

Root Starch Sampling – A Measure of Defoliation Impact

How to Take Root Samples for Starch Testing

Samples must be delivered by December 15th

What is root starch testing?

In the fall, trees store much of their food, as starch, in roots. By staining slivers of root with iodine, the amount of stored starch can be rated. Healthy trees generally have more starch than stressed trees. Starch ratings, in combination with other observations, such as how fast tapholes close and the condition of branches, can help in deciding how to tap next spring.

It's important to follow these directions carefully. Otherwise, the results may be wrong.

Tools Needed

- Pruning shears and/or $\frac{3}{4}$ -1" chisel and hammer
- Plastic sandwich bags (5)
- Permanent magic marker (Sharpie)
- Clorox solution (2 tbs. chlorine bleach in 1 cup water)
- Shovel, hoe, or mattock
- Spray paint or waterproof tags, if you want to be able to relocate sample trees

Choose Sample Trees

Locate 5 trees to sample. Choose typical trees that you would normally tap from the defoliated areas of your sugarbush. If you want to be able to relocate the trees, mark each one (numbers 1-5) with paint or a tag.

Take Root Sample from Each Sample Tree

You will be taking 5 samples from your sugarbush, one piece of root from each sample tree. Samples must be taken from underground portions of the root, to assure that it has remained cold during changing temperatures.

There are two ways to take a root sample. You may take a sample from a small root, about $\frac{1}{2}$ " in diameter, or you can take a sample from one of the major roots, about one foot out from the tree trunk. Whichever method you choose, be very careful to avoid wounding roots while digging. You may want to use your hands when you are close to the root.

Method 1: Sampling from a small root

1. Choose a side of the tree without dead branches and where there are no small trees nearby to be sure you will only find roots from the sample tree.
2. Starting at the tree trunk, go out about one yard between two main roots. Carefully dig under the soil surface until you find a root about ½” in diameter.
3. Snip off a 1” long piece, using pruning shears.

Method 2: Sample from a major root

1. Choose a side of the tree without dead branches and without wounds at the base of the trunk.
2. Use a shovel, hoe, or mattock to carefully remove the soil as you follow the root from the trunk. Dig about one foot from where the root goes into the ground.
3. Once the root is clear of soil, you can take a small piece of the wood, using a chisel. The piece of root should be a wedge that is about ½” wide and ½” deep. Make sure to include the wood that is just below the bark, since this is crucial for the test.

Both Methods

1. Check that the wood of the sample is white. If it is discolored brown, take a new sample from a different root.
2. Each sample should go in a separate bag labeled with the tree number (1-5).
3. Clean the chisel or pruning shears by dipping into Clorox solution, between each sample tree. This prevents any potential for spreading disease from one tree to another.

Deliver Samples to your Nearest Office

Put all 5 samples, and a completed *Sugarbush Information Sheet*, in a small bag or large envelope. Label the outside with your name, address, and phone number, and the date you took the samples. Keep samples cool if you are delivering them the same day they were taken. If not delivered that day, FREEZE IMMEDIATELY, and keep frozen until delivered. You will receive the rating for each root sample, and a recommendation, based on the ratings, which should help you decide how much to tap next spring.

For addition information, contact the Forest Biology Lab at (802) 241-3606 or the Vermont Forestry Division office nearest you.

Springfield	(802) 885-8855	St. Johnsbury	(802) 751-0110
Rutland	(802) 786-0060	Essex Junction	(802) 879-6565
Barre	(802) 476-0170		

Samples must be stored in freezer and delivered by December 15th

SUGARBUSH INFORMATION SHEET: ROOT STARCH ANALYSIS

Name _____

Mailing Address _____

Telephone Number _____ E-mail _____

Date Samples Were taken _____ Location of Sugarbush Town _____ County _____

Tree Number	For each sample tree, which of the following best describes the Severity of Defoliation caused by forest tent caterpillars in the summer? Heavy (over ¾ of leaves missing) Moderate (¼ - ¾ of leaves missing) Light (less than ¼ of leaves missing)	If this tree had heavy defoliation in the summer, Did it Refoliate , producing a second flush of leaves by late August?	<i>For Lab Use Only</i> Starch Rating
1			
2			
3			
4			
5			

Comments: