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# Is Fertilizer Too Expensive For \$2 Corn?

by Al Giese

**A**s a fully integrated supplier of inputs for more than 300,000 crop-producing farmers and ranchers, Cenex/Land O'Lakes is keenly aware that the current increase in nitrogen plant food prices affects bottom-line farm profitability.

## *Why The Increase?*

Plant food prices are up due to several demand factors that have converged in recent years. The first, and most obvious to the farmer, is that more nitrogen inputs were required to support the recent record crop production in the United States and Canada. Excellent spring weather in 1994 added additional demand pressure as it encouraged growers to pursue high yields with high management, high-fertility cropping programs.

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*Farmers will spend more for plant food inputs in 1995.*

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The 1994 season continued to be favorable for high yields, and crops drew heavily on soil nutrient reserves to produce that yield. Farmers are now rushing to replenish their soil, and this has resulted in heavy spring nitrogen applications in 1995, especially for anhydrous ammonia.

The price of potassium (K) and phosphorus (P) also has increased due to domestic agricultural use and an increase in potash and phosphate exports to China and Southeast Asia. This demand from abroad probably will continue as developing nations strive to become more self-sufficient in feeding their populations.

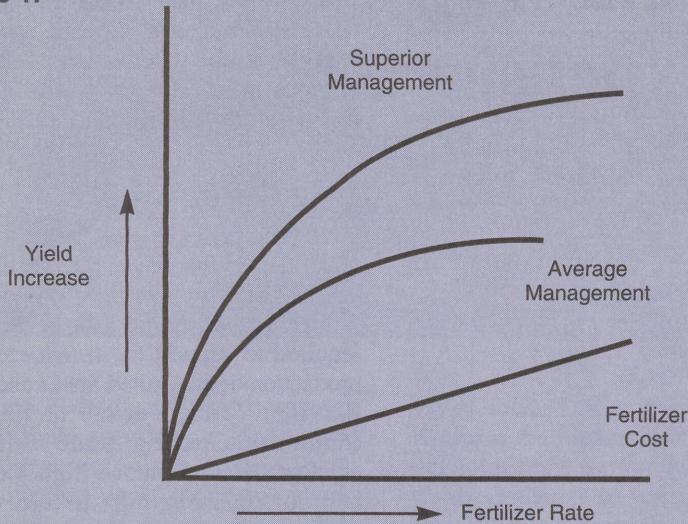
But agriculture is now only part of the picture. Recent years also have seen record industrial demand for anhydrous ammonia, which is used with petrochemicals to produce synthetic fibers for carpeting and fabrics. In fact, while agricultural use grew 22% between 1993 and 1994, industrial use grew 31%.

Low nitrogen inventories have caused ammonia plants to run beyond normal



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Figure 1.



capacity for quite some time. This is good news in that it helps us boost supplies. The bad news is that favorable ammonia production margins have caused producers to cut back on other nitrogen-based fertilizers such as urea and liquid UAN, creating volatile prices for these plant food sources as well.

## *Is Fertilizer Still Worth It?*

As lenders go over their customers' requests for input dollars, they probably will notice that farmers will spend substantially more for plant food inputs in 1995. We estimate retail ammonia prices this year could be 45% higher than last spring. Urea prices likely will increase 25% and liquid UAN prices could increase 16%.

Looking at a balance sheet, there could be a great desire for farmers to reduce plant food input costs by cutting back rates in the field. If this is an option you discuss with growers, keep in mind that reducing nitrogen rates haphazardly usually will cost more in yield than it saves in input costs. In addition, plants that are well fed mature more quickly, resulting in reduced grain moisture and lower drying costs. Crops with sufficient nutrients produce the highest quality grain and forage, resulting

in better prices at the elevator or increased animal performance. Also, higher production of dry matter builds the soil and creates more residue for conservation compliance programs.

But there are cases when a grower may be able to produce comparable yields with lower plant food rates. The only way to know if this is the case is through soil testing and consultation with a professional agronomist who knows local conditions.

## *Start With A Soil Test*

Soil testing is the most underutilized tool in farming. Farmers who apply a set amount of N, P and K every year without testing the soil could be over- or under-applying their inputs. Strictly from a profitability standpoint, soils that test high in nutrients may be candidates for reduced plant food rates. But soils testing in the medium- to low-range should not be considered for reduced plant food inputs.

Most soil tests also check pH. Since acidic, or low, pH soils reduce nutrient availability, raising pH levels with low-cost lime can be an exceptionally good investment and possibly reduce the amount of plant food farmers need to apply.

## *Follow Up With Tissue Testing*

A multitude of factors, including pH and soil type, can influence the availability of nutrients in the soil. Crops that show signs of deficiency should be checked by sending plant tissue samples to a credible laboratory.

Both soil and tissue tests should be taken by professional agronomists and sent to reputable laboratories that are familiar with local soil conditions. The importance of proper sampling procedure cannot be overemphasized. Poor sampling leads to misleading test results.

## *Put Food Where It Is Needed*

Side-dressing and split applications can save 10% to 20% of N cost by getting the fertilizer to the plant more efficiently than broadcast methods. Also, some farmers underestimate or forget to consider the value of non-commercial nitrogen sources. So be sure to take nitrogen credits for legumes and manure.

Farmers should subtract N credits from last year's soybean or alfalfa crop. About 1.25 pounds of nitrogen is needed for every bushel of yield goal. Growers can start with that amount and then subtract N credits to determine true nitrogen needs.

Typically, you can subtract one pound of nitrogen for every bushel of soybeans produced the previous year. Because many soybean fields last year yielded more than 50 bu./acre, N credits from soybeans could make a substantial contribution this year. Nitrogen credits from alfalfa range from 90 to 150 pounds per acre depending on stand quality and how the stand was managed.

Manure is becoming a more abundant nitrogen resource, mostly due to an increased number of large hog operations. By applying 2,000 to 3,000 gallons of manure per acre, farmers can get by with little added nitrogen. However, many growers who use manure as their primary nitrogen source still find that some commercial nitrogen banded with a starter fertilizer can improve early growth.

Manure varies in fertility value, so farmers should have it tested, especially if they intend to purchase manure for use as plant food.

## *Cutting Rates Doesn't Pay*

As corn prices go down, some growers assume that plant food inputs can be cut accordingly. Actually, research at Iowa State University and other land grant colleges shows that there is a minuscule reduction in optimum rate of plant food that growers should apply for maximum profitability. Generally, the difference is so small that no reduction is called for at all. The difference in optimum nitrogen application changes very little as corn prices decrease in relation to the cost of nitrogen. Most universities recommend farmers stay with an optimum fertility program even at today's price ratio. According to the Potash and Phosphate Institute, which engages in extensive plant nutrient research, farmers can expect \$4 to \$8 back for every dollar invested in fertilizer when optimum rates are applied.

## *Invest In The Best Operators*

Good operators return more profit on their fertilizer dollar than average operators. These top producers simply tend to do more things right to achieve top yields. They test their soil, plant high-yielding seed, plant at the optimum time, avoid compacting wet soils, scout their crops regularly, use integrated pest management practices, prevent erosion on their land and pay close attention to every detail of their farming operation. Good operators keep accurate records of all their cropping activities. Careful review of those records gives you a good idea of who makes the most profitable use of their fertilizer dollar.

Figure 1 compares how superior management produces more yield for every pound of fertilizer used. Notice how the difference between superior management and average management increases as fertilizer costs rise.