

Cranberry Crop Management Journal

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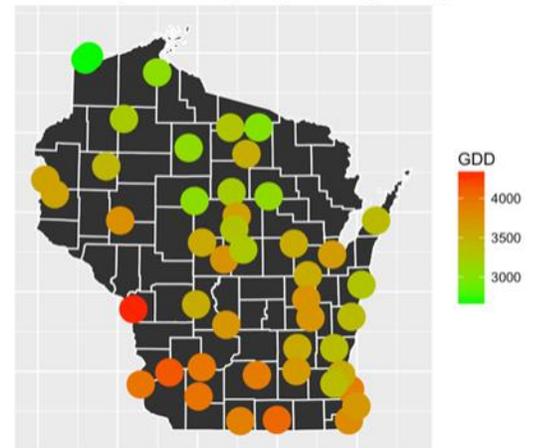
CRANBERRY PLANT AND PEST DEGREE DAYS – SEPTEMBER 12, 2018

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

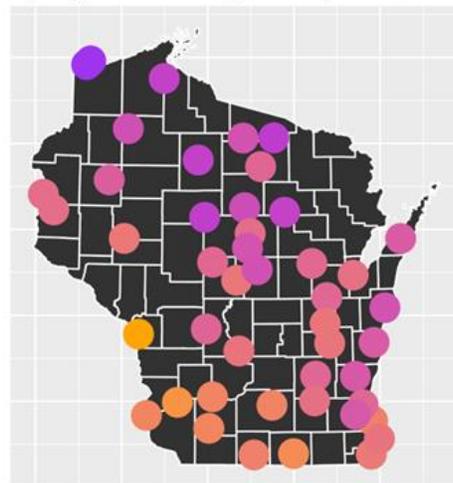
Check out the maps below for the degree-days of the cranberry plant and associated pests.

Recall that degree-days are calculated based on the daily high and low temperature accumulations and that they vary by species according to species specific temperature thresholds. Developmental thresholds for each species are: cranberry plant - 41 and 85°F; sparganothis fruitworm - 50 and 86°F; and cranberry fruitworm - 44 and 87° F.

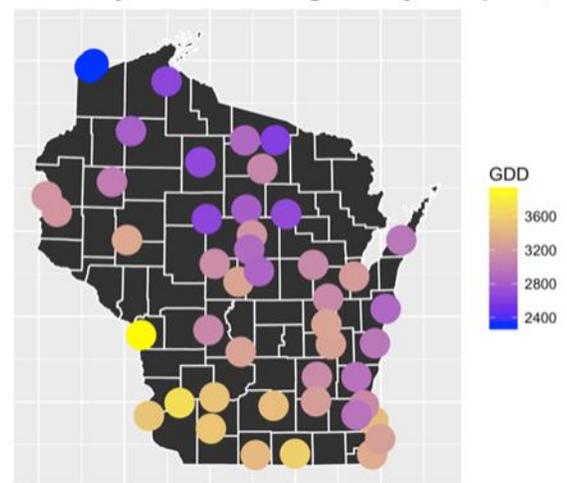
Cranberry Growing Degree Days: Sept 11, 2018



Sparganothis Degree Days: Sept 11, 2018



Cranberry Fruitworm Degree Days: Sept 11, 2018



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Use the table below to compare degree-day accumulations for all three organisms across the last couple of years and between Northern and Central WI.

	Sept 11			Cranberry DDs			Sparg DDs			CFW DDs		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
<i>Northern WI (Minocqua)</i>	3207.7	2819.2	3333	1968.6	1612.1	2131.7	2773.1	2390.4	2919.9			
<i>Central WI (Wisconsin Rapids)</i>	3833.8	3463.6	3798.1	2495.4	2145.6	2547	3363.6	3000.8	3368.7			

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PHEROMONE LOADING IN CRANBERRY INSECT LURES AND TRAPPING DATA

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There has been repeated questioning in recent years of whether certain lures provide valid, reliable trap-counts. To provide some answers for the key moth pests being tracked by Wisconsin growers and consultants, we examined the pheromone loads within lures purchased from the four primary suppliers and compared them to trap-catches in the field.

We examined lures for the sparganothis fruitworm (SFW), blackheaded fireworm (BHF), and cranberry fruitworm (CFW). The lures included in our study were manufactured by ISCA Technologies, Scentry, and Trécé and AgBio.

Sparganothis fruitworm lures: The SFW lures have the most straightforward comparison between pheromone loading and trap-catches. While the necessary attractive component (E-11:14Ac) is present in each of the lures we examined, the amount varied

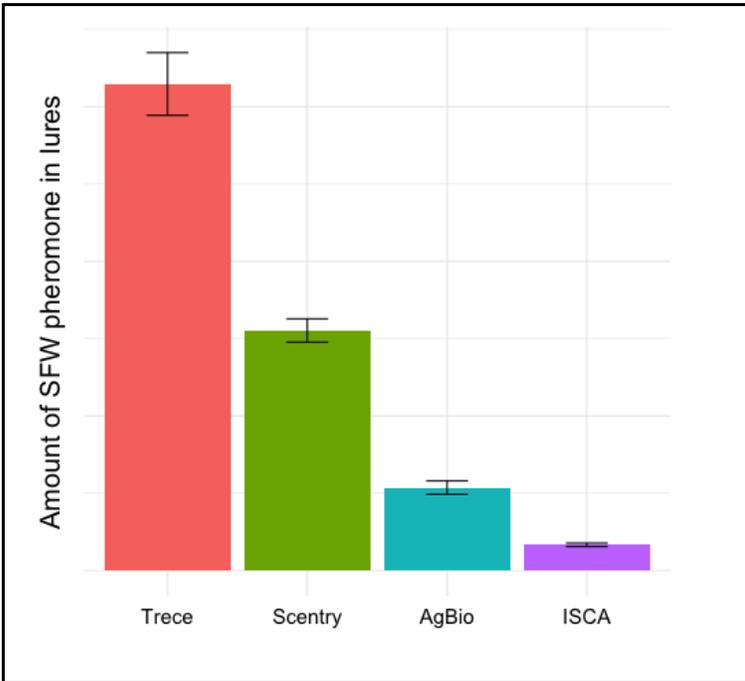


Figure 1a. Relative amounts of SFW pheromone found in lures made from four different manufacturers.

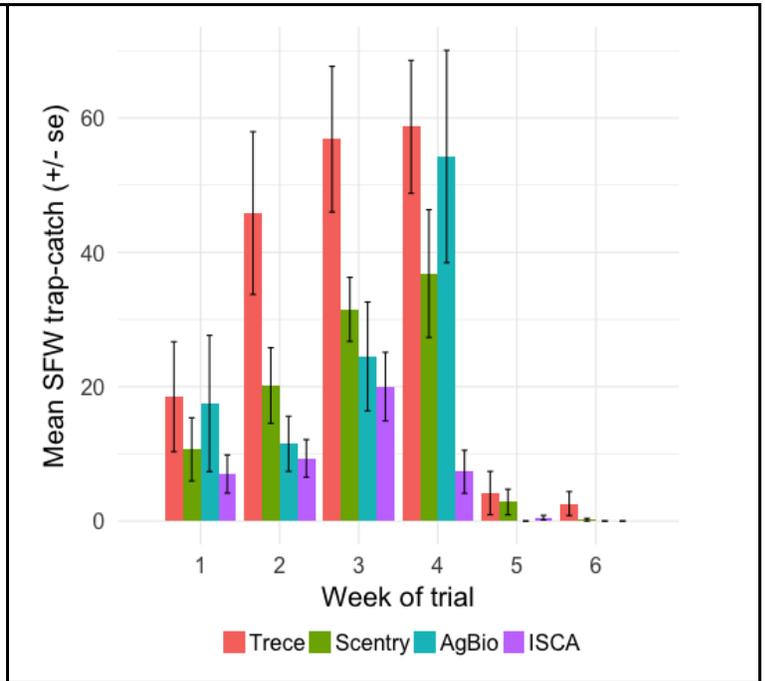


Figure 1b. Mean number of sparganothis fruitworm moths found in traps baited with lures from each of the four companies, over six weeks.

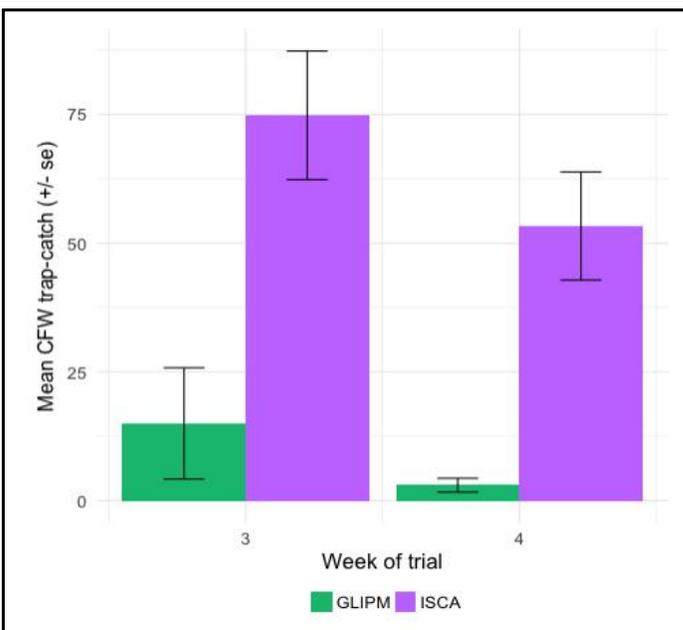


Figure 2. Mean number of cranberry fruitworm moths found in traps baited with lures from two companies, over two weeks.

significantly depending on the manufacturer (fig. 1a): Trécé lures had significantly more pheromone, followed by Scentry, AgBio and then ISCA. These differences translated readily to differences in trap-catch data from the field (fig. 1b). Traps baited with Trécé lures caught more SFW moths in most weeks. However, there are no clear trends that emerge between trap-catches from the other 3 companies.

Cranberry fruitworm lures: This summer, the only consistent manufacturer of CFW lures was ISCA technologies. Great Lakes IPM briefly manufactured and sold them, but quickly decided not to continue selling them because they noted that their pheromone was not produced correctly. Our trap-catch data clearly shows this discrepancy (fig. 2), and the lab work confirms this as well: we didn't find any of the necessary CFW pheromone components in the GLIPM lures that were analyzed. Fortunately, the ISCA lures have been loaded appropriately this year.

Blackheaded fireworm lures: Blackheaded fireworm lures are loaded with either a 2- or 3-compound blend. While there is not yet a definitive answer as to which combination of pheromones makes for the most attractive lure, there is evidence to show that the 3-component blend is more attractive, particularly when the populations are low (Fitzpatrick and Troubridge 1992). The 2-component blend consists of (Z)-11:14OH and (Z)-9:12Ac, and the 3-component

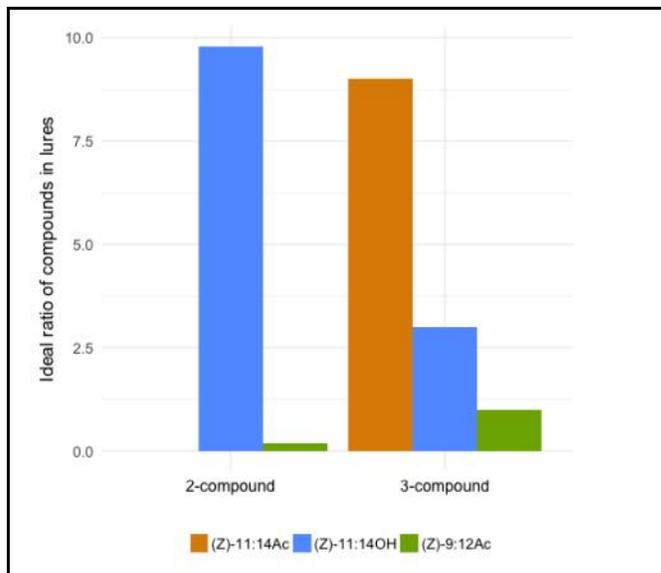


Figure 3. Blackheaded fireworm lures can be loaded with either a 2- or 3 component blend effectively. However, in order for either blend to be effective, the compounds must be loaded in particular ratios. In the 2-compound blend, the ratio is 98:2 [(Z)-11:14OH: (Z)-9:12Ac] and in the 3-compound blend, the ratio is 9:3:1 [(Z)-11:14Ac: (Z)-11:14OH: (Z)-9:12Ac] (McDonough et al. 1987, Slessor et al. 1987).

blend includes the addition of (E)-11:14Ac. Regardless of whether a 2- or 3-component blend is used in the lure, the ratio of the components is just as important as which blend is used (fig. 3).

The manufacturers from which we purchased BHFw lures differ in which pheromone blend they load. AgBio and Scentry use the 3-component blend while Trécé uses the 2-component blend. ISCA intends to load the 3-component blend but most of the time their lures miss the additive compound (fig. 4a).

Regardless, for BHFw there is no consistent difference in trap-catch in the field based on manufacturer (fig. 4b). While in most weeks, Scentry traps tend to catch more moths, there is no statistical difference in trap-catch based on lure brand. This apparent lack of difference in trap-catch may be why there are conflicting results in the literature.

We will be testing lure loading again this winter for each of these moth species and manufacturers. We hope that by doing so, and comparing them to the loading and trap-catches from the 2018 season, growers and consultants will be able to make educated decisions about which lures to buy.

Many thanks are due to Jayne Sojka (LadyBug IPM), Dani Faber (Cutler Cranberries), Lindsay Wells-Hansen and Ben Tillberg (OceanSpray) for assistance with the field trapping trial. Funding for this work was provided by the Wisconsin Cranberry Board and Cranberry Institute.

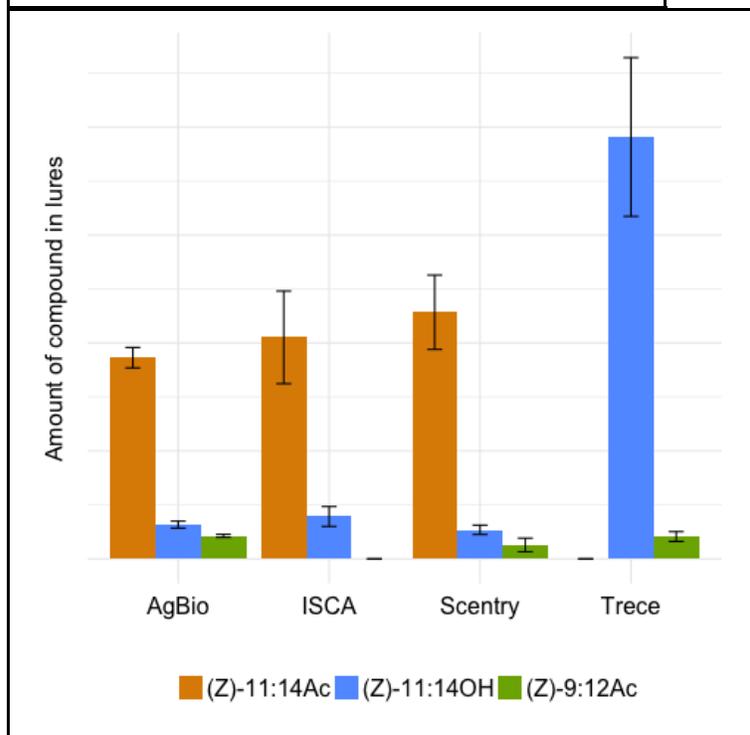


Figure 4a. Relative amounts of BHFw pheromone and components found in lures made from four different manufacturers.

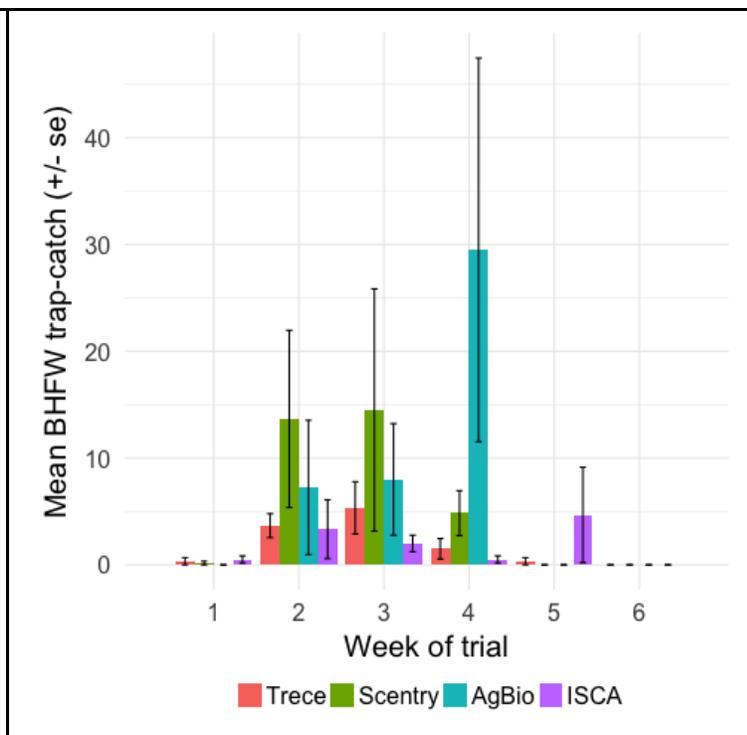


Figure 4b. Mean number of blackheaded fireworm moths found in traps baited with lures from each of the four companies, over six weeks.

Works cited

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- McDonough, L. M., H. G. Davis, and S. Voerman. 1987.** Blackheaded fireworm: laboratory and field studies of its sex pheromone. *Journal of Chemical Ecology* 13(5): 1235-42.
- Slessor, K. N. et al. 1987.** Sex pheromone of blackheaded fireworm, *Rhopobota naevana* (Lepidoptera: Tortricidae), a pest of cranberry. *Journal of Chemical Ecology* 13(5): 1163-70.

GROWER UPDATES

GAYNOR CRANBERRY COMPANY

Fall is definitely in the air. The leaves are starting to turn, the air is crisp, and the berries are turning that beautiful deep red color. We have completed our soil and tissue samples for the year and will be analyzing the results over the winter months to make a plan for 2019. Although the recent rains brought devastation to some areas of our state, we were happy to have some rain here in Cranmoor after a dry and warm summer. Our reservoirs are full in preparation for harvest. We are also making our final arrangements for the 2018 harvest. The berry boxes are on the trucks, the harrow is set up, the cleaner is tuned up, and the crew is raring to go! It looks like we will begin picking up some of the hybrids this week. We will also be keeping a close eye on the other varieties to ensure we harvest them at the optimum time for color and quality. This time of the year is very exciting and usually comes with its challenges as well. I hope for a safe and bountiful harvest for all the growers and hopefully mild weather through October. The cranberry harvest is one of the most beautiful harvests-take some time to enjoy the view!

Happy Harvest! Go Pack Go!

Jenna Dempze

JAMES POTTER CRANBERRY MARSH

You know harvest season is upon us when Labor Day comes and goes, school starts and the days finally start cooling down. Our summer ended with a bang, by getting large amounts of rainfall and winds. We lucked out and didn't get nearly as much flooding and wind damage as others, but still had to deal with the damage it caused. Definitely counted our blessings this time around!

The last couple weeks and going forward, we will be working on all our harvest equipment. Getting our berry pump and harrow tuned up, along with all the other equipment we use during harvest. We are going to run our pump for a neighboring marsh beginning mid-September, then start our harvest early October. Good luck to you all and Happy Harvest!

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