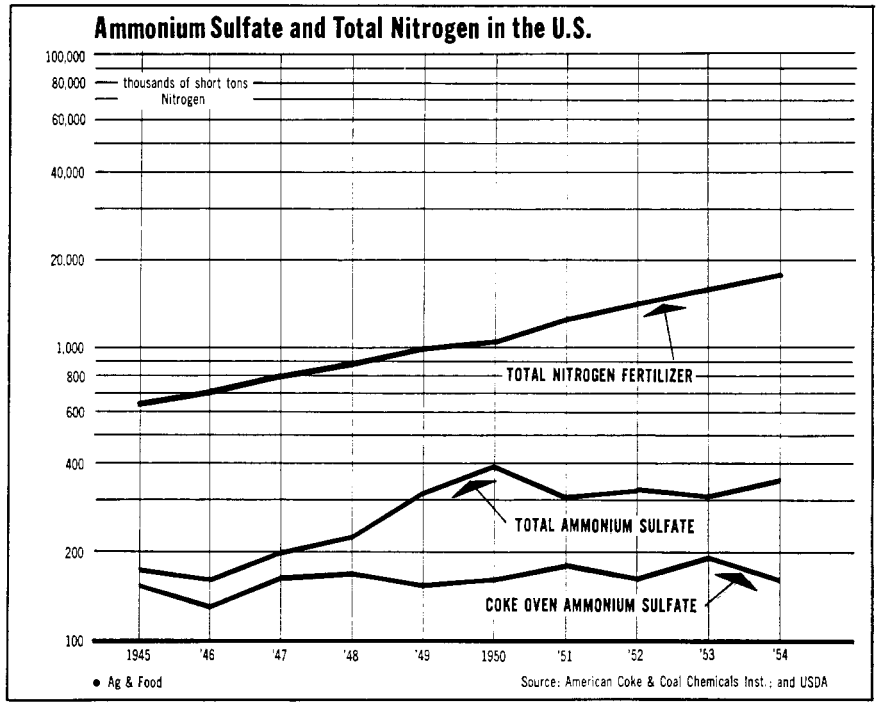
Ag and Food Interprets . . .

- **Ammonium sulfate producers watch future sharply**
- **Fall fertilizer marketing results disappointing**
- **Potash expansion—3 million tons by 1960?**
- **Agricultural chemicals industry takes self-critical look**
- **British agricultural chemicals exports up 25%**
- **Food additives bills give FDA strong position**

Ammonium Sulfate

Traditional form of inorganic nitrogen for fertilizers continues to do well, but producers watch new developments



SALES OF AMMONIUM SULFATE continued high last year and most producers are optimistic about the future, but a little mild concern is cropping up among sulfate manufacturers—especially the coke-oven producers—as a result of changes currently taking place in the fertilizer industry.

Technical difficulties make it uneconomical to convert coke-oven ammonia into nitrate, anhydrous, or solutions, so coke-oven operators are pretty solidly committed to marketing their ammonia as ammonium sulfate. Production of coke-oven sulfate has remained approximately constant in recent years; it has not participated in the tremendous growth of the synthetic nitrogen industry but as long as the coke people can sell all of their by-product ammonia, they feel no concern over the decrease in their relative standing in the nitrogen market. In the 1953–54 fetilizer year, however, U. S. coke-oven sulfate makers for the first time in many years found it difficult to move their product as fast as they wished, and were forced to procure storage facilities outside their plants. Inventories were absorbed by the spring of 1954, but by August, even though coke-oven operation was down, stocks were above the year-before levels.

While most coke-oven producers are not too alarmed at this and are reconciled to the likelihood that their ammonium sulfate business, like the rest of the fertilizer business, will be seasonal from now on, there are still some changing conditions which will probably affect them eventually. Most important is the trend in many areas toward high analysis and granulated mixed fertilizers. Heretofore, ammonium sulfate was about the only inorganic nitrogen compound which could be used to make a mixed fertilizer not given to excessive caking. Most of today's high analysis and granulation processes, however, can and do operate without difficulty using cheaper forms of ammonia—such as nitrate, solutions, and anhydrous.

Some of the newer processes, moreover, permit over-acidulation of superphosphate and subsequent neutralization with ammonia in the mixing process, thereby transferring a certain amount of sulfate production to the mixing plant. The result of these changes in mixing technology points to a decrease in ammonium sulfate for mixed goods, although some say that granulation will not stand the test of hard times when farmers will balk at paying the extra cost. Then too, some areas, such as the Southeast, are expected to resist for some time the trend towards granular and high analysis materials.

Generally, the growth in use of other forms of nitrogen for direct application has not interfered with ammonium sul-

fate sales, but since sulfate manufacturers will now be looking more and more toward direct application markets, ammonium nitrate and other forms will become more competitive. Ammonium sulfate has the big disadvantage of being a more expensive source of nitrogen than nitrate and other commonly used nitrogen products, except urea.

Ammonium Sulfate's Advantages

Sulfate manufacturers, both coke-oven and synthetic, feel that any loss in mixed goods formulation outlets will be more than made up in sales for direct application. One of their selling points is that the sulfate is easier to store and handle than other forms. It does not require the pressure equipment needed for anhydrous nor the corrosion-resistant systems needed for solutions. And while handling qualities of solid ammonium nitrate have been improved enormously, sulfate is still superior in this respect—in some cases sufficiently so to offset the price difference.

Its sulfur content and acidic qualities also give sulfate an agronomic advantage in some areas. For example, about 20% of the West Coast foothill pastures and much valley land are sulfur deficient, need pH control, or both.

Aerial application on range lands is expected to provide an area of large future growth in the West. Along the Gulf Coast sulfate is the preferred material for rice. Elsewhere it is the material of choice for potatoes.

Ammonium sulfate like other non-nitrates, is less susceptible to leaching than nitrate and, therefore, is ideal for fall application and plow down, as well as for early spring application on wheat and pasture. According to some of the sulfate makers the successful fall application of nitrate in the corn belt recently has been made possible only by the dry winters of the past few seasons.

Exports Are a Questionable Market

Ammonium sulfate is traded extensively in the world market; large amounts are produced in Canada, Europe, and Japan. The U.S. both imports and exports fluctuating quantities. At the present time almost all of the sulfate exported is that purchased by the Foreign Operations Administration for aid to the Korean government. FOA has recently spent $15 million for fertilizer nitrogen, nearly all of which was for Korea. Of this material 170,000 tons was sulfate, and 40,000 to 60,000 tons was in other forms. The purchase program will probably be continued next year, although funds have not yet been appropriated by Congress. Korea needs about 90,000 tons of fertilizer nitrogen next year and most of it will be sulfate. Sulfate has been the traditional compound used although high freight rates may make urea, with its higher nitrogen content, more attractive for export. A urea plant is to be built in Korea.

U. S. exporters are severely hampered by the American Bottoms Act which requires that 50% of all tonnage must go in American flag vessels—whose rates are now considerably higher than those of foreign ships. Often U. S. producers can price their output lower at the source than similar material produced in foreign countries, but freight rates make delivered prices higher.

Availability a Factor

One influence which may prevent any rapid change-over from sulfate to nitrate is the occasional lack of availability of the latter. One major producer of both sulfate and nitrate habitually runs out of nitrate before the end of the season, and then encourages its customers to use sulfate. The cost of building nitrate and solution facilities, coupled with the low profit obtained from these products makes the company unwilling to expand this part of its business.

No big price changes are expected for ammonium sulfate in the near future, but some experts think that by 1956 prices for nitrate will come down and sulfate may suffer. Contrary to what might easily be expected, the level of steel production has almost no effect on sulfate prices. When running at or near capacity the industry uses coke from beehive ovens, from which the by-products are not collected. When steel output drops these ovens are the first to be closed down.

In a real show-down the coke-oven producers could undersell their synthetic competitors and force them to change to other nitrogen products. Coke-oven operators can often use spent acid from steel pickling, and they are also in constant need of disposing of their ammonium in some way. Collecting ammonia in phosphoric acid to make diammonia phosphate is being tried by Colorado Fuel & Iron, and others are considering this process, but marketing problems and other conditions are making most steel companies cautious.

The synthetic manufacturers do not seem to be worried about the future for sulfate. Apparently none are switching over to nitrate or other nitrogen materials and newcomers are coming in. Smith-Douglass is breaking in via its San Jacinto Chemical Division in Houston, and Standard Oil (Calif.) will include sulfate in the list of ammonia products to be made at its new plant at Richmond, Calif.

Fall Fertilizer Marketing

Price inducement idea finds little support in industry. Drive to flatten out shipment peaks, however, is being continued

THE "DREAM" SITUATION in fertilizer would be the use and shipment of these materials in equal monthly totals for the 12 months of the year. It is still a dream, although the industry has endeavored to even out the busy delivery period of the first four or five months to take in the fall period. In this effort manufacturers of anhydrous ammonia and nitrogen fertilizer compounds have met with only partial success.

Steel producers who turn out ammonium sulfate as a by-product of the coke-oven all year round are also faced with the problem of selling this material within the space of a few months.

What is the answer? The first is inadequate storage—erection of such facilities just has not kept pace with the expansion in nitrogen-producing capacity, by manufacturers, distributors, or consumers. It was hoped a year ago that the Government would step in and take a hand in this situation as it did in the matter of ammonia capacity. After the problem had been thoroughly aired during an industry-government conference, however, the Office of Defense Mobilization concurred with the recommendation of the Department of Commerce that no goal be set for nitrogen storage facilities. The action of the two federal agencies is understandable because a narrow majority of industry representatives at the conference had voted against the establishment of such a goal. They had felt that storage facilities could be built without government assistance and saw no incentive in the rate of tax amortization that could be expected under the present tax laws.

Liquid Fertilizers

The nitrogen storage program had been supported by the Department of Agriculture, and it is of interest to review the reasons offered for that support:

1. Storage facilities have not kept pace with production under the nitrogen expansion goal.

2. Nearly two thirds of the synthetic nitrogen intended for agriculture is consumed in the January-June period. If capacity is to be operated throughout the year, storage is required for nitrogen pro-