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MAKING THE MOST OF YOUR FALL SOIL SAMPLING

Fall soil sampling has become increasingly more popular among farmers, providing the starting point for the 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. Understanding the impact of sampling method and time is critical to ensuring that the soil collected in the fall will give an accurate picture of the next year's nutrient status.

Identifying the sampling depth is critical to getting an accurate indication of soil phosphorus and potassium levels. For example, if a 0 to 6-inch sample was actually collected from a 0 to 9-inch depth, you could get a result indicating that phosphorus or potassium levels are very low, a reflection of the low phosphorus and potassium fertility in the subsoil. In effect, the surface soil is diluted by the subsoil that is low in phosphorus and potassium. Care must be taken to ensure that the depth of the sample submitted is accurately labeled for the depth from which it was collected.

Benchmark sampling is becoming a more common method of evaluating soil nutrient status. This is especially true given the high variability associated with rolling landscapes. Where large variability in the landscape exists, many farmers are starting to divide their fields into management zones and collect a series of samples. For a nutrient like phosphorus, this helps to identify those areas where low soil test levels may be missed by an average sample, leading to inefficient use of soil and fertilizer nitrogen. If you think your flat land is uniform in its nutrient distribution, just ask neighbors using combine yield monitors how much variability exists in their fields. You will be surprised how crop yield can identify soil changes, old yard sites, and management effects.

When to sample has always been an issue of contention among agronomists, especially where fall fertilization is practiced. Traditionally, the recommendation has been to wait until soil temperatures drop below 40°F (5°C) before sampling, but recent research in western Canada has found that soil nitrate-nitrogen levels may not be as volatile 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, because of pulse, canola, corn or potato stubble, should not be sampled until later in the fall. Soil phosphorus and potassium levels generally are not affected by sampling date after harvest in the fall.

Given the large number of soil testing laboratories 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 laboratories 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, collected using the proper depths and extracted in the lab using the most appropriate methods, will go a long way to building an appropriate nutrient management plan. Given the narrow margins that most producers are working with in today's production systems, there is little room for guessing.

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