Wisconsin Horticulture Update Summary, July 24, 2015

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WI WEATHER REVIEW

After lingering showers and storms departed on Monday, drier weather with seasonable July temperatures and low humidity settled over Wisconsin, benefiting summer crops and orchards. A large area of high pressure brought comfortable summertime conditions for much of the week, with high temperatures near average in the mid-70s to lower 80s, and lows ranging from the lower 50s to lower 60s. The dry, warm weather allowed alfalfa harvesting to resume and promoted the development of corn, soybeans and other crops. According to USDA NASS, the haying season continued at the second fastest pace in more than 35 years (following 2012) and condition ratings for the second and third crops remain 83% in the good to excellent range, despite scattered rain and isolated heavy downpours that have interrupted harvesting throughout June and July. (Issue No.14 of Wisconsin Pest Bulletin)

Average soil temperatures at 2" as of July 22, 2015: Hancock 75.9, Arlington 79.9 (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 970 to 1591. Following is a list of DD as of July 22, 2015 for the following cities: Appleton-1146 Bayfield-970; Beloit-1585; Big Flats-1413; Crandon-1044; Crivitz-1109; Cumberland-1262; Eau Claire-1423; Fond du Lac-1271; Green Bay-1189; Hancock-1413; Hartford-1238; Juneau-1362; LaCrosse-1591; Lone Rock-1517; Madison-1490; Medford-1151; Milwaukee-1175; Port Edwards-1365; Racine-1166; Sullivan-1238; Waukesha-1238; Wausau-1189. 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): panicled 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 falsespirea, first bloom, 1,170; panicled goldenraintree, first bloom, 1251; Rose-of-Sharon first bloom, 1347; **pine needle scale egg hatch-2nd generation**, 1349; **euonymus scale-2nd egg hatch**,1923.

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_26_15.pdf

INTRODUCTION

The host for today's WHU was Lisa Johnson from Dane County; PDDC Director Brian Hudelson was the specialist participant and also gave a synopsis of insect activity for PJ Leisch. Christy Stewart was the special guest speaking about "Attracting Bees". Participants in today's discussions were representatives from the following counties: Brown (Vijai Pandian), Dane (Lisa Johnson), Kenosha (Barb Larson), Pierce (Diana Alfuth), Portage (Walt), Rock (Christy Marsden), Walworth (Chrissy Wen), Washburn/Sawyer/Burnett (Kevin Schoessow), Waukesha (Kristin Krokowski and Ann), Winnebago (Kimberly Miller).

HORTS' SHORTS

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

Dane County: We have had calls about Japanese beetles, weed and plant ID, as well as straw bale gardening. EAB and tree-related questions were also fielded.

Brown County: We are very dry and desperately need rain. The lack of moisture is causing blossom end rot and the heat is causing flower drop on peppers and beans. We did have a report of Japanese beetles west of Green Bay, but populations are not as high as in recent years. We have also been getting calls about tree issues with red maples and pin oaks, and a catalpa and Japanese lilac that suddenly wilted. We had a client stop with an EAB larva which was pretty exciting.

Kenosha: We have had more reports than usual for scale insects and I am not sure if we have higher populations or its just more noticeable, or a complication because of the stresses of the last few winters. Because of the scale, sooty mold has also been an issue. We have also been getting calls about lily stalk borers, especially Asiatic lilies. People have actually been able to find the borer in the stalk. We are seeing typical mid-summer issues. Some wilting is occurring due to root rots fostered by the wet conditions earlier in the season with plants now collapsing due to drier conditions.

Pierce County: We have had good moisture this season, never going more than 5 days without rain. The wet conditions have led to lots of fungal issues such as root rots, yellowing plants and leaf diseases. We saw a hawthorn here that was so infested with rust that it looked like a Christmas tree. Weeds, such as hogweed and wild parsnip, are going crazy. SWD is here; I had three calls about this morning. Some growers have just mowed their raspberries down so they don't have to deal with it. We are a little behind in degree days.

Portage County: We have had confirmation of SWD for the third week. We will be rearing some out and sending the flies in for confirmation. We have not seen one Japanese beetle yet. We have had leaf diseases, and I will be sending out a purple-bordered leaf spot sample to Brian. We have been very busy with outreach and put out a press release about wild parsnip.

Rock County: We are still having tree issues such as dieback and some EAB issues. We are seeing spots on tomatoes, but not too much damage. Even though things are drying out, I haven't needed to water except for the containers. We are seeing much more wild parsnip than in years past.

Walworth County: Normal summer flowers such as purple coneflower and black-eyed susan are blooming. We had 2 calls about magnolia scale on redbud. Other issues of concern are EAB, chlorosis on oaks, and Septoria and early blight on tomatoes. Another call was about not getting any tomatoes even though there are blossoms. However, I didn't see any tomatoes at the farmer's market either. We haven't seen one Japanese beetle yet either.

Washburn/Sawyer/Burnett Counties: We had a thunderstorm early today and it was a very timely rain. I think we are set for corn and beans to mature due to that moisture. Crops are looking good. The weather seems normal, but we are about 200 degree days behind. We are getting more calls about leaf diseases on tomatoes and peppers and I sent a sample into Brian for suspected late blight. Trees are still a concern here with apple tree decline and storm damage. For insects, we are seeing seasonal insects such cabbage looper and aphids, as well as SWD. I have been working with mainly small blueberry growers regarding SWD and everyone seems to be paying attention to their crops. It is frustrating not being able to enjoy the crop because of SWD. Carrot family weeds have higher populations this year and we did send out a press release for outreach about them.

Waukesha County: Picking the Japanese beetles off my raspberries is becoming more gratifying than eating the berries. We have been getting tomatoes for the last four weeks, but we only got corn this week and that usually starts by July 4. We are seeing bacterial problems due to the wet weather. Invasive weeds such as crown vetch, hogweed and wild parsnip are going gangbusters. Degree days are less than normal. *Comment from Lisa: We are running 130 degree days below last year based on the Wisconsin Pest Bulletin, which is about 100 degree days lower than normal.*

Winnebago County: We could really use some rain; the last time we had some was the Fourth of July weekend. I think that pulled the corn through but now it is really dry. Questions have been about beans and tomatoes, tree decline, problems with apple fruit, weed and insect ID. Our crown vetch population is up.

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*

- Spotted Wing Drosophila: continuing on the theme from last week's guest, SWD has been popping up in several locations throughout the state. Time to check those berry patches.

- Japanese Beetles: are present in number greater than last year and are causing some damage, although I haven't had any reports of significant damage such as completely defoliated linden or birch trees.

- Gypsy Moth: the adults are out now and I've had reports of males appearing at lights at night, but also flying to females on trees. (Females are unable to fly). It'd be a good idea to keep an eye out for the beige, fuzzy egg masses in the coming months. These can be scraped off of trees, picnic tables, and other sites and destroyed before they hatch next spring.

- Viburnum Leaf Beetle: Marcia Wensing from DATCP had me look at a viburnum sample from a plant in the Menominee Falls area of Waukesha County. There were two old oviposition (egg-laying) pits on a twig and oblong holes on the leaves. This is the first report of VLB from Waukesha County. Larvae of this species are done for the year but the greenish yellow adults should be out by now and can also damage leaves.

A few other things that may be popping up:

- Barklice-unusual insects, the juveniles often have black and white or black and yellow stripes on their bodies and can congregate on the trunks of trees. They feed on lichens and won't harm the trees, but can look alarming.
- Wasps and Yellowjackets-will start picking up in activity in the coming weeks as their colonies are growing in size
- Magnolia Scales-lately I've been getting 1-2 calls per day about Magnolia scales. We've got a WEX factsheet on that one. For control, timing is critical and the vulnerable juveniles are out and active in late August and early September

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

We had a busy week and saw lots of diseases on woody plants. We diagnosed verticillium wilt on catalpa, tubakia leaf spot, and oak wilt on oak. We found anthracnose on oak and sycamore. We had a hydrangea with chlorosis, and a magnolia with growth regulator injury. In fruit crops, we saw another strawberry sample with angular leaf spot. We also had a honeyberry with powdery mildew. Fireblight was confirmed on an apple sample from Oneida County. We have had a few suspected cases of fireblight, but this was the first confirmation of the disease this year. We also saw cherry leaf spot. On ornamentals, we had a case daylily leaf streak, of Hosta Virus X from Milwaukee county, and chlorosis on peony. We also found CMV on a hibiscus from a commercial grower who had thousands of symptomatic plants that he would have to destroy. There is a lot going on with vegetables. Tomatoes are being affected by CMV, TMV, TMSV, as well as Septoria leaf spot and catfacing. We had a couple of onion samples which were affected by downy mildew, purple blotch, and stemphyllium.

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 angular yellow spots that are delimited by the veins.

Cherry Leaf Spot

This fungal disease causes small leaf spots, but may be severe enough to defoliate the tree.

http://www.extension.umn.edu/garden/yard-garden/fruit/integrated-pest-management-for-home-stone-fruit-growers/cherry-leaf-spot/

Powdery Mildew on Honeyberry

Honeyberry is in the Lonicera (Lonicera caerulea) genus, which is susceptible to powdery mildew. For this genus, powdery mildew can infect the plant to the extent that it defoliates.

Downy Mildew/Purple Blotch/Stemphylium on Onion

Downy mildew can be quite destructive to onions with damage occurring quickly. Purple blotch is an Alternaria disease which is visually quite distinctive, causing purple necrotic spots on onion leaves. Stemphylium causes significant dieback and damage.

http://www.ext.colostate.edu/pubs/crops/02941.html

Questions

Suspected Basil Downy Mildew from Kenosha County

Did you find anything on the basil sample from our demo garden? It does seem to be growing out of it.

We didn't find any pathogens, although it did initially look like downy mildew. We could find no sporulation even after incubation and our virus tests were also negative. It looks like a non-disease issue. We had another similar sample this spring where we could find no sporulation, which turned out to be overspray damage.

SPECIAL TOPIC: Attracting Bees

Presented by Christy Stewart, Dept. of Horticulture UW-Extension

Christy also had a powerpoint presentation to go along with this talk which will be posted to the WHU site.

Update on Bumblebees

Research just published last month indicates that the bumble bee range is being narrowed due to climate change. Wisconsin historically had approximately 20 species of bumble bees, but some of them have not been seen recently. Species from the southern part of the state are being pushed northward, but northern species are not migrating northward due to unsuitable vegetation farther north and are being pushed out of their range and disappearing. In some cases, there have been precipitous declines in populations.

Suitable Vegetation

Native v. Non-Native Flowering Species

Native bees prefer native flowering species because they have co-evolved with them. Extension publication G4001, Supporting Native Bees: Our Essential Pollinators, provides a list of some native woody and herbaceous plants in order of flowering time on page 2 of that publication.

Some excellent native forage plants are:

- Pussy Willow-blooms very early in spring and is a great forage plant for early species like the bumblebee queens
- Downy Serviceberry
- Plum and Cherry
- Higbush and lowbush blueberry
- Leadplant
- New Jersey tea
- Carolina and swamp rose
- White meadowsweet
- American basswood

- Steeplebush
- Spotted geranium
- Cream wild indigo
- Wild lupine
- Common spiderwort
- Anise hyssop-a favorite of bumblebees
- White wild indigo
- Purple prairie clover-another favorite of bumblebees
- Purple coneflower
- Wild bergamot
- Prairie spiderwort
- Culver's root
- Butterfly milkweed
- Spotted Joe- Pye weed
- Purple Joe-Pye weed
- Woodland sunflower
- Prairie sunflower
- Prairie blazing start
- Great blue lobelia
- Spotted beebalm
- Riddell's goldenrod
- Stiff goldenrod
- Rough blazing star
- Showy goldenrod
- Smooth blue aster
- New England aster

Some good non-native species are:

- Siberian Squill-flowers very early when there isn't a lot available
- Blanketflower
- Cleome
- Sunflowers
- Magnolias
- Rhododendron
- Russian sage
- Steeplebush and meadowsweet
- Cosmos
- Herbs in the mint family-catnip, rosemary, basil, lavender, oregano
- Other herbs-borage

Cultivars v. Non-Cultivars of Native Species

Breeding cultivars of natives may result in prettier flowers, there is some evidence that cultivars of native species may not be as attractive or nourishing to native bees depending on the characteristic changed. The number of petals may also influence suitability as typically stamens are converted to petals so don't provide any pollen. More petals may make it more difficult to access the nectar or pollen. Or, cultivated varieties of natives may not have pollen at all which makes them less valuable as a food source. If flower color is different than the original species, the new color may not be attractive to bees or the nectar guides may be lost or changed. In the move toward more functional gardens, the focus is on both prettiness and functionality.

Habitat Considerations

Forage Provisioning

In general, choosing plants that flower throughout the season will attract and sustain a greater number of bee species. Some bees are only out for a short time and then go dormant. Some social bees may be active throughout the season. Bumble bees are usually out all season long, but the queens come out of dormancy as soon as it starts warming up and start foraging early in spring. Some bees emerge later in the season. So there is a range of times when bees are out, even within a species. For ones that come out later, the colony may last until the end of the fall and those queens need to find enough food to build their fat reserves to last them through the winter.

Plant any species in at least a 4 ft x 4 ft patch and make sure there are a number of different species flowering at any given time. Having a diversity of flowers will attract the most different species of bees. Which flower is attractive to any given species is a function of tongue length. Tongue length varies among bees and affects the ability to forage.

Do not use pesticides. Alternative methods of insect control are hand picking into a bucket of soapy water or using row covers. If insecticides must be used, use them only on when plant aren't in flower or later in the evening when foraging bees are not out. Early evening is a heavy foraging time for bumblebees. Even then, leaf cutter bees may be affected by foliage sprays because they use leaf pieces to build their nests and provision them. Pesticides on the leaves would affect not only the adults but also the larvae and pupae since they would be surrounded by the leaf pieces.

Nesting Sites

Flowering species are important, but nesting sites are equally so or even more important. Most of our native species nest underground, so it is important to leave some unmulched areas and not to use landscape fabric.

Piles of debris, logs or untidy places furnish nesting sites, as do standing dead trees.

Tippy or hollow stems provide nesting materials for carpenter bees yellow-faced bees. For instance, if you are cutting back raspberries leave about 18 inches and bees will nest in them. A picture on p.4 of the Extension publications shows a raspberry cane which does contain bee larvae. If you provide these or make stem bundles, make sure they are off the ground to keep them from getting wet. There are details on how to make stem bundles in the publications.

Artificial nesting sites may be used, but there is evidence that there is higher predation and disease when they are clustered together. Natural areas make better habitat.

Don't Fear the Bees

Most bees don't sting! Hornets and wasps are responsible for most stings. Social bees will defend their nests and may sting, but most of our 400 identified native species are solitary bees. They did not evolve to defend nests and their stingers are weak or they don't have them.

Information Sources

The Xerces Society website: www.Xerces.org/

Two excellent books:

- Attracting Native Pollinators by the Xerces Society
- Pollinators of Native Plants by Heather Holm

Questions/Comments

St. John's Wort and Butterfly Weed Activity

We have an area that contains St. John's Wort and Butterfly weed. The St. John's Wort is covered with bumblebees, but I only saw honeybees were on the Butterfly Weed eight feet away. Is that a function of the flower type or do bees tend not to forage in the same area?

Bees will forage in the same area, so it most likely is due to flower type. I don't recall seeing bumblebees on butterfly weed. I usually see smaller bees like carpenter bees or sweat bees on butterfly weed. It may be the tongue size of the bees. St. John's Wort has very accessible flowers.

Conflicts Between Species in Foraging Areas

Are there conflicts between species such that one species would forage in an area and others would not come into that area so if you were trying to attract one species it might keep another species away?

No, not really. Differing bee species will forage together in the same area. However there is an invasive species called a Wool Carder Bee (Anthidium manicatum) with males that sometimes aggressively defend a small territory while they wait for the females to approach for mating. The females of that species collect fine hairs from plants such as Lamb's Ear to line their nests. Those bees will defend against other bees and flies by crushing them with the prongs on their abdomens.

http://bugguide.net/node/view/7744

Nativars

Sometimes nativars (cultivars of native plants) are prettier for smaller landscapes than the native species. Can you comment on using those instead? Are they basically equivalent to natives or better than non-natives?

You would have to decide on a case by case basis depending on what characteristic was changed. It is unlikely that the nativar would be better than the native. It is possible that the pollen or nectar was better but I have never heard of that. Changing the color like for coneflowers, might affect visits by pollinators. Typically, changes are made to make them more attractive to us, or possibly disease resistance, but usually not to make them better for the pollinator.

Is physical similarity to the native helpful?

The closer it looks to the native, the more likely it is good. You might just monitor it and see if it gets visited by the pollinators.

Bee Hotels

What is your opinion on bee hotels? A school approached me about building them for the educational value.

One study (and only one so far) has shown that there is higher use by non-native bees, higher predation and higher disease incidence in bee hotels. They need to be disinfected every two years or you can use paper straws and throw them away. They can increase the bee population in a small area and they are fun and educational to do. Watching the bees come in is fascinating, but overall they don't do much to increase the population. But in general, they are a positive thing.

Where should they be placed?

Put them where they will have early morning sun and afternoon shade. You will see mostly leaf cutter bees in bee hotels or you can drill out logs. I watched a leaf cutter bee cut out some circular leaf pieces from ironweed and followed her carry it to the log nest.

If mason bees use the bee hotel, they will line and plug the hole with mud.

Cup plant stems are used by mason bees and yellow-faced bees, but you can tell which bee is using the nest by looking at what it is plugged with:

- Leaf cutter bees plug with leaf pieces.
- Mason bees plug with mud or it might be a solitary wasp
- Coletid bees plug it with a shiny cellophane like secretion

How high should it be?

It doesn't really matter; you just want to keep rain from splashing in. You can put it an overhanging roof over the top of hotel or put it under something. You do need to pay attention to building details for bee hotels; you need the correct depth and width. Female eggs are more valuable so those are laid toward the back of the hole to protect them from predators and male eggs are laid toward the front. If it is too short, only male eggs will be laid. If you

want to increase pollination around your yard, you want to increase the females. Males only feed themselves, but females feed themselves and their offspring so they make more foraging visits. Females are more effective pollinators.

Wasps as Pollinators

Are wasps good pollinators?

There are some that are good pollinators. Bees are more important pollinators especially of crops. Wasps are important pollinators in the tropics, especially of figs. They aren't as good as bees because they aren't usually as hairy so they don't carry as much pollen and don't visit as many flowers. Bees feed themselves and their offspring pollen and nectar but wasps feed their offspring insects even though the adults may feed on nectar.

FINAL NOTES and ANNOUNCEMENTS

- On July 31, Kevin Schoessow from Washburn/Burnett/Sawyer Counties will host and the special topic will be a late season vegetable update, presented by Amanda Gevens and Russ Groves of the UW-Madison Department of Plant Pathology.
- Lisa: August 25-27 is Farm Tech Days held in Dane County at the Statz Farm.

  Barb: Do you need help at FTD?

  Lisa: Yes! Send me an email and I will let you know where we need help.

  Christy from Rock: Send an email to the Hort Team for volunteers. There is no reason why others can't help.

  Lisa: Thanks! I didn't want to put anything else on people.
- Vijai: On August 12, we will hold a half-day Garden Field Day at the Brown County Extension. We will have 5 state specialists here. Details can be found on the Brown County Extension website.
- Lisa: On October 4-6, the Cut Flower Growers will hold a conference in Madison at the Sheraton Hotel. Roy Klehm, Brian, and PJ among others, will be on hand. There will also be a tour. You can find out about it at www.ascfg.org/

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 #24 is available at http://www.plantpath.wisc.edu/wivegdis/

Topics in issue #24 (July 24, 2015) include:

- Early blight updates
- Late blight DSVs and updates (all late blight is US23 so far)
- Onion downy mildew in WI (Rock Co. first report)
- Cucurbit downy mildew updates (Dane Co. first report)
- Diseases of snap beans (bac brown spot and white mold)

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 18, 2015 through July 24, 2015.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
DECIDUOUS WOODY ORNAMENTALS			
Catalpa	Verticillium Wilt	Verticillium sp.	Adams
Cotoneaster	Root/Crown Rot	Pythium sp., Fusarium sp.	Dane
Crabapple	Black Rot	Sphaeropsis sp.	Sawyer
	Root/Crown Rot	Pythium sp.	Sawyer
Hibiscus	Cucumber Mosaic	Cucumber mosaic virus	Dane
Hydrangea	Chlorosis	None	Waukesha
Magnolia	Growth Regulator Herbicide Injury	None	La Crosse
Maple (Unspecified)	Cytospora Canker	Cytospora sp.	Dane
Oak (Red)	Anthracnose	Discula sp.	Waukesha
	Chlorosis	None	Waukesha
	Oak Wilt	Ceratocystis fagacearum	Dane
Oak (White)	Anthracnose	Discula sp.	Dane
Oak (Unspecified)	Anthracnose	Discula sp.	Waukesha
	Oak Wilt	Ceratocystis fagacearum	Jefferson, Waukesha
	Tubakia Leaf Spot	Tubakia sp.	Washington
Sycamore	Anthracnose	Discula sp.	Dane
Apple	Black Rot	Sphaeropsis sp.	Oneida

	Cedar Apple Rust	Gymnosporangium juniperi-virginianae	Iowa
	Fire Blight	Erwinia amylovora	Oneida
	Root/Crown Rot	Phytophthora sp., Pythium sp.	Kenosha, Sawyer
Cranberry	Tobacco Streak	Tobacco streak virus	Monroe
Cherry	Cherry Leaf Spot	Blumeriella jaapii	Rock
Grape	Black Rot	Phyllosticta ampelicida	Dane, Polk
Honeyberry	Powdery Mildew	Microsphaera sp.	Dane
Pear	Root/Crown Rot	Phytophthora sp.	Dane
Strawberry	Angular Leaf Spot	Xanthomonas fragariae	Iowa
	Root/Crown Rot	Fusarium sp.	Iowa
HERBACEOUS ORNAMENTALS			
Daylily	Leaf Streak	Aureobasidium microstictum	Marathon
	Septoria Leaf Spot	Septoria sp.	Marathon
Hosta	Hosta Virus X	Hosta virus X	Milwaukee
Lupine	Root/Crown Rot	Pythium sp., Fusarium oxysporum	Rock
Peony	Chlorosis	None	Waukesha
Vinca	Phyllosticta Leaf Spot	Phyllosticta sp.	Dane
	Sphaeropis Canker	Sphaeropsis sp.	Dane
	Root/Crown Rot	Rhizoctonia sp.	Dane
NEEDLED WOODY ORNAMENTALS			
Spruce (Blue)	Rhizosphaera Needle Cast	Rhizosphaera kalkhoffii	Ozaukee
	Stigmina Needle Cast	Stigmina sp.	Ozaukee
VEGETABLES			
Onion	Downy Mildew	Peronospora destructor	Rock
	Purple Blotch	Alternaria porri	Rock
	Stemphylium Leaf Blight	Stemphylium sp.	Columbia, Rock
Potato	Early Blight	Alternaria solani	Portage
Snap Beans	Ashy Stem Blight	Macrophomina phaseolina	Waushara
	Root/Crown Rot	Fusarium spp.	Waushara
Soybean (Edible)	Root/Crown Rot	Fusarium sp.	Chippewa
	Target Spot	Corynespora cassiicola	Chippewa
Tomato	Catfacing	None	Iowa
	Cucumber Mosaic	Cucumber mosaic virus	Iowa, Grant, Winnebago
	Septoria Leaf Spot	Septoria lycopersici	Iowa, Portage
	Tobacco Mosaic	Tobacco mosaic virus	Iowa, Grant, St. Croix, Winnebago
	Tomato Spotted Wilt	Tomato spotted wilt virus	Grant, St. Croix

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