# More High Analysis, Increased Use of Liquids, Greater Use of Granular Products Found in East

FERTILIZER PRACTICES are undergoing definite and marked changes this spring in east coast states from Maine to Maryland. Demand for high analysis formulas continues on the upswing, and although liquid fertilizers still are a small fraction of total fertilizer consumption, they are meeting with growing acceptance.

In New Jersey, farms are said to be using 50% more high analysis goods than in former years, and the same strong trend can be found in Pennsylvania where the sale of high analysis 5-10-10 rose from 95,522 tons in 1951 to 223,474 tons in 1954. Sale of the lower analysis formula 3-12-6 at the same time dropped sharply.

You will also find this same trend toward high analysis goods in Maryland even though it is less marked. Due to the shorter hauls to farms, the cost differential per unit of plant food as between higher and lower analysis materials is less.

There is a clearly defined switch to high analysis materials in New York, and the Grange League Federation, large cooperative, finds that the 5-10-10 combination has had its best demand this spring. The trend is further emphasized by the fact that a strong second in sale is 10-10-10.

One must expect that farming practices would differ considerably in a region whose agriculture is as varied as that of the Empire State. Dairy farmers continue to buy fertilizers by the ton rather than by nutrient value. Vegetable farmers lean to the other extreme and adhere to the philosophy of "the higher the better." At one time the 5-10-5 and 5-10-10 analyses were consistently the best sellers in New York. From 1952 to 1953 the 10-10-10 formula jumped from fifth to third place, and this year it may command first or second. At Cornell the experiment station advisors have made no special effort this season to push the very high analysis 12-12-12, and may be waiting for supply assurances.

### *Liquid Fertilizers*

Adoption of liquid fertilizers in the Eastern states is less marked than the swing to these forms in other sections, nevertheless they are making headway. New York farmers are using anhydrous ammonia and solution 2 (40.6% N) for plow-down, side dressing, and treatment of meadows. Few farmers own equipment for direct application of ammonia and most of the work is performed by custom applicators and basic producers like Olin Mathieson on a contract basis.

Solution 2 on the other hand is usually applied with farm-owned equipment. A current practice this spring is to dilute 50 gallons of solution with 5 gallons of water, which provides 37% N. It involves corrosion problems but it eliminates pressure equipment. Nitrogen solutions are getting the endorsement of top agricultural authorities. GLF went in for them this season rather strongly, contends their use can cut nitrogen costs as much as 25%. Cornell reported that at 9.5 cents per pound, solution 2 is the lowest cost nitrogen fertilizer available to the New York farmer. When urea solutions become more generally available, they should begin to get a larger share of this market. Allied Chemical reports that ammonia-water, ammonium, urea-ammonia, and urea-nitrate solutions are the most popular. A promising market for liquid formulations is on home lawns, and as in other parts of the country fuel oil dealers are revamping their fuel trucks for such application.

As to granular fertilizers, agreement is almost unanimous that demand has increased and will continue to register further gains. Some even believe granular materials will become the dominant type in the future. Ease of handling is a strong factor in their favor. GLF reports that even at premium prices the supply of granulated goods this year could not meet the demand.

The cooperative's initial granulating unit was installed at Lyons, N. Y., and along with Southern States Cooperative, GLF is joint owner of a TVA-type granulating unit at Baltimore, Md. Arrangements have been made meanwhile to install granulation equipment in the Big Flats, N. Y., plant. Present plan is to limit granulation to high analysis fertilizers.

### *Tonnage Same as in 1954*

Turning now to the tonnage of all fertilizers sold this season in the eastern area, most manufacturers find that it is about equal to last year's, while others say the volume has dropped 5 to 10% under 1953–54. The area takes in New England, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, and North Carolina.

Representatives of Allied Chemical's nitrogen division, who believe that a 5% tonnage decrease is indicated this season, point out, however, that on the basis of plant food content there is no actual decline in view of the expansion in higher analyses goods. Supplies of all items are adequate.

The price situation generally is satisfactory, even if we have had some price cutting here and there, particularly where large tonnage units are involved. One factor in nitrogen still finds competition rather strong, but all principals are agreed that weakening tendencies in this branch are absent.

Marketing problems still plague the fertilizer industry, and in New England a major one is the delay by farmers in taking delivery. One company which has offered in some areas to absorb up to 14 days' rail demurrage if dealers permit him to ship has been made the target for much criticism. This can create conditions, according to one view, which can lead to widespread demoralization among dealers, mixers, and farmers.

### *Distribution Problem*

Another great problem, and one of long standing, is that of distribution in peak periods and for which various remedies are proposed. Among them are fall planting and fertilizing, additional storage, earlier shipments. Farmers' habits cannot be changed overnight, still some progress has been made in educating him in the use of fertilizers during the fall. Chester Edwards, president of Nitrogen Products, Inc., indicates that storage is both the problem and the answer because farmers take their fertilizer only as needed.

"The fertilizer season," he says, "used to be considered to last from 90 to 120 days, but it now lasts from 60 to 90 days as the result of mechanization on farms. Before tractors came into general use, it took a farmer about three weeks to prepare his land for planting, but this is now done in about a week with the present big tractors. The result is a shorter fertilizer season."

Elsewhere it is thought that the industry is solving the problem of peak shipments with additional storage. Some fertilizer is sold for fall-planted crops in the Eastern area, but no trend is noted in the direction of fall application for spring planting. Further, demand varies geographically, commencing in southern states in February and working up to June in New England. The education drive meets more resistance in Eastern states than elsewhere, but it will be pushed by the industry. In this campaign, technical service departments of manufacturers can help.

### *Fall Planting*

The Maryland Agricultural Experiment Station is not urging farmers to apply fertilizers in the fall, with the result that buying habits there have not changed. Connecticut Agricultural Experiment Station contends that fall application to the sandy soils used for tobacco just isn't practical owing to leaching of nitrogen and potassium salts.

The New Jersey Station has recommended fall application for appropriate crops, but this has met with poor farmer response.

Fall planting has made some headway in Pennsylvania as the result of a six-year drive to encourage farmers to employ this procedure on hay. The practice involves use of 0-20-20 and 0-15-30 formulas between Aug. 15 and Sept. 15.

Cornell has conducted some research on the matter of plowing under nitrogen in the fall and spring and its relationship to leaching. It finds that nitrogen fertilizers leach in bare soil as follows, the first form being the most leachable: anhydrous ammonia, calcium cyanamide, urea (subject to leaching for one or two days after application), and nitrogen solution 2.

Our survey tends to confirm the belief that fertilizer-pesticide combinations are not doing as well as expected when these were first offered. Aldrin has been used in such mixtures but broader application of the idea is handicapped by complicated and confusing regulations. New Jersey officials are reluctant to approve application of mixtures on food crops. In Pennsylvania some use has been made of fertilizer combined with aldrin or heptachlor for wireworm control.

On the industry side, Du Pont is completing facilities at Belle, W. Va., for a new nitrogen fertilizer compound, tradenamed Uramite, which is a mixture of methylene ureas and which is almost completely water insoluble. It is produced during a controlled urea-formaldehyde reaction, and combines high nitrogen content (38%) with a prolonged release rate. Initial production will go to professional growers of turf and ornamental plants.

### *Diammonium Phosphate*

Diammonium phosphate has been accorded much attention. The switch from ammonium sulfate to this product has been very limited, due possibly to the fact that it has not been available in quantity "at a price." By this is meant a price commensurate with its value as determined by the cost of nitrogen from ammonium sulfate and the cost of available phosphoric acid from superphosphate.

In the view of James E. Totman, president of Summers Fertilizer Co., the savings in handling are substantial, but it will take several years to convince farmers that diammonium is a good product and cheaper—if, in fact, the end result shows that it is cheaper. Prices quoted to date show no net advantage to the farmer. It is believed that the use of diammonium phosphate will be confined to the specialty fields rather than for large consumption on crop land.

The great advantage of diammonium phosphate is that high analysis fertilizers can be made from it rather than from other materials. By high analysis here is meant mixtures such as 15-30-15, for which application equipment is not available.

Distribution of triple superphosphate is making some gain in the East but the effect on the volume of regular grades as yet is not appreciable. Triple, however, is expanding in the newer fertilizer-consuming areas and at the expense of ordinary superphosphate (20%).

### *Potash Supply Ample*

Supplies of potassium salts were fully adequate to meet agricultural demands in this area during the 1954–55 season. Problems facing the potash industry are the matter of discounts to induce early purchases; imports of European potassium salts; and prices at ports for domestic potash that will meet foreign competition. A large producer holds it is doubtful whether discounts actually encourage early shipments, and the industry's policy for the coming year in this connection has not been determined.

Views obtained on the potash imports very naturally depend on the position of the seller. A Carlsbad producer said that imports are still troublesome to the domestic potash industry and resulted in a situation where it was unable to ship all of its production. Imports can also be considered, probably, as responsible for reduced domestic process at the ports.

On the other hand an Eastern fertilizer interest who is a large importer of the salts contends that the amount of imported potash, reported as less than 2% of the supply, should not have troubled the domestic producers. It also did not justify their action in establishing competitive prices at the ports, he says, because increased ocean freight rates contributed to a reduction in shipments from Europe. Demands of European buyers also were heavier.

## Midwest Off to Slow Start, but Fertilizer Sales Not Expected to Fall Proportionately to Farm Income

VARIOUS REASONS are given for the slight decline in fertilizer sales in the Midwest this season. Adverse weather and lowered farm income receive most of the blame, although farmers delay in buying may also be important. The season started off quite slowly, and it was soon evident that, even though demand did increase, producers would not be able to catch up and total output would be less than last year. An improved supply situation gave farmers the feeling that there was no need to get their fertilizer early. Price-cutting probably had some effect; whenever there is a possibility that prices may be lowered it is natural to delay purchase.

To a great extent, Midwest farmers have been insulated from the agricultural "recession" which started in 1951, but 1955 will probably see a significant lowering of farm income in the area. Of course, drought areas such as Missouri and southern Iowa felt the pinch much earlier, but it is only now that the corn belt may really begin to feel the effect of the decline in prices for livestock, the ultimate product of the area's agriculture. Hog and fed beef cattle prices are down. Only poultry, which is minor compared to other livestock industries, is up. In the dairy areas of Wisconsin, Minnesota, and northern Michigan the farmers are also caught in a squeeze resulting from troubles in marketing dairy products.

Fertilizer sales need not drop proportionately with farm income. The farmer is more likely to decrease his purchase of farm equipment or consumer items long before he cuts into his expenditure for fertilizer. Preliminary results of a survey of its member banks by the Federal Reserve Bank of Chicago indicate that local bankers expected a slight increase in fertilizer sales and a slight decrease in farm equipment sales this year. Territory covered in the survey includes northern Illinois and Indiana, southern Wisconsin and Minnesota, Iowa and most of Michigan. While the increases expected were probably too small to be significant if analyzed statistically, it is probably true that fertilizer sales will be better than those of farm equipment. Farmers (and most bankers) can see the more immediate effect of fertilizer application in increasing profits, but the return on investment for equipment is more difficult to evaluate and accrues over a longer period of time. Of course, a considerably larger cut in gross income than has been experienced so far, or is expected to appear in the near future, would necessarily cut into fertilizer purchases.

During the past several years the Midwest has been something of a "frontier" for fertilizer, with usage spreading from the eastern areas towards the west. Now the western "frontier" has just about reached the limit imposed by lack of moisture in the great plains area. However, there is still a great potential re-