

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-

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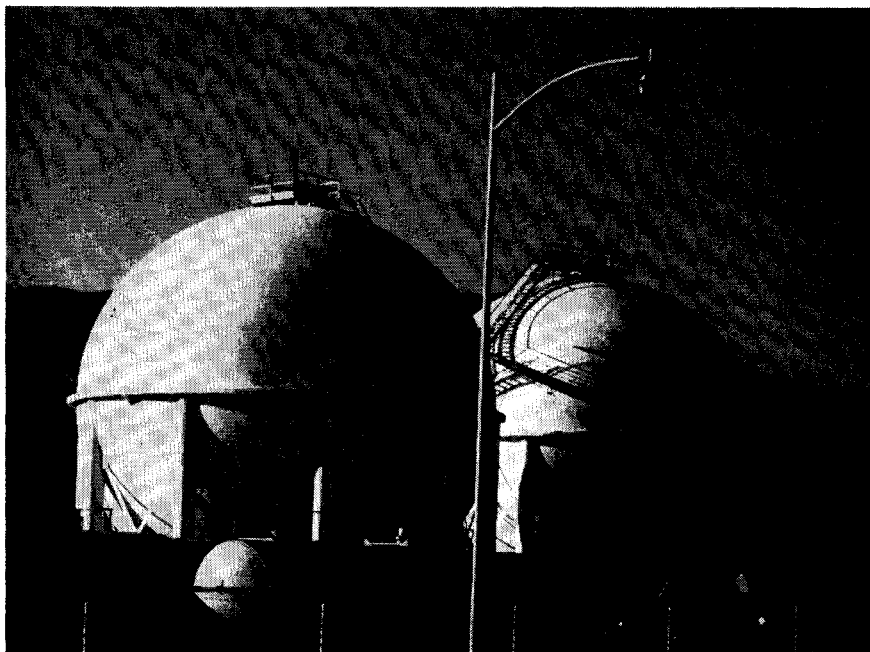
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Lack of smashing success with the fall marketing program for nitrogen fertilizers indicates that storage space will continue to be a very important factor

duced in the off-season in order to meet peak-season requirements.

3. The consumption of liquid fertilizers has steadily increased.

In addition to more storage, two other alternatives are available to the manufacturers for flattening out the delivery peaks in fertilizer. One is the practice of inducing early buying through discounts in a graduated price schedule, under which shipments made to buyers during the normally slow period of July to September would be offered at lower prices than shipments contracted for during October-December or the busy January-May period of the following year.

It is an old device, but it may surprise many to know that it is still being used in one branch of nitrogen, and with some modification in the domestic potash industry. Discounts for early purchases were utilized for Chilean sodium nitrate back in 1915-20. In that day supplies of the natural Chilean product were handled by a number of New York importers, and there was more competition to write off-season business Chilean nitrate, largely used today for only top and side dressing of crops, is now sold through a single agency, the Chilean Nitrates Sales Corp., New York, and it has reverted to the status of a single price for future shipments. Like the potash people the Chilean representatives have erected and acquired storage space.

Allied's Price Schedule

If the price discount table was successful in Chilean nitrate 35 year ago, and if it is still employed for potassium salts, some want to know, then why would it

not be successful for our present-day nitrogen materials? That is what Allied Chemical & Dye Corp. is trying to find out. Its nitrogen division has in effect a graduated price schedule for nitrogen solutions designed to induce early buying, but its results may not be learned until after the close of the season. The schedule for nitrogen solutions is as follows:

	PRICE PER NET TON
July-August	\$50.84
September-October	51.66
November-December	52.48
January-June	53.30

The above schedule covers only shipments to manufacturers. Prices to dealer are \$5.00 per ton higher in each instance. No similar schedule exists at the moment for anhydrous ammonia, ammonia ammonium sulfate either as a coke-oven or synthetic product, ammonium nitrate, or other nitrogen fertilizers. One gathers the rather definite impression that manufacturers of these materials do not believe price discounts will encourage early buying.

Farm Facilities Lacking

"The farmer knows that stuff is there," said one of the larger eastern factors, "and that he can get it when he wants it. He is no longer dependent upon a single source for tonnage nitrogen as he was upon a single source for tonnage nitrogen as he was upon Chilean nitrate long ago."

From other areas we hear similar

views. Our southwestern office says the trade there cannot sell fertilizers to a farmer who has no storage facilities, which is the case most of the time. And the idea just does not make sense, according to an independent ammonium sulfate manufacturer, because he obtains no price reductions on his raw materials during the off-season.

Threat to Market Seen

The "buy early" idea to smooth out production and shipments of farm chemicals had been tried at one time by Dow Chemical with negative results, but Dow is reported at present to be watching the efforts of others with much interest. One anhydrous ammonia producer in the South fears that the idea could lead to a cut-throat market. He had tried it with little or no success and believes they now have a better program. This company subsidizes dealers so that the latter can increase their storage. Early buying, of course, is encouraged and in this connection they prefer to offer extended credit.

California has a long growing season which renders distribution humps less troublesome than in other areas. Two to three crops can be raised each season in California and Arizona, giving the industry there a "big" fall as well as an active spring. Opposition to discounts and to credit inducements is voiced by the California Fertilizer Association. There are inducements to early purchases, it feels, in the fact that most of these materials can be stored safely and that they will be ready for use at the proper time. Otherwise the supply pipeline might get clogged.

Property Taxes

California also has a property tax which plays a part in the fertilizer movement. This levy falls due on the first Monday in March which is right in the middle of the spring activity. Farmers, therefore, prefer to stock fertilizers after that date. This is especially true in the instance of large growers, the cooperatives, Cal-Pak, and the like. CFA has urged that the tax be based on average holdings over the entire year, or that inventory day be the first Monday in May or January. A large California mixer and distributor whose stocks are at their peak on March inventory day has been hard hit by the property tax.

The mixer and dealer practice on the West Coast with regard to ammonium nitrate differs somewhat from that followed elsewhere. Its open market supply is tight because of unloading restrictions at ports ever since the Texas City disaster. Coast Guard permission must be obtained, and the unloading must be conducted at special docks.

As regards storage, both Shell Chemical and Brea have increased storage

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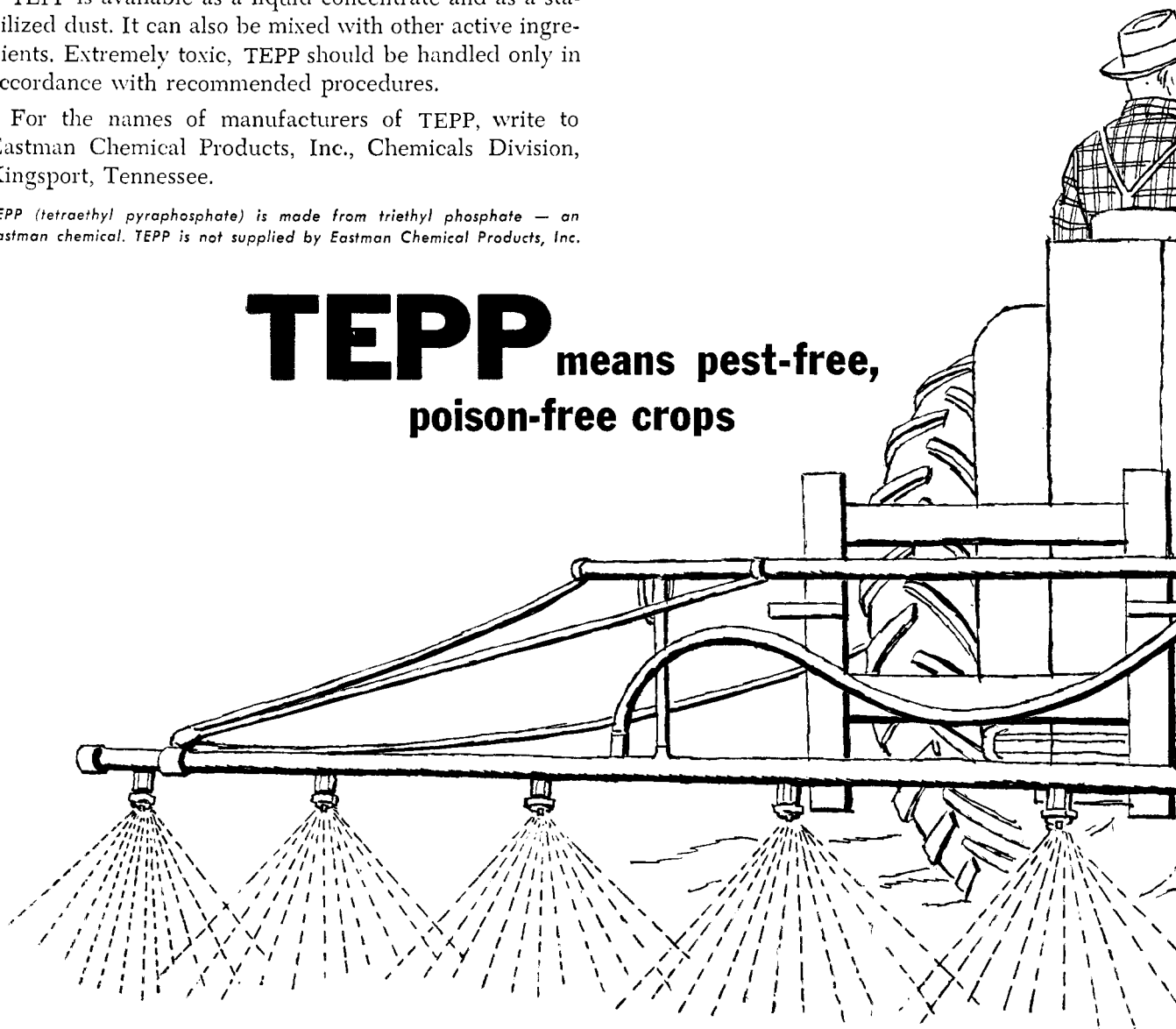
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Ag and Food Interprets

capacity in recent months, and the latter deems distribution of ammonia now to be a minor problem. Expansion of water shipment and storage terminals on part of both represent efforts to level out the peak demand problem.

Sales Incentives

An important factor in ammonium sulfate, Chester Edwards, believes consideration should be given to the "sales incentive" programs that were used from 1920 to 1929 to move this material. Mr. Edwards, president of Nitrogen Products, Inc., New Brunswick, N. J., says these were not complicated and that under them any fertilizer manufacturer could contract to take his sulfate in 11 equal monthly quotas, July through May, at a base price.

At a slight premium the manufacturer could buy his sulfate, if he preferred, on an eight-month contract calling for delivery of equal monthly quantities from October through May, or for four months, January through April. The spot price, of course was higher than any of the contract prices.

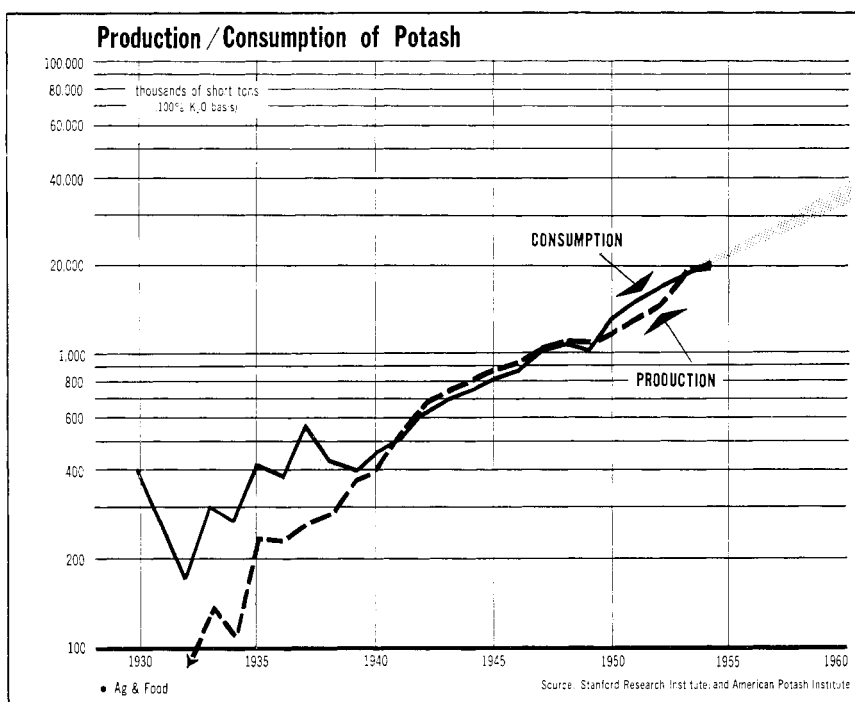
A more extended and continuing program is the movement in the industry to encourage fall planting. As William F. Price of Swift & Co. asked before the meeting of the American Society of Agronomy, would the fall planting idea be suitable in various growing areas and for different soils? For example, would it be suitable for the whole area north of the Ohio River and east of the Plains States? Would the plan work on sandier soils in the northern tier of states, or would it be economical only on heavier soils in any latitude?

Here is where the many farm associations could cooperate, the speaker thought, where research remains to be done through grants-in-aid and fellowships, and which in turn merits the interest of bankers in deserving loans.

Potash Mining

Expansions at Carlsbad seen based on potash consumption continuing steady growth. By 1960, 3 million tons?

ANNOUNCEMENTS last month that two new potash mines were coming in Carlsbad and that another was being expanded raised a large "why?". It was widely assumed that present potash capacity was sufficient and that, if there was a scarcity in the potash industry, it was only in storage capacity.



Also in the minds of many was recent talk of European potash being "dumped" in the U. S.

One of the best explanations of this new activity in Carlsbad is the curve of potash consumption in recent years, which shows a steady increase during the past 10 years and suggests a domestic potash market of more than 3 million tons by 1960.

National Potash, one of the new groups, started from Freeport Sulfur's discovery of potash in its Carlsbad reserves. Freeport, having been exclusively in sulfur, looked for a companion with specialized experience to go along on a bulk mining operation. Result: a company owned 50-50 by Freeport and Pittsburgh Consolidation Coal. National Potash expects to be producing a quarter million tons of K_2O annually by 1957. The National Potash development will be a \$19 million venture, with stock owned by Freeport and Pittsburgh worth about \$4.5 million. Freeport and Pittsburgh are also providing an additional \$2 million to provide National with working capital. The company has also obtained a \$12.5 million loan from an insurance company.

The other major entry in the Carlsbad area is Farmers Chemical Resources Development Corp. This \$12 to \$15 million venture was originally announced as a joint undertaking of Kerr-McGee Oil Co. and the National Farmers Union. Latest word comes from Phillips Petroleum saying the new corporation will be owned 50% by Farmers Union, with Phillips and Kerr-McGee jointly

owning the other half. This surprise move puts Phillips into production of all three major plant nutrients.

Although potash consumption has shown a steady rise for the past 10 years, domestic production has generally been able to meet these demands. Temporary shortages in peak seasons have been caused more by shortages of storage space than by lack of production. Existing potash producers seem to have become reconciled to the realities of seasonal demand for their product and most have now completed permanent storage facilities for off season production. The storage bottleneck may have been a deterrent to any large scale expansion of production facilities up to now. With storage problem coming under control, present potash producers may move toward increasing production. International Minerals & Chemical recently announced plans for expansion by a quarter of a million tons.

Another deterrent to expanded production may have been the threat of cheap potash imports coming in from Germany and France. The Treasury recently released a decision on hearings held in 1954 to determine whether or not East German and French potash was being dumped in the U. S., underselling domestic producers. Treasury said there was no threat to domestic industry to these hearings the word may have got around that European production was not a threat to the domestic potash industry; opposite may be true. There was a world wide shortage of potash last year, and there appears to be little likelihood that European producers are