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ADDRESS CORRECTION

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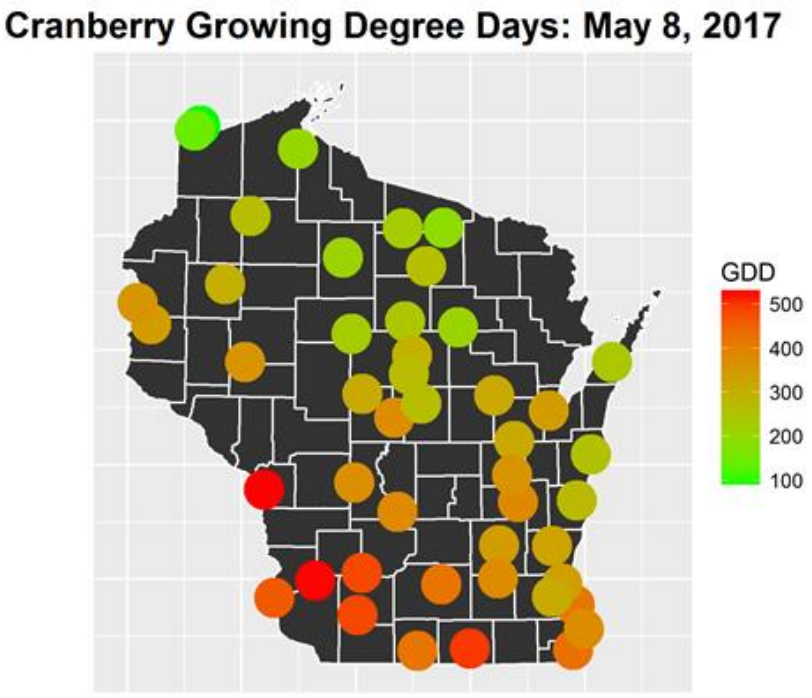
CRANBERRY PLANT AND PEST DEGREE-DAYS: MAY 8TH 2017

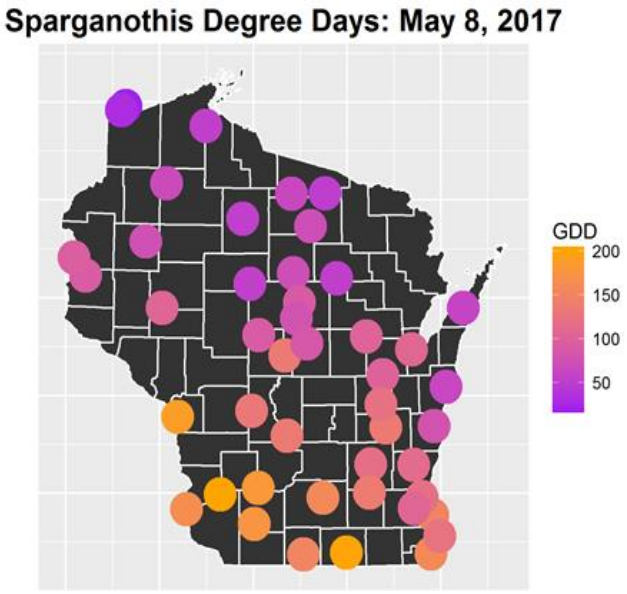
by Elissa Chasen and Shawn Steffan
USDA-ARS and UW Entomology

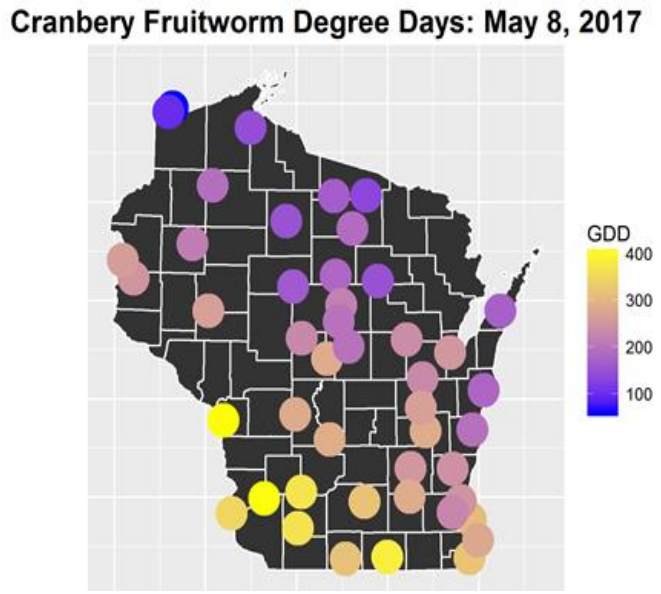
In 2017, we will be sharing degree-day accumulations for the cranberry plant and sparganothis fruitworm, as we did in 2016. However, we will also be sharing degree-day accumulations for cranberry fruitworm this year. We have some preliminary data linking cranberry fruitworm degree-days with their flight initiation and peak flight from last summer, so it will be interesting to confirm and validate this correlation in the coming season.

The maps below show how spring is progressing across Wisconsin. In addition to these maps, we have posted interactive maps online. The interactive feature allows you to click on the map locations and this prompts a pop-up that names the location and gives exact degree-days. These are available through the Steffan lab website (http://labs.russell.wisc.edu/steffan/cranberry-growing-degree-days/). Once on the website, follow the link to the interactive maps.

Note that each of these three organisms have all accumulated different amounts of degree-days. This is because each organism has specific temperature thresholds for their development (the range at which development occurs). For the cranberry plant: 41 and 85˚F; sparganothis fruitworm: 50 and 86˚F; and cranberry fruitworm: 44 and 87˚F.







The table below allows for comparison of degree-days over the last three years. We see that, despite the warm stretch in February, we have been having a cooler spring than the previous couple of years. This should delay the first flight of each of the major moth pests, as well as the development of the plant in relation to the last couple of years. Sparganothis flight should begin around 600 Sparg DDs.

May 8	Cranberry DDs			Sparg DDs		
	2015	**2016**	**2017**	**2015**	**2016**	**2017**
Northern WI (Minocqua)	351.9	310.3	228.8	156	125.8	76.6
Central WI (Wisconsin Rapids)	514.5	439.9	371.3	256.1	195	157.1

2017 Fungicide Update

by Patty McManus
UW-Madison and UW-Extension

With 2016 being a bad fruit rot year in Wisconsin, many growers are planning to use fungicides in 2017. My recommendation is to not overdo it with fungicides this year (see 2017 Cranberry School Proceedings), and I will review the pros and cons of fungicide use in a near future issue of CCMJ. Here, however, is a review of some of the newer fungicides and their efficacy in controlling fruit rot and cottonball. For specific use instructions such as rates, timing, and precautions, see product labels, the 2017 Cranberry Pesticide Chart from Cranberry Institute, and the 2017 Cranberry Pest Management in Wisconsin (UW-Extension bulletin A3276). Be sure to have the current bulletin and chart on hand and get rid of the old versions to avoid confusion, or worse, doing things that run afoul of the law. If you find inconsistencies between product labels and the UW spray guide or CI chart, follow the label. Also, rules vary among handlers and rules change, so you should talk to your handler about restrictions they might have on various pesticides.

Proline 480 SC (prothioconazole) from Bayer CropScience has been labeled since 2014. Note on rate: the UW spray guide incorrectly lists 5.7 fl oz; the correct rate is 5.0 fl oz per acre. In our research trials Proline consistently has been an outstanding fungicide for fruit rot control when used at the full rate (we have not tested reduced rates). In one study a few years ago we wanted to collect rotten berries to test which fungi were present. In the Proline plots we sometimes could not find more than one or two soft berries in an entire 5' x 5' plot. Those plots, however, were in a well pruned, well drained, dry bed. Where berries remain wet for hours on end, all bets are off. Proline is also a top tier cottonball fungicide, performing as well as the cottonball standards, Indar and Orbit/Tilt. If your handler gives the green light to use Proline, I highly recommend it. Note, however, that it is in the same "triazole" class (FRAC group 3) as Indar (fenbuconazole) and Orbit (propiconazole). To avoid fungicide resistance, do not use the group 3 fungicides more than twice per year for fruit rot control. Best to use them only once or twice per year for cottonball control as well, alternating with Abound if more than two cottonball sprays are needed.

Quilt Xcel (azoxystrobin + propiconazole) from Syngenta is a pre-mixed combination of the active ingredients of Abound and Orbit/Tilt. You could of course, mix the two fungicides on your own, but the pre-mix product is available for your convenience. We tested this combination (at the highest permitted rate) for the first time in 2016 and had good results with both cottonball and fruit rot control. The fruit rot control came as a surprise, since in the past we've not found Orbit/Tilt (propiconazole) effective on fruit rot. More testing to come, but for now, I'd recommend Quilt Xcel for cottonball control, but use something else (e.g., Proline, Abound + Indar, mancozeb) for fruit rot control until more data support it.

Kenja 400 SC (isofetamid) from Summit Agro USA is the first FRAC group 7, or SDHI (succinate dehydrogenase inhibitor) fungicide registered on cranberry. We tested it for the first time in 2016 and found that it was not effective in our cottonball or fruit rot trials. Researchers in other regions report similarly disappointing results.

Oso 5% SC (formerly Tavano) is a newer fungicide from Certis USA that has polyoxin D zinc salt as its active ingredient. Polyxin D is a fermentation product of Streptomyces, a soil bacterium, and is considered a relatively safe biofungicide exempt from a pre-harvest interval (in practice, a 0-day PHI). Polyoxin D has an entirely novel mode of action that inhibits chitin, the major component of fungal cell walls. The low toxicity and novel mode of action are welcome additions! Tavano/Oso mixed with a non-

ionic surfactant (NIS) was more effective than the untreated check in 9 of 10 fruit rot trials conducted since 2014, and was among the best fungicides in 4 of 10 trials. For cottonball control, Tavano/Oso was more effective than the untreated check in 6 of 6 trials, and was among the best fungicides in 2 of 6 trials. So, it's a potentially promising new mode of action with low environmental toxicity but not consistently a top performer.

Regalia from Marrone Bio Innovationsis a "soft" fungicide that is approved for use in organic production. The active ingredient is extract of Reynoutria sachalinensis, giant knotweed, which when applied to plants is believed to "turn on" defenses. It is registered for use against many diseases of many crops. For fruit rot control, it performed better than the untreated check in 9 of 11 trials conducted since 2013, and as well as the top fungicides in 5 of 11 trials. For cottonball control, it was better than the untreated check in 5 of 6 trials and as good as the top fungicides in 2 of 6 trials. As with Oso, consistency among trials is a challenge with Regalia. In 2017 we will be testing Regalia formulated with a higher concentration of active ingredient.

"Did I lose my Casoron?"

by Suzanne Arendt
RedForest Crop Consulting LLC

Spring conditions have favored some early weed germination on our marshes. A few weeks ago, growers in the warmer regions applied Casoron in order to get the earliest efficacy of the dollars they spent on Casoron, as it should ideally continue to work for 4-6 weeks. Then the rain came, and more rain- totals amounting to 11" in some areas. After that, the frost came and some growers flooded their marshes. And now the question is, "Did I lose my Casoron efficacy?" The short answer is, "yes, probably some of it." Early applications of Casoron are very effective if we don't get excessive amounts of water. When there is too much water, like flooding or continued rain for days, even if the Casoron is in the soil solution, that solution could push back up to the surface. Once there, the Casoron will volatize, it can move below the germination zone, missing the target area. There is no way of knowing how much was lost. Repeat applications may be too much of a gamble depending on how heavy the first application. In springs like this, it may be advisable to consider splitting the application in two. Two, 20 -25lb applications a few weeks apart can help to increase the longevity of efficacy, as well as getting the early and the late germination. Repeat applications on heavy weed infested areas may be justified. Otherwise, the utilization of post emergent herbicides will be necessary this year.

In general, Casoron is a pre-emergent and needs to be applied prior to seedling emergence. Apply evenly to beds and incorporate into the soil with ½" to ¾" water. The amount of run time depends on your system, but a good rule-of-thumb would be about two to three hours of irrigation. Casoron needs to be incorporated into the germination zone and become part of the soil solution to be effective. Applications during cooler weather are more effective because the Casoron will start to volatilize at 65°F. To be cautious, apply when cloudy and before day temps reach 60°F for best results.

Determining Nitrogen Fertilizer Requirements

by Amaya Atucha
UW-Extension Fruit Crop Specialist

When it comes to calculating how much nitrogen fertilizer is needed to support vine and fruit growth during this upcoming growing season, there are several factors to consider.

1) Last year's tissue test results: The sufficient range for cranberries is between 0.9 to 1.2% of nitrogen. If you are within the normal range, then you should continue your current nitrogen fertilizer program. Increasing your nitrogen input does not translate into higher yields, and can be detrimental for fruit quality (e.g., increase fruit rot) and can delay fruit ripening.
2) Last year's upright growth: Excessive runner and/or upright growth of more than 4 inches in the past season can indicate too much nitrogen. On the contrary, new growth of less than 2 inches could reflect nitrogen deficiency, so increasing nitrogen rate is recommended. Also consider the overall appearance of the plant growth. Pale or yellow leaves might be an indication of nitrogen deficiency. Healthy cranberry leaves are a bright deep green.
3) Combination of last year's tissue test results and plant growth: Consider the possible combinations in the table below.

Previous-season upright growth	Tissue N concentration	Recommendation
Less than 2 in	Low	Increase the N rate
Less than 2 in	High	Look for stress from pest, drainage, drought, frost, or other limiting factor
2-4 in	Sufficient and stable	Continue with your current fertilizer program
2-4 in	Sufficient and increasing or high	Continue with your current rate. Begin application at pea size
More than 4 in	Low	Review rate and timing. You might need to reduce the N rate and avoid early N application
More than 4 in	Sufficient or high	Reduce the N rate

Adapted from Hart et al (2015) and Davenport et al. (2000).

GROWER UPDATES

DuBay Cranberry

My name Dave Hansen and I manage DuBay Cranberry Co.. DuBay Cranberry was started in 1947 and is located in the northwestern part of Portage County adjacent to Lake DuBay. We grow a 160 acres of cranberries consisting of Ben Lear, Stevens, Mullica Queen, GH1, and HyRed varieties.

By now, everyone has had their fill of frost protecting and rain and are eagerly awaiting Wisconsin's spring warm up. It seems the weeds don't need that much warmth to start as the grasses around here are growing well and the broadleaves are just starting to awake. Finally, with the break from the rains we are able to get our herbicides on and start our final phase of bed renovation. Last fall we removed the last two beds of the original plantings on the marsh and plan on planting HyReds . Hopefully within the next two weeks we can start to plant.

Hopefully everyone can get some much needed rest as the night temperature start to rise and get their spring work accomplished. I look forward to sharing the happenings of the growing season with you. Have a safe and prosperous growing season!

Dave Hansen
DuBay Cranberry

Saratoga Cranberry Company

It was a busy work week in Saratoga. Besides watching frost every night last week, we installed all our draintile and underground sprinkler lines in the renovation beds. We never had a chance to get an application of Casaron on yet but are planning and hoping to get it out sometime this coming week. As of 5/8/2017 we are sitting at 348 Growing Degree Days.

Russell Sawyer

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