



AgroLab, Inc.
Tissue Sampling Instructions
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Purpose of Tissue Sampling

Tissue sampling shows the nutrient status of a plant at the time of sampling. Analysis of plant tissue is primarily done in order to detect nutrient deficiencies. Tissue sampling may detect many unseen problems as well as confirm visual symptoms of deficiencies. Depending on the time of sampling, corrective actions can be taken for the current crop or in the following season based on the results of tissue analyses. The following procedures will help field personnel to properly collect tissue samples.

General Guidelines

Tissue samples should be collected from healthy plants distributed randomly across the field in question in order to create a representative sample. Plants that are under stress, diseased, or show signs of insect or mechanical damage should be avoided. If sampling a problem area in order to confirm visual symptoms of deficiencies, it is recommended to also sample a “good” area of the same field. The side-by-side comparison of these samples can help to determine the proper corrective action.

Do not mix different species of fruit or cultivars into one sample. Different fruit crops have different nutrient ranges that are considered normal. Likewise, different cultivars may take up different levels of certain nutrients, and can perform better at different nutrient levels.

Plantings that have received different fertilizer applications in the current or previous years should not be combined into a common sample. Separate samples should also be taken if more than one soil type is present across a field.

Leaf or petiole samples collected from newly planted woody plants including all fruit trees, grapevines and blueberries generally reflect the conditions under which the plants were grown in the nursery. It is best to wait until the second growing season to assess the nutritional needs of these crops through tissue analysis.

When collecting tissue samples, store them in a clean container such as a plastic pail or paper bag. Avoid contact with metal containers due to the risk of contamination. **At no point during the sampling or shipping process should samples be placed in sealed plastic bags.** Plastic bags or other airtight containers will not allow the plant to dry and may cause decomposition.

Samples will need to be washed if they have soil, fertilizer, dust or spray residue on them. If using a soft bristled dry brush is not sufficient, spray with deionized or distilled water, or wipe with a damp cloth. Blot dry or allow samples to air dry in the shade. Ship samples as soon as possible in supplied paper bags, or vented paper envelopes that will allow the enclosed samples to breathe.

Sampling procedures for common grain crops are included below. Procedures for other grain or vegetable crops are available upon request

Crop	Growth Stage	What to sample	Number to sample
Alfalfa	At 1/10 bloom stage or before	Mature leaf blades about 1/3 of the way down the plant	45-55
Apple	Midseason	Leaf: 2-5 month non-fruiting, non-expanding spurs	25-50
Beans	Prior to flowering	Leaf: Most recently mature trifoliate leaves	10-25 sets
	Bloom until prior to pod set	Leaf: Most recently mature trifoliate leaves	10-25 sets
	Midgrowth to early bloom	Leaf: Most recently mature trifoliate leaves	10-25 sets
Blueberries	Mid-season or 2-4 weeks before harvest	Youngest fully expanded mature leaves	75-100
Broccoli	Midgrowth to 1st buds	Leaf: recently mature leaf	15-20
	Before heading	Leaf: recently mature leaf	15-20
Cabbage, etc. (Head Crops)	Before heading	First mature leaves from center of whorl	10-20
Corn	Seedling (less than 12" tall)	Entire above ground portion of plant	15-20
	Before tasseling - 6-9 Leaf - 10-14 Leaf - 15-18 Leaf	Most recently unfurled leaf. This will be the first leaf below the whorl with a fully visible collar.	15-20
	Silking	First leaf below ear	15-20
Cranberry	Bloom and early fruit set	Clip upright growing tips above the bloom/berry growth	50-200
	Post fruit set (Aug)		
Cucumber	Before fruit set	Leaf: most recently mature leaf	15-20
	Early fruit set	Leaf: most recently mature leaf	15-20
Grapes	Full bloom	Petiole: of leaves opposite basal clusters	50-75
	70 to 100 days after bloom	Petiole: of youngest fully expanded leaves (usually located 5 to 7 leaves back from the shoot tip)	50-75
Hay, Forage, or Pasture Grasses	Before seed head emergence or at the stage for best quality	The 4 upper most leaf blades	50-60
Leaf Crops (Lettuce, Spinach, etc.)	Mid-growth	Youngest mature leaf	30-50
Melons	Before fruit set	Leaf: recently mature leaf	15-20
	Early growth to first mature fruit	Leaf: recently mature leaf	15-20
Peach	Midseason	Leaf: most recently mature from basal to mid-shoot	25-50
Peas	Before and at bloom	Leaf: 3rd node from tip	25-50
	Midgrowth to full bloom	Leaf: 3rd node from tip	25-50

Pepper	Midseason	Leaf: recently mature leaf	25-50
	Early bloom through mature pod	Leaf: recently mature leaf	25-50
Potatoes	Early through late season	Petiole: of 4th leaf from tip	25-50
Small grain (wheat, barley, rye, etc.)	Seedling stage (early spring)	Entire above ground portion of plant	25
	Prior to heading	Four uppermost leaves	50
	Heading	Flagleaf	50
Sorghum-Milo	Before and at heading	Leaf: 2nd leaf from top	20-30
Soybeans	Seedling stage or Prior to or during initial flowering	All the above ground portion	20-30
	Prior to or during initial flowering	The first fully developed leaves from the top	20-30
Spinach	Midseason	Leaf: most recently mature leaf	15-20
Strawberries	Midseason	Leaf: most recently mature leaf	25-50
Sweet Corn	Before tasseling	The entire fully mature leaf below the whorl	20-25
	- 6-9 Leaf		
	- 10-14 Leaf		
Tobacco	At tasseling	The entire leaf at the ear node	20-25
	After topping or before bloom	Top fully developed leaf	8-12
Tomatoes	Mid-bloom	Compound Leaf: 2nd-4th leaf structure from growth tip	15-20
	First visible bloom through first color	Compound Leaf: 2nd-4th leaf structure from growth tip	15-20
Turf	Yard during growing season	Leaf blades; avoid soil contamination	2 cups of material
	Sod Production	Clippings from most recent cuttings	2 cups of material