

# Cranberry

## Crop Management Newsletter



University of Wisconsin-Extension

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### Keep Your Eyes Out for a Not-So-Sweet Weed in Cranberries

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We have had a few reports already this spring about a rather problematic weed in cranberries – sweet vernal grass (*Anthoxanthum odoratum* L.). The name comes from the sweet smell of this grass, but there is nothing sweet about it when it is growing in a cranberry bed! It is an introduced species but has been around Wisconsin for many years. It seems to be spreading in cranberries and therefore it is worth getting to know this potential pest. This weed enjoys low pH soils and thrives even at low fertility levels.

Sweet vernal grass is a perennial species. While grass identification, particularly prior to flowering, is challenging, there are two distinguishing characteristics for this species. First, the sweet smell, almost with a hint of vanilla, is quite unique. As a child, I can remember my mother weaving

sweet vernal grass into her handmade baskets and the pleasant smell that would fill the house. Second, sweet vernal grass is one of the first grasses to flower in spring. In cranberry beds this year it began flowering as early as mid-April. The flowers start out as a rather bright yellow dense spike about 1.5 to 2.5 inches long and dry to a medium brown in early summer. The stems are 10 to 16 inches tall, with more leaves toward the base of the plant than the top. Leaves are short, bright green and hairy along the margin.

As for control, stay tuned! Jack Perry is currently putting out plots to determine which of our weed management tools work best.

## Cranberry Fungicide Update

Patty McManus, UW-Extension Cranberry Specialist

There's not much new to report in the way of fungicides to use on cranberries in 2010, but I will take this opportunity to review the strengths and limitations of the current fungicide arsenal. It is possible that I have overlooked some products and/or brand names, and exclusion of a product should not be viewed as a negative endorsement. On some fungicide labels you will see a listing for "Berry" which includes a long list ending with "and other berry crops." Surprisingly, this does not include cranberry, even as an "other" berry. Cranberry is in its own category on most labels, and unless you see it by name, the product is not registered on cranberry. Labels do change, so be sure to follow the instructions on the label of the product in your hands.

**Abound.** Active ingredient is azoxystrobin, which is in the strobilurin class of fungicides. Its relative low toxicity to mammals has earned it "reduced-risk" status by EPA. Nevertheless, it is toxic to certain aquatic organisms, and it therefore has a 14-day water-holding requirement. This rather onerous requirement could make it impractical for some growers to use Abound at all. I've been in touch with Syngenta about the possibility of getting this restriction changed, but according to them, it is not possible. Three sprays of Abound are permitted, starting at early bloom and then at a minimum of 7-day intervals. This product is primarily for control of fruit rot, which is caused by a complex of a dozen or so fungal species. Its performance in controlling fruit rot has been spotty, working well in some situations and not at all in others. Although we have never had intense disease pressure when we've tested it for cottonball control, it does have some efficacy. However, in our trials, it has not been as good as Indar or Orbit for controlling cottonball.

**Bravo, Echo, Equus.** Active ingredient is chlorothalonil, a broad-spectrum fungicide. In every trial conducted in Wisconsin, and almost all

of them conducted elsewhere, the chlorothalonil products have topped the competition. The different names and formulations appear to perform equally well. The cloud behind the silver lining, however, is toxicity to the cranberry plant. Applied during bloom, chlorothalonil sometimes reduces yields. Applied during bloom and especially if applied to pinhead-sized fruit, it causes red flecks and burns on fruit. These problems are worse if chlorothalonil is applied on hot days (temps reach 85 F or more) or in low spray volumes (less than 50 gallons/acre). In 2008 we put out several trials to compare the products for efficacy and toxicity. While the various chlorothalonils were equally effective, we saw NO phytotoxicity in 2008! Frank Caruso's 2008 data from Massachusetts showed more fruit scarring with Bravo WeatherStik than Bravo Ultrex. Interestingly, we did see phytotoxicity in 2009, despite the cool weather that followed application.

**Copper-based fungicides.** Several different formulations are registered on cranberry, but I don't know why. They have consistently been at the bottom of the pack (often not better than the untreated check) in fungicide trials for fruit rot and cottonball. Since copper has some bactericidal activity, some growers have used it the year following a bad outbreak of stem gall (sometimes erroneously called "canker"). The bacteria that cause stem gall, however, amass deep inside stems where copper can't reach them. It used to be that copper was cheap, but that is no longer the case. Perhaps its high price will bring an end to futile application of copper!

**Indar.** Active ingredient is fenbuconazole, which is in the sterol demethylation inhibitor class of fungicides, same class as propiconazole (below). The best use of Indar in Wisconsin is for cottonball control. Indar has been equal to or just a shade better than Orbit for cottonball control in trials conducted 1996-2006. Like Orbit, pre-bloom

*(Continued at Cranberry Fungicide Update p. 3)*

**Cranberry Fungicide Update** (*cont'd from p. 2*)

applications are permitted to control the tip blight phase of cottonball. Indar is also labeled for control of fruit rot, but results have been inconsistent in our trials. This may be due to its specificity for certain fungal species and is something that we will be testing in 2010.

**Mancozeb.** Mancozeb is marketed as Dithane, Penncozeb and some other names. A related fungicide is **maneb**. These are old, broad-spectrum fungicides. In our trials and in trials conducted in the eastern U.S., mancozeb has been very effective in controlling fruit rot. In our trials it lags just a bit behind Bravo, but it has been a much more consistent performer than Abound or Indar. The downside is that it can reduce fruit color if applied during bloom and/or fruit set stages, and that's when you need to apply it to control fruit rot. The price of mancozeb products has risen sharply in recent years, owing to factory shut downs and related shortages.

**PropiMax and Tilt (formerly Orbit).** Active ingredient is propiconazole, which is in the sterol inhibitor class of fungicides. After more than a decade of Section 18 registration, Orbit got a regular label in 2007 for cottonball control. When the patent on propiconazole expired, Dow Agro-Sciences released PropiMax. Last year, Syngenta's Orbit has undergone a name change and is now sold as Tilt—same product, same maker, different name. You may use remaining Orbit stocks according to the old Orbit label. We have not tested PropiMax, but I would expect it to perform as well as Orbit/Tilt. Propiconazole and fenbuconazole (Indar) are both excellent fungicides to control cottonball, but because they belong to the same chemical class, fungicide resistance is a concern. Indar and PropiMax/Orbit/Tilt each are permitted in four sprays per season, but you should not apply more than a TOTAL of four sprays of sterol inhibitor fungicides in a season. The best “bang for the buck” in controlling cottonball comes with spraying during bloom. So, unless you have serious cottonball problems (e.g., greater than 10% of fruit affected), you should probably forego the bud-break sprays and focus on protecting flowers. In

over 10 years of testing both Orbit and Indar we have never seen a negative effect on yield or fruit quality.

**Phosphorous acid products. Aliette**, which is an aluminum salt of phosphorous acid, was the first in this group. Now we have **Phostrol** and **Prophyt**. These are effective in controlling *Phytophthora*, but have not been tested on other cranberry pathogens. The active ingredients in phosphorous acid products are one or more phosphite salts (potassium phosphite, sodium phosphite, ammonium phosphite). From a practical standpoint, you can consider these products all the same. However, these fungicides do not contribute to P nutrition. Phosphorous acid releases the phosphite (also called phosphonate) ion, which is transported in the plant to the roots. While the phosphite ion is fungicidal to *Phytophthora*, it does not provide P for the plant. Phosphorous acid products do not release the phosphate ion, which is the form of P that plants use.

**Ridomil.** The active ingredient is mefanoxim, which is a slight modification of the old active ingredient, metalaxyl. Ridomil is effective on some species of *Phytophthora* but not the ones that predominate in Wisconsin, according to a survey we did in collaboration with Peter Oudemans of Rutgers University. Improving drainage is the first step in *Phytophthora* management, and often the problem goes away without fungicide input.

**Serenade.** The active ingredient in this biocontrol product is the bacterium *Bacillus subtilis*. Promising results from blueberry research inspired us to test Serenade on cranberry, especially for cottonball control. Unfortunately, it did not control cottonball as well as the standards, propiconazole and fenbuconazole, and in some cases, not better than the non-sprayed check. In separate tests, it did not control the fruit rot complex.

Additional information on fungicides and their uses can be found in several bulletins listed on the UW-Extension website at <http://learningstore.uwex.edu/Berries-C84.aspx>, the Pesticide Chart from Cranberry Institute, and in further articles in this newsletter.

## Observations from the Field

Jayne Sojka

What a weekend!!!! Some growers reported temperatures in the teens!

Because of the temperature extremes, we swept very few cranberry pests during our spot checks this week.

Our plants have come to a standstill and I am sure that the insect hatch has as well.

We can anticipate much more activity next week with temperatures climbing in the 70's. Have a game plan formed for the 1<sup>st</sup> generation insect pests. I encourage communication with your markets to discover if you can use some of the new products and still export your crop. I encourage communication with your supplier letting them know what you are thinking to use and having it available. Remember communication is VITAL at this time of the year...

We sure see a lot of mowed vines in our travels. Because the spring was early most of those vines are already in the ground. I like to see the density in which most planted, as the ground is covered. Always think 100 years when planting. Why skimp now when you know it will affect the future of your beds, production as well as return on your money. Take time for that final grade and plant with some consistency. Weed pressure hurts the crop so make sure you are on top of the control measures of those early invaders.

In planting any of the new hybrids I firmly believe that we should take extra precautions. Understand that any stress like heat, cold, wet, dry, weed pressure, herbicide as well as too much nitrogen makes our plants vulnerable to disease. What would it hurt to follow a fungicide regimen until the beds are filled in? Protect your investment, follow some BEST MANAGEMENT PRACTICES.

**Jayne Sojka is an independent IPM crop consultant with Lady Bug IPM, LLC**

### Self-Study Private Pesticide Applicator

#### Certification

There is an option to obtain certification for Private Pest Applicators that is available year around to fit whenever it suits your schedule. It is called the Self-Study option. The UW-Extension Office can provide you with a DVD to view the same presentations as are provided at our training session held each year at cranberry school. You are required to purchase a Fruit Crops Manual (\$30) then and schedule an appointment to take your exam at the UW-Extension Office. Contact

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*References to products in this publication are for your convenience and are not an endorsement of one product over similar products. You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.*

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## Tissue Tests Tell a Story about a Season... not Just the Fertility Program

**Matt Lippert, Wood County Agriculture Agent**

Tissue testing is the preferred tool to suggest nutrient supplementation in the cranberry crop. There are other possible factors at play besides soil fertility levels and supplemental fertilizer that can affect plant tissue test results. Last year was much cooler than normal. Season can also affect plant tissue results; you may want to temper any changes in your fertility plan for 2010 if you found sharp changes in last fall's plant tissue test results.

Plant tissue N can be used as an example of how last season may have played out to yield results suggesting more supplemental nitrogen when in fact it may be wiser to stay the course. For many plant species cooler conditions encourage the plant to become more vegetative and less fruiting in its growth than would be the case if it was warmer. At the same time if the temperature is below optimum for prolonged periods of time the photosynthetic "engine" may have produced less energy to transport and synthesize needed nutrients to the point of growth. In the case of nitrogen, a cool season may have created an increased need by encouraging vegetative growth but also lessened the plants ability to accumulate and distribute plant proteins (most tissue N is in the form of plant protein) to the areas of plant growth. Increase the demand for nitrogen while decreasing the energy available to develop proteins and now you have a plant testing lower in tissue nitrogen than is normal.

This situation was not created due to a deficiency of supplemental nitrogen or soil organic matter nitrogen. The mineralization of organic soil sources of nitrogen by microbes into forms available to the plant is also partially driven by temperature, cool conditions resulting in less mineralization of soil organic matter to available nitrogen.

Excess available nitrogen can cause excessive vine growth and limit fruit production. If you had adequate vine growth last season but found tissue test results that indicate a deficiency of nitrogen, you should consider the effect of the season to be a cause rather than a deficiency in your fertility program.

The cranberry marsh is a biological system. The plant tissue test is a great tool to monitor how that biology is working. Evaluations of the results are more complicated than a simple deficiency and supplementation interpretation. 2009 was a great year to point out that our management scheme is more complicated than that.



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