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MAKING THE MOST OF YOUR FALL SOIL SAMPLE

Fall is an excellent time to soil sample to start developing next year's nutrient management plan.

Whether fertilizer is fall or spring applied, an understanding of the soil nutrient levels will help with crop planning and budgeting. When combined with an evaluation of cropping history, crop nutrient removal, and past fertilizer and manure application, a soil test is one of the tools an agronomist can use when working with the farmer in building a sound crop nutrition plan.

The soil test is only as good as the sample that is collected. Ensuring that representative samples are collected means having the farmer involved in the sampling process. If the farmer cannot participate, it becomes critical that the person taking the samples has clear directions on where to sample each field to collect a truly representative sample. As an example, the results of one core taken from a saline area can ruin the ability to make an appropriate interpretation of a field, when the total area affected by salinity is 1% or less. Using Global Positioning System technology to record the representative areas of a field can help with future sample collection.

Distinctly different regions of fields should be considered separately. If farmer experience, combined with other information such as a yield map, indicates that there are distinctly different production areas in a field, then these should be sampled as individual areas. If production differences in these areas of the field are a result of soil nutrients, separate soil samples may provide some insight into opportunities to fine tune nutrient management and improve overall productivity.

When to sample has always been an issue of contention amongst agronomists, especially where fall fertilization is practiced. While traditionally the recommendation has been to wait until soil temperatures drop below 5° C (41° F) before sampling for nitrogen, recent research in western Canada has found that soil nitrate-nitrogen levels may not be as variable as once thought. Using two-week measurement intervals, little change was found in soil nitrogen levels in cereal stubble fields between mid-September through freeze-up in November. Despite warm soil temperatures early in the fall, there was little nitrate accumulation. However, those fields where more nitrogen is generally released in September, such as pulses, canola, corn, or potato stubble, should not be sampled until later in the fall. Soil phosphorus and potassium levels generally are affected little by sampling date after harvest in the fall.

Given the large number of soil testing labs where samples can be submitted—be sure to ask the right questions. Be sure that your samples are being evaluated using an appropriate chemical extraction, and that you have a clear understanding of the basis from which fertilizer recommendations are being made. Some labs use a crop response database and precipitation probabilities for your area to make their recommendations, while others allow you to set a target yield and recommend nutrient application to achieve that yield.

Using the best tool makes the job that much easier—the same applies to a good soil test. Having a representative sample, ensuring that field variability is considered, and selecting a lab using the most appropriate methods, will go a long way to building an appropriate nutrient management plan. As one of the tools we have to accurately develop nutrient management plans, soil testing helps to take some of the “guess work” out of the science of soil fertility.

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