

# Cranberry Crop Management Journal

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## IN THIS ISSUE:

Bogside Questions & Answers..... 1

A Study on Flower Induction and Differentiation in Cranberry..... 3

Observations from the Field ..... 4

Growing Degree Days...5

Grower Updates ..... 6

## ADDRESS CORRECTION

Contact us if you have any address corrections, additions, or deletions.

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## BOGSIDE QUESTIONS AND ANSWERS

Suzanne Arendt  
*RedForest Crop Consulting, LLC*

### • **What is dry time of Indar?**

We do not have field data on rainfall time for Indar but it is systemic, so some will get in the plant right away. A good rule of thumb for any application is 6-8 hour minimum dry time.

### • **What does systemic and translaminar mean?**

A pesticide that is systemic is taken up by the roots of the plant and transported throughout growing points of the plant. Proline, Abound, Indar, Belay are examples. A pesticide that is translaminar moves through the leaf surface so there is active ingredient on both surfaces of the leaves. Delegate is an example of an insecticide that is translaminar. Delegate is not systemic.

### • **Do I need to add a surfactant to Delegate?**

No, Delegate has proven to work very effectively on managing pests without a surfactant. Fungicides also do not need a surfactant. Some surfactants can help improve coverage and efficacy. Each product is unique.

### • **When is the right time to do a bug flood?**

Typically, when pests are present or when blackheaded fireworm eggs are near hatching. Bhfw overwinter as an egg so it is not necessarily always susceptible to a flood. The cranberry plant should also be beyond cabbage head typically. Most often the best time for an insect flood is roughneck to up to few hooks on the edges.

### • **What is Delegate's mode of action?**

Contact and ingestion mainly

### • **Can I apply Delegate when the bees are present?**

Although Delegate has shown to be relatively non toxic to bees 3 hours plus after applied, it is the best management to avoid use of Delegate while bees are foraging and may be best to not use at all during bloom. We have other alternatives.

### • **Does Lorsban work as effectively on Sparganothis Fruitworm as Delegate?**

**NO.** Lorsban is effective on very small larvae only 1/8" or less and still may not be the most effective spray. Resistance, timing, and water chemistry may all play a part.

## BOGSIDE QUESTIONS AND ANSWERS

*Continued from page 1*

- **How long will Altacor be effective in the field?**

Altacor's residual can be effective up to about 20 days in the field. A good average is about 2 weeks on manageable populations.

- **What is Altacor's mode of action?**

Altacor's mode of action is mainly ingestion

- **Can I apply Callisto when bees are present?**

Yes, but it is advisable to minimize all applications while bees are foraging. Weed control is best if you can spray Callisto when the weeds are young and apply two applications if needed back to back, waiting until just before the weed grows out of the systems or about 14 days.

- **Can I control sphagnum moss?**

Moss usually indicates a drainage problem and can be seen in some new plantings where watering occurs frequently. In small areas, Iron Sulfate has been effective at 3 oz./sq. ft. in the spring. Broadcast applications in spring (early to mid May) should be when vines are mostly cabbage head. Broadcast rates are not set, but growers have used 5 to 6 lbs./ac. Results are variable.

- **Is there any new news on Lorsban?**

I have not heard of any updates; however it is time for us to learn to live without it. If you have not flooded on your marsh, please try to put a strategy together for at least flooding parts of your marsh yearly in the spring when it is the appropriate time to flood for insect control.

- **Which works better, Intrepid or Altacor?**

Altacor has a longer residual than Intrepid, but if you have manageable populations of early hatching black headed fireworm, sparganothis fruitworm and cranberry fruitworm Intrepid is a great rotational insecticide to add to your IPM program.

**Note: All insecticides work best when larva are small.**

**Note: Fungicide programs are typically protectant programs even though products like Proline can also stop the spread of fungus.**

## A STUDY ON FLOWER INDUCTION AND DIFFERENTIATION IN CRANBERRY

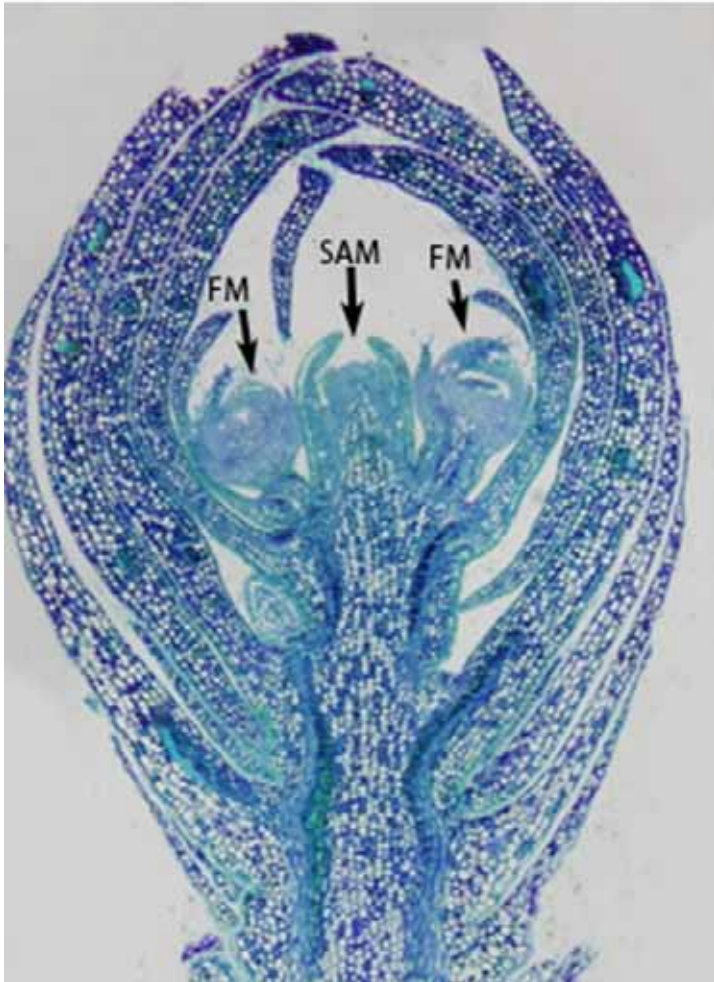
Amaya Atucha and Jenny Bolivar  
*UW-Madison Department of Horticulture*

As many other fruit crops, cranberry uprights alternate between years of high and low fruit production. This phenomenon is called alternate bearing, and it is related to the capability of individual uprights to set flower buds that will support fruit production the following year. Older cultivars (e.g. Ben Lear) show a stronger alternate bearing behavior than recently released cultivars (e.g. HyRed), which have a more consistent yield every year. Uprights from recently released cultivars, such as HyRed, can set a reproductive bud by the end of the summer, independently from the nature of the upright (i.e. vegetative or fruiting uprights). Recently histological studies of apical buds, have revealed that there are differences between cultivars in the time when the floral meristems are observed for the first time in the apices of the uprights. These differences were noticed even before bud set could be visually distinguished (late spring-early summer). Despite this recent findings, little is known about the stage of the meristems during and after the dormant period and what are the process influencing the set of reproductive buds and its difference across cultivars.

Based on the previous statements, the Atucha Lab at UW-Madison, is interested in further exploring histological and phenotypical analysis in buds of cranberry to understand when flower induction happens and what are the factors (e.g. plant hormones, nutrients, cultivars) involved in the flower meristem development. Currently, we are exploring flower bud development during fall and winter (Figure 1) to answer the question: do flower buds continue to develop during winter? And what is the relationship between bud size during fall and number of flowers, fruit set, and fruit

production. A second study evaluates the effect of applications of plant growth regulators in the development of floral meristems. The results of these studies will help us elucidate which factors are governing flower induction in cranberry, and could potentially help develop management practices to promote flower production.

We want to thank the Wisconsin Cranberry Grower Association, Cranberry Institute, and Ocean Spray for the support and funding of this project.



**Figure 1.** Longitudinal section of cranberry bud during summer on a vegetative upright. Notice the lateral floral meristems in early stages of development. SAM = Shoot apical meristem. FM = Floral meristem.

## OBSERVATIONS FROM THE FIELD

Jayne Sojka  
Lady Bug IPM, LLC

The cranberry plant is more resilient than what have given it credit for. Some of those MAJOR frosted areas that we talked about in the last newsletter are now showing reproductive life! Yes, we are seeing the “typical” umbrella hook and healthy side shooting, but we are also seeing full hooks with 3 to 5 pods on each one! Amazing how determined our plants are to survive!

You have heard me talk about Coptodisca Leafminer in the past, but I am here again to share that there are even more infestations than there were in 2015. One particular marsh that had signs last year has had a population explosion this season. During an early morning scouting session I came out of a bed with wet boots and found the boots were covered with leaves that had leafminer damage—perfect little circles eaten out of them! What can be done with these kinds of infestation? We have found that Orthene very early in the season for three seasons in a row was the only control measure that worked. By early, I mean early May. There is one generation per year. Nine months are spent as an egg, which is the overwintering stage. In the spring the larvae feed inside the cranberry leaf. Understand that there are 5 instars but it feeds only in the first four instars. In June the 4<sup>th</sup> instar completes feeding. I like to see the control measure in place in early May so that the systemic value can keep on controlling the larvae as it feeds. If you have this pest, please make notes now to use a known control measure early next season.

Over the past 25 years I have seen Protoventuria (Gibbera) leaf spot in cranberry beds. But this year I have seen one of the worst outbreaks that I have ever seen. After reading publications on the disease, I believe that this may be the 1<sup>st</sup> serious Wisconsin case ever. The publication states that Protoventuria leaf spot caused by the fungus Protoventuria Mytillia (Formerly Gibbera Myrtilli) is considered economically insignificant. The leaves are not affected until middle or late summer, and the speckles on berries are superficial and do not rot the fruit. However, severely affected leaves may drop prematurely. The biological and economic impact of premature leaf drop is not understood.

This particular marsh showed signs last season but because I have seen it on other marshes over the years I dismissed it as insignificant. But now it has my attention, and the attention of many others trying to understand it. I am not so sure INSIGNIFICANT is a word I would use any more. The following pictures were taken this spring. Be attentive on your own properties and see if you notice Protoventuria (Gibbera) leaf spot. Stay tuned, as I am sure you will be hearing more as discoveries are made.



*Protoventuria (Gibbera) leaf spot*

We have had a strange spring. The hot, cold, wet, and frosty evenings played havoc with our plant health. Some folks felt that their plants were inverted! They started and stopped growing (so it seems), then we got some really nice weather and in a few days the cranberry world changed. We went from bud break to hooking seemingly overnight. The insect hatch did some bizarre and challenging things as well. We started sweeping BHFWS before the spring meeting in late April. Last week we were sweeping more hatching worms. Different growing areas, different plant stages, different varieties, different growing degree days, different pressure. Does our plant stage influence insects? I believe so.



*Protoventuria (Gibbera) leaf spot*

I encourage anyone with history of BHFWS this spring to get product on hand so that when 2<sup>nd</sup> generation comes about you are ready. We typically have three weeks of flight activity and then we see BHFWS hatch. We start to look for eggs that 3<sup>rd</sup> week and project control measures accordingly.

## Cranberry Degree-Day Map and Update: as of June 15, 2016

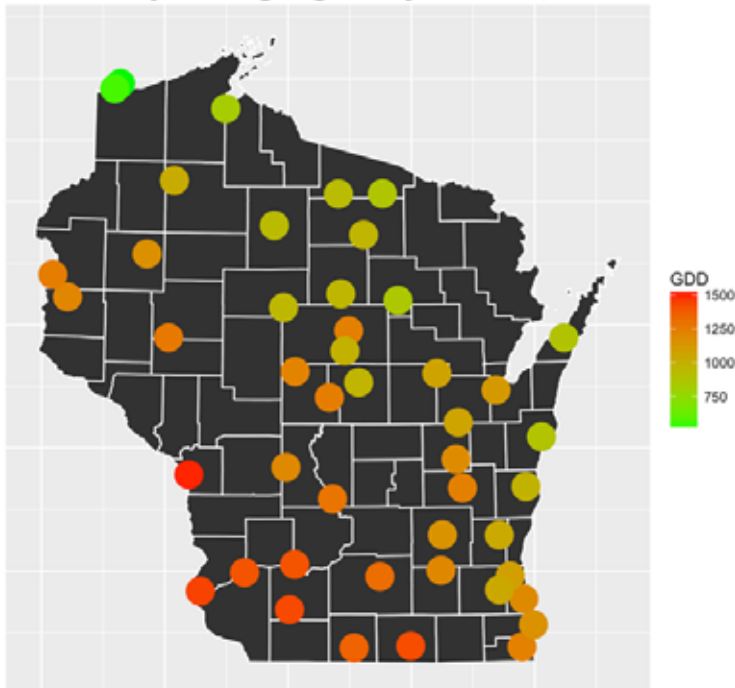
Elissa Chasen and Shawn Steffan  
*UW-Madison Department of Entomology*

The maps below show degree-day accumulations for cranberry plants and *Sparganothis* fruitworm across Wisconsin up through June 15, 2016. Temperature thresholds used for these calculations are 41 and 85 °F for the plant, and 50 and 86 °F for *Sparganothis*.

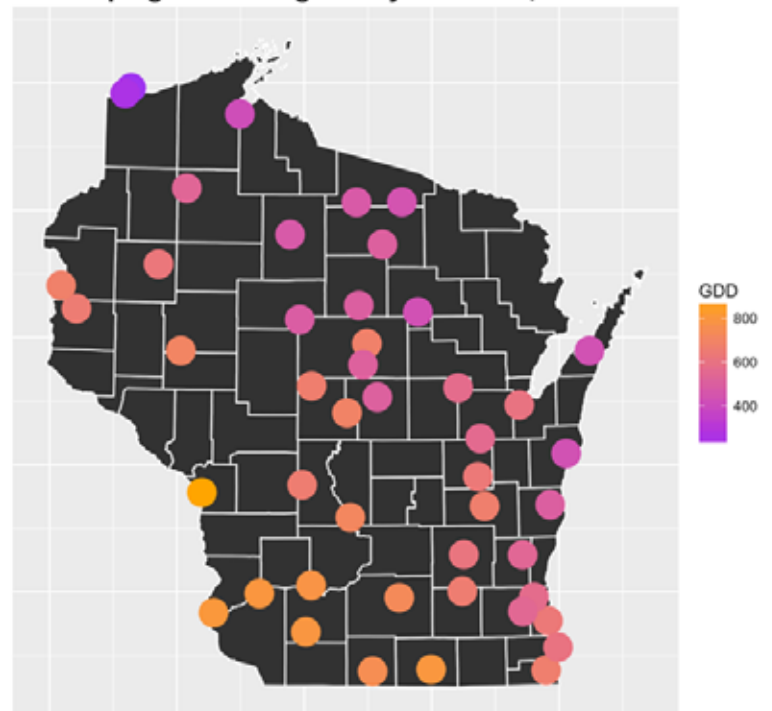
In central WI growing region, plants have accumulated roughly 1,200-1,300 DD, while *Sparganothis* have accumulated roughly 700 DD. In northern WI growing region, plants have accumulated roughly 900-1,000 and *Sparganothis* degree-days are nearly 500.

The image below details life history benchmarks of interest for *Sparganothis* fruitworm and associated degree-day estimates. Flight initiation was predicted around 595 DD, and indeed, *Sparganothis* flight has begun in central WI within the last two weeks. Depending on the degree-day accumulations specific to your marsh, *Sparganothis* moths may have begun laying eggs. Reminder that a single insecticide application aimed at *Sparganothis* adults will likely have the greatest effect on population reduction if timed for peak flight (approximately 885 DD). Also, a reminder that a single insecticide application aimed at *Sparganothis* larvae will likely have the greatest effect if it is timed for peak egg-hatch/larval-emergence, which is approximately 1,400 DD.

Cranberry Growing Degree Days: June 15, 2016



*Sparganothis* Degree Days: June 15, 2016



# GROWER UPDATES

## Adams 73 Cranberry

Bloom is popping up across the marsh by the minute. A recent day of 90 degree heat accelerated all of the varieties at Adams 73. We have moved in our first load of honey bees, with a plan to receive the rest in the next 5 days.

We started our nitrogen applications last week on the earlier varieties when scattered bloom started to appear. Stevens will be getting a little "N" in the next 48 hours. Fungicide apps will also begin this week.

The next few weeks we will have the fertilizer booms going on a daily basis. It time to set some fruit!

### Jeff Hopkins

Adams 73 Cranberry

## Habelman Bros. Tunnel City

Mother nature has been giving us some interesting weather. We have been working around the rain trying to get our applications of herbicides, fungicides and fertilizer on. We were able to get an application of fertilizer and our second shot of Callisto on last week. The growing degree days are starting to pile up and we are now at 1223 days. Bloom is now at 5-8% and with the warm weather and rain we will be fertilizing heavily in the next couple of weeks. After years of watching the honeybees pollinate other trees, bushes and flowers we have given up on them. We have went with only bumble bees at 3.7 colonies per acre. The frost damage is starting to recover and it doesn't hurt quite as bad to drive around the marsh. GO BREWERS!!!

### Steve Schoonover

Team Habelman

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