

NEWS & VIEWS

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High Fertilizer Prices: What Do I Do?

RECENTLY, fertilizer prices have been higher and supplies of some nutrients have been tighter. Yet most realize, and research continues to confirm, the critical role of fertilizer use in profitable crop production. The result: an increased emphasis on efficient use of nutrients that is effective in accomplishing grower goals. Here are some suggestions for keeping fertilizer bills as low as possible without compromising the yield that brings much needed revenue.

Account for Nutrient Supplies Already in the Soil

How much of each nutrient do you currently have in your soil? Take advantage of what's already there. When fertilizer costs increase and supplies tighten, soil test results provide the best guidance for deciding which nutrients should be applied and how much of them to use. If soil test levels of phosphorus (P) and potassium (K) are high, there is little chance that an economic response to these nutrients (beyond a starter band) will occur in the year of application. In such cases, producers can take advantage of existing soil nutrient supplies. However, this approach must be done with the understanding that supplies will need to be replenished later to avoid future nutrient deficiencies and associated revenue losses.

Taking nitrogen (N) credits for previous crops is an important part of buying only what's needed. Many people also forget that with some crops, like alfalfa, lower N application rates may be justified for crops planted up to 2 years after plow-down.

An often overlooked, but effective, tool is the soil nitrate test. This test helps producers account for the nitrate already present in their soils. If levels are high enough, freshly applied N rates can be reduced, or in some cases, omitted. This test is particularly useful where manure applications have been made, yields were poor, or growing conditions were dry. The drought conditions encountered in

many parts of the region justify using this test.

Account for Nutrient Supplies on the Farm or Nearby

If you have access to manure, whether it's on your farm or your neighbor's, use it as effectively as possible. The current economic and supply conditions may increase the justifiable distance that manure can be hauled. Also be sure that you know the nutrient content of the manure and the rate at which manure is applied, so you can calculate how much of each nutrient is being put on. If spreader calibration and manure testing have seemed too time consuming or too expensive to deal with in the past, this may be the year to reconsider. If manure application equipment is dated, it may be time to run the numbers and see if updated equipment capable of applying lower, agronomic rates can be justified. In some cases, manure application rates can be cut in half and still meet crop needs, allowing manure to be a nutrient source on more acres. Be sure and record the places within a field where manure is applied. This can be accomplished with flags or global positioning system (GPS) receivers and software.

Time Nutrient Applications for Highest Efficiency

Spring N applications provide N at a time closer to crop need, reducing the chances for N loss. However, spring applications can also carry higher logistical risks, since conditions are typically wetter than the fall. In some areas, fall N applications can be effective if they are made when soil temperatures drop below 50 degrees (F) and remain there. Nitrification inhibitors can also reduce or eliminate N losses from fall to spring.

Splitting the total N rate across various times in the season can increase N recovery by the crop. Several options exist. A pre-plant application combined with a second application during early vegetative growth stages is common for corn.

Whenever possible, manure applications should be made close to the time of crop need...usually in the spring.

Place Nutrients for Greatest Efficiency

Generally, banded nutrient applications provide higher first-year recovery of applied P and K than do broadcast applications. Consequently, some universities suggest rate



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reductions when nutrients are applied in this manner. If short-term economic decisions dictate banding P and K at rates less than those of crop removal, producers and advisers may want to build in a plan for replenishing soil nutrient supplies in the future, when economic conditions improve. In fields with longer-term management strategies, a combination of a banded application with a broadcast application has the best chance for maximizing yields. Bands placed near the seed provide early season access to nutrients, while overall higher fertility levels in the bulk soil provide access to nutrients by the larger root system later in the season. This approach has worked well for both corn and wheat. Soybeans generally respond best to broadcast applications, but new research in ridge-till and no-till systems shows soybeans to be quite responsive to banded applications.

Allocate Money to the Right Nutrients

In times like these, many emphasize that N needs must come first. Before jumping to this conclusion, soil test levels of a field or field area must be examined. In the worst case, it may be found that N, P, and K are all in short supply. When this happens, crop response to any single nutrient will be limited if only that nutrient is applied. For instance, when P levels are low, the plant has a reduced supply of stored energy. Without enough energy, the plant is not effective in absorbing limited soil N, P, or K supplies. In such cases, if recommended rates of each nutrient cannot be afforded, it is best to apply at least some of each nutrient, rather than focus on one nutrient alone. As an example, banding low rates of P near the seed can provide additional energy needed by the plant to help it take advantage of applied K and N. This balanced approach will maximize the effectiveness of all applied nutrients.

Prioritize Fields and Areas Within Fields

Allocating nutrient funds across the farm should be based not only on soil tests but also on economic evaluations of each field or field area. What is the break-even cost of production for each field in a farming operation? Which

fields consistently make money, which ones are hit or miss, and which ones are just a drag on the business? Spending time looking at how fields have performed over time may help farmers and advisers focus resources on the money makers. The goal of such an analysis is to ensure that consistently profitable fields have the nutrients they need to maintain production and revenue levels. With the advent of precision agriculture, this evaluation can be brought to a higher level of resolution, extending the concepts to areas with a field, rather than the entire field.

Examine Yield Goals

Since many nutrient recommendations are based on yield expectations, setting realistic yield goals is important. One way to set realistic expectations is to look back at previous years' performance, to get an idea of what typically happens, given specific levels of crop stress. Averages of several years of yields are often useful in setting goals.

Re-examine the Basis for Nutrient Recommendations

Are nutrient recommendations based on the best science available? University research and publications set the standard for science-based nutrient management decisions. How do currently-used recommendations compare to these? If modifications or different approaches are being used, is there good information behind them? It may be time to look at the scientific guideposts, like university guidelines, to see how current management practices compare.

Summary

When funds are limited and supplies are tight, it is paramount that nutrients be used as efficiently as possible to accomplish grower goals. Efficient use is possible only when informed decisions can be made. **Keeping soil test information up-to-date, identifying profitable fields or field areas, using all nutrient sources available, and adopting nutrient management practices founded on proven scientific principles assure the greatest chances for success.** ■

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Looking for More?

For additional information and tools related to decision-making on fertilization and cost concerns, visit our website at www.ppi-ppic.org.

An article titled "Nourishing the 2006 Crop...Will We Get It Done?" by PPI Senior Vice President and North American Program Director Dr. Paul Fixen addresses the current concerns about fertilizer prices and cost cutting. There is also a folder at the website called "Fertilizer Economics for 2006... Tools for Management", which has information on various regions and cropping systems.



Plant Food Uptake and Removal— Revised Northcentral Region Pocket Folder Available

Due to the compact and convenient size of the PPI PFU cards, they have long been popular and easy to carry in a wallet or field notebook. A newly revised and updated card for the Northcentral Region has more data on removal than in previous versions. References for the data can be found on the website at: www.ppi-ppic.org/northcentral/nutrientremoval. The cards are available for purchase at 20 cents each, with discounts on larger quantities. Call PPI Circulation at 770-825-8082 for more information.

Crop	Year	Plant Food Uptake (lb/acre)	Plant Food Removal (lb/acre)
Corn	2005	100	100
	2006	100	100
Soybeans	2005	100	100
	2006	100	100
Wheat	2005	100	100
	2006	100	100
Sorghum	2005	100	100
	2006	100	100
Cotton	2005	100	100
	2006	100	100
Rice	2005	100	100
	2006	100	100
Oats	2005	100	100
	2006	100	100
Barley	2005	100	100
	2006	100	100
Clover	2005	100	100
	2006	100	100
Alfalfa	2005	100	100
	2006	100	100
Hay	2005	100	100
	2006	100	100
Pasture	2005	100	100
	2006	100	100