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High prices and tight supply make fertilization decisions tough

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Abstract
Nitrogen (N) fertilizer prices have been high the past few years, and continue to be this fall. Additionally, other fertilizer products have increased in price, with supply shortages of potassium (K) fertilizer possible. Why is this occurring? Several factors are interacting to influence both supply and price. These include high natural gas price (main feedstock for manufacture of N fertilizer), closure of about one-quarter of the U.S.

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High prices and tight supply make fertilization decisions tough

Nitrogen (N) fertilizer prices have been high the past few years, and continue to be this fall. Additionally, other fertilizer products have increased in price, with supply shortages of potassium (K) fertilizer possible. Why is this occurring? Several factors are interacting to influence both supply and price. These include high natural gas price (main feedstock for manufacture of N fertilizer), closure of about one-quarter of the U.S. N fertilizer production capacity, world fertilizer demand and willingness to pay high prices, low fertilizer inventory, and hurricanes in Florida causing phosphorus (P) fertilizer manufacturing shutdowns. As for many businesses, agriculture operates in a world market; this includes manufacture and use of fertilizers. What can crop producers do? There is a lot of uncertainty and no clear and definitively correct answer. Producers should work closely with their crop adviser and dealer to figure out what the best options are for this fall and next spring. This is always important but more so at this time.

Following are several production options to consider with limited supply, high prices, and perhaps limited available cash for fertilizer purchases.

One, soil test to know what P and K applications are needed. Avoid applications to fields that don't need the nutrients. See Iowa State University Extension publication Take a Good Sample to Help Make Good Decisions (PM 287) for soil sampling suggestions. If soil tests are in the High and Very High categories, then some of the P and K "banked" in the soil can be used for next year's crop production. Only apply P and K to soils testing Low and Very Low, with optional application when tests are Optimum (especially when product supply is really short or high priced). Crop yields are high again this year, so crop removal will be impacting soil test levels. However, even with soil tests in the Optimum category, the expectation for response to P and K application is small. Furthermore, crop response to P or K fertilization is very unlikely when soil tests are in the High or Very High categories. Manure is a viable option to help in fields where P and K is needed, and will help with N. See Iowa State University Extension publication A General Guide for Crop Nutrient and Limestone Recommendations in Iowa (PM 1688) and Managing Manure Nutrients for Crop Production (PM 1811) for details on soil test interpretation, application rates for P and K, and useful suggestions for managing manure nutrients.

Two, most farmers apply once before corn the P and K needs for both crops in the corn-soybean rotation. This is as effective as applying the nutrient need ahead of each crop. However, if prices are higher this fall, farmers could save money now by applying the nutrient need of one crop and fertilizing again next year.
Three, N applications should be tailored for the crop rotation. First-year corn following established alfalfa often needs no N fertilization, and when required only 30-40 lb N/acre. Second-year corn following alfalfa also has reduced N need. Compared to continuous corn, corn in rotation with soybean has lower N requirement, on the order of 50 lb N/acre less N need. If N is in short supply, it is better to apply some N to all fields than to skip fields (other than corn after alfalfa). The largest yield gains from N application come from the first increments of N. Application rates can also be adjusted downward somewhat when N fertilizer costs are high relative to corn prices. If possible, grow more corn after soybean than after corn. Yields will be higher with the rotation and N need lower. If fall fertilization is considered, then wait until soils are cold and remain so, less than 50°F and cooling, which usually means waiting to apply until early November. Good application timing helps reduce N loss and allows the best yield return from applied N.

There is currently uncertainty regarding fertilization this fall. However, with planning and careful adjustments, successful crop production in 2005 can be achieved.

The above publications, as well as other nutrient management information, are available on the Iowa State University Agronomy Extension Soil Fertility website [1].

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