What's a Crop Nutrient Management Plan?*

IMC

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

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.

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.

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 show a nutrient deficiency? These factors also need to be factored into the plan.

Estimate Yield — Factors that affect yield are numerous and complex. A field's 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 yield estimates for next year. Accurate yield estimates can dramatically improve nutrient use efficiency.

Sources and Forms — The sources and forms of available nutrients can vary from farm-to-farm and even field-to-field. For instance, manure fertility analysis, storage practices and other factors will need to be included in the plan. Manure nutrient tests/ analysis is one way to determine the fertility of it. Nitrogen fixed from a previous year's legume crop and residual effects of manure also effects rate recommendations. Many other nutrient sources should also be factored into the plan including commercial fertilizer.

Sensitive Areas — What's out of the ordinary about a field plan? Is it irrigated? Next to a stream or lake? Especially sandy in one area? Steep slope or low area? Manure applied in one area for generations due to proximity of dairy barn? Extremely productive — or unproductive — in a portion of the field? 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.

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

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 corn requires different timing approaches than corn 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 the 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 over the weekend? All these factors and more will likely figure into the recommended timing.

Recommended Methods — Surface application or injected? Was a nitrogen stabilizer used? Many factors affect nutrient efficiency (availability and loss). What is needed for the crop and the management style will be a combination that's right for the producer.

Annual Review and Update — Did the plan actually get followed? Even the best managers are forced to deviate from their plans. Did an unusually mild winter or wet spring reduce soil nitrate? Did a dry summer, disease, or some other unusual factor increase nutrient carryover? What was applied where? At what rate? Using which method? These and other factors should be noted as they occur. It's easier to make notes as it's being done than to remember back six to ten months.

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