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**Factors Shaping Price and Availability in This Year’s Fertilizer Market**

by Bruce Erickson and Alan Miller

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Figure 1. Ten-year summary of April U.S. prices paid of some commonly-used fertilizers. Source: NASS, USDA.

Figure 2. 2008 Monthly U.S. Fertilizer Price Index (1990-1992 = 100). Source: NASS, USDA.
**Situation Depends on Fertilizer Source**  Most commercial nitrogen fertilizers used in the Midwest, such as anhydrous ammonia (82-0-0), urea (46-0-0), and liquid urea/ammonium nitrate solution (UAN, 28-0-0 to 32-0-0) originate from a process that uses natural gas to convert the nitrogen gas in the air into a form usable by crops. Since this is a very energy-intensive process, natural gas prices along with supply, demand, and transportation costs have a large influence on nitrogen fertilizer prices. Due partly to lower energy costs in some other parts of the world, the majority of nitrogen used in the U.S. is now imported. And with fertilizer use in other countries rising, world events and monetary exchange rates are increasingly influencing fertilizer prices.

Phosphorus (P) and Potassium (K) fertilizer sources such as DAP (Diammonium phosphate, 18-46-0) and muriate of potash (0-0-60) originate mostly from open or underground mines, with the bulk of production controlled by a handful of companies. The U.S. is the world’s leading supplier/exporter of phosphorus fertilizers, but imports most of its potassium from Canada. Higher crop prices around the world contributed to higher fertilizer demand this past year, leading to the unprecedented run-up in fertilizer prices. Investments in fertilizer mining and manufacturing are often long-term commitments and companies often lack the ability to adjust quickly to short-term market conditions.

**Dealer Supplies and Pricing Vary Widely**  While wholesale prices for many fertilizers have decreased sharply since the highs established last summer, local retail prices have not necessarily followed and continue to be adjusted. The prices paid by retailers for fertilizers that will be applied this coming spring vary more than at any time in history--some retailers wanting to secure supplies for their customers and protect against rising prices purchased a portion of their upcoming fertilizer needs at relatively higher prices last summer and could end up selling that product at a loss. Other suppliers who waited to commit, often those with limited storage capacity, are now paying generally lower wholesale prices. These price differences are often more than the total cost per ton paid by these same retailers just a few years ago. Those who bought high will be trying to compete in the market but still attempt to cover their costs, but those who paid lower prices may try to be more aggressive in pricing under their competitors. Since any individual retailer may be operating under a variety of conditions, a wide range of prices is to be expected locally.

**Fertilizer Prices Impact Contribution Margins**  Fertilizer costs have become one of the largest expenses of producing a crop. For corn production, fertilizer costs will exceed land rental charges in some instances. This year fertilizer costs are also one of the most variable factors. The cost paid by the farmer for fertilizers has a great influence on a farmer’s eventual contribution margin returned for their farming investment (Figure 3).

![Figure 3. Contribution margins for corn following soybeans calculated at varying grain prices and fertilizer prices. Calculations derived from Purdue Crop Cost & Return Guide, average productivity soils. Contribution margins are based on market revenue minus variable costs, and do not include land, machinery replacement, family or hired labor costs.](image-url)
More of a Delivery Crunch This Spring  Less fertilizer was applied last Fall in the Corn Belt than in several years, due to the economic uncertainties but also to wet fall conditions in some parts of the Midwest. This has resulted in higher fertilizer supplies in distribution channels, but many are worried about supplies this spring. Fall N applications are not as common in the eastern Corn Belt, so while distribution channels here are accustomed to supplying more pre-plant and in-season applications, the push back to spring applications in other parts of the Corn Belt could strain the network as a whole.

Value of Supplier Relationship  With fertilizer prices in state of adjustment, it would be wise for farmers to check fertilizer prices from more than one supplier. But at the same time get assurances that your supplier will have the materials on hand when you need them this spring. It can sometimes be difficult to quantify, but also serious consideration should be given to the value you place in working with a certain supplier, your common trust, and their long-term commitment to your farming operation or agribusiness.

Using Fertilizer Most Efficiently  Changing fertilizer prices directly influence the marginal return of fertilizer applications, thus affecting the optimal rate to be applied. While many fertilizers are down in price since summer, prices are still relatively high. Whether you are managing by the field or in sub-field management zones, the following publications can help you through some of the agrononics and economics of nutrient management decisions:


Corn Nitrogen Rate Calculator. Iowa State University Extension. Available at: http://extension.agron.iastate.edu/soilfertility/nrate.aspx

Tri-State Recommendations for Corn, Soybean, Wheat, and Alfalfa. Michigan State University, Purdue University, and The Ohio State University. Available at: http://www.ces.purdue.edu/extmedia/AY/AY-9-32.pdf


Summary

Fertilizer markets are adjusting now to a dramatically different economic situation after prices reached unprecedented levels last year. With prices in flux, the wholesale prices paid by agricultural retailers vary dramatically, depending greatly on the fertilizer source and when they were purchased. Correspondingly, retail fertilizer prices can be much different from dealer to dealer this year. As in any year crop producers should check pricing with more than one dealer, but also especially this year get a good feel for the assurance of supply when you will need fertilizer this spring. Also, carefully weigh the value and possible future benefits of maintaining a good working relationship with your agricultural supplier.
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Questions and Answers

Why are local fertilizer prices much higher than what I hear in other parts of the world?

Some of the general reasons are discussed earlier under the heading “Fertilizer Pricing Is Complex.” Price quotes from around the world and even at New Orleans, Louisiana (NOLA), which is a major gateway for imported fertilizer aren’t directly comparable to retail fertilizer prices in the Midwest without taking into account marketing margins. Marketing margins reflect the costs incurred and services rendered by fertilizer suppliers as they move fertilizer from NOLA to Midwest locations in a way and at the time that meets farmer’s needs. For example, last April the NOLA price quoted for anhydrous ammonia on one given day was in the neighborhood of $225 per ton under the average anhydrous price reported by NASS for the North Central Region of the United States. Similarly we saw marketing margins for potash in excess of $200 per ton in April 2008. By September, after fertilizer prices had peaked and then started dropping for nitrogen and phosphate fertilizers, potash price quotes at NOLA remained higher and in some cases were observed to be higher than prices quoted at retail locations in the Midwest. Thus NOLA price quotes, and other price quotes from more distant parts of the world, might best be considered as a leading indicator of the future direction of retail prices in the Midwest, but not necessarily an indicator of what retail prices should be at a given point in time. Wholesale fertilizer prices at NOLA could actually move upward even as retail prices in the Midwest adjust downward.

A second issue this year is the timing of fertilizer imports. The USDA reported in 2008 that about 47 percent of the nitrogen and 45 percent of the potash imported into the U.S. for use on the crop planted in the spring of 2008 was imported during the July through December period in 2007. This import pattern suggests that at least some fertilizer suppliers in the Midwest purchased significant quantities of fertilizer for import for the 2009 crop at wholesale prices significantly higher than current prices. For example, the DAP price quoted fob barge at NOLA of $850-$875 per ton for early September 2008 had dropped to $305 by early January 2009. As a result, retailers understandably are likely to try to develop pricing strategies which will allow them to recover as much of their investment in the inventory that they imported in the summer and fall of 2008 as possible in order to avoid incurring large financial losses on this inventory. Local variations in prices are likely to be larger than normal until this issue is worked out in the marketplace.

What factors caused fertilizer prices to be so high last year, and now why are prices for many fertilizers substantially lower?

A broad-based, worldwide decline in the price of commodities in response to the global financial crisis, at the same time that the fertilizer industry was going full-steam to try meet surging demand for fertilizer, has led to a glut of inventory. High fertilizer prices had even stimulated US nitrogen producers to bring some previously-idled production capacity back on-line in 2008. Also, it is well documented in news reports that farmers’ fertilizer buying behavior changed last fall in response in part to the very prices in the U.S. last
summer. Anecdotal evidence suggested that many Midwest farmers have taken a wait and see approach on purchases in response to news of declining world prices, planned to reduce or skip applications of fertilizer for the 2009 crop, or altered their crop choices to reduce the need for certain fertilizers. Weak demand in the U.S. and too much supply contributed to the price tumble.

**What factors might cause fertilizer prices to increase again, and how much could they go up?**

NOLA fertilizer prices in the U.S. for nitrogen and phosphate fertilizers are likely to increase somewhat in the spring of 2009, but will not return to anywhere near the previous price peaks. How much prices move upward will depend on several factors including the price prospects for commodities produced in the U.S. Higher prices for corn in particular between now and when the corn crop is in the ground would likely strengthen demand for nitrogen and phosphorus. Declining fertilizer prices themselves are likely to stimulate more demand for fertilizers. Nitrogen prices at NOLA have returned to levels that would bring natural gas prices into play once again as a major potential factor in the marketplace for nitrogen fertilizers. Natural gas prices have been relatively low recently, and increasing gas prices could lead to higher nitrogen prices in particular if the remainder of this winter were to be colder than normal. Improvement in the U.S. economy is another factor that could stimulate demand for fertilizers; materials like ammonia have industrial uses and reduced demand for these products for industrial uses has contributed to the overall weakness in demand. Major potash producers in Canada made public announcements indicating they had moved quickly and decisively to curtail potash production with the intent of reducing supply to match demand and propping up prices this spring.

**The prices quoted by my dealer are much higher than I can get at a neighboring retail location. Is it worth switching suppliers?**

Check prices at more than one dealer, but also weigh the costs and benefits of altering your relationship with long-term trusted suppliers.

**Will I lose yield if I don’t apply phosphorus and potassium this season?**

It depends on soil test levels. If soil test levels are above the maintenance limit, fertilizer P and K are not needed to achieve optimum crop yields and will not need to be replaced by future fertilizer applications. On the other hand if soil test levels are below the critical level then crop yields are expected to be limited by soil P and K and the value of the lost yield is likely greater than the cost of fertilizer.

**What can I do to maximize return on my corn nitrogen fertilizer?**

There are many factors that impact efficient nitrogen use. Sidedress apply nitrogen fertilizers when possible. Delay early spring anhydrous ammonia applications to later in the spring or add a nitrification inhibitor. Do not apply urea or 28% urea-ammonium-nitrate far in advance of planting. Place urea or 28% below the soil surface or use a urease inhibitor or coated urea product if surface application is unavoidable. Utilize crop rotations where possible--optimum nitrogen rates for corn after soybeans are 35 to 40 pounds of nitrogen per acre less than for corn after corn.