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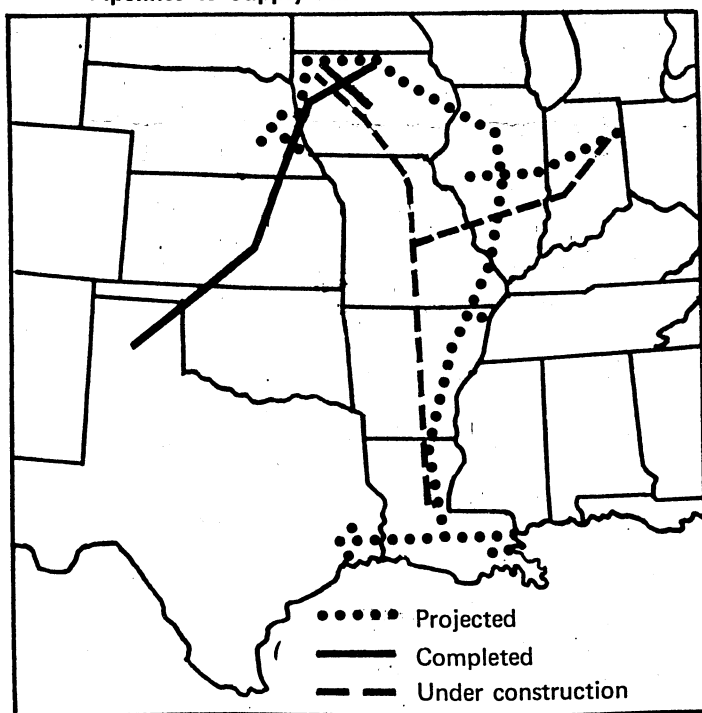
PIPELINES will bring anhydrous ammonia into the Midwest this spring, making it more readily available to farmers and perhaps cheaper to buy. Anhydrous ammonia is an 82-percent nitrogen fertilizer produced primarily from natural gas. It can be injected directly into the soil as a gas or used in making other fertilizers.

Production of the nitrogen gas centers in the Gulf Coast states, principally near the large natural-gas fields of Texas and Louisiana. While it is most economical to produce ammonia near the sources of its raw material, the primary market for anhydrous ammonia is in the Midwest. Nearly all of the nation's production is used as fertilizer. States in the Seventh District, mainly Illinois and Iowa, accounted for more than 40 percent of the nearly 3 million tons used by U. S. farmers in the 1968 season.

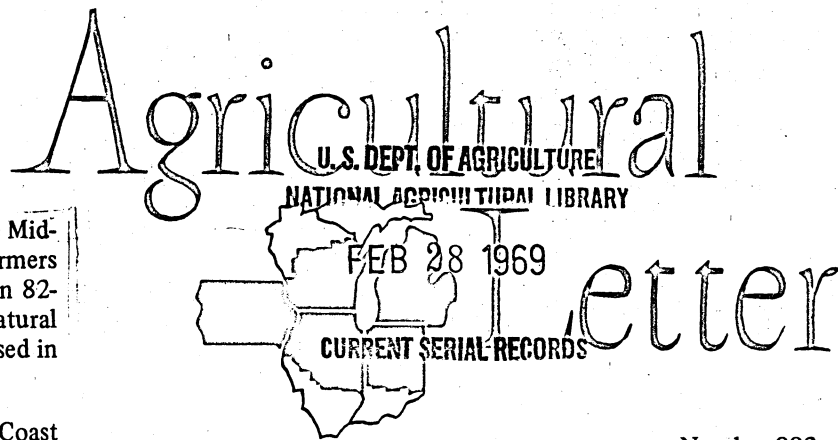
Stored and shipped as a liquid, anhydrous ammonia must be kept at -28°F. In the past, producers have relied entirely on refrigerated barges to transport anhydrous ammonia up the Mississippi and Missouri rivers to central storage tanks in the Midwest. From these tanks, it was hauled inland by rail and truck. Now, with three major pipelines under construction—at least one of which is due to be operational this spring—producers will be able to deliver 7 million tons a season into the Midwest. That is more than twice the tonnage used this year by all farmers in the United States.

Because of the uncertain availability of carriers, producers operating under the present barge-rail-truck system must maintain large storage capacities at their Gulf Coast plant sites to absorb their year-round production. This, of course, adds to the cost of ammonia when it is finally delivered.

Pipelines to Supply Ammonia to the Midwest



SOURCE: U. S. Department of Agriculture.



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However, the greatest opportunities for cutting costs are in the Midwest. A modern plant on the Gulf Coast can produce anhydrous ammonia for \$24 to \$28 a ton. Barging adds another \$7 to \$9, depending on the waterway used. Then another \$45 to \$65 must be added to cover the costs of storing the gas at river depots and transporting it inland to local distribution centers and from there to farmers' fields.

Pipelining will not eliminate the costs of local hauling, but since the lines will follow an inland route, the distance between strategically located distribution centers along the route and farmers' fields will be shortened considerably. Costs of handling and providing reserve storage capacities will also be reduced.

Not only will local transportation and storage costs be reduced but the timeliness of deliveries will also be increased. Ammonia must be distributed rapidly in the spring. Its use peaks in the Midwest in late May and early June, requiring almost a year's production to be distributed in 10 to 20 days. By synchronizing supplies with the areas of heaviest use, pipelines will allow supplies to follow the spring season northward with a minimum of storage capacity.

Although demand for anhydrous ammonia as fertilizer is strong and growing stronger (its use increased nearly a fourth during this year), supplies in recent years have been more than adequate, thus holding prices down. At-the-farm prices of ammonia averaged \$149 a ton in 1957-59, \$113 in April 1967 and about \$91 a ton in April 1968. With supplies already in excess, a substantial part of the savings in transportation and storage costs resulting from the use of pipelines will likely be passed on to farmers in even lower prices. The lower price coupled with greater accessibility to supplies should encourage greater use by farmers.

The expected increase in demand could be slowed, however, by the lower incomes experienced by cash-grain farmers the past two years and the possibility of decreased acreage allotments for feed grains. There are also the vagaries of weather which could cause annual fluctuations in usage.

Farmers currently use 85 percent of the ammonia production. But increased supplies and lower prices could provide impetus for greater industrial use. Ammonia is used in treating steel and pulping paper. Manufacturers of ammonium nitrate, used in explosives, and makers of many other nitrogen-based chemicals might also use ammonia piped in from the Gulf Coast.

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