

WISCONSIN PEST BULLETIN

Timely crop pest news, forecasts, and growing season conditions for Wisconsin



STATE OF WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION PLANT INDUSTRY BUREAU
2811 Agriculture Dr. Madison, WI 53718 • <http://pestbulletin.wisconsin.gov>

WEATHER & PESTS

Spring arrived slowly in Wisconsin after the frigid winter of 2013-2014. Lingering cool, wet weather and low soil temperatures prevented or limited fieldwork during the first half of May, causing planting delays similar to those observed last year. During the second half of the month, sudden warmth favored a rapid planting pace and more than half of the state's corn and soybeans were planted in the two-week period ending June 1. Abundant June rainfall disrupted the first alfalfa harvest, but the showers established soil moisture reserves that would prove critical to summer crops when abnormally dry conditions developed from July to early August. July's pattern of below-normal temperatures and sparse precipitation continued until widespread rains in mid-August reversed the drying trend. September featured a mid-month cold snap that led to light frost, followed by an extended period of late-season warmth which accelerated crop maturation. Although fall fieldwork continued behind the average pace in October, crop conditions remained very favorable and the state's corn and soybean growers are expected to produce near-record harvests of 497 and 80.1 million bushels, respectively.

PEST HIGHLIGHTS

CORN ROOTWORM: Beetle populations declined for the fourth straight year. The survey of adult rootworms in

August found a state average of 0.4 beetle per plant, a slight decrease from the 2013 average of 0.5 beetle per plant and the second lowest count in the last 10 years. Results of the survey are summarized on page 121.

LILY LEAF BEETLE: A new state record was established on June 25 with the first detection of lily leaf beetle, an introduced pest of cultivated lilies. The striking red and black beetles and their larvae were found by inspectors in a Marathon County nursery. Another 17 reports of the beetles and larvae were received from July to September. All of the Wisconsin lily leaf beetle finds to date have originated from the Kronenwetter, Mosinee and Rothschild areas of Marathon County.

SPOTTED WING DROSOPHILA: This rapidly spreading, invasive Asian vinegar fly was captured by UW-Madison researchers in 20 counties this year. Since 2010, spotted wing drosophila has been found in 36 of the state's 72 counties, from Kenosha in the southeast to Bayfield in the northwest. Its seasonal life history in Wisconsin is not yet fully understood and it remains unclear if the flies overwinter locally or reinvade each season. Overwintering is suspected, but has not been confirmed.

WESTERN BEAN CUTWORM: Moth counts decreased to the lowest level in the last decade, according to annual trapping survey results. The 2014 cumulative capture of 521 moths in 108 traps was a 21% reduction from the

663 moths collected in 114 traps last year and the lowest since surveys for this insect began in 2005. Larval populations were likewise very low this season.

EMERALD ASH BORER: DATCP expanded the EAB quarantine boundaries in 2014 to include new detections in Adams, Buffalo, Calumet, Columbia, Door, Grant, Monroe and Oneida counties, as well as eight other counties in close proximity to EAB infestations: Green, Iowa, Juneau, Kewaunee, Lafayette, Manitowoc, Outagamie and Richland. After the addition of these 16 counties, the EAB quarantine now includes 37 Wisconsin counties.

Emerald Ash Borer Quarantine 2014



FORAGES & GRAINS

POTATO LEAFHOPPER: Migrants first arrived from May 8-14 and were distributed in low numbers across the southern half of the state by early June. Nymphs appeared in second crop alfalfa during the week of June 11. Populations remained consistently low all season long, with representative counts averaging below 1.8 per sweep in all 534 alfalfa fields surveyed from May through August. Economic counts were not observed in 2014 and leafhopper control was seldom required.

ALFALFA WEEVIL: Larval emergence was delayed 1-2 weeks by abnormally cool spring temperatures and counts were low throughout May and June, peaking at

less than one larva per sweep from June 12-19. Significant populations did not develop in the first crop and weevil damage concerns were secondary to the excessive June rains which disrupted the alfalfa harvest. Low weevil pressure, cool weather and abundant precipitation all contributed to one of the most productive alfalfa crops in several years; 89% of the first crop rated as good to excellent when the harvest ended in late June.

PEA APHID: Counts peaked at approximately 20 aphids per sweep from June 20-26 then abruptly collapsed after the first cutting. Surveys yielded very low populations during the balance of the season and no direct damage to alfalfa was attributed to this insect in 2014.

CORN

WESTERN BEAN CUTWORM: The 2014 trapping survey documented the smallest flight in the 10-year history of the monitoring program, collecting only 521 moths in 108 traps (five per trap average). Most sites captured no more than 10 moths during the 10-week trapping period ending August 20. The season's highest cumulative count was just 58 moths near Pine River in Waushara County. Levels of this insect have shown a considerable decline since 2010 when pheromone traps collected the state record count of 10,807 moths in 136 traps (79 per trap average). Larval infestations have also been scarce and the western bean cutworm has not been a major pest of concern for most Wisconsin corn producers in the last four years.

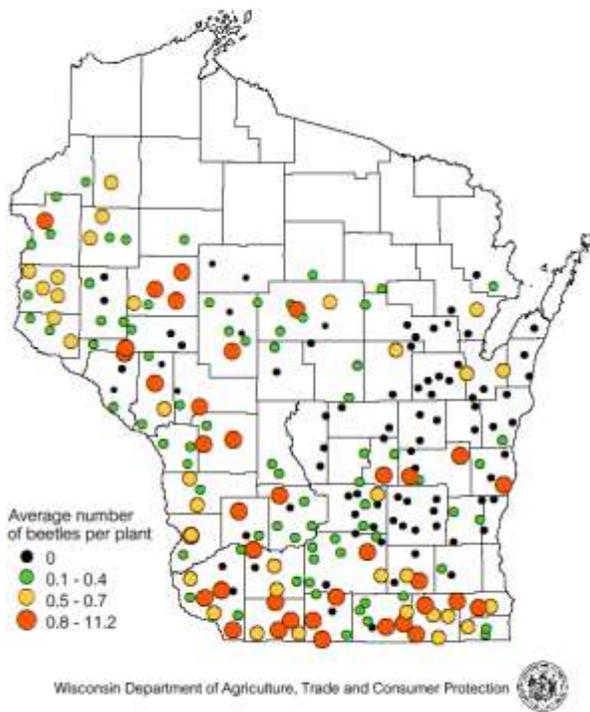
CORN ROOTWORM: Results of the August survey indicate adult corn rootworm populations decreased from 2013 across the eastern half of the state and increased in portions of western Wisconsin. Average counts in the six eastern and central crop districts (SC, SE, C, EC, NC, NE) were all well below the 0.75 beetle per plant economic threshold at 0.1-0.4 per plant, with the largest population decline from 0.8 to 0.4 beetle per plant observed in the southeast. The average in the northwest was also below-threshold at 0.5 beetle per plant.

By contrast, the survey found higher beetle populations than in 2013 in southwest and west-central Wisconsin, although part of the increase in the southwest was due to an exceptionally high count of 11.2 per plant in one Lafayette County field. Excluding this count, the district average would have been equivalent to the 2013 average at 0.6 beetle per plant. Economic populations of 0.75

or more beetles per plant were found in 36 of the 229 fields surveyed this season (16%), as compared to 18% last year and a five-year average of 25%. The statewide average of only 0.4 beetle per plant is the lowest since 2010 and the second lowest in the survey's history.

The general reduction in rootworm adults in the last two years suggests management practices such as crop rotation, soil insecticides, rootworm-resistant transgenic corn varieties, and natural controls, including low soil temperatures and heavy rain have recently kept numbers at lower levels. Nevertheless, this pest continues to be the most costly insect threat to corn production in Wisconsin.

Corn Rootworm Beetle Survey Results 2014



SEED CORN CERTIFICATION: Nine growers in eleven counties participated in seed corn field inspections for export certification in 2014. Samples from 93 fields were tested in the laboratory for the bacterial diseases Stewart's wilt and Goss's wilt. All samples were negative for Stewart's wilt, while 9% (8 of the 93) tested positive for Goss's wilt. Although Canada discontinued its disease testing requirement for imported seed corn from the U.S., other trading partners such as Argentina, Brazil, the European Union, Japan and Mexico still require testing for bacterial wilts and other diseases, including sugar cane mosaic virus, wheat streak mosaic virus, and High

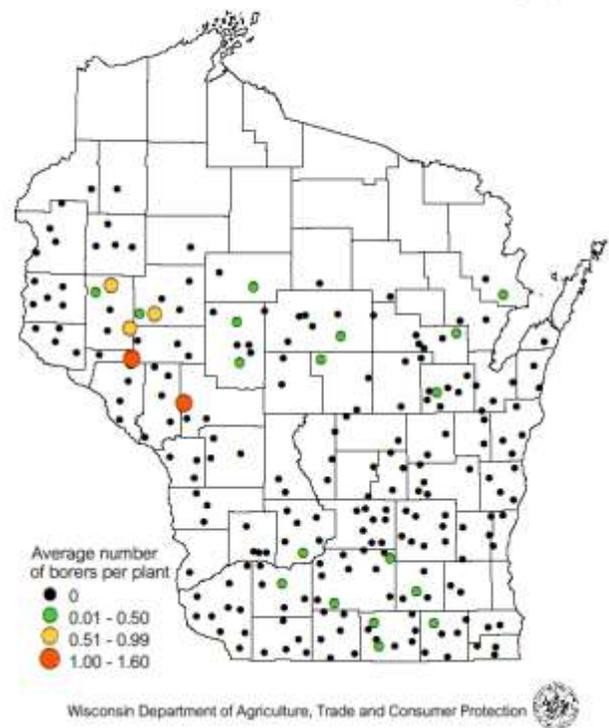
Plains virus. All seed corn samples were also checked for these three viruses; no virus was detected this year.

BLACK CUTWORM: Migrants began arriving in the state by April 13. The first significant flight was registered near Platteville in Grant County from April 29-May 1 and the primary corn cutting window opened in southwestern Wisconsin on May 29. Spring planting delays and late weed control created very favorable outbreak conditions in June, but cutworm problems failed to materialize. Although the cumulative spring count of 1,068 moths in 34 traps indicated a markedly larger migration than last year's flight of 577 moths in 30 traps, economic damage to emerging corn was not observed this season.

EUROPEAN CORN BORER: Larval populations declined to an average of just 0.03 borer per plant this fall, tying 2012 as the lowest in the survey's 73-year history. Minor population reductions from 2013 were found in seven of the state's nine agricultural districts, while very slight increases were noted in the west-central and north-central areas. Eighty-four percent of the fields examined (193 of 229) showed no evidence of corn borer infestation. Based on the fall survey results, major change in the nearly decade-long low population trend is not expected for 2015.

European Corn Borer Survey Results 2014

State Ave. = 0.03 borer per plant



SOYBEANS

JAPANESE BEETLE: Populations were down across the state in 2014 and treatment specifically for this defoliator was not justified for any soybean field sampled by DATCP. A few reports of moderate feeding damage were received from the west-central and northern counties where the Japanese beetle's range is still expanding and it remains a relatively recent pest. Beetle activity persisted through late September.



Japanese beetle

Benimoto flickr.com

SOYBEAN APHID: Densities increased to economically significant levels in about 20% of surveyed fields in late August, though most sites had low or moderate populations this season and control measures were generally not needed. The first aphids of the year were found on June 10 and densities remained extremely low throughout July at fewer than five aphids per plant. By mid-August, counts were still mostly below 20 per plant, although some isolated sites had developed economic populations above the 250 aphid-per-plant threshold. The average count of 118 aphids per plant documented in late August was a substantial increase over the average of only four per plant during the July portion of the survey and, as noted, approximately 20% of surveyed fields may have required treatment for aphid control this year. Biological controls (e.g., lady beetles, lacewings, parasitic wasps and fungal pathogens), declining nutritional content of maturing soybeans, and other environmental factors reduced densities to very low levels by early September.

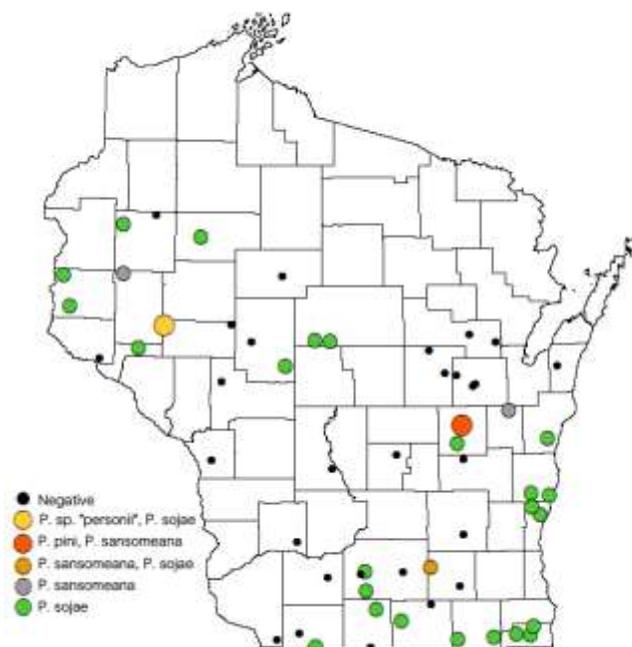
SOYBEAN ROOT ROT: The 2014 soybean root rot survey in 35 Wisconsin counties found the highest incidence

of root rot caused by *Phytophthora sojae* since testing began in 2008. Plants from 46% of fields (26 of 57) sampled during the period of June 6-July 16 tested positive for this fungus-like pathogen. Counties in which *P. sojae* was identified were Barron, Clark, Dane, Green, Jefferson, Kenosha, Lafayette, Manitowoc, Marathon, Ozaukee, Rock, Sheboygan, St. Croix, Walworth and Winnebago, though the disease was presumably far more prevalent after the unusually cool and wet start to the growing season.

In addition to *P. sojae*, two new *Phytophthora* species were identified this year: *Phytophthora pini* and *P. sp. "personii"*. The former (found in Eau Claire County) is a pathogen of many shrubs and trees, while the latter (detected in Winnebago County) is new to science and has not yet been formally described. Neither species has previously been found on soybean and the potential impact on soybean production remains under investigation.

A fourth root rot species, *Phytophthora sansomeana*, was also found during the survey. First discovered on soybean in Wisconsin in 2012 in Jefferson, Marathon and Sheboygan counties, *P. sansomeana* was detected this season in soybean roots from Calumet, Dunn and Eau Claire counties.

Soybean Phytophthora Survey Results 2014



SOYBEAN VIRUSES: During the July 28-August 28 soybean virus survey, 155 fields were sampled and tested for soybean dwarf virus (SbDV) and soybean vein necrosis-associated virus (SVNaV). Twenty-four percent of fields tested positive for SbDV, a substantial increase from 9% in 2013. SVNaV, a new tospovirus identified for the first time in Wisconsin soybeans in 2012, was detected in only 5% of fields this year. This represents a marked reduction from 12% last season.

FRUITS

SPOTTED WING DROSOPHILA: Larvae and adults were confirmed in 20 Wisconsin counties this season. The first flies appeared in traps from June 24-30 and infestations in fruits were prevalent by mid-July. Significant losses to raspberry and blackberry crops were sustained for the third consecutive year. Spotted wing drosophila, the fastest-spreading invasive fruit pest detected in the U.S. and Wisconsin in recent history, has been documented in 36 of the state's 72 counties since 2010 and probably occurs statewide.

Spotted Wing Drosophila Infestations 2014



APPLE TREE DECLINE AND MORTALITY: Considerable damage to apple trees was apparent across the state after the winter of 2013-2014, one of the ten coldest winters on record in Wisconsin. Accounts of slow leaf

emergence, leaf or flower emergence followed by collapse, and even tree death were common in mid-June, with the greatest losses occurring in northern Wisconsin. The tree decline and mortality observed by many apple growers was caused by a combination of factors, including the summer drought of 2012, a subsequent heavy fruit crop in 2013 (in response to the 2012 crop freeze) and the unusually harsh winter. Trees of all ages and varieties were impacted.

APPLE MAGGOT: The first flies of the season were captured by late June. Apple maggot pressure remained low until the final week of July when counts surged abruptly to 10-38 flies per trap. Numbers fluctuated in August, increasing markedly after each heavy rainfall of 1-2 inches. Apple maggot flies persisted well into September and damage to late cultivars became evident in some orchards.



Apple maggot damage

Thaddeus McCamant UMN

APPLE CURCULIO: Localized, severe damage by this weevil was reported from a few southern Wisconsin apple orchards in 2014. The apple curculio (AC) has an appearance and life history similar to that of the plum curculio (PC), but is capable of reproducing in apples and migrates into orchards later in the season than PC. Apple curculio damage results in distinct scarring around the feeding hole which resembles tarnished plant bug and PC injury. Fruits with numerous small surface holes surrounded by a depression may be evidence of infestation. Apple growers in the state should become familiar with this emerging pest and incorporate scouting for AC into their IPM programs in 2015.

CODLING MOTH: Moths began appearing in traps by May 21 and the spring biofix was set from May 26-30 at

most southern and central monitoring sites. The first flight peaked during the first half of June, although spring moths continued to fly for several more weeks. A few orchards documented a distinct "B peak" in the flight around late June. Damage resulting from first generation larvae was noticeable by July 8.

Emergence of summer moths began in mid-July and controls continued as required from late July throughout August. Counts remained high until early September. The latter flight was variable but generally smaller than the first at most sites.

Effective codling moth management proved challenging this year due to heavy June rains and continuous moderate to high counts between the first and second flights. The rainfall reduced efficacy of larvicides and forced growers to reapply treatments, while the failure of counts to taper off between flights made it difficult to time the second biofix and the optimal treatment period for second generation larvae.



Codling moth larval damage to apples

Patrick Clement flickr.com

EXOTIC GRAPE MOTHS: Eleven vineyards in Brown, Door, Kewaunee, Manitowoc and Sheboygan counties were systematically trapped for exotic grape moths from May 1-September 30. The target pests were the light brown apple moth, European grape berry moth, European grapevine moth, and silver Y moth, all insects of high concern to the state's emerging grape industry and considered "priority pests" for grapes by USDA APHIS. No exotic fruit moths were found.

WOOD BORERS: The prevalence of winter injury, tree stress and surplus spring rain created optimal conditions for the spread of black rot in 2014. According to Orchard

IPM Specialist, John Aue, apple trees weakened or dying from winter injury or black rot infection this season will be at increased risk of borer problems in coming years. The DATCP apple insect monitoring program is planning to supply lures for the American plum borer, dogwood borer and lesser peachtree borer next spring to apple insect trapping network participants interested in monitoring these pests.

VEGETABLES

LATE BLIGHT: The state's first case of late blight in 2014 was confirmed in a Portage County potato field on July 18. Another 13 cases were subsequently identified in July and August in Adams (two cases on potato), Brown, Marinette (tomato), Milwaukee (tomato), Oconto (potato and tomato), Portage (potato, second case), Racine (tomato), Waukesha (potato and tomato), and Waushara (potato) counties, most of which were diagnosed between August 16 and 22. Nationally, there were 236 confirmed late blight reports from 23 states this season. This marked the sixth consecutive year that late blight developed in Wisconsin potatoes. Prior to 2009, the disease had not been observed in the state since 2002.

SQUASH BUG: A notoriously difficult-to-control insect, the squash bug was a common problem for home gardeners again in 2014. Numerous reports of damage to pumpkin, squash and other vine crops were received in July and August. Most originated from the southwest, west-central and central areas of the state. Gardeners were advised to thoroughly dispose of dead leaves, mulch, and other garden debris this fall to reduce overwintering sites.



Squash bug nymphs

www.gardensimply.com

BLOSSOM END ROT: This disorder of squash, tomatoes, peppers and watermelons was prevalent in commercial and home gardens this season. The large, black, basal-end lesions which typify blossom end rot are generally associated with calcium deficiency or inconsistent soil moisture levels in developing fruits. This physiological malady becomes especially common when rapidly growing plants are exposed suddenly to a period of drought. Amending calcium levels and maintaining even soil moisture levels throughout the season usually limit its occurrence.

STRIPED CUCUMBER BEETLE: Overwintered adults became noticeable by mid-June, but were not numerous until late July when severe infestations of 7-8 beetles *per plant* were observed on flowering squash plants in southwestern Wisconsin. The economic threshold for the striped cucumber beetle is 4-5 beetles *per 50 plants*. Treatment specifically for this pest was warranted in several instances.

BASIL DOWNY MILDEW: This fungal-like disease was detected on purple basil plants for sale at three Brown county retailers in June. First reported in Wisconsin in 2010, basil downy mildew can rapidly devastate basil crops and render plants unmarketable. A total of 436 plants were removed from sale.



Basil downy mildew

Maire Ullrich Cornell Cooperative Extension

NURSERY & FOREST

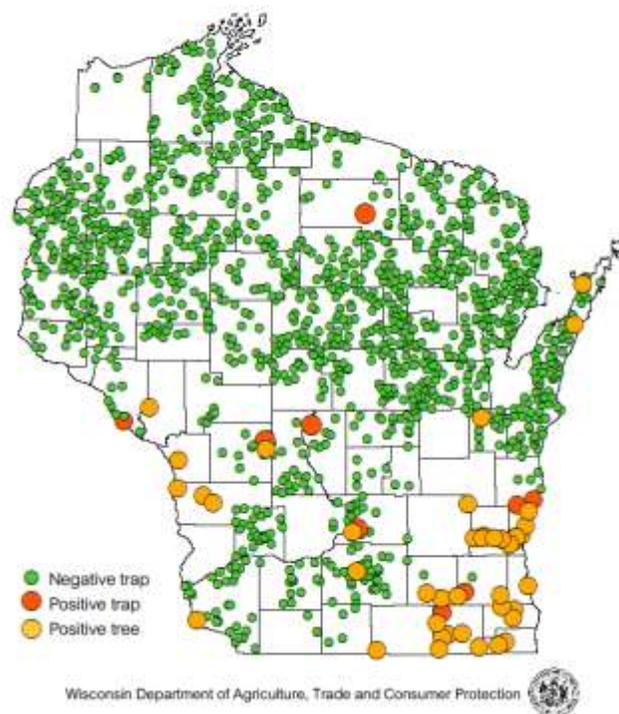
EMERALD ASH BORER: Continued survey work for EAB resulted in 51 new detections in 2014. The beetle was captured on nine purple panel traps and infested trees were identified at 42 municipal sites. Existing infestations

continued to expand and intensify this year, particularly in the southeastern and southwestern parts of the state where EAB was first discovered in 2008 and 2009, respectively. Dead trees, thinning canopies and other signs of infestation are now evident in these regions.

The 2014 Wisconsin EAB trapping survey consisted of 1,301 baited purple panel traps set across 57 counties, with densities higher in the northern half of the state. Nine of the traps, one each in Adams, Buffalo, Columbia, Monroe, Oneida, Walworth and Waukesha counties and two in Sheboygan County, captured EAB adults.

In response to the 51 new detections, 16 counties were added to the Wisconsin EAB quarantine: eight as the direct result of new finds, and the other half based on close proximity to an infestation. A total of 37 counties have been quarantined for EAB since 2008.

Emerald Ash Borer Detection Survey 2014



WALNUT TWIG BEETLE: A trapping survey for this insect component of the thousand cankers disease (TCD) complex was conducted for the third consecutive year. The survey included 40 pheromone-baited funnel traps, two per site, set at eight municipal brush disposal sites and 12 sawmills in Buffalo, Chippewa, Crawford, Dane, Grant, La Crosse, Langlade, Manitowoc, Richland, Sauk, Shawano, Trempealeau, Vernon and Waupaca counties. The walnut twig beetle was not detected in the trap

contents examined as of November 13, though sample processing is incomplete. Neither the walnut twig beetle nor the *Geosmithia morbida* fungal component of TCD has been found in Wisconsin to date.

MOUNTAIN PINE BEETLE: Twenty-two Lindgren funnel traps were placed at 11 forest products facilities in Barron, Dunn, Juneau, La Crosse, Outagamie, Portage, Price, Shawano, Taylor and Waushara counties to detect the mountain pine beetle (MPB), the tiny bark-boring insect responsible for killing pine trees over millions of acres in the Western U.S. and Canada in the last decade. Sample screening is still under way, but results have been negative so far.

IMPATIENS DOWNY MILDEW: This destructive disease of impatiens was intercepted in a Wisconsin greenhouse on May 29. Laboratory analysis of 15 impatiens samples collected from the site found six (40%) to be positive for impatiens downy mildew. Five additional cases of the disease, two in Milwaukee and one each in Pierce, Rock and Washington counties, were also confirmed by the UW-Madison Plant Disease Diagnostics Clinic this season. Impatiens downy mildew has been widespread in U.S. greenhouses and landscape settings in the last three years, with Wisconsin and more than 30 other states reporting cases.



Impatiens downy mildew

georgeweigel.net

VIRUSES IN ORNAMENTALS: Nursery inspectors collected 228 virus-symptomatic plant samples representing 80 genera from 71 producers and retailers this season. Each sample was tested for up to 12 host-appropriate viruses. Of the 228 samples, 84 (37%) were infected with at least one virus. The potyvirus group was the most frequently detected, with 19 of 51 samples testing positive (37%),

followed by tobacco rattle virus in 23 of 102 samples (23%). Impatiens necrotic spot virus was diagnosed in six of 71 samples (9%), cucumber mosaic virus was found in six of 87 samples (7%), and one of 68 samples (2%) was positive for tomato spotted wilt virus.

Several other viruses were also detected. Hosta virus X was found in five of 19 hosta samples (26%), dahlia common mosaic caulimovirus was identified in two of three dahlia samples (67%), and the new clematis chlorotic mottle tombusvirus was diagnosed in five of six clematis plants tested, for an 83% positive rate.

A trace-forward investigation of petunias for tobacco mosaic virus resulted in 12 of 38 samples (32%) testing positive. Nursery inspectors required all virus-infected nursery stock to be removed from sale and destroyed.



Tobacco mosaic virus on petunia 'Crazytunia'

Anette Phibbs DATCP

SUDDEN OAK DEATH: Eleven ornamental samples, seven rhododendron and four pieris, were tested this year for *Phytophthora ramorum*, the plant pathogen known to cause sudden oak death (SOD). The samples were "trace forwards" from a confirmed *Phytophthora ramorum*-infected nursery. Three of the rhododendrons and two pieris were diagnosed with *Phytophthora plurivora*. Another pieris plant was infected with both *P. plurivora* and *P. citrophthora*. All plants were negative for *P. ramorum*.

PINE WILT: Two conifers exhibiting symptoms of pine wilt, one Austrian pine from St. Croix County and a Fraser fir from Marinette County, were submitted for laboratory testing. Both were negative for the pinewood nematode pathogen that causes this disease. Although no major outbreaks have occurred in Wisconsin in recent

years, the incidence of pine wilt has been increasing in the Midwest since about 2000. Pine wilt is a fatal disorder that usually kills affected trees within a few weeks to a few months. Spread of the pinewood nematode from tree to tree occurs via the white-spotted pine sawyer beetle.

NEW NURSERY PESTS: Annual nursery inspections resulted in the detection of two new pest insects in 2014: the daylily leafminer, *Ophiomyia kwansonis*, and the lily leaf beetle, *Lilioceris lili*. The daylily leafminer, while unconfirmed as a new state record, was found in July at nurseries in Dodge and Milwaukee counties. The lily leaf beetle was first observed in June in a Mosinee nursery and later reported from at least 17 Marathon County residences from July to September. The geographic distribution in the state and potential impact of these newly introduced species has yet to be determined.



Daylily leafminer

Marcia Wensing DATCP

INVASIVE SPECIES RULE: Nursery inspectors continued to enforce Wisconsin's Invasive Species Rule (Chapter NR 40) this season. Rule violations involving the prohibited or restricted plants blue dune lyme grass, Japanese knotweed, parrot feather, porcelain berry, Tatarian honeysuckle and yellow floating heart were documented at 13 locations this year.

CHRISTMAS TREE ROOT ROT: A fourth annual survey for *Phytophthora* root rot of Christmas trees was conducted in 2014. A total of 29 diseased conifer samples from Christmas tree fields in 12 counties were collected during September and October inspections and tested for root rot. Twenty-one percent of the samples (six of 29) from fields in Dodge, Langlade, Lincoln and Manitowoc counties tested positive for one or more distinct *Phytophthora*

species: *Phytophthora europaea*, *P. cactorum*, *P. megasperma*, and *P. sansomeana*. The 21% incidence rate in 2014 was a negligible increase from 20% in 2013. Other diseases associated with Christmas tree decline and mortality this year were Annosum, Armillaria root rot, blue stain fungi, *Cytospora* canker, *Phomopsis* stem canker, *Rhizosphaera* needle cast and *Sclerophoma* shoot blight. Compacted roots were also a common problem again in 2014.

GYPSY MOTH: Moth counts decreased substantially in 2014. The annual trapping survey resulted in the capture of 92,786 male moths in 13,105 traps (seven per trap), a 63% decline from 353,134 moths in 18,513 traps (19 per trap) in 2013. As has been the trend for the past several years, the highest counts were registered in Bayfield (11,228 moths), Jackson (11,700 moths) and Monroe (9,704 moths) counties. A major increase from 994 to 4,884 moths was also documented in Trempealeau County. Program coordinators attribute the reduction in gypsy moth populations to a frigid winter and abnormally wet spring.

Defoliation surveys conducted by the DNR found generally light feeding damage this year, with about 80 acres of moderate defoliation observed in Ashland County. Approximately five acres in Jefferson County were heavily defoliated.

Gypsy Moth Quarantine 2014



CORN ROOTWORM BEETLE SURVEY RESULTS 2005-2014 AVE. NO. OF BEETLES PER PLANT

DISTRICT	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-YR
NW	0.4	0.1	0.4	0.5	0.4	0.3	0.1	0.5	0.7	0.5	0.4
NC	0.8	0.9	0.7	0.9	0.4	0.1	0.1	0.3	0.2	0.2	0.5
NE	0.3	1.8	0.5	0.6	0.6	0.1	0.3	0.6	0.2	0.1	0.5
WC	0.8	0.8	0.4	0.6	0.5	0.4	0.6	0.4	0.4	0.6	0.6
C	0.9	0.7	0.8	0.5	0.4	0.4	0.8	0.5	0.2	0.2	0.5
EC	1.1	2.2	1.4	1.0	0.6	0.3	0.5	0.4	0.3	0.3	0.8
SW	3.2	2.2	0.4	1.1	0.7	0.3	1.1	0.8	0.6	0.9	1.1
SC	1.9	1.7	2.2	1.5	1.1	0.3	1.4	0.9	0.5	0.3	1.2
SE	3.8	1.4	1.0	1.6	0.3	0.2	0.7	0.9	0.8	0.4	1.1
STATE AVE.	1.6	1.4	1.0	1.0	0.6	0.3	0.7	0.6	0.5	0.4	0.7

Survey results based on average number of beetles per plant per 10 plants examined.

EUROPEAN CORN BORER FALL SURVEY RESULTS 2005-2014 AVE. NO. OF LARVAE PER PLANT

DISTRICT	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-YR
NW	0.01	0.27	0.24	0.12	0.06	0.08	0.15	0.04	0.07	0.06	0.11
NC	0.36	0.16	0.35	0.18	0.10	0.02	0.07	0.01	0.02	0.04	0.13
NE	0.33	0.23	0.07	0.12	0.12	0.19	0.13	0.05	0.02	0.01	0.13
WC	0.25	0.42	0.52	0.04	0.10	0.08	0.12	0.09	0.06	0.12	0.18
C	0.44	0.51	0.42	0.11	0.06	0.06	0.05	0.01	0.01	0.00	0.17
EC	0.21	0.11	0.21	0.20	0.09	0.01	0.03	0.01	0.01	0.01	0.09
SW	0.51	0.20	0.28	0.05	0.06	0.12	0.03	0.03	0.06	0.00	0.13
SC	0.66	0.38	0.33	0.07	0.02	0.07	0.20	0.01	0.08	0.01	0.18
SE	0.35	0.16	0.12	0.04	0.00	0.00	0.01	0.00	0.01	0.00	0.07
STATE AVE.	0.39	0.29	0.31	0.09	0.06	0.07	0.09	0.03	0.04	0.03	0.13

Survey results based on number of 4th and 5th instar corn borer larvae per plant.