What's a Crop Nutrient Management Plan?

A Crop Nutrient Management Plan is a Tool to Increase the Efficiency of All the Nutrient Sources Your Crop Uses While Reducing Production and Environmental Risk, Ultimately, Increasing Profit.

Why Plan Your Crop Nutrient Management System?

Profit
Managing to maximize return on your cropping investment requires the perfect combination of science, technology, art and luck. Some factors, like the weather, will always require a bit of luck. Thankfully, science and technology continue to make strides, reducing the impact of uncontrollable factors like the weather and markets. This reduces the risk inherent in farming. By using a plan to analyze the crop nutrient management portion of your production system, you can reduce risk and, ultimately, maximize profit.

Environment
Good nutrient management planning is an integral part of a system of practices that conserve and enhance natural resources. It reduces production and environmental risks. The more nutrients your crop converts to grain or fiber, the less opportunity for nutrients to reach streams, lakes or groundwater. And, if you're like most farmers in the United States, you're proud of your abilities to protect the environment. By tightening up the nutrient-crop conversion rate even more, you'll continue to prove farmers are environmentalists.

10 Key Components

Ag experts agree that there are ten fundamental components of a Crop Nutrient Management Plan. Each component is critical to helping you analyze each field and improve nutrient efficiency for the crops you grow.

1] Field Map — The map, including general reference points (such as streams, residences, wellheads, etc.), number of acres and soil types is the base for the rest of the plan.

2] Soil Test — How much of each nutrient (N,P,K) and other critical elements such as pH and organic matter is in the soil profile? The soil test is a key component needed for developing the nutrient rate recommendation.

3] Crop Sequence — Did the crop that grew in the field last year (and in many cases two or more years ago) fix nitrogen for use in the following years? Has long-term no-till increased organic matter? Did the end-of-season stalk test show a nutrient deficiency? These factors also need to be factored into your plan.

4] Estimated Yield — Factors that affect yield are numerous and complex. Soils, drainage, insect, weed and disease pressure, rotation and many other factors differentiate one field from another. This is why using historic yields is important in developing your yield estimates for next year. Accurate yield estimates are the foundation of the budget and can dramatically improve nutrient use efficiency.

5] Source and Forms — The sources and forms of available nutrients can vary from farm-to-farm and even field-to-field. For

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instance, manure fertility analysis, storage practices and other factors need to be included in the plan. Manure nutrient tests and analysis are one way to determine the fertility of it. Nitrogen fixed from a previous year's legume crop, residual effects of manure and many other nutrient sources should also be factored into the nutrient budget. Efficiency is increased by budgeting each nutrient (N, P, K, etc.) individually to match the crop's needs.

6] Sensitive Areas — What's out of the ordinary about your field plan? Is it irrigated? Located next to a stream or lake? Particularly sandy? Have a steep slope or low area? Was manure applied in one area for generations? Is a portion of it extremely productive or unproductive? Are there buffers that protect streams, drainage ditches, wellheads and other water collection points? How far away are the neighbors? What's the general wind direction? This is the place to note these and other special conditions that need to be considered.

7] Recommended Rates — Here's the place where science, technology and art meet. Given everything you've noted, what is the optimum rate of N, P, K, lime and any others? While science tells us your crop has changing nutrient requirements during the growing season, a combination of technology and your management skills assure optimum nutrient availability at all stages of growth. No-till corn generally requires starter fertilizer to give the seedling a healthy start.

8] Recommended Timing — When does the soil temperature drop below 50 degrees? Will a nitrogen stabilizer be used? What's the tillage practice? Strip-till corn and no-till often require different timing approaches than seed planted into a field that's been tilled once with a field cultivator. Will a starter fertilizer be used to give the seedling a healthy start? How many acres can be covered with available labor (custom or hired) and equipment? Does your manure application depend on a custom applicator's schedule? What agreements have been worked out with neighbors for manure use on their fields? Is a neighbor hosting a special event? All these factors and more will likely figure into the recommended timing.

9] Recommended Methods — Surface or injected? While injection is clearly preferred, there may be situations where injection is not feasible (i.e. pasture, grassland). Slope, rainfall patterns, soil type, crop rotation and many other factors determine which method is best for optimizing nutrient efficiency (availability and loss) in your fields. The combination that's right for you in one field may differ in another field even with the same crop.

10] Annual Review and Update — Even the best managers are forced to deviate from their plans. What rate was actually applied? Where? Using which method? Did an unusually mild winter or wet spring reduce soil nitrate? Did a dry summer, disease or some other unusual factor increase nutrient carryover? These and other factors should be noted. It's easier to make notes throughout the year than to remember back six to ten months.