

Wisconsin Fruit News

Volume 2, Issue 12 – September 15, 2017

In This Issue:

General Information: Nearing the end of the 2017 season page 1 Plant Disease Diag. Clinic update page 1 Berry Crops: Organic insecticides for spotted wing drosophila control page 2 Grapes: Wine and table grape developmental stages page 3

Tree Frons:	
Peach leaf curl and plum poo	kets
	page
Apple maturity index report	

page 10

page 8
Calendar of Events:

General Information

Nearing the end of the 2017 season

We are reaching the end of the 2017 summer season, and are getting ready to begin wrapping up the Wisconsin Fruit Newsletter for the fall. **We expect to have our final issue for this fall in three weeks on October 6**th. Following that, we will publish supplementary issues later this fall, summarizing data from grape and apple maturity indices, and the findings from our brown marmorated stink bug and spotted wing drosophila monitoring programs.

Fritt 8 11 1 81 8

We hope you have enjoyed the newsletter this summer!



UW-Madison/Extension Plant Disease Diagnostic Clinic (PDDC) update

By: Brian Hudelson, Sean Toporek, and Ann Joy

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from Aug 26, 2017 through Sept 8, 2017.

PLANT/ SAMPLE TYPE	DISEASE/ DISORDER	PATHOGEN	COUNTY
Apple	Root/Crown Rot	<u>Phytophthora</u> sp., <u>Pythium</u> sp.	Shawano
Currant	Septoria Leaf Blight	<u>Septoria</u> sp.	Bayfield
Grape	Phomopsis Cane and Leaf Spot	Phomopsis viticola	Dane

For additional information on plant diseases and their control, visit the PDDC website at <u>pddc.wisc.edu</u>. Follow the clinic on Facebook and Twitter @UWPDDC.

Organic insecticides for spotted wing drosophila control: Entrust and Grandevo By: Janet van Zoeren and Christelle Guédot

Entrust and Grandevo are two OMRI (Organic Materials Review Institute) certified insecticides, which are available for use against spotted wing drosophila in organic raspberry production in Wisconsin. As there are only few organically approved insecticides with efficacy against spotted wing drosophila, it is extremely important for organic growers to be cognizant of rotating insecticide modes-of-action to avoid insecticide resistance among spotted wing drosophila. Along with Entrust and Grandevo, which are covered in more detail below, another option available for an organic rotation is Pyganic (Insecticide Resistance Action Committee (IRAC) group 3A, pyrethoids). For additional information specific to organic raspberry control of spotted wing drosophila, you can read the Michigan State University extension publication "Integrated Strategies for Management of Spotted Wing Drosophila in Organic Small Fruit Production", available online at: http://www.ipm.msu.edu/uploads/files/SWD/MSU Organic SWD factsheet.pdf.

Insecticide: Entrust (for caneberries)

- IRAC group 5 (Spinosyns)
- Available as 80WP (80% AI, Wettable Powder) and 2SC (2 lb AI, Soluble Concentrate)
- Restricted re-entry interval (**REI**): 4hours
- Pre-harvest interval (PHI): 1 day
- Minimum interval between applications of 5 days
- No more than 2 consecutive applications of Entrust
- No more than 6 applications per season
- Maximum of 0.45 lb of active ingredient (spinosad) per acre (for WP and SC combined)
- Recommended rate of use per acre: 2 oz. of 80WP or 6 fl. oz. of 2SC

Entrust is registered for use in Wisconsin on caneberry crops, including raspberries, blackberries, and loganberries. It is marketed by Dow AgroSciences® under the formulations 80WP (80% active ingredient as a Wettable Powder) and 2SC (2 lb of active ingredient per gallon as a Soluble Concentrate). Entrust is a naturalyte insect control product that is OMRI approved and contains the active ingredient Spinosad. Spinosad is biologically derived from the fermentation of *Saccharopolyspora spinosa*, a naturally occurring soil bacteria. Entrust is in the class of the Spinosyns (IRAC code 5). Its mode of action is primarily on the nicotinic acetylcholine receptors, causing excitation of the insect nervous system which leads to muscle contractions, paralysis, and eventually death. Entrust is most effective through ingestion of treated plants but also has highly effective contact activity.

As well as caneberries, entrust is registered for use on strawberries and bushberries (including blueberry, currant, gooseberry, and elderberry). Along with providing control of spotted wing drosophila, Entrust is effective against Lepidopera pests, such as fruitworms, leafrollers, and armyworms, and sawflies. Refer to the label for specific rates and regulation for other berry crops and pests other than spotted wing drosophila.

Entrust may be applied by ground equipment, chemigation, and by air. See the label for specific application recommendation and regulations for each method.

Entrust is toxic to bees exposed to treatments for three hours following treatment. As a precaution, avoid applying any pesticide during bloom when bees are flying. Entrust is toxic to aquatic invertebrates and must not be applied directly to water.

As always, make sure to read the label before using any pesticide. You can find the labels of Entrust at the following link for Entrust 80WP <u>www.cdms.net/ldat/ld62B024.pdf</u> and for Entrust 2SC <u>https://assets.greenbook.net/15-38-19-20-07-2017-D02-399-007_Entrust_SC_Specimen_Label.pdf</u>

Grandevo from Marrone[©] Bio Innovations is a biological insecticide/miticide containing the active ingredient *Chromobacterium subtsugae* strain PRAA4-1^T. *Chromobacterium subtsugae* is a bacterium commonly known as AchromacilTM that functions primarily as a stomach poison. It works by creating complex modes of action and control is achieved by unique combinations of repellency, oral toxicity, reduced egg hatch, and reduced fecundity. It is OMRI approved.

Insecticide: Grandevo (for caneberries)

- Available as 30WP (30% AI, Wettable Powder)
- Restricted re-entry interval (REI): 4hours
- Pre-harvest interval (PHI): 0 days
- Recommended rate of use per acre: 3 lbs.
- Dilutent: In Ground and Air, use at least 10 gallons total mixture per acre. In Chemigation, use 0.1– 0.3 inches water per acre

Grandevo is registered for use on caneberries (including raspberry, blackberry, and loganberry), as well as strawberries and bushberries (including blueberry, currant, gooseberry, and elderberry). Along with providing control of spotted wing drosophila, Grandevo has shown effectiveness against leafrollers, fruitworms, armyworms, aphids, and thrips. Refer to the label for specific rates and regulation for other berry crops and pests other than spotted wing drosophila.

Grandevo may be applied by ground equipment, chemigation, and by air. See the label for specific application recommendation and regulations for each method. When mixing with water, do not mix more than 24 hours before use, and add ³/₄ of the desired quantity of water before adding the Grandevo.

Thorough coverage of infested plant parts is necessary for effective control of spotted wing drosophila, as well as of other insects and mites.

Note that this product is not toxic to bees but repels them for up to 4-6 days after spraying. It is toxic to certain non-target arthropods and aquatic invertebrates, and should not be applied directly to water.

As always, make sure to read the label before using any pesticide. You can find the label of Grandevo at the following link <u>https://marronebioinnovations.com/wp-content/uploads/delightful-</u>downloads/2017/03/GRANDEVO_SpecimenLabel_NoBioLogo_2013_03_web.pdf, and specific information for use of Grandevo against spotted wing

drosophila in caneberries *at* <u>https://marronebioinnovations.com/wp-content/uploads/delightful-</u> downloads/2016/12/GRANDEVO-2ee-Recommendation-to-Suppress-Spotted-Wing-Drosophila-in-Caneberries.pdf

Grapes

Wine and Table Grape Developmental Stages for Sept 14 2017

By: Janet van Zoeren, Annie Deutsch, Jean Riesterer-loper, Jacob Scharfetter and Amaya Atucha

At the West Madison Agricultural Research Station (WMARS), we began wine grape harvest this past week with Brianna cultivar white wine grapes. The other white wine grape cultivars will be harvested in the next two weeks, while the red wine grapes will be ready to harvest by the end of the month. Most of the table grape cultivars have been harvested.

We have now also started sampling and measuring sugar and titratable acidity at the Peninsular Agricultural Research Station (PARS), on Marquette and Brianna cultivars. At PARS berries are expected to be ready to harvest toward the end of the month.

Sugar (Brix) and TA (titratable acidity) concentrations as of September 13th are shown in the chart below, along with graphs to track their progression throughout the ripening period.









Following photos taken on Sept 11th at West Madison Agricultural Research Station.





La Crescent at WMARS; "berries not quite ripe" E-L number = 37



La Crosse at WMARS; berries with intermediate sugar level" E-L number = 36



Marquette at WMARS; "berries not quite ripe" E-L number = 37



Frontenac at WMARS; "berries not quite ripe" E-L number = 37



St. Croix at WMARS; "berries not quite ripe" E-L number = 37

Following photos taken on Sept 13th at Peninsular Agricultural Research Station.



Brianna at PARS; "berries not quite ripe" E-L number = 37



La Crescent at PARS; "berries with intermediate sugar level" E-L number = 36



La Crosse at PARS; "berries with intermediate sugar level" E-L number = 36



April 1 - Sept 13, 2017	Grape Growing Degree Days		
	2107	2016	
WMARS	2340	2713	
PARS	1846	2147	

The growing degree-day accumulations as of September 13^{th} for this year are: 2,340 GDD at WMARS and 1,846 GDD at PARS. Door County continues to fall behind Dane County in terms of growing degree-days. At both locations, we are several weeks behind the degree-day accumulation from 2016. Degree-days are calculated using a base of 50°F, starting on April 1st as a biofix.



Peach leaf curl and plum pockets

By: Sara Thomas-Sharma and Patricia McManus

About the pathogen:

Several species of the fungus *Taphrina* causes deformation in leaves, stem, and fruits of *Prunus* species. The fungus survives the winter on twigs and bud scales and infection takes place in spring during bud break, during periods of cool, wet weather. The deformed tissues harbor fungal spores that are released and spread by splashing rain or irrigation water.

Symptoms:

In peach and cherry, leaf curling is first observed as yellow or reddish areas on developing leaves (Fig.1A). This is followed by puckering of these areas until eventually a white coating of fungal spores may be visible. The infected leaves can drop, consequently affecting fruit set. Leaf drop can also increase the susceptibility of the tree to winter damage. Direct infection of fruit may occur, although this is rare. In plum, symptoms associated with leaf infection are often less conspicuous. Fruit infection, however, is common (Fig. 1B). In addition to being distorted, infected fruit are enlarged with spongy, hollow centers. Over time, the fruit shrivel, turn black or brown and fall to the ground.



Management:

- 1. A single fungicide application in spring before bud break can prevent peach leaf curl and plum pockets. Applying a fungicide in the fall, after leaves have dropped, is also effective. Because the fungus persists on bark and in bud scales, spray volume must be sufficient to thoroughly wet twigs and branches. Effective fungicides include chlorothalonil, copper (e.g., Bordeaux mixture), and ferbam.
- 2. Since the fungus survives on the bark and in bud scales, removing leaves will not control disease. Pruning symptomatic shoots is also not highly effective, because spores also reside in apparently healthy tissues.
- 3. Some resistance is observed in certain peach varieties. For example, varieties derived from cultivar Redhaven is known to be more resistant than those derived from Redskin.

More information:

UW-Extension fact sheet on peach leaf curl: <u>http://hort.uwex.edu/articles/peach-leaf-curl/</u> 2017 Midwest Fruit Pest Management Guide: <u>https://ag.purdue.edu/hla/hort/pages/sfg_sprayguide.aspx</u>

Apple maturity index report – Sept 13th 2017

By: Janet van Zoeren and Amaya Atucha

In Dane and Richland County they have begun harvesting this week. Samples were only taken in Richland County, were flesh firmness ranged from 11.7 - 16.1 lbs and soluble solids ranged from 10.3 - 13.9%. These values have not changed much from last week to this week. Unlike previous sampling dates, this week seeds were nearly all at "100% dark brown" (rating of 4 - ripe), and starch staining was all at a rating of 6 (entirely light in color, indicating all starch has been converted to sugar). At Door County, sampling has just begun. Images of the starch staining of Honeycrisp at Door County are shown at the end of this article, demonstrating that maturity there is around three weeks behind maturity in the southern part of the state.

The average and range values of these maturity indices are shown in the chart, graphs and images below.



Sept 13, 2017

Richland Center:

	Weight (g)	Firmness (lbs)	Soluble solids (%)	Seed color	Starch Index
Average	172	13.0	11.5	3.95	6.0
Range	108 – 253	11.7 – 16.1	10.3 - 13.9	3 - 4	All at 6

Iodine starch staining patterns:

Richland County:



Iodine starch-staining pattern for Honeycrisp from Richland County: samples taken (from left to right) on Aug 24, Aug 30, Sept 7, and Sept 13.

Door County:



Iodine starch-staining pattern for Honeycrisp from Door County samples taken Sept 8.

Aug 30



Iodine starch-staining pattern for Honeycrisp from Dane County: samples taken (left to right) on Aug 24, Aug 30, and Sept 6.

Calendar of Events

There are no upcoming events at this time. If you have anything to add to the calendar, please contact the editors (see below).

Edited by: Christelle Guédot, Entomology Specialist, UW-Madison and Amaya Atucha, Horticulture Specialist, UW-Madison. *Formatting by*: Janet van Zoeren, Fruit Crops Extension Intern, UW-Extension. Articles provided by other sources as attributed. Funding provided by the University of Wisconsin-Extension. *Email Questions to*: vanzoeren@wisc.edu.

The Wisconsin Fruit News is a publication of the University of Wisconsin-Extension Program, which provides statewide access to university resources and research so the people of Wisconsin can learn, grow and succeed at all stages of life. UW-Extension carries out this tradition of the Wisconsin Idea – extending the boundaries of the university to the boundaries of the state. No endorsement of products mentioned in this newsletter is intended or implied. The University of Wisconsin is an equal opportunity provider and employer.

If you have any questions or comments about the Wisconsin Fruit News issues, please contact Janet van Zoeren: vanzoeren@wisc.edu.