

Wisconsin Horticulture Update Summary, July 10, 2015

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WI WEATHER REVIEW

An approaching cold front brought cooler and drier weather to the state early in the week. Daytime high temperatures remained unseasonably brisk in the 60s to mid-70s, while lows declined to the 40s and 50s. Locally severe storms with torrential downpours accompanied the cooling trend, and in the River Falls area of northwestern Wisconsin, thunderstorms overnight on June 6 dropped 7.3 inches of rain that caused flooding, road closures and significant crop damage. The average rainfall for the entire month of July in River Falls is 4.4 inches. Strong storms also impacted northeastern Wisconsin late Monday afternoon where four tornadoes damaged barns, crops and farm buildings in Oconto, Shawano and Waupaca counties. Standing water from the latest round of storms has left many corn and soybean fields submerged, and will likely favor disease development later in the season. (Issue No.12 of Wisconsin Pest Bulletin)

Average soil temperatures at 2" as of July 11, 2015: Hancock 75.6, Arlington 77.7
(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 723 to 1284. Following is a list of DD as of July 8, 2015 for the following cities: Appleton-1018; Bayfield-723; Beloit-1283; Big Flats-1132; Crandon-814; Crivitz-847; Cumberland-997; Eau Claire-1133; Fond du Lac-857; Green Bay-920; Hancock-1132; Hartford-977; Juneau-1092; LaCrosse-1284; Lone Rock-1227; Madison-1200; Medford-907; Milwaukee-909; Port Edwards-1093; Racine-895; Sullivan-977; Waukesha-977; Wausau-941. 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

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>): Washington hawthorn, full bloom, 731; **calico scale, egg hatch, 748; greater peach tree borer, adult emergence, 775; rhododendron borer, adult emergence, 815**; northern catalpa, full bloom, 816; mountain laurel, full bloom, 822; **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**; panicked goldenraintree, 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 false-spirea, first bloom, 1,170; panicked goldenraintree, first bloom, 1251; Rose-of-Sharon first bloom, 1347; **pine needle scale egg hatch-2nd generation, 1349.**

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_06_28_15.pdf and

http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Crop_Progress_&_Condition/2015/WI_07_12_15.pdf

INTRODUCTION

The host for today's WHU was Heidi Doering from St. Croix County; PDDC Director Brian Hudelson was the specialist participants. Amaya Atucha, was the special guest giving a presentation on "Cold Hardy Grapes". Participants in today's discussions were representatives from the following counties: Brown (Vijai Pandian), Dane (Lisa Johnson), Eau Claire (Erin LaFaive), Kenosha (Barb Larson), Outagamie (Ann Donnellan), Pierce (Diana Alfuth), Racine (Patti Nagai), Rock (Christy Marsden), St. Croix (Heidi Doering), Walworth (Chrissy Wen), Waukesha (Kristin Krokowski), Winnebago (Kimberly Miller), Washburn/Sawyer/Burnett (Kevin Schoessow).

HORTS' SHORTS

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

Brown County: It has been dry here, and the temps have been in the upper 80's. We need more rain. The grass is starting to brown. Many questions about Septoria, early blight, and nutrient deficiencies on tomatoes are coming in. Powdery mildew is a concern. One client came in with a question about rust disease in his lawn and people are noticing girdling roots on trees.

Eau Claire County: We are finally getting some sun. We expected that our cool wet spring would foster disease problems now. Potato beetle reports of second and third instars are coming in as well as cole crop insects. Cucumber leaf diseases are starting.

Dane County: Some tomato samples with Septoria and early blight on tomatoes have been brought in, but luckily no late blight. We also got a cucumber sample that looked like it had downy mildew but I wasn't able to see any spores on the underside of the leaf. I may be sending that one to Brian. We had a lot of problems with Gypsy moth this year. Our last big outbreak was in 2009. The ever popular Japanese beetle has arrived.

Kenosha County: This has been the week for fruit questions, including wormy apples, sweet cherry pollination problems, and cherry leaf spot. Imported cabbage worm was seen in the demo garden. We have had examples of herbicide damage on ornamentals and vegetables. We are also seeing tree decline resulting from too deeply planted trees and girdling roots.

Outagamie County: We have had no rain here this week and could use some. We are getting questions about tomato problems, including magnesium deficiency in high tunnel grown tomatoes. We are still getting questions about scale and a report of curculios in cherry trees that had spread to other trees.

Pierce County: We had seven inches of rain this last week so we are seeing issues related to flooding. Our longest stretch without rain has been 6 days and that was last week. Tomato diseases are showing up a little early and apple scab is an issue. Chlorosis is occurring due to wet feet and nitrogen deficiency due to leaching. Plant growth took off due to last week's sunny days so we have been getting weed control and ID questions. Our cherry harvest is underway and wild black caps are ready. We have not yet had SWD or Japanese beetles.

Racine: In our teaching garden, the container tomatoes are looking great since they get watered frequently. We haven't had enough rain. The most interesting questions we have had concern cottonwoods and how to stop them from making cotton. The most recent question we had about cottonwoods was whether it was legal to have them. I have been researching municipal ordinances and haven't found any that prohibit cottonwoods. We have had some questions about pruning, composting and about leaf spot diseases and galls on maples, hazelnuts, walnuts and oaks.

Rock County: We have had a lot of difficult diagnoses for tree issues this week. Several honey locust samples came in. We had a willow with some wilt. Not as many Japanese beetles this year. Tomato diseases such as septoria and early blight are here, so it is finally pretty typical for the season. We had a sample of iris leaf spot. There are lots of caterpillars in the cole crops.

Walworth County: Mosquitos are horrible! They are so bad we can't go outside. Millipedes are everywhere and I am waiting for confirmation on a jumping worm ID. Gypsy moths have pupated and are flying around. We had maples with anthracnose.

Waukesha County: Japanese beetles are out and eating the raspberries which were finally fruiting for me. Our lawns are going dormant due to lack of rain, but the weeds are still fine. For insects, we are seeing issues with loopers, potato beetles, and Japanese beetles. Disease concerns are apple scab, bacterial speck and spot, early

blight and maybe anthracnose on tomatoes. We were really wet and the diseases came in, but now we are drying out.

St. Croix County: My report isn't too different from Pierce County except that we didn't have as much rain as them. Farm fields are looking phenomenal. I am getting questions about mildew on grapes and how to manage that to make sure there is good fruit, tomato and pepper fertility and disease, and weed and insect ID. I did have a call about a catalpa wilting and I am thinking it may be verticillium. Wild parsnip is crazy here but the parsnip webworm is eating the flower heads which makes me happy. Raspberries are in full gear commercially, even though I don't have any personally.

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

- Mosquitos are out in force and Wood County reported an observation of our largest mosquito, *Psorophora ciliata*, the gallinipper. They are not common in Wisconsin, but they are three times bigger than regular mosquitos. <http://bugguide.net/node/view/32476>
- Japanese beetles are out and PJ thinks this year's population will be higher than last year. Damage reports haven't been too bad yet, but the season is young. He has seen good numbers on lindens and grapes.
- Brown leucanium scale is in the crawler stage.
- Magnolia scale is out, but the crawler stage won't be here until late August or early September.
- Gypsy moth adults are now emerging.
- Ants and Larder beetles are being reported. If larder beetles are found in homes outside of kitchens their food source may be dead cluster flies, boxelder bugs or Asian lady beetles on windowsills, light fixtures or soffits. <http://ento.psu.edu/extension/factsheets/larder-beetle>
- Cucumber/squash beetles are active.
- Zebra caterpillars have been seen on cabbage and other related cole crops. <http://bugguide.net/node/view/29233>

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

The volume of bacterial diseases in the clinic wowed this week and last, especially on vegetables. We have been seeing a ton of angular leaf spot on cucurbits, bacterial brown spot on green beans, bacterial speck, bacterial spot, and bacterial canker on tomatoes, black rot (*Xanthomonas*) on crucifers and bacterial leaf spot on pepper. We saw several viral diseases including Potyvirus on garlic and hosta with, most likely, tobacco rattle virus (ring spot patterns). We don't do a formal test for Tobacco Rattle Virus but the viral patterns were consistent with tobacco rattle virus and it tested negative for the other viruses we test for. There was a sample of hollyhock rust, an unusual occurrence of tar spot on winterberry and canker diseases. We also had downy mildew on grape and a sample from Marinette County of shepherd's purse (a weed) with downy mildew. We saw a lot of leaf diseases like anthracnose and tubakia leaf spot on oak. Finally, we hit the trifecta of vascular wilts with two positive oak wilt, two positive Dutch elm disease, and 1 confirmed case of verticillium wilt on ash.

Angular Leaf Spot on Cucurbit/Bacterial Brown Spot on Beans

This bacterial disease forms whitish angular spots on leaves. We have been culturing a lot of that in the lab and the colonies glow bluish green under UV lights. A related bacterial disease, bacterial brown spot, affects green beans.

Bacterial Speck, Bacterial Spot, and Bacterial Canker on Tomato

Bacterial Speck also forms fluorescent colonies. Bacterial Spot forms beautiful yellowish, mucoid colonies on a different media. Bacterial canker starts as a vascular pathogen and causes wilting early on but forms stem cankers near the soil line as the disease progresses.

Hollyhock Rust

Hollyhock rust produces hard bumps on the leaves which are the resting spores of the fungus. This sample had angular leaf spots on the older leaves which were a darker color and had sporulation on the underside of the leaf, typical of downy mildew.

Downy Mildew and White Rust on Shepherd's Purse

Shepherd's Purse is a weed in the brassica family. This sample from Wood County was infected with downy mildew and white rust. White rust infects brassicas and forms a little pustule that is filled with white spores. It is actually an oomycete closely related to the downy mildews and water molds like Pythium and Phytophthora.

Questions

Dieback on Willow Mimicking Verticillium Wilt

Would dieback on willow due to a canker disease mimic that of verticillium wilt, where whole branches might die off in a week?

Yes, that could happen, especially on smaller branches in wet weather. Willows are not technically a host of verticillium, but three or four canker diseases are quite common and can mimic the symptoms of verticillium. You may see branches dying back due to localized infection. Check on the major branches for sunken areas on the branches or for fruiting bodies of the canker fungi with a hand lens. I recently saw a photo of a weeping willow that actually had fungal conks forming on the trunk.

Late Blight and Commercial Growers

Did you talk about what impact late blight might have on our potato and tomato growers?

Late blight has been confirmed in the center of the state, but it is not an unusual variant. Our weather has been conducive for that pathogen so it is likely that it will spread. If you see anything remotely suspicious, we will diagnose samples for free. You can send them to me and I will prescreen them for Amanda. We are monitoring the variants (genotypes). If we diagnose late blight, we will send the sample to Amanda for typing. We have been testing a lot of tomatoes for late blight but have not yet diagnosed it on any of the samples. Even if your sample doesn't have late blight, we will diagnose the pathogen and send you a report for free. We have been seeing a lot of Cucumber Mosaic Virus and Tobacco Mosaic Virus, as well as early blight, Septoria, and bacterial canker on tomatoes this year.

I know that is important that our partners monitor and communicate.

It is important because it is so devastating and we need to take appropriate measures to eliminate plants if they are infected.

Resistance of Tomatoes to Viruses

You talked about seeing different viruses on tomatoes. Are there certain tomato varieties that are resistant to viruses?

I don't know. We just get samples in and don't necessarily know what variety we are testing. We have had three samples with the symptoms of stunted growth, some distorted, twisty growth that was a little off color with purplish foliage. We test for six different viruses and these examples tested positive for CMV and TMV, but it could be a cross reaction with the dipstick test. There is some evidence that viruses are out there.

We have a high tunnel grower here that is growing four different varieties and one of the four is not growing well. I was suspicious that it might be viral and am trying to convince the grower to get it tested.

Invoke “late blight” for tomatoes or potatoes and we will diagnose it for free. Just don’t send an oak sample looking for free diagnosis or I will call you!

Possible Basil Downy Mildew

We have some basil in our demo garden in Kenosha that is exhibiting pale leaves with a little purpling but no fuzzy spores on the underside.

Send it in for free diagnosis. We are tracking Basil Downy Mildew, Impatiens Downy Mildew, and Cucurbit Downy Mildew and will do all of those for free. We are especially interested in Cucurbit Downy Mildew because of the potential for a huge impact on production. I personally also want to keep track of Basil and Impatiens Downy Mildew.

If that isn’t the problem, what other possibilities are there?

We did have a sample I would have sworn was Basil Downy Mildew, but we couldn’t find any sporulation. We suspected phytotoxicity from something they sprayed because we saw purpled foliage but normal tissue on leaves that had been overlapped and were untreated. When that comes in we will see what we can find.

Control Options for Bacterial Pathogens

What options are available to treat for bacterial infections?

With bacterial pathogens, it is best to treat before you see symptoms. Copper containing products labelled for the host plant are what I recommend. Oftentimes, bacterial diseases on tomatoes are seedborne. Good rotation is important to allow contaminated leaf debris to decay in the soil. If you are concerned about seed-borne bacterial infections, there is a hot water treatment. Email me or I can just provide a link to instructions for that treatment on the podcast for today’s session.

Once we are in the growing season, is copper the only thing? At what point do you tell people to just rogue out the plants? No one likes to hear that.

With bacterial pathogens, the infections can spread to the fruit and then we can’t recommend that people eat them. If no infection is on the fruit, there may be some benefit to applying the copper products. Just make sure you are paying attention to the label and there is enough time to accommodate the treatment to harvest interval.

Milk as a Control Option for Fungal Diseases

An old method for controlling fungal diseases, such as powdery mildew, on cucurbits was to just spray milk on the foliage. What is your formal opinion?

There is some evidence that milk can help control powdery mildew, but I think there are more effective products. There are some cultural things you can do such as thinning the vines, trellising, or spreading out the vines to increase air flow. I don’t see any harm in it if it is giving some control. Just try not to give a food source to some other, more aggressive pathogen.

SPECIAL TOPIC: Cold Hardy Grapes

Presented by Amaya Atucha, Assistant Professor in Horticulture and Fruit Crop Specialist for UW-Extension

Amaya’s talk focused on canopy management for cold hardy grapes. She gets a lot of calls from homeowners and also commercial growers who would like to know how to control the vigorous growth of cold hardy grapes.

Canopy Management

Canopy management encompasses a set of cultural techniques to promote the vine balance between vegetative mass vs. fruit growth to achieve optimal fruit quality. By managing this balance and opening the canopy, the incidence of powdery and downy mildew decreases. Exposing the grape skin to the sun early on results in less disease, more sugar, and better fruit quality. It may also increase yield.

Pruning is done to remove too many shoots and is based on the age of the vine. You should not leave more vine than is needed. Most people overcrop their vines and never get really good quality fruit. Vines younger than 4 years old should not be fully cropped. When vines are older than 4 years, more shoots are removed and more fruit is left. If you don’t leave enough fruit, you will get overproduction of vegetation.

There are a few things that should be done for canopy management (slide 11 shows a schedule of management tasks):

- Shoot thinning (done when shoots are about 18 inches long). Do this early to remove shoots and clusters to keep the vine from wasting energy on shoots that will be removed. Late July or early August is too late for this task. Some growers tell me that some clusters are not coloring up like they should and they are going to remove them, but that is too late. It should be done before bloom or right after fruit set.
- Leaf pulling
- Combing

Shoot Thinning

Properly thinned shoots result in:

- Four to six shoots per 1 foot of cane. This takes one or two minutes per vine.
- Vines that are prevented from overcropping, which increase fruit quality.
- Good airflow to promote drying which reduces disease

Leaf Pulling

Leaf pulling changes the microclimate around the grape clusters while increasing light penetration. It reduces the leaf area to crop ratio.

- 15-18 leaves should be left for every two fruit clusters. Do not do this too early because you need the bigger leaves to feed the developing fruit.
- Do 1-2 weeks after fruit set to avoid sunburn on the grapes.
- You need to see light hitting the clusters. If your grapes are aligned north to south, you should see light from the south on the north side of the vine. The picture on the presentation(Slide 8) shows how to do it right with the clusters exposed and a dappled light pattern.
- Leaf pulling is done mid-June to mid-July.

Combing

Once you have removed the excess vegetative canopy, you will want to comb down the shoots as shown in Slide 5 to expose the grape cluster to more light.

Questions/Comments

Short and Sweet Info Sheet

We have a fair number of people coming in that just don't know how to handle their grapes. Is there an information sheet, not a whole booklet, on how to prune to increase airflow?

The publication "Growing Grapes in Wisconsin" has very good information on training and pruning the vines, but it is not geared to the homeowner. You can probably find one on the web. I would like to work on one with someone for the homeowner.

A visual handout or a Youtube video similar to what it is in the presentation would be helpful.

Comment: There are some Youtube videos from Maine. The challenge is let people know how hard grapes have to be pruned. You need to remove 80% of last year's wood. It is hard to convince people to be so ruthless and that the plant is more than able to sustain itself while losing that much wood.

We struggle with grape questions. We have 'Frontenac' in our teaching garden and even MGVs don't want to do the hard pruning. A fact sheet showing before and after pruning with the canopy thinning and exposing of clusters

would be very helpful. There was a new publication on cultivars that are suitable for homeowners which shows a comparison of seedless winter hardy varieties trialed at the West Madison Ag Station. I am wondering if that information got published. If there is only room for 1 vine in the backyard, people really want to know which one will be sweet and juicy.

The Table Grape Evaluation was done by Sara Patterson at the West Madison Ag Station and since it was supported by a grant, there must be a publication. Some of my recommendations were:

- Somerset seedless, a rosé
- Mars, a blue grape
- Reliant, a pink/rosé grape
- Einset
- Montreal Blue
- Trollhaugen, a blue grape

Comment: Lisa Johnson has the data from the 2011 evaluation at the West Ag Station and will send it to the Ag/Hort listserv.

FINAL NOTES and ANNOUNCEMENTS

On July 17, Joe Muellenberg from Dane County will host and the special topic will be an update on Spotted Wing Drosophila, presented by Christelle Guédot of the UW-Madison/Extension, Department of Entomology.

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 #18, #19, and #20 are available at <http://www.plantpath.wisc.edu/wivegdis/>

Topics in issue #18 (June 26, 2015) include:

- Disease forecasting values for early blight and late blight
- Late blight updates
- Potato blackleg
- Cucurbit downy mildew updates
- Hop updates

- Spotted wing drosophila - first WI detection

Topics in issue #19 (July 2, 2015) include:

- Disease forecasting for early and late blight
- Late blight updates for WI and the US
- Cucurbit diseases and their control
- Cucurbit downy mildew updates from the US

Topics in issue #20 (July 8, 2015) include:

- Disease forecasting for early blight and late blight
- Late blight updates for WI (confirmations in Adams 6/23 and Waushara Cos. 7/7) and the US (several new states reporting)
- Cucurbit downy mildew updates from the US (forecasted risk for pathogen movement getting close to WI's SE border)

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 June 27, 2015 through July 3, 2015.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
DECIDUOUS WOODY ORNAMENTALS			
Catalpa	Phomopsis Canker	<i>Phomopsis</i> sp.	Dane
Crabapple	Apple Scab	<i>Venturia inaequalis</i>	Iowa
Maple (Japanese)	Phomopsis Canker	<i>Phomopsis</i> sp.	Dane
Maple (Unspecified)	Cytospora Canker	<i>Cytospora</i> sp.	Dane
Oak (Bur)	Anthracnose Tubakia Leaf Spot	<i>Discula</i> sp. <i>Tubakia</i> sp.	Portage Portage
Oak (White)	Anthracnose Root Rot	<i>Discula</i> sp. <i>Pythium</i> sp.	La Crosse La Crosse
Serviceberry	Root Rot Sphaeropsis Canker Tubercularia/Nectria Canker	<i>Pythium</i> sp., <i>Rhizoctonia</i> sp. <i>Sphaeropsis</i> sp. <i>Tubercularia</i> sp./ <i>Nectria</i> sp.	Dane Dane Dane
Winterberry	Tar Spot	<i>Rhytisma</i> sp.	Rock
FRUIT CROPS			
Apple	Cedar-Apple Rust	<i>Gymnosporangium juniper-virginianae</i>	Iowa
Blueberry	Gloeosporium Leaf Spot	<i>Gloeosporium</i> sp.	Dakota (MN)
Cherry	Bacterial Canker	<i>Pseudomonas syringae</i>	Iowa,

	Brown Rot Root/Crown Rot	<i>Monilinia fructicola</i> <i>Phytophthora</i> sp., <i>Fusarium</i> sp.	Walworth Walworth Door
Grape	Downy Mildew	<i>Plasmopara viticola</i>	Vernon
HERBACEOUS ORNAMENTALS			
Hollyhock	Hollyhock Rust	<i>Puccinia malvacearum</i>	Grant
Hosta	Tobacco Rattle (Suspected)	<i>Tobacco rattle virus</i>	Marinette
NEEDED WOODY ORNAMENTALS			
Fir (White)	Cytospora Canker <i>Phyllosticta</i> Needle Blight	<i>Cytospora</i> sp. <i>Phyllosticta</i> sp.	Sheboygan Sheboygan
Pine (Unspecified)	Diplodia Shoot Blight and Canker	<i>Diplodia pinea</i>	La Crosse
VEGETABLES			
Cucumber	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Jefferson
Garlic	Unidentified Viral Disease	Unidentified virus	Rock
Green Bean	Bacterial Brown Spot	<i>Pseudomonas syringae</i> pv. <i>syringae</i>	Jefferson
Spinach	Fusarium Wilt Root Rot	<i>Fusarium oxysporum</i> <i>Pythium</i> sp.	Milwaukee Milwaukee
Squash	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Dane
Tomato	Early Blight Septoria Leaf Spot	<i>Alternaria solani</i> <i>Septoria lycopersici</i>	Milwaukee Sauk
Watermelon	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Jefferson

The following diseases/disorders have been identified at the PDDC from July 4, 2015 through July 10, 2015.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
DECIDUOUS WOODY ORNAMENTALS			
Ash (Blue)	Verticillium Wilt	<i>Verticillium</i> sp.	Milwaukee
Cotoneaster	Phomopsis Canker Root Rot	<i>Phomopsis</i> sp. <i>Rhizoctonia</i> sp.	Dane Dane
Elm (Unspecified)	Dutch Elm Disease	<i>Ophiostoma ulmi</i>	Rock
Honeylocust	Phomopsis Canker	<i>Phomopsis</i> sp.	Sauk
Lilac (Japanese Tree)	Sphaeropsis Canker	<i>Sphaeropsis</i> sp.	Milwaukee
Maple (Unspecified)	Cytospora Canker	<i>Cytospora</i> sp.	Dane
Oak (Red)	Anthracnose Oak Wilt	<i>Discula</i> sp. <i>Ceratocystis fagacearum</i>	Lafayette Marathon
Oak (Swamp White)	Anthracnose	<i>Discula</i> sp.	Washington
Oak (Unspecified)	Anthracnose Oak Wilt	<i>Discula</i> sp. <i>Ceratocystis fagacearum</i>	Marathon Rock

	<i>Sphaeropsis</i> Canker Tatters	<i>Sphaeropsis</i> sp. None	Lafayette Lafayette, Rock
Serviceberry	<i>Sphaeropsis</i> Canker	<i>Sphaeropsis</i> sp.	Dane
HERBACEOUS ORNAMENTALS			
Larkspur	Root Rot	<i>Rhizoctonia</i> sp., <i>Pythium</i> sp., <i>Fusarium</i> sp.	Kenosha
NEEDED WOODY ORNAMENTALS			
Arborvitae	<i>Phyllosticta</i> Needle Blight	<i>Phyllosticta</i> sp.	Walworth
Fir (Balsam)	<i>Cytospora</i> Canker Rhizosphaera Needle Cast	<i>Cytospora</i> sp. <i>Rhizosphaera</i> sp.	Shawano Shawano
Juniper	Root Rot	<i>Phytophthora</i> sp., <i>Pythium</i> sp., <i>Fusarium</i> sp.	La Crosse
Pine (Unspecified)	Diplodia Shoot Blight and Canker	<i>Diplodia pinea</i>	Grant
Spruce (Blue)	Rhizosphaera Needle Cast Stigmia Needle Cast	<i>Rhizosphaera kalkhoffii</i> <i>Stigmia</i> sp.	La Crosse La Crosse
Spruce (Green)	Cytospora Canker	<i>Leucocytophora kunzei</i>	Waukesha
Spruce (Norway)	Rhizosphaera Needle Cast	<i>Rhizosphaera kalkhoffii</i>	Crawford
VEGETABLES			
Cabbage	Black Rot	<i>Xanthomonas campestris</i> pv. <i>campestris</i>	Fillmore (MN)
Cucurbit (Unspecified)	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Vernon
Kale	Black Rot	<i>Xanthomonas campestris</i> pv. <i>campestris</i>	Fillmore (MN)
Pepper	Syringae Leaf Spot	<i>Pseudomonas syringae</i>	Rock
Squash (Butternut)	Angular Leaf Spot	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i>	Dane
Tomato	Bacterial Canker Bacterial Speck Bacterial Spot Root Rot Septoria Leaf Spot	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i> <i>Pseudomonas syringae</i> pv. <i>tomato</i> <i>Xanthomonas</i> sp. <i>Rhizoctonia</i> sp., <i>Pythium</i> sp., <i>Fusarium</i> sp. <i>Septoria lycopersici</i>	Outagamie Rock, Waukesha Waukesha Outagamie Dane
WEEDS			
Shepherd's-Purse	Downy Mildew White Rust	<i>Hyaloperonospora parasitica</i> <i>Albugo candida</i>	Marinette Marinette

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.