

further information from field tests is needed. Grower interest is high. There has been little work on these products, either in the greenhouse or in the field, in other western states.

In several areas of the West there is growing recognition of carry-over of nitrogen and phosphate—sometimes for several seasons. This is particularly true with grass crops when heavy application rates have been used. Several of the state universities are now considering this factor when making recommendations for kind and rate of fertilizer application.

Closely allied to the carry-over question is the practice of fall fertilization, particularly in Idaho, Montana, and parts of California. In California fall fertilization of range lands and irrigated pasture lands is increasing. And in the Montana sugar beet areas it has become common to plow down phosphate and sometimes nitrogen in the fall.

Company & Location	Products and Capacities (tons/day)	Start-up Date	
California State Chemical Richmond, Calif.	Complete pelleted fertilizer	300	Oct. 1956
	Ammonium nitrate (liquid)	300	
	Calcium-ammonium nitrate (liquid)	300	
	Ammonium sulfate	150	
	Aqua ammonia	425	
Northwest Nitrochemicals Medicine Hat, Alta.	Ammonium nitrate	100	Nov. 1956
	Ammonium phosphates	300	
Phillips Pacific Chemical Finley, Wash.	Anhydrous ammonia	200	May 1957
Shell Chemical Ventura, Calif.	Urea (pellet)	100	April 1957
Standard of Calif. Richmond, Calif.	Anhydrous ammonia (sold through Calchem)	300	Oct. 1956
United States Steel Columbia-Geneva Div. Geneva, Utah	Anhydrous ammonia (pellet)	200	Jan. 1957

## Sales Steady, Profits Down In the Midwestern States

**S**ALES IN THE MIDWEST are as good as or slightly better than last year's. But profits? Not so good. In a year of almost no sustained major trends and as many separate situations as there are states in the Midwest, the dim price and profit picture draws the most attention.

In the words of one sales manager, fertilizer prices are in a chaotic state—much worse than they were last year. Mixed fertilizers in particular are making very little money. Rough competition is usually given as the reason. In some areas general price cutting has prompted many farmers to hold off buying until a later time, figuring that prices will continue to drop. One major manufacturer says that prices have been cut to the bone. And he feels that his company will be lucky if it breaks even. His guess is that it will be two or three years before things get back to where a fair return can be obtained.

Increases in freight rates may not help matters. Up until now, most of the rate increases have been absorbed by producers, and most people along the distribution chain like to think this will happen on the next round. But consensus is that should rates go up again, it's almost certain that prices will go up, too. Immediate effects of an increase in prices due to freight rates will be to bring about a higher percentage of fertilizer delivery by

truck. Also, freight rate increases are expected to bring about more trading of tonnage (mostly in nitrogen between regional producers) in an attempt to fight equalization. Another effect may be to spur the trend to higher analysis fertilizers, a trend which was already marked over several years.

Producers and distributors in the Midwest list these prices per ton for nitrogen fertilizers:

- Anhydrous ammonia—\$105 to \$140 plus application
- Ammonium sulfate—\$45
- Ammonium nitrate—\$73 to \$80
- Urea—\$120 to \$125

In the sales and promotion area, all the fertilizer makers are stepping up activity. Some of the major producers are shifting slightly more toward direct sales. No headlong rush in that direction is expected, however, since it is an expensive proposition requiring a huge sales force.

Along credit lines, a growing trend is for basic suppliers to take on more of the credit load while distributors and dealers use their own cash. The trend isn't limited to fertilizers, but applies to goods and services for most phases of farming. Consignment selling also is growing.

The Soil Bank has generally had little effect on fertilizer sales in the

area. In instances where it has been felt, the net result has been to hurt sales. Kansas and Nebraska provide examples. In these two states, the acreage planted to wheat is the lowest in the last 25 years. Because of this, considerably less ammonium nitrate is being used as top dressing. Also, in Nebraska, 26.2% of the state's allotted corn acreage is in the Soil Bank, or 1.4 million acres out of about 5 million.

That fertilizer volume is good this season (even if no one is making much money) can be credited mainly to two influences:

- A large quota of weather, most of it wet
- Intensive promotion and sales campaigns by fertilizer makers, and educational work by agricultural colleges.

For the first time since 1949, most of the Midwest has had enough snow and rain. Drought relief may be only temporary, but for this year it means a great deal to the fertilizer industry. Rainfall may work two ways, of course, as in Kentucky. There, the expected larger spring fertilizer movement has been delayed because of abnormally wet weather.

With generally better weather, stepped-up advertising is paying off. One method of promotion is the banding together of fertilizer companies in a joint sales-promotion effort. An outstanding example of this method is a campaign carried out by the Nebraska Fertilizer Institute. Last summer, all of Nebraska's fertilizer makers and one in Kansas formed a

group in which six grades of fertilizers are stressed.

These grades, all of which meet all recommendations of the soil labs in the state, are labeled with a trademark owned solely by the institute. Manufacturers are permitted to use the label in certain ways under a contract with NFI. The manufacturers pay the institute a tonnage fee when the trademark is used. NFI then uses the funds for educational and promotional programs. Promotion is conducted through all communications media, and via a folder that is given to farmers by manufacturers, dealers, and the institute.

Consumers Cooperative Association of Kansas City, operating in six midwestern states and one in the west, has picked up its advertising program in a similar way, relying heavily on radio and newspaper promotion.

### **What's Selling and Where**

In all midwestern states except Michigan and Kansas, anhydrous ammonia use continues to increase, although at a slower rate than in the past. This year, supply is keeping up with demand except in two states, Wisconsin and Minnesota. There, nitrogen production is having trouble keeping up with orders.

Urea seems to have lost none of its glamor. Some experts still feel, as they did last year, that if urea can be lowered in price it can be anhydrous

ammonia's most potent competitor. In isolated instances, some distributors are now using urea solutions for "ammoniating," but how much is not known.

A promising development in urea-formaldehyde mixtures has come up at the University of Wisconsin. Work with the mixtures indicates that excess formaldehyde may be valuable as a soil fumigant against some organisms. High cost of the mixture so far militates against any widespread use, but researchers say that experimental results are encouraging. A combination of nitrogen supply together with a soil fumigant would be hard to beat.

Ammonium nitrate sales in the Middle West reached their peak early this year, as last. Sales volumes are also about the same. One producer says all manufacturers are now having trouble keeping up with ammonium nitrate orders—15 to 30 days behind is the average lag. Diammonium phosphate maintains its importance in areas near production centers. Use of DAP varies all over the Midwest. In Wisconsin, it isn't used to any extent because of its slow release of nitrogen. On the other hand, in Kentucky's sandy loam soil, slow nitrogen release is an advantage. Some DAP is used here, but not necessarily for this reason. In Minnesota there is increasing interest in DAP for use on grass pastures. On the whole, in midwestern areas where DAP moves well, it is usually a matter of availability

with little consideration for its rate of nitrogen release.

Liquid fertilizers are slowly edging ahead this year, with the degree of progress depending upon the state. Wisconsin doesn't expect liquids ever to have a large share of the fertilizer market. But in Missouri, for example, even if total tonnage will not be great, the increase over previous years should be considerable. Some new liquid fertilizer plants have gone up in the past year, although several of the older ones have been up for sale.

### **Fertilizer-Pesticide Mixes Warming Up, Granulars Strong**

Fertilizer-insecticide mixtures appear to be on the way up—if not in use, at least in interest. In Illinois, about 51% of crop acreage is treated with fertilizer-insecticide mixtures together with starter fertilizer. In addition, 15% of Illinois' acreage receives direct application of granular insecticides at the same time fertilizer is applied. One possible reason for the interest is the high insect damage suffered last year. Outside of Illinois, use of these mixes in the Midwest has been small by any scale. But increases have been steady, mostly on corn. Insecticides being mixed with fertilizer usually are aldrin and heptachlor.

The trend toward granulation continues in the Midwest. In Iowa, Missouri, Oklahoma, Kansas, Nebraska, and South Dakota, about 85% of the total mixed goods sold by all companies is granulated. North Dakota and Minnesota chalk up a 90% mark. In Wisconsin, about 20% of fertilizer sold is granular or pelletized.

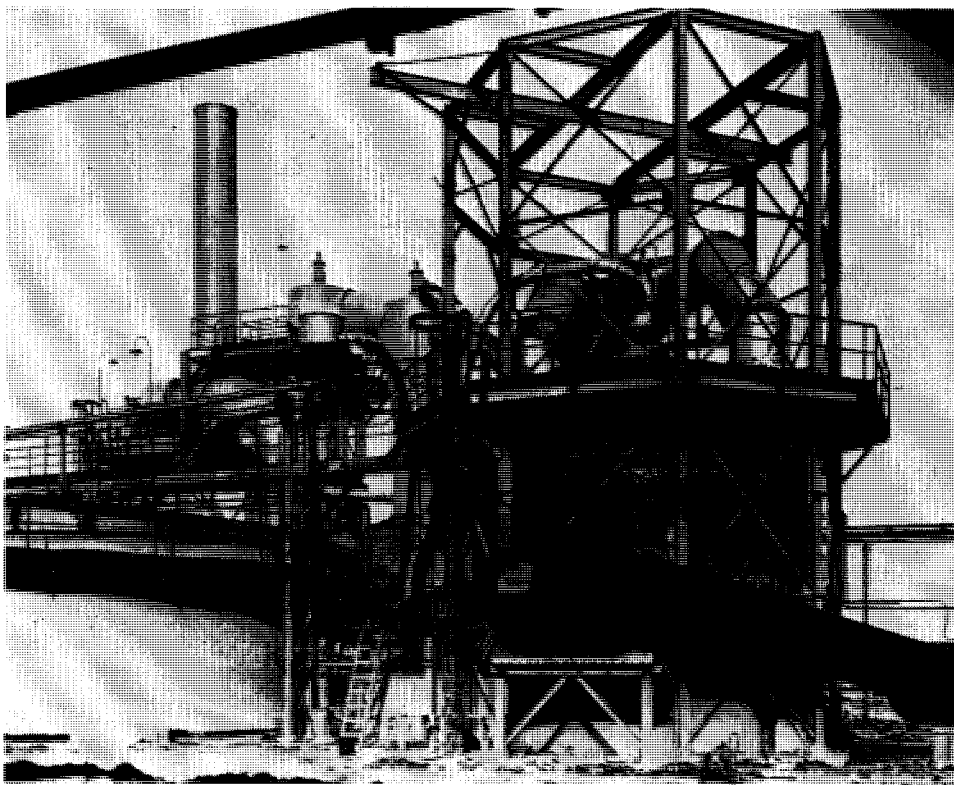
### **Old Problems, and Some New Ones Too**

Prices and profits come up most frequently in answer to "what's the trouble?" Says a major fertilizer distributor, "the industry will have to come of age in its distribution and merchandising patterns." Another plant food manufacturer says that producers will have to apply more intelligence in their approach to pricing.

Other old problems cropping up include the old weather bug-a-boo and farm income. Some include the Soil Bank, because the program has hurt fertilizer sales in some areas.

Another problem of more recent recognition is that of trace elements. The problem varies from state to state, and the deficiencies vary from slight to major. Zinc deficiency occurs in corn. Boron, or the lack of it, is a major problem in some of the North Central states. Copper deficiency is somewhat common, and in Wisconsin's low lying soils it is considered acute. Any time a new trace element

New phosphoric acid plant of U. S. Industrial Chemicals went into production last February at Tuscola, Ill. Its output will go mainly into fertilizer materials



deficiency is found, it may mean more headaches, or opportunities, for the fertilizer manufacturer.

Grower education also commands a top spot in any list of problems. A co-op director, commenting on the

publicized over-capacity in nitrogen, says that there actually isn't any. If every farmer could be sold on fertilization, any surplus that now exists would be eliminated, he says.

For the Midwest as a whole, new

users are still the best bet for a rise in fertilizer sales. A general feeling is that farmers are now forced to be more efficient, and a good educational program can induce them to bolster their net income by using fertilizer.

## Higher Raw Material Costs Shave Profits From Good Northeast Season

SOME LOOK for a smaller fertilizer tonnage during the 1956-57 season in the Northeast, but at least one large New England cooperative reports an increase in tonnage. The same source estimates that consumption in the Northeast will approximate that for 1955-56. Some concern meanwhile is being shown over the Federal Soil Bank program. The program reportedly has drastically curtailed consumption of tobacco fertilizers in Connecticut.

Mounting raw materials costs present a problem to the fertilizer industry all along the eastern seaboard. Profits have been further reduced by heavier charges for equalization of freight with competitors' plants. Urea was advanced \$5.00 per ton as of April 1, establishing the range at \$100 to \$105 per ton. Other nitrogen materials had been advanced at the start of the year. Commenting on this, Allied Chemical & Dye says that despite this upturn nitrogen selling prices are still below those of a year ago.

Current nitrogen prices to the grower in the Northeast run about \$45 to \$50 per ton for ammonium sulfate; \$125 to \$130 per ton for urea; and \$83 to \$87 per ton for ammonium nitrate.

Although delays were encountered for a time in getting two new plants into operation, urea production was pushed up to 418,289 tons during 1956. The only available comparison is the output of 92,513 tons made during the March-July period of 1955. Imports of urea were smaller last year at 69,700 tons, but factors in the trade are now wondering if the recent price boost here may not result in increased imports.

Anhydrous ammonia output for the nation in 1956 shattered all previous records at 3,336,857 tons. This year there is a tendency to level off plant operations in anhydrous. Production fell off last year in ammonium sulfate, both coke-oven and synthetic. These events have again directed attention to the possibility that more coke-oven operators might switch from ammo-



In tests to determine toxicity of Borden's 38 nitrogen fertilizer at high dosages, 6-inch tomato plants were placed in pots of poor soil deficient in nitrates. After six weeks without injury, pots and plants were moved to sandy, nitrate-deficient soil outside. No food was available and none was added. Photo was snapped three months after test began. L. L. Baumgartner (above) of Baumlanda Horticultural Research laboratory says test demonstrates what a steady release of nitrogen can do for plants

niun sulfate to diammonium phosphate. However, the development has been slow, and some nitrogen market experts look for no further change-overs to DAP.

Expansion that has occurred in anhydrous ammonia, ammonium nitrate, and urea partly reflects the growth in nitrogen solutions. There are people in the industry who now feel that solutions growth is nearing its peak, and that trends will increasingly favor granular goods and high analysis solid fertilizers.

Higher charges for wages, freight rates, raw materials, and fuel made their influence felt in phosphatic fertilizers as well as in nitrogen. One eastern manufacturer advanced normal superphosphate from 88 cents per

unit to 90 cents, effective April 1. The raw material, phosphate rock, evidenced stronger price tendencies. The 68% BPL Florida rock was moved up from \$5.115 per long ton at the mines to \$5.25.

The New England industry agrees with its counterparts in other sections that with freight rates increasing steadily the economies of using high analysis fertilizers will be more and more obvious. And there will probably be, it is held, an increasing trend toward granulation to take advantage of savings offered by high analysis goods.

While one would expect that advances in materials and other costs would find reflection in prices of mixed fertilizers, mixed goods actually have shown very little change in price. Their Department of Labor index was lower in February—109.5 as against 110.2 in January.

Although delayed billing is still employed in the industry as a sales gimmick, some large distributors have taken a firm stand against it.

Some further observations can be made on some of these factors in so far as the Northeast is concerned.

Although diammonium phosphate (DAP) reportedly releases its nitrogen only a third as fast as ammonium sulfate, not much DAP seems to be used in this area except for research work. A little is finding its way onto turfs and for corn and certain other row-crop vegetables grown in lighter soils having low organic content.

Some success has been reported in other areas in applying a diammonium phosphate-urea solution through a sprinkler system. This application, however, is generally regarded as not too practical in the East. In the first place, potash rather than phosphate is the plant nutrient widely needed in the East. Furthermore, application of diammonium phosphate or other source of phosphorus through a sprinkler system during the growing season fails to provide optimum placement. Phosphorus is needed at the seedling stage of growth, and is frequently banded near the seed. Often it is also mixed throughout the soil before planting.

In areas which do not depend on sprinklers for irrigation, sprinkler application requires specialized equipment, which means additional costs; furthermore, surface application of