



Cranberry Station Newsletter

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UMASS CRANBERRY EXPERIMENT STATION

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TECHNIQUE SPOTLIGHT



Tissue and Soil Tests

WHY TAKE TISSUE AND SOIL TESTS? These tests are important for diagnosing deficiencies of mineral elements, monitoring soil pH, and aiding in the decision-making process for choosing fertilizer. Cranberry plants and bogs have certain characteristics (e.g., significant bog-to-bog variations) that make 'cookbook' recommendations difficult (see Page 35 of 2001 Chart Book). Even so, tissue and soil analyses can be beneficial as a long-term record of changes in your bog. Soil tests are recommended on a 2-3 year cycle and tissue testing on 1-2 year cycle.

It may seem strange, but tissue tests do not work well for cranberry if used to anticipate *current* season fertilizer needs. This is due, in part, to the minimal short-term effect of fertilizer on yield in perennial crops. Tissue tests can help growers anticipate fertilizer needs for the *upcoming* year. In addition to being used as an end-of-season evaluation of a fertilizer program, the results can be included with your cropping and growth records to plan next year's fertilizer program.

WHEN SHOULD I TAKE A SAMPLE? *Tissue.* Tissue samples are best collected in mid-August to early September. Tissue samples may be collected at other times of the year if absolutely necessary. However, nutrient levels change rapidly outside the recommended time frame and make results more difficult to interpret. If sampling in the spring, sample in June and collect new upright tissue only. Samples collected after mid-

September give lower analysis values than those collected earlier (especially for nitrogen).

Tissue samples should be collected when a deficiency is suspected or diagnosis of a specific problem is needed. For problem diagnosis, collect 2 samples: one from the problem area and one from a nearby 'normal' area.

Soil. Soil samples can be collected in the spring when the bog is no longer water-logged. Wet soils give falsely high phosphorus readings. Soil samples may be collected in the late summer when collecting tissue samples. Use periodic soil sampling to monitor any change in soil pH. Fall samples are acceptable if no sanding is planned.

HOW SHOULD I TAKE MY SAMPLE? *Tissue.* Walk a transect across the bog and collect about 2 cups of both vegetative and flowering upright tips (upper 2 inches). Collect samples when the vines are dry. Do not strip off the leaves. Samples for tissue tests should NEVER contain roots, soil, runners, fruit or trailing woody stems. Do not wash the samples prior to mailing them. Do not mail your samples in plastic bags (this encourages mold). Take a sample from each area of varied productivity or variety. Take a separate sample if you suspect something is nutritionally wrong with a section of vines. Always request nitrogen determination.

Soil. For soil samples, use a soil probe with a 1-2" diameter and collect cores to a 4-6" depth. Collect 4 cores for 1 acre; 1 core for each additional 2 acres up to a total of 10 cores per bog. Remove and discard the trash layer from each core and combine into one sample bag. Be sure to collect enough soil to fill the bag to the indicated level. Dry the sample for a day or two prior to mailing. Soil samples should NOT contain stems, leaves, or the duff layer (trash). Requesting determination of % organic matter is often helpful. Methods of analysis may vary from lab to lab, so select a lab and always send your samples to the same place. Research has shown that the Bray method is most accurate for testing for soil P, so check to be sure your lab uses this test.

HOW DO I DEAL WITH THE ANALYSIS? When you get your results back from the lab, refer to the Tissue Test Fact Sheet or pages 35-36 of the 2001 Chart Book (tissue and soil). Compare your numbers to the suggested ranges for each nutrient. Do not pay attention to range markers given for the nutrient levels ('high', 'moderate', or 'low'). The tests are designed for agronomic crops and these words will not give an appropriate picture of the analysis. *Always look at the numbers.* You may need to adjust your future fertilizer applications based on these numbers. Consult with a nutrition specialist if you need specific advice on which fertilizers to change, add, or delete.

Keep the printout of the analyses and use them in conjunction with your records of bog management and performance to aid in making future fertilizer decisions.

Text excerpted from:

Cranberry Tissue Testing for Producing Beds in North America. 1995. Davenport, J., C. DeMoranville, J. Hart, K. Patten, L. Peterson, T. Planer, A. Poole, T. Roper, and J. Smith. UMass Extension Fact Sheet.

DeMoranville, C.J. 2001. **Fertilizer Management, 2001.** In: *Cranberry Chart Book-Management Guide for Massachusetts.* Sandler, DeMoranville, and Cannon, eds. UMass Extension Publication.

HILARY SANDLER
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**New Factsheets available to
Massachusetts Growers**

In this newsletter, you will find copies of two new Cranberry Station Fact Sheets prepared by Hilary Sandler: **Dodder** and **Dewberries and Brambles**. Cost of production for these fact sheets was provided by a special grant administered through the Department of Food and Agriculture. For this reason, we are distributing them to MA growers free of charge. Non-

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Carolyn DeMoranville,
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Massachusetts parties may purchase the Fact Sheets for \$4.00.

In addition, we have available at the Station **Planting New Cranberry Beds**. This Fact Sheet contains information previously available in the Chart Book and other materials. Starting in 2001, the New Plantings section was removed from the Chart Book in the interest of keeping production costs low. This replacement publication is also free to MA growers upon request.

**Management reminders for
crop-destruct bogs**

Irrigation management should remain unchanged, generally it is the vines that use most of the water. Judicious lowering of the water table can encourage increased rooting depth, leading to greater productivity when the bog returns to production.

Fertilizer application amounts should be reduced to 1/3 the amount applied to a cropped bog. Apply the fertilizer late in July or early in August to assure strong buds for next season.

Summer flooding may increase the incidence of Phytophthora root rot. If dying patches appear, have samples checked by the Station Plant Pathology Lab. Maintain drainage as much as possible after the flood.

Since there are no berries on the vines, this presents an excellent opportunity to make extra efforts in weed control by glyphosate wiping. Since you will not need to observe the 30-day preharvest interval (no fruit will be harvested), you can take advantage of the most effective period for using this herbicide. Glyphosate is most effective against perennial weeds when applied late in the season (the herbicide is transported to the roots of the weeds as they prepare for dormancy). Best translocation of glyphosate occurs when sunny days are followed by a cool nights. In Massachusetts, the most effective period is September-October.

If late water was not used and will not be used next spring, consider a fall flood to reduce pest populations.

If the crop destruct flood was not completely effective for some reason and significant crop (>20-30 bbl/A) is produced on the bog, the fruit should be removed prior to next season. Leaving fruit on the bog will provide a source for disease inoculum and may present problems during the harvest of next season's crop.

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