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ANALYTICAL



Plant Tissue Sampling



Plant Tissue Sampling

Introduction

One of the more important factors affecting crop quality and yield is the nutrient status of the plant...or the flow of nutrients to the plant tissues during the growing season. Nutrient status is an “unseen” factor in plant growth, except when imbalances become so severe that visual symptoms appear on the plant. Determination of plant nutrient status requires precise laboratory analysis of plant tissue during the growing season.

How Can a Tissue Analysis Help?

A plant tissue analysis will detect unseen hidden hunger and confirm visual deficiency symptoms. Toxic levels may also be detected. Though usually used as a diagnostic tool for future correction of nutrient problems, a plant tissue analysis from young plants will allow a corrective fertilizer application that same season. Combined with data from a soil analysis, a tissue analysis is an important tool in determining nutrient requirements of a crop.

Depending on package, a plant tissue analysis from Waypoint Analytical can identify the nutrient status of the following elements:

Nitrogen	Iron
Sulfur	Aluminum
Phosphorous	Manganese
Potassium	Boron
Magnesium	Copper
Calcium	Zinc
Sodium	

Nitrate-N, Molybdenum, Chloride and Nickel are other analytes that may be useful.

Collection and Preparation of the Sample

Be sure to use a clean container. Never use a metal container as the metal may contaminate the sample.

Generally, two cups of lightly packed material provides a sufficient amount to conduct an analysis; one cup may be sufficient if gathering petioles. If plant samples have soil, dust, fertilizer, or spray residues on them, they will need a light washing, as follows: With aid of a plastic colander, immerse the sample in cool water containing a couple of drops of PHOSPHATE-FREE detergent, and gently agitate for no longer than about 10 seconds. Extended washing may damage the plant tissue and remove some of the soluble elements. Remove the colander and quickly rinse the sample under flowing pure water. Blot dry with a clean towel.

Sampling Locations:

When and Where to Sample

Before taking tissue samples, ensure that timing and location of samples correlates with interpretative data. Instructions for petiole and leaf sampling may differ. Also, comparing samples from both a “good” and a “bad” area often helps in determining corrective action. If specific sampling guidelines are not given, collect recently mature leaves just below the growing point from at least 10 plants. A partial sampling guide follows, although many variations exist. Refer to the Waypoint Agronomy Handbook for additional information.

Shipping Samples to the Lab

Samples received in the lab that have mildew cannot be analyzed due to the erroneous results that mildew causes. To avoid mildewed samples:

- Either air dry samples for one day or ship as soon as possible in paper bags to allow a degree of drying in transit.
- Ensure samples arrive within one shipping day unless samples are completely dry. If not within one ground shipping day from the lab, use a next day air service. Waypoint Analytical can provide prepaid return service (PRS) labels to reduce shipping costs in many cases. Contact lab for details.
- Never ship samples on a Friday. Keep samples in a cool, dry environment until they can be shipped to the lab ensuring one-day delivery Monday thru Friday when lab staff is present to receive samples.
- Never send fresh samples in sealed plastic bags.

Do not include roots with samples for nutrient analysis unless required. Specific sampling procedures are required for disease diagnosis. Therefore, please phone for instructions before sampling.

Tissue Sample Mailing Supplies

Waypoint Analytical will provide plant tissue sample bags and submittal forms at no charge. Shipping boxes can be supplied for a nominal fee.

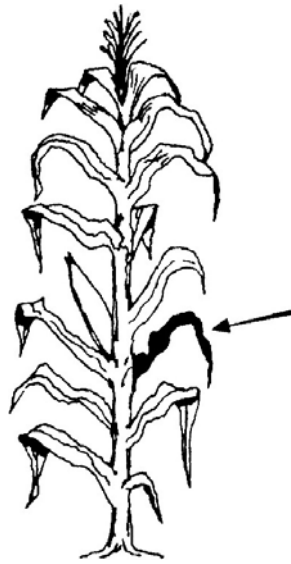
The information you receive on our reports is as accurate as the information submitted with your sample. Please fill out all forms as accurately, completely, and legibly as possible.

Desired Sample Location From Common Crops



Corn before tasseling

Collect the first fully developed leaves from the top of 15 to 20 plants. (If the plant is less than 12 inches tall. Collect all of the above ground portion).



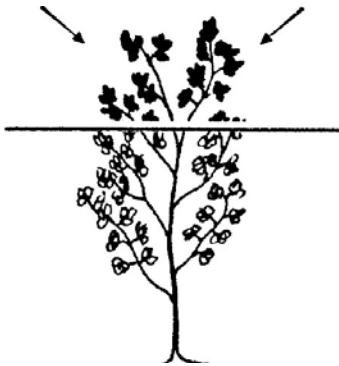
Corn from tasseling to silking

Collect the leaves below and opposite from the ear of 15 to 20 plants.



Sorghum

Collect the second leaf from the top of 20-30 plants before or at heading.

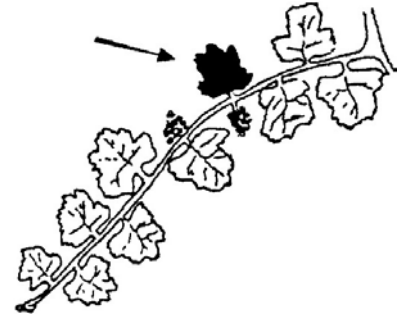


Alfalfa

Collect top 6 inches or upper third of the plant at tenth bloom stage or before.

Pistachios, Walnuts, Citrus

Collect terminal leaflets/leaves at mid to late season.



Grapes

Collect the leaves opposite basal cluster at bloom.



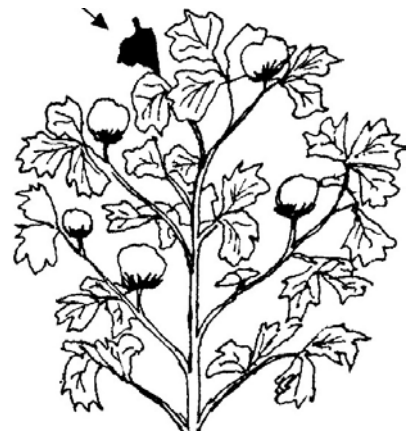
Pecans, Figs, Olives, Peaches, Nectarines

Collect the mid-shoot leaflets/leaves at mid-season.



Apples, Pears, Almonds, Apricots, Cherries Prunes, Plums

Collect the leaves from non-fruiting, non-expanding, spurs at mid-season.



Cotton

Collect recently mature leaves from the main stem on 40 to 50 plants selected at random at full bloom.



Soybeans

Collect recently mature trifoliolate leaves from the top of 20 to 30 plants prior to or during flowering. (In the seedling stage, collect all of the above-ground portion).



Small Grains

Collect the four uppermost leaf blades from the top of 25 to 40 plants. (In the seedling stage, collect all of the above-ground portion). Sample should equal two cups.

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