



**UMASS
EXTENSION**

Cranberry Station Newsletter

SEPTEMBER 2009

UMASS CRANBERRY STATION

1 STATE BOG ROAD

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YELLOW VINES SHOWED UP AS A PROBLEM THIS SUMMER

In the past month or so, I have heard numerous reports of yellow vine (YV). YV shows up as a yellowing along the leaf margins (edges) with the areas along the leaf veins remaining green. Usually the symptoms show up first in the old leaves and then move up the stem into the new growth. The most common time for the symptoms to become severe is around or just after fruit set when demand for resources in the plants is high and hot, dry weather sets in. While we didn't have that much dry weather this summer, it did finally get hot and resource demand is always high in the post-set period regardless of weather.

What causes YV? The YV symptoms are most likely due to nutritional imbalances in the cranberry plants. BUT fertilizer management is not the cause of the problem. Instead, we believe that the nutrient imbalance is secondary to root problems caused by stress. The stress involved is most often water stress (too much OR too little) but may also involve herbicide stress on some bogs. These stress conditions lead to poor root development. From spring through early summer, it was very wet this year. That likely led to shallow rooting. Just to make matters worse, growers had to use more Casoron this year to make up for the loss of Kerb. Casoron is a root inhibitor, so it aggravated the problems caused by the wet soil. In fact, Hilary Sandler had some Casoron plot trials out this summer and reports that the plots with the Casoron treatments have YV while the controls do not.

When nutrient demand increased as the fruit began to develop, it is likely that the roots couldn't keep up. Fertilizer tends to be washed away from the roots during irrigation or heavy rainfall and areas with poor rooting

may not be able to move enough minerals and water to meet the demands of both shoots and fruit. This sets up a competition for resources in which the developing fruit and the youngest leaves (at the top of the shoot) are the best competitors, leaving the older leaves showing symptoms of nutrient stress, in this case, YV.

What to do? At this point in the season, I recommend doing nothing unless the symptoms are very severe and reach the tips of the plants. In those cases, I would recommend urea through chemigation. Use urea at 2-4 lb/A (to give approximately 1-2 lb/A nitrogen) — dissolve and apply as a foliar feed.

Taking a longer view, I recommend improving drainage if this has been a problem and making every effort to avoid saturated conditions by monitoring soil moisture with a tensiometer or water level float and adjusting ditch levels and irrigation practices accordingly. Refer to the July 2007 newsletter for more information.

Directions for construction and installation of the floats are available at the Station or on our website. If you prefer to purchase your floats ready-made, we have a supply on hand for sale. Price is \$20 per float.

A research team from UMass Dartmouth is working with Peter Jeranyama and me to try to determine why the leaves lose their green color in YV situations. That is what is the underlying physiology that links the roots, nutrients, and symptoms. As this research progresses, we may find better treatments. In the meantime, it's all about the water management.

CAROLYN DEMORANVILLE

FALL FERTILIZER?

Each fall, growers ask me - should I apply fall fertilizer? The answer for many growers may be a cautious ‘yes’ if the plants are looking weak or the crop is heavy. If this is your situation - how should you decide if this is needed on your bog and what should you use? First look at your vines, crop, and fertilizer use so far this year. Follow the decision tree below to decide if fall fertilizer is right for you:

Question	Answer	Fall fertilizer?
Are your vines lush or long?	Yes	No
Did you have a big crop?	No	No
Have you already applied more than 30 lb N (50 lb for hybrids)?	Yes	Probably not
Deep organic soil with little need for early fertilizer normally	Yes	Probably not

But if your fertilizer use was modest, the vines are not pumped up, and you had a great crop, then consider using fall fertilizer. Choose a material and apply it between early and mid-November when the soil has dried from harvest but well ahead of the winter flood.

So what to use and how much? My best recommendation is to apply 5 lb/acre N, little or no P and as much K as you can find among the available fertilizer choices. The N will build up the vines, P is not needed in the fall (natural release from the soil is occurring), and added K may enhance hardiness. Also, N and K are the two elements that are removed in the greatest quantity in harvested fruit; P is at much lower concentrations in the berries.

Most growers try to apply in 100 pound increments for ease and uniformity of application, so let’s discuss fall fertilizer choices on that basis.

Look at your choices of fertilizer and determine how much N, P, and K (in pounds) would be applied in 100 lb of fertilizer material. Remember that you are looking for about 5 lb/acre N.

Choice	N	P	K	
5-15-30	5	6.6	24.9	Good choice
3-13-26	3	5.7	16.6	OK choice
5-10-10	5	4.4	8.3	
8-32-16	8	14.1	13.3	
6-24-24	6	10.6	19.9	
5-5-20	5	2.2	16.6	Best choice

Many common materials (like 12-24-12, 15-15-15, and 18-8-18) are just too high in N. Some of the choices in the table would give around the 5 lb/acre N rate with 100 lb/acre of fertilizer but would add much more P than is desired, creating an environmental risk. Those include the 8-32-16 and the 6-24-24. While both give about the right N and fairly high K, seasonal P will exceed 20 lb/acre even if you used 18-8-18 during the season with these choices. If you choose the 8-32-16 at 75 lb/acre (to get the N down closer to the recommended 5 lb/acre), you still add more than 10 lb P/acre and now only about 10 lb K/acre.

The best off-the-shelf choices are 5-15-30 (good N, lots of K, moderate P) or 3-13-26 if you want less than 5 lb/acre N. I do not recommend using 3-13-26 at higher than 100 lb/acre rates to boost N since then you are paying for more materials to apply and again increasing P. The 5-10-10 is a good choice but a bit lower in K. This should be fine if your vines aren't stressed or crunchy. If they are, I would prefer the 5-15-30 to get the additional K.

The best material for low P in the table is the 5-5-20. This gives very low P, target N and substantial K.

What about fish fertilizer? An application of 5-10 gal/acre can replace granular fall fertilizer. If you have pop-up sprinklers and can apply this post-harvest, that is an additional option. Remember, this fertilizer is taken up through the roots, so water it in enough to wash it to the soil.

Finally, what about zero P fertilizers? These are predominantly formulated for turf and most have 25-30 lb N in a 100 lb/acre application (first number is 25 to 30) leading to issues with applying the low N desired in the fall. If you can find one with N in the desired range, by all means use that.

The bottom line — if you use fall fertilizer, choose one with the lowest possible P.

CAROLYN DeMORANVILLE

RECAP ON QUINSTAR 4L FOR DODDER CONTROL

As many of you are aware, since losing the permission to apply Kerb for dodder control in 2008, our chemical options are very limited. The only choice available is Casoron 4G applied as a preemergence. Very low rates (usually < 50 lb/A) are used and the timing of application must be accurate to get maximum impact. Growers continue to report inconsistent control with the use of Casoron since it is hard to apply the granular material quickly within the small window of opportunity (i.e., when dodder seedlings are most susceptible).

In 2008, Dr. Jed Colquhoun and Jack Perry from U-Wisconsin-Madison had very promising but preliminary results from a dodder screening trial. One compound

that looked particularly good was called quinclorac. The formulation he included in his trial was manufactured by BASF and was a 75DF (dry flowable) applied at 8 oz per acre. He had two timings in the trials: late June and mid-July; the best control (>90%) was with the late June application. The trial was conducted on a marsh that had been injured by frost and no blossoms were produced. Photographs of the treated areas indicated control was maintained throughout the season.

Although the WI data were quite preliminary, I wanted to pursue any possibility to increase our options for dodder control for 2009. I decided to prepare a Section 18 permit request for the use of quinclorac. Since this was a new request and I could not be certain it would be granted, I encouraged growers to consider the use of Casoron or short-term flooding as potential preemergence dodder control options during the Spring of 2009.

Submitting the Section 18. To submit a Section 18 request, you must document that an economic emergency would exist if we did not have this product. Since uncontrolled dodder quickly and substantially reduces cranberry yield, so this was fairly straightforward. The other important part is that you must have the support of the registrant who will supply the pesticide. BASF, the company that developed quinclorac was not willing to support our permit request, so we sought other registrants. Albaugh Chemical, Inc. indicated their willingness to support our request. Since chemigation is the preferred means of application, Albaugh offered to support the use of their liquid formulation, QuinStar 4L, and suggested a rate recommendation of 8 oz/A with a maximum of two applications. I prepared our application with these specifics, obtained permission from MDAR Pesticide Bureau sub-committee, and the state sent our request to EPA.

On June 10, 2009, EPA granted an emergency exemption for the use of QuinStar 4L (supported by Albaugh, Inc.). We had initially requested to receive the Section 18 permit by June 1, but since this was a new request, the process took a bit longer than we had hoped. By June 10, many bogs were starting to enter early bloom. We had limited data on how QuinStar would affect bloom, so I encouraged growers to be very cautious about making applications to large portions

of bogs. I encouraged treatment of small parcels by chemigation and spot treatments by ground equipment.

Lack of dodder control. Several growers applied QuinStar 4L by chemigation, mist blower and backpack sprayer during mid-late June. Reports started to filter in that indicated no or very limited dodder control. We certainly did not expect this result. Trying to figure out why this was happening, we realized that we were applying slightly less active ingredient than was used in the 2008 WI trials. We thought if we upped the dose, maybe the control would be improved. So, we requested and were granted a modification in the Section 18 on July 8, 2009. This enabled growers to make one 12 oz/A application as long as no more than 16 oz/A was applied for the season. Growers who had already applied an 8 oz application could not make a 12 oz application. Some growers did try the 12 oz application during mid-July, but I did not hear any reports of good dodder control. Many growers had purchased QuinStar and were still willing to give it a shot even though we had very little confidence in its efficacy, especially as we approached the expiration date of the Section 18 (July 31, 2009).

What's next? There are five possibilities of why we had poor dodder control in 2009 with QuinStar 4L:

- * We applied the herbicide too late.
- * We did not use a high enough dose (at the right time).
- * The liquid formulation does not perform as well as the dry flowable.
- * Products from different manufacturers have varying efficacy.
- * MA dodder is resistant to quinclorac.

Based on additional work conducted in WI by Jed Colquhoun and Jack Perry in 2009, it appears that timing is very important for good control; the earlier, the better. They continued to see excellent control of dodder in their plot work, so I believe that quinclorac still has good possibilities for us. Keep in mind, WI used the BASF 75DF product.

Albaugh does manufacture a dry flowable quinclorac product and is willing to support the use of this product in 2010 for dodder control in cranberry. We are

planning to conduct greenhouse tests this winter to see if Albaugh's 75DF product has efficacy against dodder. We will also test to see if we can get control with the QuinStar 4L. Presuming that we can demonstrate efficacy, I am planning to request another Section 18 permit in 2010 for the use of an Albaugh product for dodder control.

I do regret that we had such disappointing results with QuinStar 4L in 2009. I am hopeful that our dodder is not resistant to the herbicide and that we can find a workable combination of rate, product, and timing to get good dodder control. I remain committed to pursuing all possible and potential options to manage dodder.

If you have any other information or experiences about using QuinStar, please let me know.

Hilary Sandler
508.295.2212 x 21

2009 NACREW MEETING

In August, cranberry research and extension personnel met in New Brunswick, Canada to exchange ideas and plan research projects at the biennial North American Cranberry Research and Extension Workers meeting. Carolyn, Frank, Hilary, Peter, and Peter's technician, Jenna, attended. During the meeting we had an opportunity to tour the small but growing New Brunswick production area.

Topics of presentations at the meeting included weed, disease and insect management, irrigation management, plant nutrition, cultural practices, and health research. At the address below, you can read the presentation abstracts and view the PowerPoint presentations. You can also google NACREW and click the 'Proceedings' heading on the conference website. And even though some of the titles are in French — the presentation materials are in English!

<http://nacrew.bioatlantech.nb.ca/inside/jpage/1/p/Proceedings/content.do>

WATER MANAGEMENT ACT PERMIT RENEWALS AND CRANBERRY GROWERS

Water Management Act (WMA) permits issued in the Southeast Region of the Massachusetts Department of Environmental Protection (MassDEP) will begin expiring on February 28, 2010. For cranberry growers with WMA permits, this will be your opportunity to renew your permit for another twenty years.

To date, MassDEP has issued 40 WMA cranberry permits. According to Water Management Act Regulations (310 CMR 36.00), a permit holder wishing to continue above threshold withdrawals and/or use unregistered sources must file a renewal application. The following table provides the permit expiration dates by basin, the time period to submit renewal applications for those basins, and the number of cranberry permits issued in that basin.

Basin	WMA Permit Expiration Date	Renewal Application Deadline	# of Cranberry Bog Permits in Basin
Taunton	Feb. 28, 2010	Nov. 1 to Nov. 30, 2009	18
South Coastal	Aug. 31, 2010	May 1 to May 31, 2010	2
Buzzards Bay	May 31, 2011	Feb. 1 to Feb 28, 2011	20

Prior to the renewal application deadline MassDEP will be sending out renewal applications to growers who hold WMA permits. There is currently no charge for filing a renewal application.

If you hold a WMA permit and do not file a renewal application, your permit will expire on the appropriate date identified in the table above. If this happens, you must stop the withdrawal of water authorized by your permit. Failure to renew your permit will require that you obtain an entirely new permit, including paying the \$3340 application filing fee, prior to continuing your above threshold withdrawals.

Please be aware that the overwhelming majority of water allocated for cranberry cultivation in Massachusetts is authorized through the 380 WMA cranberry registrations issued by MassDEP. Those WMA registrations expired on December 31, 2007, but most have been renewed as requested. Those growers only holding a WMA registration do not have to file an application for renewal at this time. The WMA registrations will expire again on December 31, 2017, and prior to that date you will again be required to file an application to renew your registration. If you hold both a WMA registration and permit, then you will need to file an application to renew the permit according to the above schedule.

If you have any questions regarding the Water Management Act or the permit renewal process, or need assistance in completing the renewal application, please call Jim McLaughlin at (508) 946-2805, or Leslie O'Shea at (508) 946-2837.

Submitted by MA DEP SERO

CAROLYN DeMORANVILLE
STATION DIRECTOR

Soil and Tissue Testing

It is the time of year for soil and tissue testing. Instructions for how to sample are in the nutrition section of the Chart Book (p. 43-44). Samples can be analyzed at the UMass Soil and Plant Tissue Laboratory on the Amherst Campus. The links below take you to the instructions for sending samples to them, with prices.

For the UMass lab tissue testing instruction sheet (you want “with Nitrogen”):

<http://www.umass.edu/plsoils/soiltest/Tissue2009.pdf>

For the UMass testing lab — soil test pamphlet (you want test “C”):

<http://www.umass.edu/plsoils/soiltest/soilbrochure2009.pdf>

Using the Chart Book instructions, you can just collect the samples (plastic bags for soil, paper for tissue) and mail them to the lab at the address below. Make sure to include payment (check made out to UMASS) and instructions regarding which test (see above) and mark each sample with a number or other designation so you will be able to match up the results with the sample collected. Soil samples are \$13 each for test “C” and tissue samples are \$22 each with Nitrogen.

Send to:

Soil and Plant Tissue Testing Laboratory

West Experiment Station

682 North Pleasant Street

University of Massachusetts

Amherst, MA 01003

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