

# Wisconsin Horticulture Update Summary, July 17, 2015

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## WI WEATHER REVIEW

Brief hot humid weather at the start of the week was followed by cooler and drier conditions. A complex of strong to severe thunderstorms on July 13 produced damaging winds, heavy rainfall and large hail in western and southern Wisconsin for the fourth Monday in a row. In some of the wettest areas, the latest round of rain led to additional flooding, fieldwork delays, and declines in crop conditions. After the storms cleared, drier weather with comfortable temperatures and lower humidity values prevailed until showers returned later in the week. The seasonable mid-July temperatures promoted continued development of summer crops and maintained overall positive crop prospects. More than 29% of the state's soybeans are blooming and 96% of the oats crop is heading. Despite minor declines in some areas due to surplus moisture and storm damage, crop ratings remain very favorable with 81-95% of corn, potato and soybean acres reported in good to excellent condition. (Issue No.13 of Wisconsin Pest Bulletin)

Average soil temperatures at 2" as of July 18, 2015: Hancock 77.7, Arlington 80.7  
([http://agwx.soils.wisc.edu/uwex\\_agwx/awon/awon\\_seven\\_day](http://agwx.soils.wisc.edu/uwex_agwx/awon/awon_seven_day))

### Growing degree days (GDD)

Growing degree days is an accumulation of maximum and minimum temperature averages as related directly to plant and insect development. This week, the  $GDD_{mod50}$  in Wisconsin ranged from 840 to 1435. Following is a list of DD as of July 15, 2015 for the following cities: Appleton-1146 Bayfield-840; Beloit-1425; Big Flats-1265; Crandon-923; Crivitz-969; Cumberland-1130; Eau Claire-1275; Fond du Lac-857; Green Bay-1044; Hancock-1265; Hartford-1098; Juneau-1219; LaCrosse-1435; Lone Rock-1227; Madison-1336; Medford-1025; Milwaukee-1031; Port Edwards-1223; Racine-1018; Sullivan-1098; Waukesha-1098; Wausau-1056. To determine the GDD of any location in Wisconsin, use the degree day calculator at the UW Extension Ag Weather webpage:

[http://agwx.soils.wisc.edu/uwex\\_agwx/thermal\\_models/many\\_degree\\_days\\_for\\_date](http://agwx.soils.wisc.edu/uwex_agwx/thermal_models/many_degree_days_for_date)

To put it in perspective, following is an abbreviated list of plant and insect phenological stages in relation to GDD accumulations at which events occur (Ohio State BYGL and <http://www.entomology.umn.edu/cues/Web/049DegreeDays.pdf>): **Dogwood borer, adult emergence, 830**; oakleaf hydrangea, first bloom, 835; **cottony maple scale, egg hatch, 851**; panicle hydrangea, first bloom, 856; **fall webworm, egg hatch (first generation), 867**; **mimosa webworm, egg hatch (first generation), 874**; fuzzy deutzia, full bloom, 884; **winged euonymus scale, egg hatch, 892**; **spruce budscale, egg hatch, 894**; winterberry holly, full bloom, 897; **squash vine borer adult emergence, 900**; panicle goldenrain tree, first bloom, 924; June bride littleleaf linden, first bloom, 953; azalea bark scale, egg hatch, 957; **Japanese beetle, adult emergence, 970**; rosebay rhododendron, first bloom, 1,010; June bride littleleaf linden, full bloom, 1,115; bottlebrush buckeye, first bloom, 1,158; Ural falsespirea, first bloom, 1,170; panicle goldenrain tree, first bloom, 1,251; Rose-of-Sharon first bloom, 1,347; **pine needle scale egg hatch-2nd generation, 1,349**; **euonymus scale-2nd egg hatch, 1,923**.

## WI CROP PROGRESS AND CONDITION

Copy and paste the following link into your browser to find weather review and reports from around the state for the last two weeks.

[http://www.nass.usda.gov/Statistics\\_by\\_State/Wisconsin/Publications/Crop\\_Progress\\_&\\_Condition/2015/WI\\_07\\_19\\_15.pdf](http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Crop_Progress_&_Condition/2015/WI_07_19_15.pdf)

# INTRODUCTION

The host for today's WHU was Joe Muellenberg from Dane County; PDDC Director Brian Hudelson was the specialist participant and also gave a synopsis of insect activity for PJ Leisch. Christelle Guédot was the special guest giving an update on Spotted Wing Drosophila (SWD). Participants in today's discussions were representatives from the following counties: Dane (Joe Muellenberg), Douglas (Jane Anklam), Eau Claire (Erin LaFaive), Pierce (Diana Alfuth), Portage (Walt), Rock (Christy Marsden), Walworth (Chrissy Wen), Washburn/Sawyer/Burnett (Kevin Schoessow).

# HORTS' SHORTS

Agents report the following issues to be of interest this week:

Eau Claire County: We have similar problems as everyone else. We had reports about maples with purple bordered spots, anthracnose, and spindle gall. We are walking people through the cosmetic disorder talk for those. We have had mostly plant ID questions this week. We have had lots of rain. The weather seems off since peas are just setting pods. We are harvesting them along with peppers. We haven't had too many insect calls but our news station reported that pest control companies had contacted them and told them that wasp control calls were higher this year. That surprised me because we haven't had too many calls about wasps. *Comment from Christy: Our local news station also called me and asked if wasp populations were higher.*

Dane County: We have had many early blight calls, at least 10 in the last month. Other concerns are maples with chlorosis, powdery mildew on cucurbits, and bacterial cankers on fruit trees. EAB is going strong.

Douglas County: This has been an easy year so far insect pest-wise. We consider this season cool and wet. Tomato diseases are slowly starting. Some heat for the bell peppers would be nice. We have had mostly tree questions.

Pierce County: Leaf blights are common. We had a "largest weed" contest at the fair. Chlorosis is occurring due to rain inhibiting nutrient uptake and washing nitrogen out of the soil.

Portage County: We have had confirmation of SWD here. I will wait to publish the find until we get a second confirmation. EAB is here and tree issues are a concern. We have had lots of rain.

Rock County: There is not much different from last week. We are still getting a lot of tree questions. We have seen Septoria on tomatoes and some maples are showing early signs of tar spot.

Walworth County: Mosquito populations are high and millipedes are still everywhere. We have received confirmation on the Asian crazy worm ID from the DNR. Bernie Davis expects we will see more of them. I am working on getting a quick post out to the Wisconsin Gardener facebook page. I will keep the worm in a jar at my office for show and tell since they are so similar to normal earthworms. Septoria and leaf diseases are affecting tomatoes.

Washburn/Sawyer/Burnett Counties: Trees are still the big concern here. Hail damage 2 years ago is still impacting conifers and we have put out press releases regarding Diplodia shoot blight that our forest health expert confirmed. We have apple tree decline with branch dieback and bark splitting. I would like to send Brian some samples just to make sure nothing is going on, because people want to spray something. Do we have a winter injury fact sheet?

*Comment from Brian: Go ahead and send samples because we are seeing a lot of dieback as well, especially in the fruit crops. We are not finding a lot of pathogens though. This is the first week I have actually found an apple sample with fireblight. We have a fact sheet on winter burn but it is geared more toward evergreens.*

Woolly and alder aphids are secreting honeydew all over. We have dodged the bullet so far regarding blights because of our cool weather, but changes in the weather patterns may change that. SWD was found last week and we are getting confirmed observations from backyard growers with small raspberry patches finding larvae in fruit. It surprised me because these are back in the woods. We are now working with blueberry growers for SWD management. Other concerns are pantry pests.

# SPECIALIST REPORT: Insect Diagnostic Lab Update

Presented by Brian Hudelson for P. J. Liesch, Assistant Faculty Associate, UW-Madison Department of Entomology, and Manager of the UW-Extension Insect Diagnostic Lab [pliesch@wisc.edu](mailto:pliesch@wisc.edu)

- Japanese beetles are out and this year's population appears higher than last year. They are out on roses and grapes, but not .
- Magnolia scale is significant this year, but the vulnerable (to control) juvenile stage is out in August.
- Woolly, apple and alder aphids are active.
- Reports of wasps and yellow jackets, both above and below ground, are coming in. The best time to take care of the nests is before they get big.
- SWD is here and you should be checking your raspberries.

# SPECIALIST REPORT: Plant Diagnostic Disease Clinic

Presented by Brian Hudelson, Sr. Outreach Specialist, UW-Plant Pathology, and Director of the UW-Extension Plant Disease Diagnostics Clinic (PDDC) [bdh@plantpath.wisc.edu](mailto:bdh@plantpath.wisc.edu)

We are having a banner year. Our sample volume is up 35% over last year already. Leaf diseases are common, a lot of anthracnose is around on a variety of trees and shrubs. We saw angular leaf spot on strawberry, cucumber and pepper, as well as iris leaf spot (the most common disease on iris) and oak leaf blister. TMV and CMV were diagnosed on more tomato samples with a relatively weak reaction, and also CMV on cucurbits. Garlic was diagnosed with Leek Yellow Strip as well as Bloat Nematode.

## Angular and Common Leaf Spot on Strawberry

Angular leaf spot is bacterial disease that forms angular spots on leaves. You can identify this by holding the leaf up to the light and looking for very light yellow spots that are delimited by the veins. Common leaf spot has roughly circular ¼ inch spots with a bleached center and darker ring around the edge.

## Oak Leaf Blister

This fungal disease is related to Peach Leaf Curl. The sporulating fungus produces structures that look like bags of granulated sugar on the underside of the leaf and these hold the spores.

<http://plantclinic.cornell.edu/factsheets/oakleafblister.pdf>

## Fusarium oxysporum on Asparagus

This asparagus sample came in with crown rot. *Fusarium oxysporum* makes beautiful lavender colonies when grown in culture. Oftentimes it is a vascular pathogen, but in this case it caused crown rot.

## Leek Yellow Strip and Bloat Nematode on Garlic

A garlic sample had Leek Yellow Strip fungus which causes blocky, blotchy yellow spots on the leaf blade. The same grower submitted a garlic sample that had stem and bulb (bloat) nematodes. These destructive nematodes burrow into the bulb and cause dry rot.

# Questions

## Interesting Rust Case

*I saw an interesting case of rust sporulation on crabapple fruit. There were little protrusions on the fruit. Is that something you have seen?*

Yes. Cedar-Apple Rust belongs to a large family of rust diseases. It is more common to see sporulation on the leaves, but sometimes it is on the fruit. Was it a true apple tree?

*It was a stressed crabapple.*

Where we see this on fruit, it is usually caused by the variant Cedar Quince Rust and readily goes to hawthorn fruits. You get spiny, salmony colored fruit. There is a great example of a hawthorn with sporulation right outside Russell Labs.

### Blueberry Diagnosis

*Do you have an update on the blueberry sample we sent in?*

It had some leaf spot, but no cankers on the stems or root rot were found. There was some interveinal yellowing which could be indicative of a fertility issue.

*We did see some sunken areas on the twigs, with marginal browning on the leaves, sudden leaf drop, followed by death of the bush. These bushes are 5 years old and just starting to bear.*

The grower may want to check the soil pH and also make sure he is watering enough. Try to persuade him to send in more samples for a free follow-up.

*There are healthy plants in the orchard but there are these affected plants and more are showing symptoms. He is fairly knowledgeable.*

There may be nematode pressure, so you should send in a soil sample to the Nematode Diagnostic Lab. It is the same address as my lab, but address it to the Nematode Diagnostic Lab.

### Oak Sample Diagnosis

*Is there anything new about the oak sample diagnosis and whether it is oak wilt or anthracnose? The customer had an arborist look at it and they treated it for anthracnose for two years, but now the arborist says it is oak wilt.*

Nothing new yet, but we are retesting for oak wilt. The sample arrived yesterday. The browning on the leaves did look like anthracnose. We could do a more definitive PCR test where we look for the DNA of the wilt fungus with larger branches, about 2 inches in diameter. With a larger sample, I could also look for two-lined chestnut borer which can cause dieback.

## SPECIAL TOPIC: Spotted Wing Drosophila Update

*Presented by Christelle Guédot, Assistant Professor in Horticulture and Fruit Crop Specialist for UW-Extension*

Christelle gave an update on the status of SWD in Wisconsin this year and what projects are going on to monitor it and determine the phenology. She will send a slide presentation later.

### Review of SWD Detection and Impact

The insect was first detected in California in 2008. Since then, only 4 states do not have confirmed populations; Arizona, Nevada, New Mexico and South Dakota, although I think one of those probably has confirmed the presence.

It is estimated that crop losses are \$720 million/year with \$130-170 million being spent on control. The economic impact is huge.

In Wisconsin, first detection of adults has been pretty consistent the last three years. Up until this year, our first detection was always in Vernon County. This year that grower did not send in any samples.

- 2013- June 24
- 2014- June 30 in Vernon County, but for the first detection they did not send samples  
In Wisconsin, 33 counties had confirmed populations and 9 had suspected populations by the end of 2014.
- 2015- June 28 in Pepin County and June 29 in Dane County
  - July 8- Iowa County
  - July 10- Burnett County, Door County,
  - July 11- Tomah

- July 15-Washburn County
- July 16-Portage County

Waushara County is suspected. We are currently awaiting confirmation for Vernon and Pierce County this year.

I am not sure we are doing such a great job catching the first flies so we are trying to involve a lot of people. It may actually be everywhere, but in counties where people don't grow a lot of fruit there just may not be anyone monitoring and reporting it. We can't say it isn't in those counties; just that we don't have anyone looking for it. Alternative hosts are mulberry, honeysuckle, and dogwood and many other things.

## Current Research Efforts

### First Detection Monitoring Project

We are conducting a monitoring project for first detection throughout the state and involving growers and others in the effort. We have an intern who in charge of the monitoring so we can determine phenology. This is a new invasive species so we are trying to figure that out. We are monitoring first detection, peak population, and last observation. Our intern has been out for a couple of weeks, which is why some of the growers dropped out, but now she is back on top of it. If you have suspected SWD, we want to hear about it.

Our website has detailed recommendations on monitoring, sampling, and how to rear the larvae to adults. We used to recommend rearing the larvae out in ziplock bags, but we find the larvae drown in the liquefying berries. It is better to put the lightly crushed fruit in a ziplock container. Cut out the inside of the lid and put cheesecloth or mesh over the top of the container under the lid. Then invert the container and raise it up a little bit so that the liquid drains away. With this method, most of the larvae make it to adulthood. You can send us a picture or the adult flies. You can also send us the fruit to rear out the larvae, but we don't want to be doing that with a lot of fruit, because we have lots of experiments going on.

<http://labs.russell.wisc.edu/swd/>

### Effect of Landscape

We also have a Masters student researching the effect of the landscape. For instance, how much woods are in proximity to the cultivated area or what hosts besides cultivated crops are present. We are seeing numbers both high and late in wooded areas. I am not surprised that Kevin is getting reports of people finding the flies in their backyard patches as the woods have lots of alternative hosts.

We have observed that we first detect adults 1-2 weeks earlier if there are lots of wooded areas. Even though they are detected earlier, it doesn't seem to make a big difference in populations. The population curve of the flies in wooded or cultivated areas is comparable once the season ramps up. It was very interesting to find out that even though we saw them earlier it made no difference in populations. Good news for me.

*Comment from Kevin: We were out to a blueberry grower and he had purchased the pheromone traps. He never did get them placed in his orchard, but just left them on his deck about 200 yards from his blueberries. We looked in the traps and they were loaded only with fruit flies, including SWD. We have been using the yeast/sugar traps and catching all kinds of things, but the pheromone traps are really specific. He had the traps out for a couple of weeks and they weren't really even near a fruit crop. It's just a matter of time before SWD is ubiquitous.*

*Christelle: We did a bait comparison a couple of summers ago and were using the Trece pheromone traps. That is where we found the least non-target species. The numbers of flies caught with yeast/sugar is similar to the pheromone traps even though they catch more non-target species. The pheromone traps cost more than making yeast/sugar traps but they don't catch more SWD, so we are sticking with the yeast/sugar.*

*The lab where I did my post-doc researched the chemicals in wine and vinegar which elicited an antennal response from SWD. It is that antennal response that directs the flies to the food source. Those chemicals also attract other drosophila species, but they are specific to fruit flies in general. Did the grower put apple cider vinegar or water in the bottom?*

*Kevin: I am pretty sure it was apple cider vinegar.*

*Christelle: It works better with apple cider vinegar. So if people ask you what to use, apple cider vinegar works better. It is also easier to remove the flies from that solution than for the yeast/sugar bait.*

## Phenology

We started trapping in May last year, but we didn't see anything in Dane County until July 15. The numbers are low (<20 flies/trap) until mid-August. The numbers build up slowly. The peak is mid-August until the end of September, but the standard errors are big because some traps have very few flies and some catch hundreds or thousands. The very peak was the third week of September where the average was 250 females/200 males per trap but sometimes there are thousands of flies in the traps and we don't know why there is that difference. We don't know if farmers are doing some control or just letting it go, or if there are other crops in the vicinity. All of those factor into the fly density. There are usually more females than males and the number declines until late October. But even though there is no more fruit then, we are still catching flies in traps. These traps were in raspberries and still catching flies even though there was no fruit. On November 11 of last year we still had 20 flies in the trap even though there was snow on the ground and the bait was frozen. We were still trapping on November 25 and the yeast/sugar bait was a popsicle but the population had crashed and we didn't get any flies. We put yellow sticky cards in the traps as well. We surmised that the population had crashed by November 18. Last year was the first year we went all the way through the season until we didn't catch any more flies and that was in mid-November. Then we didn't get anything in the spring, which makes sense if the population crashes. We also can't separate generations; eggs, larvae, and adults exist concurrently.

We don't know what happens in the winter, but we do expect that they are overwintering here. There is a winter morph which is bigger and darker than the summer morph. Wisconsin has the perfect climate to see it, with our moderate summer temperatures. If it is too hot, then you don't see the winter morph. The winter and summer morphs can be distinguished by looking at the banding on the abdomen; it is all black on the winter morph. We also saw a difference in the ratio of summer to winter morphs as the season progresses. In July and August, we see 100% summer morph. The autumnal equinox triggers a change when the photoperiod and temperature change. In September we see 25% winter morph, in October we see 90% winter morph, and by November, we see 100% winter morph. The adults do not transform from summer to winter morph, but eggs laid in September by the summer morph will hatch into winter morphs.

Besides determining when the winter morph shows up, we have lots of questions on how the winter morph survives the winter. For the winter morphs, we don't know if the females are fully mated with mature eggs and come out in the spring ready to reproduce or if they just have fat reserves with no eggs to hold on through the winter. We know that the 50% mortality for summer morph is 20-30 days at 34°F, but the 50% mortality for the winter morph is 180 days at 34 °F

## Susceptible Hosts

We are also testing which hosts are susceptible to SWD. We have tested wine grapes, which are not as good a host as raspberry. If the grapes are damaged, the eggs will develop all the way to adults but they develop slower than in raspberries. There has to be a crack or a spot where the stem is removed for them to be able to pierce the fruit. My graduate student did trap flies in the vineyards, but she didn't find them in the grapes. Growers do not need to take control action even if flies are around if they have intact berries. They should check some grapes and see if there are larvae before they spray. We are going to test table grapes this fall. For table grapes, the skin is thinner so it may not be the case that they are unable to lay eggs.

We also know that they will infest aronia berries because growers have reported them, but our tests used purchased berries that had been separated from the stems so there were wounds. Now we are looking to see if the flies infest undamaged berries for both aronia. We are also testing some tart cherries.

## Monitoring and Management Information

### Source for Traps

Great Lakes IPM sells the Trece traps, but they also sell Scentry traps which are a refinement on the Trece traps. They cost about \$6/trap, but work very well. There is another trap called the Suzuki Trap from Europe, which is actually a bait, but is not yet available commercially. It has a similar yeast/sugar bait. Great Lakes IPM is trying to bring that bait here to sell. All of them are based on the vinegar/wine, yeast/sugar chemicals.

## SWD Slides, Webinar, and Videos

My slides have management information. Cornell and Minnesota have recommendations for homeowners of a list of insecticides that homeowners can buy. Entrust® or spinosad products (such as Captain Jack) are the best for homeowner use. Hardcore chemicals are carbamates or organophosphates.

The intern we are sharing with Lisa Johnson did a talk for master gardeners and she is going to turn that talk into a webinar which will be available to everyone. It will have all the information I have talked about with recommendations for different crops. She will also do some videos on how to make traps, how to sample the fruit for larvae, and how to identify SWD.

## Questions/Comments

### Douglas County SWD Confirmation

*Do you still want to confirm the SWD observation in Douglas County?*

Yes, please tell where it has been found every year. We report locations weekly on the SWD website.

*How should we send the samples for confirmation?*

It is easier for us if you rear the flies, but we can also do that if you are in an unconfirmed county. Send the fruit overnight in a ziplock bag in a box. If you have adults, put them in a vial with ethanol and ship them to us. For confirmation of the female (since they don't have spots on the wings), you need to microscopically examine the ovipositor. You can also send a digital picture if it is an adult make since they have the spot on the wing. Females are a little harder since you need to see the ovipositor, but we did have a grower who sent in a good picture of a female. Pictures of the larvae don't help us because all drosophila larvae look the same. We now have an email address you can send it to so everyone can see it. PJ can also confirm the identity.

### Game Changing Insect

*This insect is a game changer and our growers have been caught off guard. We really need to do a lot of outreach to educate people on the life cycle, phenology, and control. Control and management options are a tough sell because we recommend spraying when raspberries are in fruit or flower. All products impact the bees to varying degrees. It will take a while to educate our clients. This is a real bummer because raspberries are the second most popular backyard fruit next to apples. I am looking forward to the webinar.*

I will also get the slides to Brian to post and you are welcome to share them with anyone.

## FINAL NOTES and ANNOUNCEMENTS

On July 24, Joy Schelble from Iron County will host and the special topic will be "Attracting Bees", presented by Christy Stewart of the UW-Madison Department of Horticulture.

On July 29 at 4 pm there will be a vineyard walk at the West Madison Ag Station.

The full audio podcast of today's and archived WHU conferences can be found at <http://fyi.uwex.edu/wihortupdate/>

## UW LINKS

Wisconsin Horticulture webpage <http://hort.uwex.edu>

UW Plant Disease Diagnostics webpage <http://labs.russell.wisc.edu/pddc/>

UW Insect Diagnostic Lab <http://www.entomology.wisc.edu/diaglab/>

UW Turfgrass Diagnostic Lab <http://labs.russell.wisc.edu/tdl/>

UW Vegetable Pathology Webpage <http://www.plantpath.wisc.edu/wivegdis/>

UW Vegetable Entomology Webpage <http://www.entomology.wisc.edu/vegento/people/groves.html#>

UW-Extension Weed Science <https://fyi.uwex.edu/weedsci/>

UW-Extension Learning Store <http://learningstore.uwex.edu>

UW Garden Facts <http://labs.russell.wisc.edu/pddc/fact-sheet-listing/>

## WHU “OFF THE AIR”

During this past week specialists have commented on these issues off the air: None

## Vegetable Crop Update

Vegetable Crop Update Newsletters #21, #22, and #23 are available at <http://www.plantpath.wisc.edu/wivegdis/>

Topics in issue #21 (July 9, 2015) include:

- Late blight updates- First report in Wood Co. on potato

Topics in issue #22 (July 14, 2015) include:

- Early blight updates
- Late blight DSVs and updates (first detection in Marquette Co.)
- Cucurbit downy mildew updates
- Hancock ARS Potato Field Day agenda

Please continue to communicate new detections to me or your county agent. My lab (as well as the UWEX clinic) can offer free diagnostics and genotyping. This information is very useful in better understanding the epidemic for best management.

Topics in issue #23 (July 18, 2015) include:

- Early blight updates
- Late blight DSVs and updates (all late blight is US23 so far)
- Cucurbit downy mildew updates

## PDDC UPDATE

### ***UW-Madison/Extension Plant Disease Diagnostic Clinic (PDDC) Update***

*Brian Hudelson, Sean Toporek, Catherine Wendt, Claire Wisniewski,  
Jessica Bouchard 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 July 11, 2015 through July 17, 2015.*

<b>PLANT/SAMPLE TYPE</b>	<b>DISEASE/DISORDER</b>	<b>PATHOGEN</b>	<b>COUNTY</b>
<b>DECIDUOUS WOODY ORNAMENTALS</b>			
Lilac	<a href="#">Anthracnose</a>	<i>Gloeosporium</i> sp.	Milwaukee
Maple (Unspecified)	<a href="#">Powdery Mildew</a>	<i>Oidium</i> sp.	La Crosse
Oak (Swamp White)	<a href="#">Anthracnose</a>	<i>Discula</i> sp.	Dane

	<a href="#">Chlorosis</a>	None	Dane
Oak (Unspecified)	Monochaetia Leaf Spot	<i>Monochaetia</i> sp.	Dane
	Oak Leaf Blister	<i>Taphrina caerulescens</i>	Manitowoc
	<a href="#">Tatters</a>	None	Manitowoc
Pear (Callery)	Sphaeropsis Canker	<i>Sphaeropsis</i> sp.	Milwaukee
Spirea	<a href="#">Root/Crown Rot</a>	<i>Rhizoctonia</i> sp., <i>Fusarium</i> sp.	Waukesha
Willow	Dothiorella Canker	<i>Dothiorella</i> sp.	Sheboygan
<b>FRUIT CROPS</b>			
Blueberry	Gloeosporium Leaf Spot	<i>Gloeosporium</i> sp.	Washburn
Grape	Black Rot	<i>Phyllosticta ampellicida</i>	Green
Pear	Black Rot	<i>Sphaeropsis</i> sp.	Dane, Waukesha
	Cytospora Canker	<i>Cytospora</i> sp.	Dane
	Frogeye Leaf Spot	<i>Sphaeropsis</i> sp.	Waukesha
	Phomopsis Canker	<i>Phomopsis</i> sp.	Dane
Strawberry	Angular Leaf Spot	<i>Xanthomonas fragariae</i>	Columbia
	Common Leaf Spot	<i>Mycosphaerella fragariae</i>	Columbia
<b>HERBACEOUS ORNAMENTALS</b>			
Iris	Iris Leaf Spot	<i>Heterosporium iridis</i>	Waukesha
<b>NEEDED WOODY ORNAMENTALS</b>			
Pine (Scots)	<a href="#">Brown Spot</a>	<i>Mycosphaerella dearnessii</i>	Winnebago
Spruce (Black Hills)	<a href="#">Rhizosphaera Needle Cast</a>	<i>Rhizosphaera kalkhoffii</i>	Marathon
Spruce (Unidentified)	<a href="#">Rhizosphaera Needle Cast</a>	<i>Rhizosphaera kalkhoffii</i>	Winnebago
<b>VEGETABLES</b>			
Asparagus	<a href="#">Root/Crown Rot</a>	<i>Fusarium oxysporum</i>	Waushara
Cucumber	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Portage
Garlic	Cucumber Mosaic	<i>Cucumber mosaic virus</i>	Waukesha
	Leek Yellow Strip (Suspected)	<i>Leek yellow strip virus</i>	Waukesha
	Stem and Bulb (Bloat) Nematode	<i>Ditylenchus dipsaci</i>	Waukesha
	Tobacco Mosaic	<i>Tobacco mosaic virus</i>	Waukesha
Onion	<a href="#">Downy Mildew</a>	<i>Peronospora destructor</i>	Fillmore (MN)
	Stephylium Leaf Blight	<i>Stemphylium</i> sp.	Fillmore (MN)
Pepper	Bacterial Spot	<i>Xanthomonas</i> sp.	Washington
	Syringae Leaf Spot	<i>Pseudomonas syringae</i>	Washington
Pumpkin	Cucumber Mosaic	<i>Cucumber mosaic virus</i>	Jefferson
Squash	Cucumber Mosaic	<i>Cucumber mosaic virus</i>	Jefferson
Tomato	Bacterial Canker	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	Sheboygan, Waushara
	Cucumber Mosaic	<i>Cucumber mosaic virus</i>	Green, Oconto, Sheboygan
	Fusarium Wilt	<i>Fusarium oxysporum</i>	Waushara

	<u><a href="#">Root Rot</a></u> <i>Tobacco Mosaic</i>	<u><i>Pythium</i> sp. <u><i>Tobacco mosaic virus</i></u></u>	<i>Sheboygan</i> <i>Green,</i> <i>Oconto,</i> <i>Sheboygan,</i> <i>Walworth</i>
	<i>Tomato Spotted Wilt</i>	<u><i>Tomato spotted wilt virus</i></u>	<i>Iowa, Oconto</i>

For additional information on plant diseases and their control, visit the PDDC website at [pddc.wisc.edu](http://pddc.wisc.edu).