



Nitrogen Prices, Rates Cuts, and 2018 Fertilizer Costs

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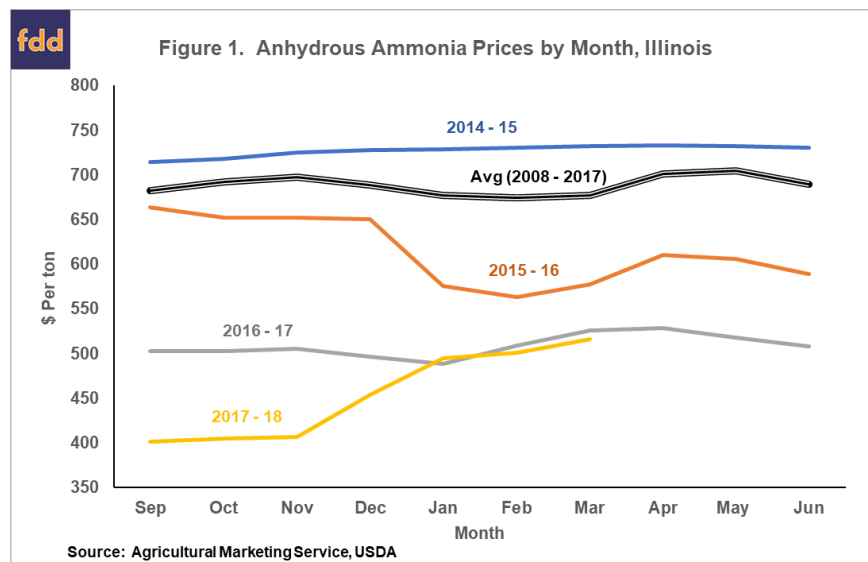
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In recent months, nitrogen fertilizer prices have increased, reaching roughly the same levels as in 2017. To achieve lower nitrogen fertilizer costs in 2018 than in 2017, many farmers will need to lower rates, particularly those who apply most of their nitrogen in the spring. Farmers who apply nitrogen above agronomically recommended levels may consider reducing rates as a means of cutting costs while at the same time increasing returns from corn production.

Increasing Anhydrous Ammonia Prices

According to the March 29th *Illinois Production Cost Report*, anhydrous ammonia prices averaged \$522 per ton in Illinois. This \$522 level is over \$100 higher from September 2017 levels when anhydrous ammonia prices averaged \$401 per ton (see Figure 1). The \$401 per ton is the lowest price in the history of anhydrous ammonia prices contained in the *Illinois Production Cost Report*. This report began in September 2018 and is a publication of the Agricultural Marketing Service (AMS), an agency of the United States Department of Agriculture.



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From the \$401 per ton level in September 2017, ammonia prices have steadily increased, reaching \$522 per ton in the March 29th report (see Figure 1). While a large increase, the \$522 per ton price is roughly the same as in 2017 (see Figure 1). Both the 2017 and 2018 levels are two of the lowest since the beginning of the Illinois Production Cost Report in 2008. From 2008 through 2017, the average march price is \$677 per ton. March prices were \$732 in 2015, \$578 in 2016, and \$525 in 2017.

The 2017-2018 ammonia price pattern shown in Figure 1 indicates that farmers who apply most of their nitrogen in the fall likely will have lower nitrogen fertilizer costs than farmers who apply most of their nitrogen in the spring in 2018. Those farmers who pre-priced or purchased nitrogen in the fall may have lower fertilizer costs than those who purchase it in the spring. Those farmers purchasing most of the nitrogen in spring likely will have to cut rates if nitrogen fertilizer costs are to decline for the 2018 production year.

Cutting Rates

Guides for nitrogen rates are provided in the [Corn Nitrogen Rate Calculator](#), a website maintained by universities in Corn Belt states. “Maximum Return to Nitrogen (MRTN) rates suggested for northern, central, and southern Illinois from this calculator are shown in Table 1. These rates are actual nitrogen and would have to be adjusted for the fertilizer applied (e.g., a pound of anhydrous ammonia has .82 pounds of nitrogen). The MRTNs were derived using a \$3.80 per bushel corn price and a \$525 per ton anhydrous ammonia price. Rates in this calculator are relatively insensitive to price changes. For example, increasing the corn price from \$3.80 per bushel to \$4.50 per bushel only increases the MRTN for corn-after-soybeans in central Illinois by 6 pounds from the 181 pounds shown in Table 1 to 187 pounds per acre. As a result of this price insensitivity, the MRTNs in Table 1 are applicable to most price expectations that farmers could have in the spring of 2018.

	Corn-following-soybeans	Corn-following-corn
	lbs./acre	lbs./acre
Northern	164	209
Central	181	207
Southern	190	202

Source: Corn Nitrogen Rate Calculator (<http://cnrc.agron.iastate.edu>). Values are for a \$3.80 per bushel corn price and a \$525 per ton anhydrous ammonia price.

The rates in Table 1 are for entire nitrogen applied for the growing season, with suitable credit given for nitrogen applied in DAP and MAP. Given current understanding, one-half credit is suggested for nitrogen in DAP and MAP applied before October and three-quarters for applications later in the fall (see Nafziger, E., [Using the N Rate Calculator](#)).

Some farmers may be applying above these MRTN amounts. Above MRTN applications may be based on a motive of having nitrogen there in years in which field conditions are suitable for higher yields. When developing the MRTNs, the methodologies specifically include many cases, with a number of cases resulting in higher corn yields at higher rates (see Nafziger, E., [Using the N Rate Calculator](#)). Accurately predicting when those situations of higher yields will result from higher rates before the fact is not possible at this point in time. The MRTN rate maximizes returns from corn production over the yield/rate cases contained in the MRTN calculator.

Applications above the MRTN has known costs. A 10-pound nitrogen application above the MRTN would require applications of 12.2 pounds of anhydrous ammonia. At a \$525 per ton nitrogen price, this 12.2 pounds of ammonia would have a cost of \$3.20 per acre (12.2 pounds x \$525 per ton / 2,000 pounds).

Summary

Nitrogen fertilizer costs have increased since the fall of 2017, with March 2018 prices near levels in 2017. Farmers who apply most of their nitrogen in spring likely will not have lower 2018 nitrogen fertilizer costs less than 2017 costs if they apply roughly the same rates in 2017 as in 2018. Farmers applying above MRTNs may consider reducing rates as a means of reducing costs while at the same time increasing expected returns from corn production.

References

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