the Middle West ammonium phosphate for direct application is not in a promising position because of the traditional operation on the N-P-K system. Single super should hold its own in areas where gypsum is needed.

## **Ammonium Phosphate Sulfate**

Another major factor in phosphate in the West is ammonium phosphate sulfate (16-20-0). It appears to be holding its own and apparently is expected to do well in the Northwest as Northwest Nitrochemical expects to be making more than 100,000 tons a year of 16-20-0 and 11-48-0 at Medicine Hat, Alta., by January 1957. Calspray also will be



Production for past calendar years with recent and current fiscal years gives definite suggestion of trends upward for concentrated super and downward for the normal

making 16-20-0 in its new fertilizer venture.

#### Diammonium Phosphate

At least four organizations are producing diammonium phosphate fertilizers. Missouri Farmers Association brought out 18-48-0, and Bennet, Colorado Fuel & Iron, and TVA are all making DAP. Kaiser Steel made test runs six months ago, but still isn't committed to manufacture. Considerable interest and a great deal of talk have been stirred by the emergence of DAP on the commercial market. Its possibilities as a profitable replacement for ammonium sulfate as an outlet for the steel industry's ammonia are looked upon with favor in some quarters. But at present there is little evidence of materialization on a large scale of that idea. The over-all picture does not show demand and economic relationships that will carry it. While there is some favorable argument on the matter of cost per unit of plant food nutrient, the cost per ton is high enough to discourage many buyers. Prospects seem better for use in high analysis mixes.

Nitric phosphates are a question mark in some minds, but they continue to grow. A big plant is needed and the number of grades limited. The sales problems aren't easy. But there are two plants now and Calspray has indicated it has plans. The cost of sulfuric acid is important in the future of nitric phosphates. Already it appears that the

threshold is crossed for a company making its own nitric acid in large quantities.

#### Phosphates in Liquid Fertilizers

Direct use of phosphoric acid for fertilizer both by injection and irrigation solution, made a promising start in the West several years ago, then slowed. This year there is some indication of a rise, possibly stimulated by recent observations such as the finding that  $P_2O_5$ , properly applied with ammonia, gives better results with rice than does ammonia alone.

There is no doubt that neutral fertilizer solutions are enjoying a great rise in popu-

larity. Again it is the West where the show is big. But percentage-wise solutions have a long way to go. The amount of available  $P_2O_5$  put into the ground via neutral solutions probably will increase by at least 50% in the western states this year, but it still won't amount to more than 10% of the total. In other parts of the country, the percentages probably will be smaller.

The future growth of neutral solutions may depend on what happens with phosphates. If demand grows in keeping with some predictions there won't be enough furnace acid to go around. Forty to fifty thousand tons of phosphorus is big capacity in the chemical industry, but it raises no eyebrows among fertilizer men. Clean-up and concentration of wet process acid might be an answer.

#### The Future Outlook

In general it seems that the outlook is for more of the same. Concentrated superphosphate production is likely to continue to rise. It appears that capacity is not now being strained and more is abuilding. A vigorous sales program is likely to push the use of concentrated or triple upward constantly during the foreseeable future.

The amount of normal super made seems likely to drop off. There is a trend toward enrichment of normal super as well as the use of other phosphate forms.

Considerable growth seems in prospect for phosphates other than the supers, with neutral solutions probably the most tantalizing question mark. Certainly they will show strong percentage growth in the next couple of years. By that time they will have been put to widespread test by farmers and the producers now giving them a try will have decided which way they want to move. The mood at the moment certainly seems bullish on neutral solutions, but raw materials promise to be a factor in expansion.

