Volume XIII, Number 8, August 20, 1999

# CRANBERRY TISSUE TESTING

The only reliable means of assessing the efficacy of a fertilizer program is tissue testing. The correct time to collect tissue and soil samples for analysis is late August through early September. Cranberries require proper amounts of 13 mineral elements in addition to carbon dioxide, water and sunlight. When any of these items are in short supply growth and yield will be reduced. However, if they are in adequate supply, adding additional amounts will not increase growth or yields. Tissue testing is the single reliable means of determining if adequate amounts of the 13 required mineral elements have been supplied and to gauge if your fertility program has been effective.

Good tissue testing requires consideration of three factors:

- Sample at the correct time
- Sample the correct part
- Normal nutrient ranges

## Taking a sample

Collect tissue samples during the last two weeks of August through the first week or two of September. The reason to take samples during this time is that the concentrations of the 13 required minerals are stable during this period so the exact date you take the sample is less critical. Also, the standard values against which the results are compared are based on sampling in this time frame. Samples taken at other times are not interpretable based on these standards.

## Sample the correct part

A good cranberry sample consists of current season growth from both fruiting and non-fruiting uprights. Clip the uprights just above the fruit and be sure to get only current season growth. Collect about 20 tips from about 10 different locations within a bed. Don't collect all the samples from one corner or along one edge. Walk a zigzag pattern throughout the bed, or walk from one corner to the opposite corner collecting samples along the way. Collect from about 10 separate locations within a bed. The total sample will consist of about 200 uprights or about 1 to 1 ½ cups of tissue.

Do not wash or rinse the uprights. Washing will remove soluble nutrients and give you an inaccurate test. Allow the sample to dry overnight before mailing. Use paper bags or envelopes to mail the samples. Please don't use plastic bags or cellophane (except vented Ziploc brand vegetable bags). Be sure to label each bag with a bed number or other identification code. Submit the samples promptly to a reputable laboratory. Your county Extension office can help you locate a suitable lab. If the lab is ASCS certified you can be sure of reliable results.

### Soil Testing

Take a soil test at the same time you collect tissue samples. Use a trowel or soil probe to sample to six inches. Collect the soil samples in the same area where you collected tissue samples. The UWEX lab will run a routine soil test accompanying a tissue test at no additional fee ($18.00).

### Interpreting the results

Once the results come back from the lab you should compare the results against the nutrients standards for North America and against previous results for the bed or section.

In addition to the lab results you should pay attention to vine growth. Vigorous growth or weak growth may be explained by your test results and will help you alter your fertility program for the following year.

The report will not tell you how much fertilizer to apply next season, but will allow you to monitor the efficacy of your current program and point out potential concerns to watch out for later. If you plot the results of tissue testing over time you can begin to see patterns of nutrient changes over time and work to prevent deficiencies.

Table 1. Cranberry tissue standards for producing beds in North America

| Nutrient | Normal Concentration[1] |
|---|---|
| Nitrogen (N) | 0.90-1-10% |
| Phosphorus (P) | 0.10-0.20% |
| Potassium (K) | 0.40-0.75% |
| Calcium (Ca) | 0.30-0.80% |
| Magnesium (Mg) | 0.15-0.25% |
| Sulfur (S) | 0.08-0.25% |
| Boron (B) | 15-60 ppm |
| Iron (Fe)[2] | >20 ppm |
| Manganese (Mn)[2] | >10 ppm |
| Zinc (Zn) | 15-30 ppm |
| Copper | 4-10 ppm |

1. *Normal levels are based on samples taken between August 15 and Sept. 15.*
2. *Cranberry researchers have not found a normal range for Fe and Mn.*

More information about tissue sampling is found in the bulletin A3642 "Cranberry tissue testing for producing beds in North America". Copies are available at your county Extension office or via the web: http://www.hort.wisc.edu/cran/Publications/a3642.pdf

*Teryl Roper, UW-Madison Extension Horticulturist*

## REPORTING ORBIT USE

The Section 18 permit for the fungicide Orbit (propiconazole) expired on July 31, and now is the time to report use of this product in Wisconsin. All cranberry growers in Wisconsin have received, or soon will receive, a form to record their use of Orbit. If you used Orbit, you MUST provide the information requested on the form and return it to me no later than September 17, 1999. My address is Dept. Plant Pathology, 1630 Linden Dr., Madison, WI 53706.

Reporting Orbit use is required by the EPA, and future Section 18 or regular labels for Orbit will not happen if we don't provide them with use data. Orbit is not on EPA's fast track, so it is critical that we follow all the rules and report use information. If you have questions about reporting fungicide use, call me at 608-265-2047.

Patricia McManus, Dept of Plant Pathology
UW-Madison and UW-Extension

---

There are two ways of being happy: We may either diminish our wants or augment our means–either will do– the result is the same; and it is for each man to decide for himself, and do that which happens to be the easiest. If you are idle or sick or poor, however hard it may be to diminish your wants, it will be harder to augment your means. If you are active and prosperous or young or in good health, it may be easier for you to augment your means than to diminish your wants. But if you are wise, you will do both at the same time, young or old, rich or poor, sick or well; and if you are very wise you will do both in such a way as to augment the general happiness of society.

Benjamin Franklin

## CONTROLLING GOLDENROD

Goldenrod is one of the more difficult weeds found in cranberry beds. It is difficult to control because it is a prolific seed producer and because it is also perennial and can spread from underground rhizomes. As I have traveled through cranberry production areas in the late summer, goldenrod is pretty much ubiquitous.

There are at least three options for controlling goldenrod. Perhaps the most important is the use of pre-emergent herbicides such as Casoron and Evital. These materials will keep seeds from growing after germination. Eliminating seed sources on your property is also needed. I have seen patches of goldenrod flowering upwind from beds on piles of soil. These are surely sources of seed for beds. The tufted seed can travel some distance on the wind. Either clip them off or spray them with Roundup to prevent seeding. Planting grass on dikes and adjacent areas will keep goldenrod "slowed down" as well.

For existing weeds either wiping with Roundup or wiping with Stinger should provide control. However, except for beds that will not be harvested, we are beyond the 50 day PHI for Stinger. Thus, Roundup is our only option at this point. Remember that Roundup has a 30 day PHI so the opportunities for using this product are going quickly. My observations are that either product will control goldenrod, but that it takes time and multiple applications. Also, overdosing with Roundup will kill the tops before the herbicide can move to the roots and entirely kill the plants.

## ROUNDUP REMINDERS

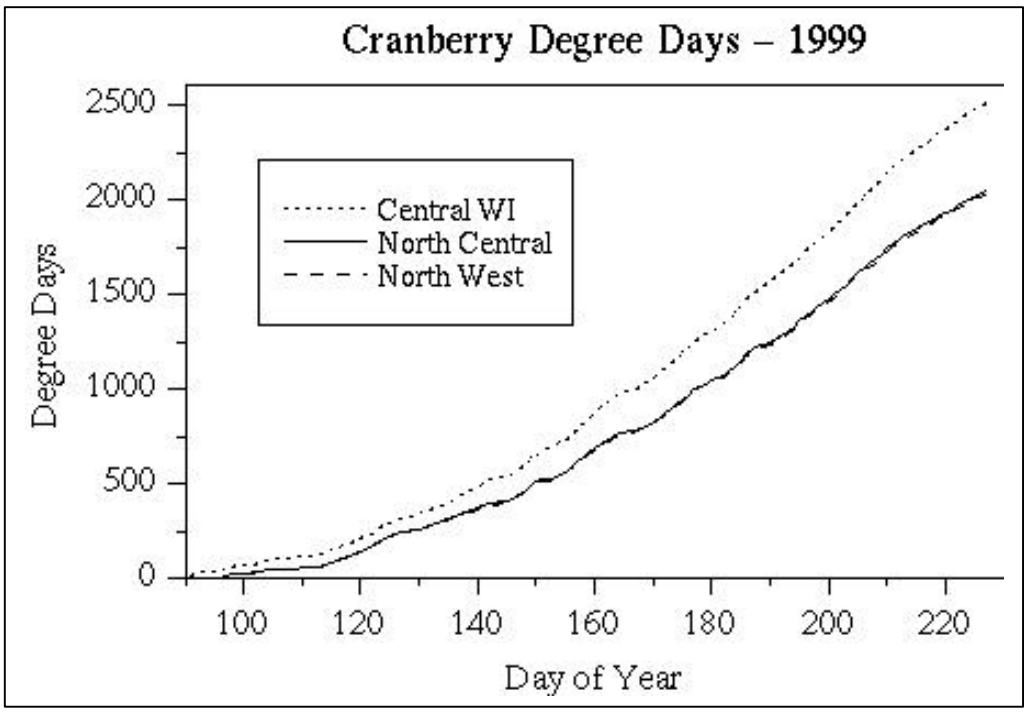
Be sure to read the product label before you begin an application. A few points warrant reminders:

- Coverage is the most important variable. You must have good coverage of the weed's leaf surface in order to get enough material throughout the plant to kill it completely. Dyes added to the wiping solution help you tell where you have wiped.
- Increasing concentration does not make Roundup more effective. Concentrations that are too high may be detrimental as they can kill the contacted tissue before enough is translocated to kill the roots. A 10 to 20% Roundup solution works for most people.
- Cut stump applications are allowed for woody brush. Cut the plant off then treat the stump with a Roundup solution.
- Adding ammonium sulfate per the label specifications can help entry of the active ingredient and will improve performance.
- Roundup requires a 6 hour rainfree period following application to get into the plant. Don't apply if rain is imminent.
- **Remember the 30 day PHI.**
- Wear appropriate PPE. This includes a long sleeved shirt and long pants and shoes plus socks. Waterproof gloves are not required, but are prudent.
- Keep the wiper surface clean. If dirt, weeds or other debris covers the wiper too little solution will accumulate on weed leaves.

*Teryl Roper, UW-Madison Extension Horticulturist*

There's no such thing as bad publicity except your own obituary.

Brendan Behan




Wisconsin Cranberry Crop Management
Newsletter
Dept. of Horticulture
1575 Linden Drive
Madison, WI 53706-1590

UW Extension

Nonprofit Org.
U.S. Postage
PAID
Madison, WI
Permit No. 658