

Wisconsin Horticulture Update Summary, June 13, 2014

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WI WEATHER REVIEW

Mild, mostly dry weather allowed for continued planting progress and harvest of the spring alfalfa crop. High temperatures were near normal for early June and ranged from the 60s to low 80s, except near Lake Michigan where readings were 5-15°F below normal. Nightly low temperatures were in the 40s and 50s. Moderate to heavy rain developed across southeastern Wisconsin early in the week, but conditions over most of the state were generally dry and overcast. Planting of corn, oats and potatoes advanced to 92-95% complete and more than half of the state's corn and soybean crops have emerged, with 81% of planted acres in good or excellent condition statewide. At this point last year, only 55% of corn acres fared as well. Based on degree-day totals as of June 11 (modified base 50°F), the growing season is now 1-6 days ahead of 2013, though still 3-12 days behind the 30-year normal, depending upon the region of the state (WI Pest Bulletin Volume 59 Number 7 June 12 2014).

Average soil temperatures at 2” as of June 06, 2014: Columbia County-73°F; Wood County-64°F; Portage County-60°F (agwx.soils.wisc.edu/)

Growing Degree Days (GDD)

Growing degree days is an accumulation of maximum and minimum temperatures as directly related to insect and plant development. This week, as of June 12, in Wisconsin, the GDDmod 50 ranged from 291 to 702: Appleton-480; Bayfield-291; Beloit-702; Big Flats-559; Crandon-381; Crivitz-402; Cumberland-437; Eau Claire-530; Green Bay-424; Hancock-559; Hartford-504; Juneau-547; LaCrosse-627; Madison-617; Medfore-417; Milwaukee-472; Port Edwards-529; Racine-465; Sullivan-504; Waukesha-504 (WI Pest Bulletin Volume 59 Number 7 June 12 2014). To determine the Degree Days of any city in Wisconsin, use the Degree Day calculator at

http://agwx.soils.wisc.edu/uwex_agwx/thermal_models/many_degree_days_for_date

The following phenological information gives a perspective on how GDD accumulation relates to some plant and insect development (<http://bygl.osu.edu/>): Sargent crabapple, full bloom, 298; red horsechestnut, first bloom, 304; pine needle scale, egg hatch - 1st generation, 305; cooley spruce gall adelgid, egg hatch, 308; eastern spruce gall adelgid, egg hatch, 308; common lilac, full bloom, 315; 'Pink Princess' weigela, first bloom, 316; blackhaw viburnum, full bloom, 322; redosier dogwood, first bloom, 323; dwarf fothergilla, full bloom, 325; 'Winter King' hawthorn, first bloom, 328; lilac borer, adult emergence, 330; slender deutzia, first bloom, 338; Japanese kerria, full bloom, 342; common horsechestnut, full bloom, 344; red chokeberry, full bloom, 351; doublefile viburnum, first bloom, 353; Pagoda dogwood, first bloom, 363; red Java weigela, first bloom, 365; black cherry, first bloom, 368; common sweetshrub, first bloom, 371; lesser peach tree borer, adult emergence, 372; Ohio buckeye, full bloom, 374; holly leafminer, adult emergence, 375; Vanhoutte spirea, full bloom, 406; euonymus scale (first generation), egg hatch, 406; black cherry, full bloom, 419; Miss Kim Manchurian lilac, first bloom, 422; locust leafminer, adult emergence, 437; doublefile viburnum, full bloom, 444; black locust, first bloom, 467; common ninebark, first bloom, 478; oystershell scale, egg hatch, 497; smokebush, first bloom, 501; catawba rhododendron, full bloom, 503; white fringe tree, full bloom, 517; arrowwood viburnum, first bloom, 534; American yellowwood, first bloom, 546; bronze birch borer, adult emergence, 547; multiflora rose, first bloom, 548; black locust, full bloom, 548; and emerald ash borer, adult emergence, 550. American yellowwood, full bloom, 599; arrowwood viburnum, full bloom, 621; multiflora rose, full bloom, 643; northern catalpa, first bloom, 675; black vine weevil, first leaf notching due to adult

feeding, 677; Washington hawthorn, full bloom, 731; calico scale, egg hatch, 748; greater peach tree borer, adult emergence, 775; rhododendron borer, adult emergence, 815.

INTRODUCTION

Today's WHU host was Dane County Horticulture educator Lisa Johnson. Specialists were PDDC director Brian Hudelson and Interim Director of Insect Diagnostic Lab P.J. Leisch. Discussion participants were representatives of the following counties: Brown (Vijai Pandian); Kenosha (Barb); Pierce (Diana Alfuth); Portage (Walt); Milwaukee (Sharon Morissey); Jackson (Trisha); Marquette (Lyssa Seefeldt); LaCrosse (Steve).

HORTS' SHORTS

County agents reported that weed, plant, and insect identification as well as winter burn of evergreens and deciduous tree branch dieback continue to generate questions. One agent reported that there was a question regarding interior branch dieback without impact to tip growth. Maple galls reported in Brown County. Insect issues included EAB, spittlebug, European sawfly, cutworms in vegetable gardens as well as the emergence of black flies, gnats, and mosquitos. Stunted pepper question was a stumper until further probing revealed the individual had planted the peppers much too deeply. Controlling moss in lawns was an issue in Pierce County. Vole damage was observed by a client in Kenosha County. Adequate moisture was reported by all participants, except for LaCrosse County, where rain was needed. A possible criminal investigation with police involvement was initiated by a client in Portage County who suspected deliberate spraying of oil on arborvitae that were turning black and dying; of 24 trees, only 4 remained alive. There was further discussion with Brian about possible disease candidates with that kind of symptom.

SPECIALIST REPORT: Insect Diagnostic Lab Update

Presented by P. J. Liesch, Interim Assistant Faculty Associate, UW-Madison Department of Entomology, and Interim Manager of the UW-Extension Insect Diagnostic Lab pliesch@wisc.edu

Spiders

Fishing spiders, which are large and scary but not harmful to humans, were submitted. They are often found near water or in the woods. Six-spotted fishing spider (FCPS): <http://www.fcps.edu/islandcreekes/ecology/six-spottedfishingspider.htm>

Another spider sent in for ID was the Parson's spider. They are quarter-sized, with a distinctive white line on the abdomen that is said to resemble the cravats that parsons used to wear. <http://www.insectidentification.org/insect-description.asp?identification=Parson-Spider>

Caterpillars

A beautiful moth, identified as a Linden Looper, was submitted from Eau Claire. As a note, identification is facilitated if the host plant information is included with the submission sample. <http://www.forestry.alabama.gov/lindenlooper.aspx>

Beetles

Fireflies are out.

Aquatic Insects

Caddisflies, a small mothlike insect, have hatched and have a strong attraction to light. To avoid a caddisfly convention on your backporch, turn the light off. <http://bugguide.net/node/view/5233>

Giant Ichneumon Wasp

Giant Ichneumon wasps, one of the largest wasps at 2-2.5 inches long, look a bit terrifying, but are beneficial predators. They have very long ovipositors that are 8-9 inches long so they can deposit their eggs in rotting trees in tree boring insect larvae. <http://www.insectidentification.org/insect-description.asp?identification=Ichneumon-Wasp>

Questions

How do you control ants in the lawn?

The current recommendation is to remove the top of the anthill and apply an appropriate product and water it in, then replace the top of the nest. A specific product was not named as there are numerous effective insecticides available. Diazinon is no longer available. P.J. respond that if the top is removed for a small colony and ants carrying around small white granular objects (these are pupa or larvae) are observed, the middle of the nest has been exposed and product can be directly applied. If the colony is larger, the queen may be 1-2 ft underground and it is most effective to use dowel rods or steel rods to poke channels into the colony to drench insecticide. This was Phil Pelletieri's recommended method and management strategy has not changed.

Have you ever heard of product called Shaklee H?

Lisa asked if P.J. had ever heard of a product called Shaklee H, allegedly an organic ant control product. An attendee (a former salesperson for Shaklee H) claimed it worked by making water wetter and a hose could be used for application, but would not divulge the proprietary ingredients or give any product details. Lisa said she would check, but would not give any recommendation since it has not been vetted scientifically. P.J. replied that he did not know about this product. As a reminder, information that is not supported by peer-reviewed research should be disseminated to the public.

Can carpenter ant infested oak trees be saved?

A client was informed by a pest company that three oak trees were infested by carpenter ants and the client wanted information on saving the trees. P.J. response was that the oaks likely had some heart rot that was attractive as a nesting site to the carpenter ants. A prudent course of action would be to call in professionals who could drill into the trees to reach the soft, rotting wood and apply insecticide to the nest. Another option would be to place gel or granular baits specifically formulated for carpenter ants in close proximity to the tree to attract the ants who would then carry the poison into the nest. This latter option will take a little time to get control. To limit exposure to children or pets, a plastic tub with channels cut in the sides to allow only ant access, can be placed over the bait.

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 PDDC update is attached to the end of this summary.

Lots of canker diseases on woody ornamentals.

Nectria Canker on Honey Locust

Nectria canker was diagnosed on honey locust. Nectria is commonly seen on this host.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Nectria_Canker.pdf

Japanes Maple Dieback due to Verticillium/Winter Injury

There is widespread dieback on Japanese Maples, a lingering effect of drought stress and the harsh winter, with Verticillium involvement. Some Phomopsis canker also seen on Japanese maples.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Verticillium_Wilt_of_Trees_and_Shrubs.pdf

Phomopsis Cankers

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Phomopsis_Tip_Blight.pdf

Fire Blight on Apple and Pear

Confirmed diagnosis of fireblight on an apple sample.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Fire_Blight.pdf

Xanthomonas hortorum on Peony

There is further information regarding the peony sample from last week. A peony sample was submitted with the symptoms of leaf spotting that were similar to, but not Botrytis (grey mold), and general top down dieback of shoots. The diagnosis was a bacterial infection caused by Xanthomonas, with speciation to Xanthomonas hortorum, has been confirmed. The disease was first seen in Virginia in 2008/2009, first literature in 2012. This is a new finding of this disease in Wisconsin and will likely result in running Koch's postulates. Symptoms are general dieback, black tissues, individual spots but not feathery edge like botrytis.

Conifer diseases

Dothistroma needle blight on Pine

An Austrian pine sample was infected with Dothistroma, which turn tips of needles brown or tan. This sample also had fruiting bodies of Septoria, which causes a disease called black spot. The main reason for the dieback is likely the Dothistroma.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Dothistroma_Needle_Blight.pdf

Septoria?

Diplodia shoot blight

A confirmed diagnosis of Diplodia shoot blight on an unspecified pine sample.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Diplodia_Shoot_Blight_and_Canker.pdf

Spruce Needle Drop

This disease was found on Black Hills Spruce. This disease is often exacerbated by stress.

Canker Disease on Red Cedar

Cytospora and Sphaeropsis cankers found on Red Cedar.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Cytospora_Canker.pdf

Downy Mildew on basil.

A sample came in with prodigious sporulation. A greenhouse grower found this disease on basil, but unfortunately not before he had mingled the infected plants with healthy plants.

http://labs.russell.wisc.edu/pddc/files/Fact_Sheets/FC_PDF/Downy_Mildew.pdf

Questions

Have you seen conifer disease (brown or black on leaves) on arborvitae?

Arborvitae samples have shown typical winter injury or drought stress, not needle disease.

Have you been able to diagnose the sample that was submitted last week?

We are still processing the sample, either a Prunus(plum or cherry) or ornamental pear (not clear what the sample is). Samples with a lot of collapse of leaves are subjected to a lot of diagnostic tests to cover all bases; fungal isolations, bacterial culture, also plums are theoretically susceptible to Verticillium. Sample will be held for a couple of weeks while diagnosis is ongoing. Lots of leaf collapse seen on fruit trees this year, attributed to winter injury or drought stress.

Interveinal reddening on rhubarb with watery lesions on leaves, looks like disease. Any ideas?

The agent will find out if client wants to pay for diagnosis, but a picture can be sent. Photos may not be sufficient for diagnosis. Rhubarb is susceptible to crown rot which can inhibit nutrient uptake which might be the reason for the reddened and collapsed tissue. If the tissue is very watery, a bacterial infection can't be ruled out, but would have to examine the tissue to make a diagnosis.

Dead branches on Apple were submitted to LaCrosse office-may require a better sample to make any diagnosis. There have been lots of issues with fire blight. To diagnose, the tissue sample must be partially alive and partially dead. For the apple sample talked about earlier, the sample that was submitted had Cytospora as well, but that sometime comes in after the tissue dies. The fire blight was actually cultured from the pear sample by streaking on media, with further culture on a high sucrose media and the bacteria growth gets so thick it looks like beads of silicone caulk on the media. The process has nerd cred.

Have you heard of Newsome root rot on pines or softwoods? Is this disease known in the scientific community and is there any info about this?

Since it is associated with loggers and forested areas (eg. Red pine), it could be annosum root rot, caused by Heterobasidion annosum, which is common in red pine. DNR does a lot of culturing for this disease and Brian usually sends his samples to them since they are more adept at isolating it. This fungus causes shelf-like fruiting bodies at the base of the tree. It does not have rhizomorphs (that is Armillaria).

http://www.cals.ncsu.edu/course/pp728/heterobasidion/heterobasidion_annosum.html
<http://dnr.wi.gov/topic/foresthealth/annosumrootrot.html>

SPECIAL TOPIC: Crazy Worms

Presented by Bernie Williams, Wisconsin DNR, with Brad from UW Arboretum

Overview of Non-native worms

All species of European worms are non-native invasive species. Wisconsin has an Asian species. Prior to October of last year, there were 21 species of non-native invasive worms and they are widespread. Because they are so ubiquitous, the DNR is concentrating on educational outreach. In 2009, NR 40 was adopted, which is the invasive species rule. The rule covers a broad spectrum of invasive species and categorizes them as prohibited, restricted, split listed, and caution. The crazy worm (*Amyntas agrestis*) has been categorized as a prohibited species because it so aggressive and invasive. As a prohibited species, it is illegal to possess, transfer, sell or introduce to the state. It is native to east Asia, but there are 50 different species of crazy worms. It was not expected that they would be able to overwinter in Wisconsin, but that was a wrong assumption. A population was found in the Arboretum and it has been classified as an infestation.

Morphology

Crazy worms are dark grey, about the size of a nightcrawler, 1.5 to 8 inches long, with a smooth milky white slightly depressed entire encircling clitellum (the band around the worm). They are very active and mimic snakes in their movements.

Life Cycle and Soil Signature

Two hatches per year, and the worms mature to adulthood in sixty days. The worms are parthenogenic so are able to reproduce asexually and build up large populations. In the fall, eggs are laid and the cocoons overwinter in the soil and hatch in the spring. Populations can reach levels such that they can be scooped up in your hands. Adults do not overwinter in Wisconsin, but will live approximately two years where they do overwinter.

They have a very distinctive soil signature, in that it becomes very granular. Look on provided information(link below) and look at soil around the Monarda.

Native Habitat

The crazy worm originated in Korea, Japan, and east Asia. It is aggressive there too, but has natural predators there.

Mode of Introduction to the United States

It is thought that it was brought over in nursery stock. Brad at the Arboretum thinks they have been on site for 3 years and were introduced in their nursery from southeastern rootstock. They have gone to using bare root stock.

Infestation sites around Madison

Infestations have currently been identified in the UW arboretum and in Maple Bluff. The worms prefer the woods to open land, but will colonize both.

Horticultural Impact

Crazy worms will outcompete other non-native worms and they are soil surface dwellers. They leave a distinctive granular soil signature and leave the soil overporous. They have voracious appetites and there is anecdotal evidence that mulch had to be applied three times in one summer because it was completely used up by the worms. The crazy worms deplete the soil of nutrients and even mycorrhizae, so that even if they are removed, it is very difficult to reestablish plantings. The more mulch you add, the faster the worms reproduce. All of the organic matter is depleted so that the soil will not hold moisture. The UW Arboretum had to modify their plant sale to avoid spreading cocoons in soil.

Symptoms of infestations: Plants can be easily pulled up, with little root system, so they fail to thrive. Even if the worms move on, they ruin the soil. Even creeping Charlie was impacted.

There have been many problems in the Smoky Mountains with very poor forest regeneration.

Promoted Applications of Vermicomposting and Fishing Bait

Crazy worms are being promoted by industry as suitable for vermicomposting, composting and for fishing bait due to their prolific reproduction, voracious appetites that turn over the organic matter. They are promoted for fishing as they are so active.

Control Measures

It is critical to monitor the populations to know how widespread the worm is. Some experimental plots will be tested using fertilizer, which may cause mortality. Most efforts now are being directed toward education. Extension personnel need to be alert for questions regarding the worms and let people know not to transfer the cocoons by moving plants around with soil. It just takes one worm in a rootball to spread the worm. Also, any callers should get in touch with Bernie so the DNR can monitor the worm's spread.

Ongoing Research

Bernie is hoping there will be a tandem study in the Highlands and Arboretum with collaboration with U of Vermont for control measures.

Monica Turner, a researcher in zoology, will be doing research on soil litter properties in the Arboretum and Yahara watershed. She will bring soil from forested and agricultural areas to the Arboretum and testing buckets of soils with and without worms for nutrient cycling variables, carbon sequestration and the effect the worm is having.

Bernie, Brad, and Sue W. will be gathering as much information as they can, but this worm is not widely written about in the literature.

Questions

Is there anything that can be done about it?

Right now, efforts are concentrated on outreach and education. Fertilizer applications may cause mortality and some testing will be done. DNR will be working with DATCP inspectors because worm poses a threat to all ecosystems because of the damage it does to the soil. The cocoons are hard to see because they look like the soil itself.

What is my response if someone says they have found the worm?

Put them in contact with Bernie at the DNR so she doesn't miss any more opportunities to identify and educate.

Where is its native habitat?

There are numerous species from Korea, Japan, east Asia. It is not widely known in literature.

What is the size of the worm? What am I looking for?

This species is *A. agrestis*. It is the size of a nightcrawler, and dark grey. The clitellum, the reproductive organ in the middle of the worm, is smooth and depressed and fully encompasses the worm, unlike European species. The worm is very active and will do anything to get away from you. The worm is thought to have been on site for 3 years, and the soil signature is very granular. Sometimes the soil signature is seen, but not worms as they have already moved on. Nothing grows on the site after the worms have been there.

Is it as much of a problem in wetter soils?

The worm really likes forest dominated soils and it does seem to prefer some soils over others.

<http://marquette.uwex.edu/files/2014/06/Crazy-worms-fact-sheet.pdf>

FINAL NOTES

No announcements.

The next meeting is June 20. Vijay will be hosting and Mark Renz will be presenting a weed/invasive plant update. 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:

Vegetable Crop Update

Vegetable Crop Update Newsletter #9 is available at <http://www.plantpath.wisc.edu/wivegdis/>

Topics covered in the issue include:

Herbicide update-Upbeet on beets

Blitecast and P-Days for late blight and early blight management

National late blight updates for the week

Basil Downy Mildew

PDDC UPDATE

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

*Brian Hudelson, Ann Joy, Joyce Wu, Tom Hinsenkamp, and Catherine Wendt,
Plant Disease Diagnostics Clinic*

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 7, 2014 through June 13, 2014.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
BROAD-LEAVED WOODY ORNAMENTALS			
Ash (Unspecified)	Seasonal Leaf Drop	None	Columbia
Honey Locust	Nectria Canker	<i>Nectria sp./Tubercularia sp.</i>	Dane
Maple (Japanese)	Fusarium Canker	<i>Fusarium sp.</i>	Dane
	Phomopsis Canker	<i>Phomopsis sp.</i>	Dane
	Winter Injury	None	Dane
FRUIT CROPS			
Apple/Pear	Cytospora Canker	<i>Cytospora sp.</i>	Monroe
	Fire Blight	<i>Erwinia amylovora</i>	Monroe
Strawberry	Root/Crown Rot	<i>Phytophthora sp., Pythium sp., Fusarium sp., Cylindrocarpon sp.</i>	Chippewa, Wood
HERBACEOUS ORNAMENTALS			
Begonia	Gray Mold/Botrytis Blight	<i>Botrytis cinerea</i>	St. Croix
Impatiens	Impatiens Necrotic Spot	<i>Impatiens necrotic spot virus</i>	St. Croix
Peony	Bacterial Spot/Blight	<i>Xanthomonas hortorum</i>	Monroe
NEEDED WOODY ORNAMENTALS			
Pine (Austrian)	Black Spot	<i>Septoria sp.</i>	Sauk
	Dothistroma Needle Blight	<i>Dothistroma pini</i>	Sauk
Pine (White)	Winter Injury	None	Chippewa
Pine (Unspecified)	Diplodia Shoot Blight and Canker	<i>Diplodia pinea</i>	Sauk
Spruce (Black Hills)	Spruce Needle Drop	<i>Setomelanomma holmii</i>	La Crosse
Red Cedar	Cytospora Canker	<i>Cytospora sp.</i>	Kenosha
	Sphaeropsis Canker	<i>Sphaeropsis sp.</i>	Kenosha
VEGETABLES			
Basil	Downy Mildew	<i>Peronospora belbahrii</i>	Dane
Tomato	Gray Mold/Botrytis Blight	<i>Botrytis cinerea</i>	Portage

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