



TECHNICAL NOTE

FOR IN-SERVICE USE



ECONOMICS FL-6

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TRENDS IN FERTILIZER PRICES

Increases in the price of some fertilizers and planning for the upcoming crop year could make it difficult for farmers. Increased natural gas costs have caused **some** increase in nitrogen fertilizer prices, and many believe spring planting - a time of high demand - will make the situation worse.

Following is an explanation from the Fertilizer Institute regarding how natural gas is associated with the costs of producing fertilizer:

"The major cost component of making nitrogen fertilizer products is natural gas. The production of anhydrous ammonia is the first step in the manufacturing of nearly all nitrogen fertilizer made in the United States. In addition to being a product farmers can apply directly to the soil, ammonia also is the basic building block of the nitrogen fertilizers, including ammonium nitrate, urea, nitrogen solutions, ammonium sulfate and ammoniated phosphates such as diammonium phosphate (DAP) and monoammonium phosphate (MAP). According to The Fertilizers Institute's 1999 production cost survey, the production of one ton of ammonia requires an average of 33.5 million British Thermal Units (MMBtu's), which is the standard measure of thermal energy in the U.S., of natural gas. Since January 2000, prices for natural gas have increased sharply, from approximately \$2.50 per MMBtu to an average of more than \$10.00 for the month of December, 2000. This unprecedented increase was unanticipated by most energy industry observers. The increase in the cost of natural gas is having a dramatic impact on the production cost of ammonia and other fertilizer products made with ammonia. At \$2.19 per MMBtu, the cost of producing a ton of ammonia is about \$100, with gas being 72 percent of the cost of production. At \$4.50 per MMBtu, the cost rises to about \$180, with gas being 84 percent of the cost of production. At \$10.00, the cost of production rises to \$363. However, without a comparable increase in fertilizer prices, the price of natural gas creates pressure for fertilizer producers to curtail production because they cannot recover their manufacturing costs, meaning lower supply. Only a combination of lower gas prices and/or higher prices for fertilizer products would once again create an economic incentive to resume production. It is expected that these trends are to continue as long as natural gas costs remain high."

The sharp, unanticipated rise in natural gas prices has increased the cost of production of many nitrogen fertilizers higher than the prices of commercial

fertilizers could bring in the marketplace, making those products uneconomical to manufacture.

Essentially, farmers are going to struggle with a double-edged sword this crop year: 1) Limited supplies of N fertilizers and; 2) Increased prices of N fertilizers.

Because of these changes in the fertilizer industry, farmers should consult with their suppliers as soon as possible to plan for the spring planting season to make sure that enough fertilizer will be available.

Limited N Supplies

In some case studies, it is shown that even if fertilizer prices are relatively high and crop prices are low, the economic yield resulting from appropriate or recommended fertilizer application rates remains nearly the same or is "inelastic." In other words, farmers should not focus on minimizing input costs when fertilizer prices are increasing, since proper fertilization will ensure profitability.

Of course, if you are unable to obtain the total amount of fertilizer nitrogen that you need, consider the following alternatives:

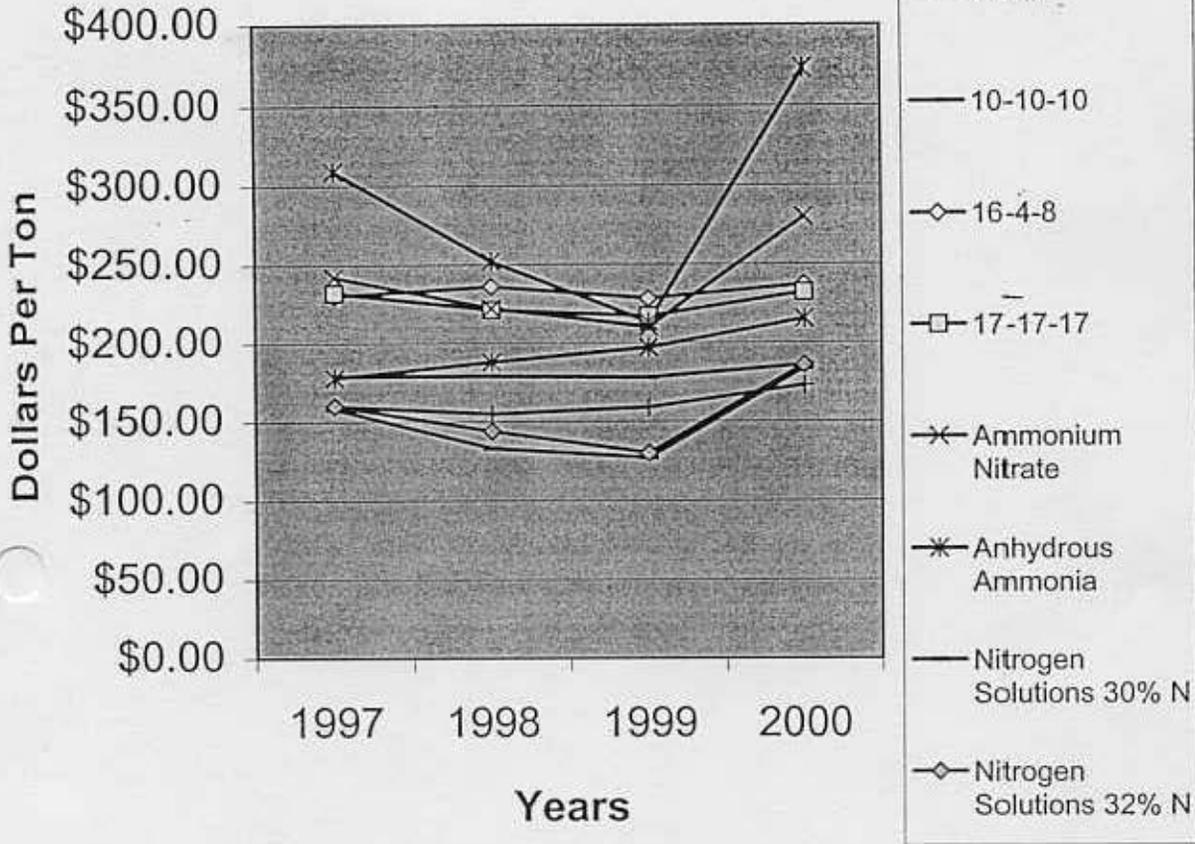
- ◆ Since the yield response to applied N is greatest for the first units of N applied, allocate the available supply across all fields as a percentage of the amount of product available.
- ◆ Take advantage of residual nutrients from previous fertilizer applications and/or crop rotation with a legume.
- ◆ Utilize alternative sources of N including livestock manure or poultry litter.
- ◆ Use proven crop production practices. Nitrogen use efficiency will be optimized when soil pH, P and K are maintained at their optimum levels for the crop being produced.

Attached is a table with fertilizer prices paid in the Southeast region (Georgia, Florida, North Carolina, South Carolina and Virginia) for the years 1997-2000 and a graph indicating fertilizer cost trends.

FERTILIZER	SOUTHEAST Dollars Per Ton			
	1997	1998	1999	2000
0-20-20	\$174.00	\$184.00	\$191.00	\$181.00
5-10-10	\$152.00	\$146.00	\$148.00	\$147.00
5-10-15	\$157.00	\$167.00	\$171.00	\$170.00
5-10-30	\$174.00	\$177.00	\$184.00	\$184.00
6-6-6	\$178.00	\$188.00	\$197.00	\$215.00
6-6-18	\$193.00	\$214.00	\$209.00	\$213.00
8-8-8	\$160.00	\$155.00	\$159.00	\$173.00
10-10-10	\$179.00	\$179.00	\$178.00	\$186.00
10-20-20	\$221.00	\$217.00	\$217.00	\$216.00
16-4-8	\$230.00	\$236.00	\$228.00	\$237.00
17-17-17	\$232.00	\$221.00	\$217.00	\$232.00
18-46-0 (DAP)	\$278.00	\$274.00	\$263.00	\$244.00
Ammonium Nitrate	\$242.00	\$222.00	\$210.00	\$280.00
Anhydrous Ammonia	\$309.00	\$252.00	\$213.00	\$373.00
Limestone, Spread	\$26.30	\$27.10	\$26.20	\$27.90
Muriate of Potash 60-62% K ₂ O	\$166.00	\$180.00	\$180.00	\$185.00
Nitrate of Soda	\$265.00	\$264.00	\$263.00	\$274.00
Nitrogen Solutions 30% N	\$158.00	\$133.00	\$127.00	\$184.00
Nitrogen Solutions 32% N	\$160.00	\$144.00	\$130.00	\$186.00
Superphosphate 44-46% P ₂ O ₅	\$268.00	\$267.00	\$256.00	\$244.00

Note: This table is taken from the National Agricultural Statistics Service annual summary for Agricultural Prices.

Southeast Fertilizer Price Trends



References

Ron Phillips and Kathy Mathers, "*Fertilizer and Natural Gas*," The Fertilizer Institute, January, 2001.

R.G. Hoeft and E.D. Nafziger, Department of Crop Science, "*Getting the Most From Your 2001 Nitrogen Dollars*," University of Illinois, January, 2001.

Ron Phillips, "*Crop Prices are Low...But it Still Pays to Fertilize*," The Fertilizer Institute.