Cranberry
crop management newsletter

Integrated
Cranberry Crop
Management
For Wisconsin

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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 in 1998).

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)	0.9-1.1%
Phosphorus (P)	0.1-0.2%
Potassium (K)	0.4-0.75%
Calcium	0.3-0.8 %
Magnesium	0.15-0.25%
Sulfur	0.08-0.25%
Boron	15-60 ppm
Iron (Fe) [2]	>20 ppm
Manganese (Mn)[2]	>10 ppm
Zinc (Zn)	15-30 ppm
Copper (Cu)	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.s

More information about tissue sampling is found in the bulletin A3642 "Cranberry tissue testing for producing beds in North America". This bulletin was mailed to all marshes last year. If you need additional copies contact your county Extension office or Teryl Roper at UW-Madison.

Teryl Roper, UW-Madison Extension Horticulturist

Tidbits from the LADY BUG IPM TEAM

Over the past several years weed identification has become more of a challenge to us. The upland species are far different than those we know by heart. We have added to our reference library many new books. Here is a list of some the those that we have found most helpful:

1. The Audbon Society Field Guide to North American Wildflowers (Eastern Region)
2. Roadside Plants and Flowers by Marian S. Edsall
3. Reader's Digest - North American Wildlife
4. Favorite Wildflowers of the Great Lakes and Northeastern U.S. by Schinkel / Mohrhardt
5. Weeds of Cranberry Bogs in Southeastern New England from the University of Massachusetts (This book is excellent for grass, sedge, and rush identification).

Following is a list of some of the weeds that we have been seeing on marshes in our region.

Yes, there really are weeds called: Rabbits foot clover – Monkey flower – Butter & Eggs – Viper's Bugloss (blue devil) and I am confident that there are many other creative identifications out there that we have yet to key out.

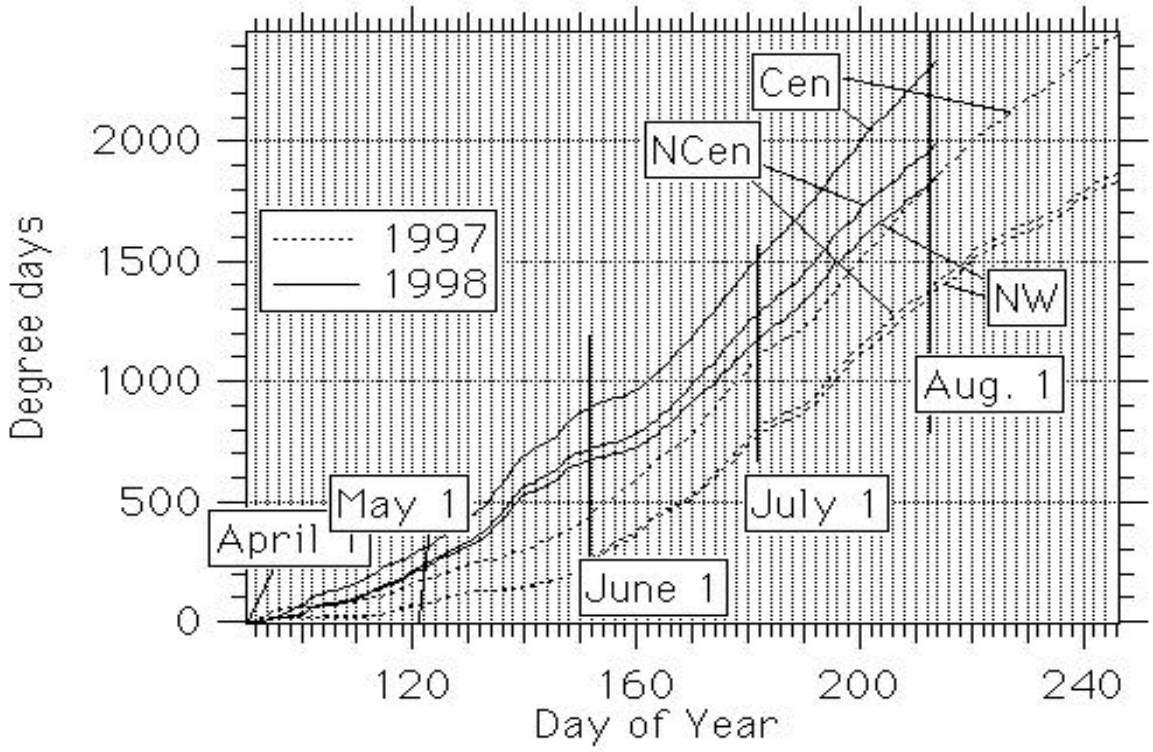
We invest several weeks each growing season to properly identify weed pests because we feel that it is important in our herbicide planning. Growers are made aware of the kinds of pressure that they are dealing with now, so that in the spring of 1999 a good working game plan can be

implemented. High pH soils are a REAL challenge – Herbicides appear to wear out far before weeds are under control. Pre-emergent herbicides are the key, but as one grower says it, "Those pesky weeds are emerging 24 hours a day, seven days a week, and nearly 200 days a year!" NOW WHAT?

Jayne Sojka, Lady Bug IPM

WEEDS THAT HAVE BEEN FOUND IN WISCONSIN CRANBERRY BEDS

- Alsike Clover
- Arrowhead
- Barnyard grass
- Bedstraw
- Black Eyed Susan
- Black Walnut seedlings
- Blue Vervain
- Bog Laurel
- Boneset
- Bouncing Bet
- Bracken Fern
- Butter & Eggs
- Canada Blue Joint Grass
- Common Cinquefoil (Marsh Five Finger)
- Common Dandelion
- Common Flax
- Common Mullein
- Common Nightshade
- Common Ragweed
- Creeping Sedge
- Curly Dock
- Devil's Beggarstick (Sticktight)
- Ditch Stonecrop
- Dodder
- Field Bindweed
- Field Horsetail
- Fireweed (Willow Herb)
- Fleabane Daisy
- Goldenrod (250 different species)
- Hardhack
- High Bush Cinquefoil
- Joe-Pye Weed
- Lady's Thumb
- Lamb's Quarter
- Lance-leaved Violet
- Leatherleaf
- Marsh Aster
- Marsh Fern
- Marsh St. Johnswort
- Meadowsweet
- Monkey Flower
- Morning Glory
- Mouse-ear Hawkweed (Indian Paint Brush)
- New England Aster
- Northern St. Jonswort
- Orange Hawkweed
- Pennsylvania Smartweed
- Pigweed
- Pine trees
- Pointed Broom Sedge
- Poison Ivy
- Purple Loosestrife
- Quaking Aspen (poplar seedlings)
- Rabbit's Foot Clover
- Rattlesnake Mannagrass
- Red Clover
- Red Maple
- Red Sorrel
- Sensitive Fern
- Smoke Grass
- Smooth Aster
- Soft Rush
- Solomon's Plume
- Spaghnum Moss
- Spotted Jewel Weed
- Squirrel Tail Grass
- Sumac
- Swamp Dewberry
- Swamp Milkweed
- Sweet Fern
- Tansy
- Tawny Cottongrass
- THE DREADED WILLOW
- Thread Rush
- Umbrella Sedge
- Vetch
- Viper's Bugloss (Blue Devil)
- Water Horehound
- White Champion
- White Violet
- Whorled Loosestrife
- Wild Strawberry
- Witch Grass
- Wood Moss
- Wool Grass
- Yarrow
- Yellow Hawkweed
- Yellow Loosestrife (Swamp Candles)
- Yellow Mustard
- Yellow Nut-Sedge
- Yellow Rocket
- Yellow Wood Sorrel



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