



Nitrogen Fertilizer Prices and Costs Lower for 2018

Gary Schnitkey

Department of Agricultural and Consumer Economics
University of Illinois

November 14, 2017

farmdoc daily (7):210

Recommended citation format: Schnitkey, G. "Nitrogen Fertilizer Prices and Costs Lower for 2018." *farmdoc daily* (7):210, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, November 14, 2017.

Permalink: <http://farmdocdaily.illinois.edu/2017/11/nitrogen-fertilizer-prices-and-costs-lower-for-2018.html>

Nitrogen fertilizer prices are averaging lower now than in any time since September 2008. These lower prices could translate into roughly a \$10 per acre saving in nitrogen fertilizer for the coming 2018 production year. Further savings may be possible for those farms who are applying above recommended nitrogen rates and are willing to cut fertilizer application rates. University recommendations suggest nitrogen application rates well below 200 pounds in northern and central Illinois.

Anhydrous Ammonia Prices

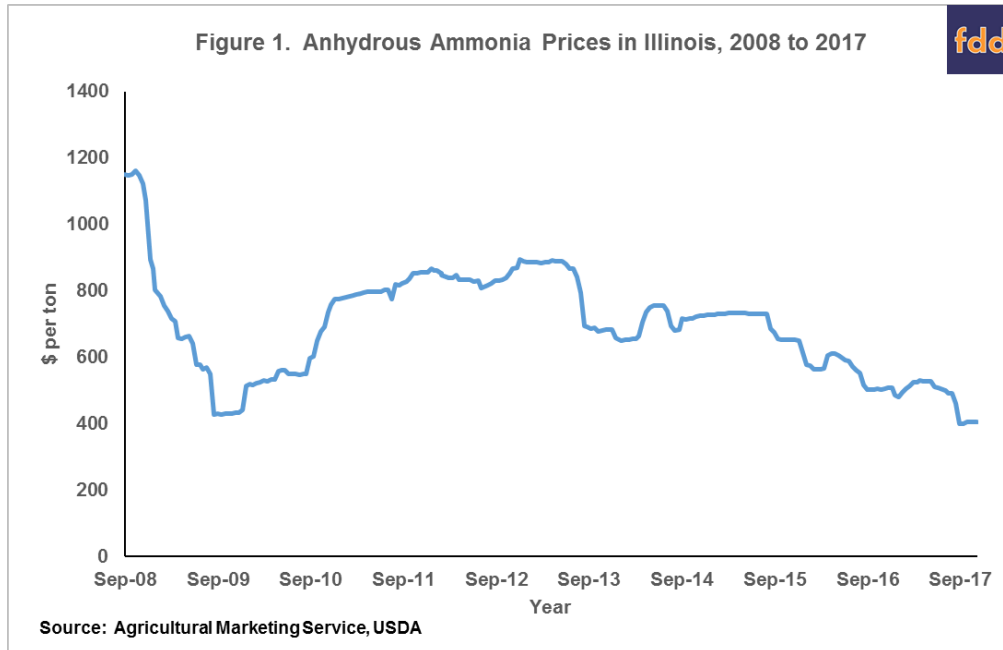
Average anhydrous ammonia prices in Illinois are reported approximately twice a month in the *Illinois Production Cost Report*, a publication of the Agricultural Marketing Service, an agency of the U.S. Department of Agriculture. In the November 10th report, the anhydrous ammonia price was reported at an average of \$405 per ton, with an offer range from \$343 per ton up to \$440 per ton. Anhydrous ammonia prices have averaged \$404 per ton during the months of September, October, and November of 2017.

The \$404 per ton average in 2017 is considerably lower than fall prices in recent years. AMS has been reporting anhydrous ammonia prices since 2008 (see Figure 1). During the months of September, October, and November, average anhydrous ammonia prices contained in the *Illinois Production Cost Report* are:

- 2008: \$1,134 per ton,
- 2009: \$430 per ton,
- 2010: \$683 per ton,
- 2011: \$846 per ton,
- 2012: \$848 per ton,
- 2013: \$683 per ton,
- 2014: \$719 per ton,

We request all readers, electronic media and others follow our citation guidelines when re-posting articles from *farmdoc daily*. Guidelines are available [here](#). The *farmdoc daily* website falls under University of Illinois copyright and intellectual property rights. For a detailed statement, please see the University of Illinois Copyright Information and Policies [here](#).

2015: \$656 per ton,
 2016: \$504 per ton, and
 2017: \$404 per ton.



The \$404 per ton price is the lowest fall price since reporting began in 2008. The next lowest price occurred in 2009, when fall prices averaged \$430 per ton. The \$404 fall price during fall 2017 is \$100 per ton lower than the 2016 average price of \$504 per ton.

Lower Nitrogen Fertilizer Costs for Corn

Lower nitrogen prices should translate into lower per acre nitrogen fertilizer costs. To gain a feel of the savings, recommended nitrogen application rates were obtained from the [Corn Nitrogen Rate Calculator](#), a web tool hosted by Iowa State Agronomy Extension and Outreach, in association with many of the land grant universities in the Midwest including the University of Illinois. This tool suggests different “Maximum Return to Nitrogen” (MRTN) rates for three regions of Illinois. For a \$3.50 corn price and a \$400 per ton anhydrous ammonia price, the MRTNs are 169 pounds of nitrogen for northern Illinois, 186 pounds of nitrogen for central Illinois, and 200 pounds of nitrogen for southern Illinois (see Table 1).

Table 1. The Maximum Return To Nitrogen (MRTN) Rate from Corn Nitrogen Rate Calculator¹

Region	Corn Price		
	\$3.50	\$4.50	\$5.50
	Pounds of N per acre		
Northern	169	180	188
Central	186	196	200
Southern	200	205	210

¹ Rates are taken from Corn Nitrogen Rate Calculator at <http://cnrc.agron.iastate.edu/>. Rates are determined for "corn-after-soybeans" and a \$400 anhydrous ammonia price.

For this example, the 186 pound nitrogen recommendation for central Illinois will be used to illustrate cost savings. This 186 pounds include nitrogen from all sources including from DAP or MAP. An application of 180 pounds of DAP would provide the phosphorus replacement requirements of 200 bushels per acre of corn (see replacement rates in Chapter 8 of the [Illinois Agronomy Handbook](#). This 180 pounds of DAP contain 32 pounds of nitrogen (180 pounds of DAP x .18 analysis). If applied before mid-October, about half of 32 pounds are would be available for plant uptake, or 16 pounds (see Nafziger, [Using the N Rate Calculators](#), *The Bulletin*, September 27, 2017). This would mean that 170 pounds of N would have to be applied from non-DAP sources ($170 = 186 \text{ MRTN rate} - 16 \text{ pounds in DAP}$). Obviously, this 170 pounds of nitrogen would be more if less DAP is applied. The 170 pounds could be less if DAP is applied after October when three-fourths of the nitrogen in DAP may be available for plant uptake (see [Nafziger](#)) or if more DAP is applied.

The 170 pounds of nitrogen could be applied entirely as anhydrous ammonia. To get 170 pounds of nitrogen, a total of 207 pounds of anhydrous ammonia needs to be applied ($207 = 170 \text{ pounds of N} / .82 \text{ of N per pound of nitrogen}$). The costs of 207 pounds of anhydrous ammonia is \$41.88 per acre when a \$404 per ton anhydrous ammonia price is used to represent 2017 prices. The \$504 per ton price in 2016 results in a nitrogen fertilizer costs of \$52.24 per acre. The costs savings for anhydrous ammonia then is \$10.36 per acre.

The \$10 per acre in nitrogen savings can vary. Different sources of nitrogen will have different prices and thereby impact nitrogen savings from 2017 to 2018. Furthermore prices could change between now and spring when some or all of the nitrogen will be applied. These price changes can again impact savings.

Nitrogen Rates for 2018

The rates in Table 1 suggest that applications should not total more than 200 pounds of nitrogen for northern and central Illinois, even if corn prices approach \$4.50 per bushel. Some farmers may be applying in excess of 200 pounds of nitrogen. Moving back to the MRTNs in Table 1 will save costs. Given that the nitrogen recommendations are correct, the cut in nitrogen rates will, on average, increase returns. Cutting back costs in today's low return environment seems prudent.

Summary

Anhydrous ammonia prices currently are lower than at any time since 2008. This lower prices will result in per acre cost savings. Cuts in rates to MRTN levels could result in further savings on some farms.

References

Crop Science Extension and Outreach. *Illinois Agronomy Handbook*.
<http://extension.cropsciences.illinois.edu/handbook/>

Iowa State Agronomy Extension and Outreach. *Corn Nitrogen Rate Calculator*.
<http://cnrc.agron.iastate.edu/>

Nafziger, E. "Using the N rate calculator." *The Bulletin*, Department of Crop Sciences, University of Illinois Extension, September 27, 2017. <http://bulletin.ipm.illinois.edu/?p=3975>

USDA IL Department of Ag Market News Service. *Illinois Production Cost Report* (Bi-weekly), November 9, 2017. https://www.ams.usda.gov/mnreports/gx_gr210.txt