



## Plant Tissue Analysis – Sampling Guidelines

Sample collection methods are critical for accurate analysis of plant tissue samples. Samples must be taken at the appropriate time and from the correct part of the plant. Below are general guidelines for accurate plant tissue analysis.

### Where to Sample from

- If the field is uniform, samples should be taken from across the field and composited into one sample.
- If a problem area exists, sample the problem area separately from areas of normal growth.
- Pick plants that best represent actual field conditions.

### What NOT to Sample

Do not take samples from plants that:

- are dead;
- insect damaged;
- have been mechanically or chemically injured.
- Avoid plants that have been heat, cold, moisture or drought stressed.

### When to Take Samples and How Much to Collect:

- Plant tissue samples can be taken at any time throughout the growing season, but the preferred stage(s) of growth and plant part(s) to sample are listed in the tables below (Kelling, K.A., Combs, S.M., Peters, J.B., University of Wisconsin, Sampling for Plant Analysis).
- The amount of plant tissue recommended depends on the type of plant and the stage of growth. An amount that fills a paper lunch bag is acceptable. The tables below provide more detailed guidelines.
- Samples should be collected in a large paper bag or plastic bucket (not metal).

### Sample Preparation

After collecting your samples, the following steps should be followed for accurate results.

- Brush off any dirt using a soft, clean cloth or soft bristle brush. If necessary, leaves may be rinsed using distilled water and then air dried.
- Remove roots and other foreign materials.
- Place sample in paper bag or paper envelope for shipping, do not use plastic or polyethylene.
- Complete the sample submission form and attach it to the sample.
- Overnight shipping is the preferred method of shipping.

**FIELD CROPS**

<b>Crop</b>	<b>Stage of Growth</b>	<b>Plant Part</b>	<b>No. of Plants to Sample</b>
<b>Alfalfa</b>	bud to first flower	top 6 inches	35
<b>Alfalfa, hay</b>	harvest	whole plant	25
<b>Barley</b>	prior to heading	newest fully developed leaf	50
<b>Bean, dry</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Bean, lima</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Bean, snap</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Bluegrass</b>	prior to heading	newest fully developed leaf	50
<b>Bromegrass</b>	prior to heading	newest fully developed leaf	50
<b>Buckwheat</b>	boot stage	whole plant	20
<b>Canary Grass</b>	prior to heading	newest fully developed leaf	50
<b>Canola</b>	flowering	mature upper leaves	25
<b>Corn, field</b>	12 inches tall	whole plant	20
<b>Corn</b>	pre-tassel	leaf below whorl	15
<b>Corn</b>	tassel to silk	ear leaf	15
<b>Corn, silage</b>	ensiled or chopped	whole plant	2qt
<b>Corn, sweet</b>	tassel to silk	ear leaf	15
<b>corn, pop</b>	tassel to silk	ear leaf	15
<b>Fescue, fine</b>	new summer growth	clippings	50
<b>Lupine</b>	early flower	whole plant	25
<b>Millet</b>	4 weeks after clipping	whole plant	25
<b>Mint</b>	flowering	whole plant	25
<b>Oat</b>	prior to heading	whole plant	50
<b>Orchard Grass</b>	prior to heading	newest fully developed leaf	50
<b>Pea, canning</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Pea, chick, field</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Potato</b>	prior to or at initial flower	4th petiole & leaflet (whole leaves)	40
<b>Potato</b>	tuber bulking	4th petiole & leaflet (whole leaves)	40
<b>Potato</b>	prior to or at initial flower	4th petiole & leaflet (whole leaves)	50
<b>Potato</b>	tuber bulking	4th petiole & leaflet (whole leaves)	50
<b>Red Clover</b>	bud to first flower	top 6 inches	35
<b>Red Clover, hay</b>	harvest	whole plant	25
<b>Rice, wild</b>	prior to heading	newest fully developed leaf	50
<b>Rye</b>	prior to heading	newest fully developed leaf	50
<b>Sorghum, grain</b>	prior to heading	2nd fully developed leaf	20
<b>Sorghum-Sudan</b>	prior to heading	newest fully developed leaf	50
<b>Soybean</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Sugar Beet</b>	prior to or at initial flower	newest fully developed leaf	25
<b>Sunflower</b>	florets about to emerge	newest fully developed leaf	20
<b>Tobacco</b>	45 tp 60 days after planting	newest fully developed leaf	15
<b>Tobacco</b>	early flower	newest fully developed leaf	15
<b>Tobacco</b>	mature	leaves	15
<b>Trefoil, birdsfoot</b>	bud to first flower	top 6 inches	35
<b>Triticale</b>	prior to heading	newest fully developed leaf	50
<b>Vetch, crown</b>	bud to first flower	top 6 inches	35
<b>Wheat</b>	tillering	newest fully developed leaf	50
<b>Wheat</b>	prior to heading	newest fully developed leaf	50



## VEGETABLE CROPS

Crop	Stage of Growth	Plant Part	No. of Plants to Sample
Asparagus	mature fern	fern 17 to 35 inches up	20
Beet, red	mid-season	youngest mature leaves	20
Broccoli	heading	youngest mature leaves	20
Brussels Sprouts	heading	youngest mature leaves	20
Cabbage	mid-season		20
Carrots	mid-season	youngest mature leaves	20
Cauliflower	mid-season	youngest mature leaves	20
Celery	mid-season	youngest mature leaves	20
Cucumber	prior to or at early fruit development	youngest mature leaves	20
Ginseng	mid-season	youngest mature leaves	35
Lettuce	mid-season	wrapper leaves	20
Melon	prior to or at early fruit development	newest fully developed leaf	25
Muskmelon	prior to or at early fruit development	newest fully developed leaf	25
Onion	mid-season	tops, no white portion	20
Pepper	prior to or at early fruit development	petiole and leaflet	40
Pumpkin	prior to or at early fruit development	newest fully developed leaf	25
Spinach	mid-season	newest fully developed leaf	25
Squash	prior to or at early fruit development	newest fully developed leaf	25
Tomato	mid-season	newest fully developed leaf	40
Watermelon	prior to or at early fruit development	newest fully developed leaf	25

## FRUIT CROPS

Crop	Stage of Growth	Plant Part	No. of Plants to Sample
Apple	current season's shoots	fully developed leaves at mid-point of new shoots	4 leaves
Blueberry	new summer growth	fully developed leaves	35
Cherry, sour	current season's shoots	fully developed leaves at mid-point of new shoots	4 leaves
Cranberry	15 Aug to 15 Sept	current season growth above berries	200 uprights
Grape	full bloom	newest fully developed petiole	5 from each of 10 vines
Raspberry	10 Aug to 4 Sept	6th and 12th leaf blade and petiole from tip	2 to 3 leaves from 10 canes
Strawberry	at renovation before mowing	fully developed leaflets and petioles	40

### References

Kelling, K.A., Combs, S.M., Peters, J.B., Sampling for Plant Analysis

### Resources

Tech Notes – Plant Tissue Analysis

For more information on any of our Plant Tissue Analysis Packages, please contact us at 1-800-CVASLAB or via e-mail at [mail@foragelab.com](mailto:mail@foragelab.com).