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## GETTING THE MOST FROM YOUR FERTILIZER DOLLAR

### **Fertilizer consumption in the United States has been on a relatively flat plateau for the past 30 years.**

Until recently, increases in prices were relatively modest and slow. However, the combination of high crop values, rapid increases in energy costs, and booming international fertilizer demand have all boosted fertilizer prices. Higher prices should prompt everyone to review management practices to get the greatest benefit from added fertilizers. Here are some general principles for optimizing fertilizer efficiency...but local conditions will vary and may require consultation with a Certified Crop Adviser for your situation.

**Soil Sampling:** One of the keys to getting the most from applied fertilizer is to know exactly which nutrients are lacking and what amount is needed to bring them to non-limiting levels. Applying only what is needed will save money compared with putting a blanket application across the entire farm. Consider sampling the soil for available N before fertilizing this year in order to adjust for existing nutrients in the root zone.

**Proper Equipment:** Check your machinery to make sure that it is properly calibrated. Equipment malfunction or operator error too often results in the incorrect amount of fertilizer being applied. Too much fertilizer wastes money and too little can hurt crop yield and quality.

**In the Right Place:** Placement can make a big difference in getting the highest return from fertilizer. Know where the specific fertilizer materials you use should be placed. For example, when urea or UAN solutions are broadcast and remain on the soil surface, they can be subject to considerable ammonia volatilization losses. Phosphorus is generally most effective when it is applied close to the rootzone. Avoid P loss in runoff to minimize environmental concerns by using appropriate conservation practices. Potassium can be applied by broadcasting or banding with excellent results. There are no serious environmental impacts associated with K fertilization.

**At the Right Time:** Some nutrients, such as P and K, can be applied months in advance of the crop demand. Fall fertilization for spring-planted crops is a good practice for these nutrients. However, it is generally best to apply N as close to the time of plant demand as possible. Nitrogen efficiency may be boosted by making multiple fertilizer applications, using controlled-release products, and monitoring the N status of the growing crop.

**Establish Realistic Yield Goals:** Keep good records of how your fields have performed and then fertilize for realistic yields. Everyone wants to have record-breaking yields every year, but knowing how each field performs over time lets you know what you can reasonably expect to harvest... and then fertilize accordingly.

**Improve Water Management:** Water and plant nutrition are closely linked. If irrigation water is not uniformly distributed across the field, plant performance will suffer. Excessive water can move nutrients below the root zone and cause runoff of nutrients, sediment, and organic matter. Insufficient water will stunt crops and prevent the applied nutrients from being used for growth. Properly fertilized crops actually use water more efficiently and have more harvestable yield per inch of water applied compared with under-fertilized crops.

**Take Fertilizer Credit:** There are nutrient sources that are sometimes given inadequate credit. With higher fertilizer prices, all sources should be valued. For example, know the analysis of any manure being applied to the soil and calibrate the manure spreader to accurately and uniformly apply nutrients across the field. Irrigation water may contain enough nitrate to supply a significant amount to the crop requirement. An analysis of irrigation water quality may be a useful guide.

**Fertilizer application is still a great investment for growing high yielding and profitable crops.** There is no substitute for supplying the basic nutritional building blocks required for plants to grow. However, do not use more fertilizer than the crops can use. Proper fertilization is good for your wallet and safe for the environment.

—RLM—

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Abbreviations in this article: N = nitrogen; UAN = urea ammonium nitrate; P = phosphorus; K = potassium.

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