A Guide to Tissue Sampling

Plant tissue analysis is a valuable tool to gauge how well your crop is getting nutrients. While soil testing provides a baseline for understanding available nutrients in the soil at the start of the season, tissue analysis give you a mid-season reading of how soil nutrients are being utilized by the crop. Tissue analysis measures the nutrient content within the plant tissue allowing you to see where deficiencies exist, and giving you an opportunity to correct the issue, before it has an adverse effect on crop production.

Plant analysis results are compared against established normal ranges for the crop, indicating whether a specific nutrient is deficient. If soil levels are known to be adequate, plant analysis may indicate other problems that are reducing nutrient uptake.

Plant analysis can be used to evaluate phosphorus, potassium, magnesium and manganese fertility. It is also a very useful in assessing the status of boron, copper, iron or molybdenum as these nutrients do not have reliable soil tests. Early detection of a nutrient deficiency or imbalance can mean the difference between losing and saving yield.

Just as in soil testing, reliable plant tissue analysis starts with proper sampling. Quality and consistency of the samples enhance the reliability and validity of the analysis results.

TIMING

The best time to collect samples is between mid-morning and mid-afternoon, avoiding rain events. Time of sampling effects on the results of tissue analysis. Nutrient levels in a plant vary considerably with the age and physiological stage of the plant.

If you suspect a plant is nutrient deficient, sample it as soon as the problem appears. Collect tissue samples from a problem area rather than from the entire field. Collect a separate sample from an adjacent, non-affected part of the field for comparison purposes.

CONSIDERATIONS FOR SAMPLE COLLECTION

When collecting a tissue sample, consider crop, growth stage and uniformity of growth, and purpose of the sample. Collect leaves from at least 20 separate plants, distributed throughout the sampling area. Each sample should consist of at least 100 grams of fresh plant tissue. Sample the most recently mature leaf from each plant. Very old and very young leaves often provide irregular test results. Avoid seeds; diseased or dead plants or plants that have insect or mechanical damage in your sample.

A sample should contain enough plant tissue to represent the average condition of the crop. 10-15 leaves is generally adequate for most crops. For large leaved crops, 4-5 leaves are adequate. Small leaved plants will require 25-30 leaves. For analysis on young seedlings, take the whole above-ground portion of 30 or more plants.

Collect and submit a soil sample from both affected and non-affected areas to accompany the tissue sample. This soil sample can help determine if the issue is soil related or is due to another factor.

When symptoms appear in different zones on a plant, take a separate sample of the affected area in addition to the "indicator" sample. In this case, comparative samples of the same type of tissue from symptom-free plants help to isolate differences.

PACKAGING, LABELING and SHIPPING

Place collected plant tissue samples into labeled paper bags. Use a ball-point pen to avoid tainting the sample with marker ink that may bleed through the bag. Avoid getting soil in the bag as even a small amount of soil will cause results to be invalid, especially for micro-nutrients.

Fresh plant tissue samples should be delivered directly to the laboratory. If they are not delivered immediately, they should be dried at a low temperature to prevent spoilage. For forage grasses and small grains, collect the top 3 or 4 leaves or inches of growth.

Paper containers are best for packaging and shipping plant tissue samples. Never use plastic shipping containers or plastic shipping bags as they will accelerate the deterioration of the sample. Be sure to include a worksheet with information for sample identification.

TOO BUSY? WE CAN HELP!

If you are too busy to collect samples, we are happy to come and sample your on field or your whole farm and deliver the results to you within two weeks. Call or write to us today to find out more about our ***comprehensive soil and tissue collection and analysis services****.*

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