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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
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WEATHER & PESTS

An accelerated planting season, rapid crop development, and exceptional fall harvest conditions all contributed to successful crop production in 2015. Dry, mostly warm April weather facilitated early spring planting across the state, and nearly 40% of the intended corn acreage was planted in a single week (April 27-May 3), the highest percentage recorded for this period in over 30 years. Significant May precipitation virtually eliminated lingering drought conditions after a dry late winter and stabilized soil moisture for crop emergence. June featured frequent showers which disrupted alfalfa harvesting and kept low ground saturated across much of the state, while July weather was cooler-than-normal. An August drying trend led to deteriorating crop conditions and drought development in the southwest and central areas, but below-average temperatures minimized heat stress for maturing summer crops. Record-setting September warmth, dry weather in October, and a later-than-average killing frost (October 16-17) culminated in an early fall harvest, with most Wisconsin farmers reporting excellent yields.

PEST HIGHLIGHTS

EUROPEAN CORN BORER: Larval populations decreased to a 74-year low, according to annual fall survey results. The 2015 state average of 0.02 corn borers per plant is a minor reduction from the average of 0.03 borers per plant last year and the lowest since European corn borer surveys began in 1942. Levels of this once-primary corn pest have declined drastically since the 1996 commercial release of Bt corn, and to date there has been no evidence of corn borer Bt resistance.

SPOTTED WING DROSOPHILA: This invasive Asian vinegar fly was captured by UW-Madison researchers in 42 counties this season. Spotted wing drosophila (SWD) caused severe damage to the state's raspberries, forcing many berry producers to close fields and abandon their crops by mid- to late August. Since 2010, SWD has been found in over 50 of the state's 72 counties, from Kenosha in the southeast to Bayfield in the northwest. Economic loss projections for Wisconsin berry crops due to SWD were estimated at $1.3M last year.

EMERALD ASH BORER: DATCP expanded the EAB quarantine in 2015 to include Jackson and Marquette counties in central Wisconsin. New detections were also found in Green, Lafayette, Outagamie and Richland counties, which were already quarantined due to their close proximity to known EAB infestations. The EAB quarantine now includes 39 Wisconsin counties.

BROWN MARMORATED STINK BUG: Specimens were collected from 35 more sites this year, mostly in Dane, Brown and Milwaukee counties. The number of new

cases in 2015 far surpasses the total of 18 confirmed reports in the previous five years combined (2010-2014). Based on the number of records originating from the Madison area, BMSB is presumed to be established in Dane County.

VIBURNUM LEAF BEETLE: The UW-Madison Insect Diagnostic Lab confirmed the identification of viburnum leaf beetle (VLB) in four Milwaukee County locations this summer, approximately two miles from a previous 2014 detection site. Delimitation work conducted by DATCP inspectors found VLB infestations extending as far north as Mequon in southern Ozaukee County. These cases strongly suggest that reproducing populations of this invasive European beetle are present in southeastern Wisconsin. The first detection of VLB was in 2009 in Dane County, but circumstances in that initial find allowed for successful eradication.

Viburnum leaf beetle larvae *Marcia Wensing DATCP*

FORAGES & GRAINS

POTATO LEAFHOPPER: Populations remained consistently low all season long. Migrants first arrived during the week of April 26 and were distributed in low numbers across the southern half of the state by May 20. Nymphs appeared in second crop alfalfa by June 11. Economic counts of two or more leafhoppers per sweep were not observed in any of the 433 alfalfa fields surveyed in 2015, and widespread leafhopper control was not necessary.

ALFALFA WEEVIL: Larval emergence began in southern Wisconsin by May 11. Development accelerated during the latter half of the month and weevils were abundant by early June. Excessive rainfall during the first alfalfa harvest permitted larval populations to increase to economic levels and severe defoliation (40-60%) became evident in scattered fields by June 4. Carryover of larvae into the second crop was common, but the damage subsided by late June as remaining larvae pupated.

PEA APHID: Counts peaked at approximately 19 aphids per sweep from June 11-17 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 2015.

CEREAL LEAF BEETLE: Larvae were the cause of light to moderate defoliation of wheat in Columbia, Dane, Rock, Sheboygan and Winnebago counties during the last two weeks of June. Economic populations were not observed, though in Dane County it was reported that 10-25% of the flag leaves were damaged in several fields. The larval feeding period was brief and ended by July 4 in southern and eastern Wisconsin. Most of the infestations noted in June were minor and no yield impact was expected.

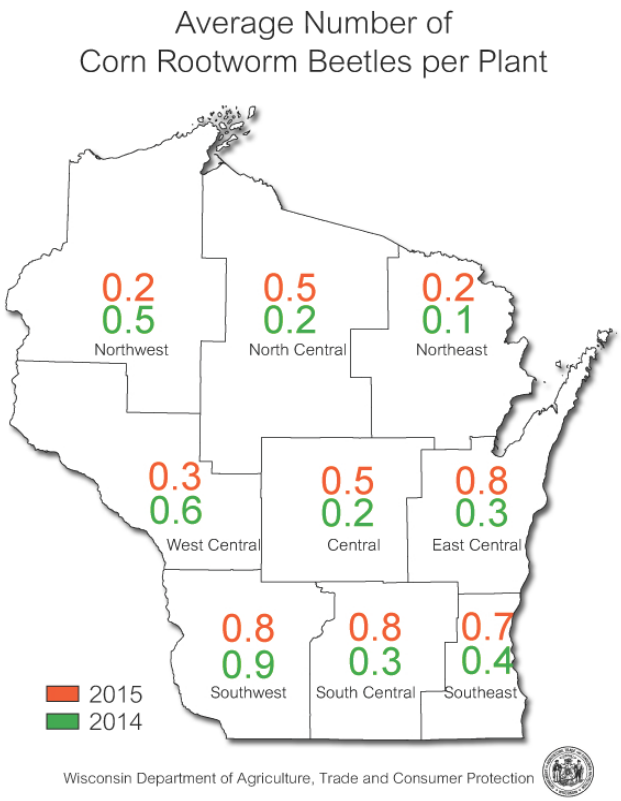
Cereal leaf beetle *Juza personales.ya.com*

CORN

CORN ROOTWORM: Beetle counts increased from 2014 across the eastern half of the state and decreased in western Wisconsin in 2015, a striking reversal from last year's survey trend. The August beetle survey found substantial population increases from 0.3 to 0.8 beetles per plant in the south-central and east-central crop districts and low to moderate increases in the southeast, central, north-central and northeast areas. District averages in the west-central and northwest were low at

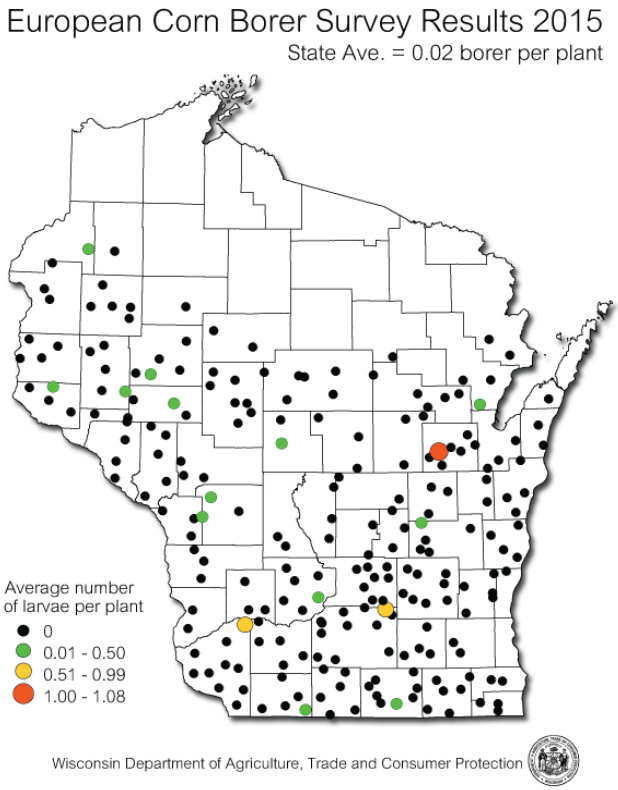
less than 0.3 beetles per plant, while counts in the southwest decreased but remained above the 0.75 beetle-per-plant threshold considered to indicate root damage potential for next summer. The 2015 state average count of 0.6 beetles per plant compares to 0.4 per plant in 2014.

Although the overall Wisconsin corn rootworm population increased in 2015, counts of the western corn rootworm beetle were down considerably. The survey found a total of 1,372 beetles on 2,290 plants, only 324 (24%) of which were the western species. The overwhelming majority (1,048 specimens or 76%) of beetles observed were the northern corn rootworm species. One individual was the southern corn rootworm. The significant use of pyramided Bt rootworm hybrids or the combination of soil insecticides with Bt-traited seed are both possible contributing factors to the low western corn rootworm counts noted in August.



Results of the survey suggest a greater threat of larval rootworm damage to non-Bt continuous corn in 2016, with the highest risk in the southwest, south-central and east-central districts where economic averages of 0.8 beetles per plant were recorded.

EUROPEAN CORN BORER: Larval populations declined to just 0.02 borer per plant this fall, the lowest state average in the 74-year history of Wisconsin European corn borer surveys. Minor population reductions from 2014 were found in four of the state's nine agricultural districts, while negligible increases were noted in the southwest, south-central, central, east-central and northeast areas. Eighty-six percent of the fields examined (196 of 229) showed no evidence of corn borer infestation. Based on the fall survey results, it is apparent that that the extensive use of transgenic Bt corn continues to be a major suppression factor on the European corn borer population.



WESTERN BEAN CUTWORM: On the basis of pheromone trap counts, the annual moth flight peaked one week later and was 24% larger than that of 2014. The 2015 cumulative capture of 644 moths in 96 traps (seven per trap) was an increase from the 521 moths in 108 traps collected last year (five per trap), but still extremely low in comparison to the survey record of 10,807 moths in 136 traps (79 per trap) set in 2010. Larval infestations resulting from the flight were light for the sixth consecutive year, and the western bean cutworm was not a major pest of concern for most Wisconsin corn producers this season. Trapping surveys from 2005-2015 show that moth counts have been decreasing since 2010.

BLACK CUTWORM: Migrants began arriving in the state by April 1. The first significant flight was registered on April 20-21 and the primary corn cutting window opened

in southern Wisconsin by May 27. Much of the state's corn acreage was at low risk of infestation this spring as a result of early planting and a comparatively small moth migration. The April-May black cutworm trapping survey yielded only 361 moths in 43 traps, a marked decline from 1,068 moths in 2014 and the lowest cumulative count since prior to 2010. Economic damage to emerging corn was not observed in June.

TRUE ARMYWORM: Substantial flights of moths occurred from May 7-21 and again from June 11-16, providing an early warning of potential armyworm problems. Larvae and leaf damage became apparent in corn by early June and minor infestations were observed throughout the month. By July 2, small armyworm larvae were common and a few cornfields were showing larval populations above the 25% treatment threshold (for armyworms ¾ inch or shorter). Control measures were applied on a limited basis in 2015. Reports from the east-central area indicated that some winter wheat fields there were also treated for armyworms.

True armyworm moth *Krista Hamilton DATCP*

CORN EARWORM: Below-average moth populations in mid-south and southern U.S. source regions in 2015 resulted in fewer corn earworm moths arriving in Wisconsin. A two-week migration event recorded from August 20-September 2 brought large numbers of moths (3,437 moths in 15 traps) into the state, but the flights were too late to produce widespread earworm infestations since most sweet corn was well past the silking stage.

CORN WILT DISEASES: Corn leaf samples from seed corn production fields were tested at the Plant Industry Laboratory for the bacterial diseases Goss's wilt and Stewart's wilt. Goss's wilt was confirmed in 15 of 39 samples from Adams, Dane, Eau Claire and Rock counties, for a 38% positive rate. This represents a marked increase from 2014 when only 9% of samples tested positive. Results for Stewart's wilt were negative for the fifth consecutive year.

NORTHERN CORN LEAF BLIGHT: Northern corn leaf blight was particularly widespread in 2015 and severe on susceptible hybrids. Development of this disease was favored by cool, wet spring weather and high levels of inoculum from the 2014 corn crop.

Northern corn leaf blight *Krista Hamilton DATCP*

SEED CORN VIRUSES: Lab testing of corn leaves from 39 seed corn fields inspected in 2015 found three Dane County fields to be positive for sugarcane mosaic virus (SCMV) and maize dwarf mosaic virus (MDMV), both considered to be viruses of export significance. All fields were apparently free from maize chlorotic mottle virus (MCMV) and High Plains virus (HPV).

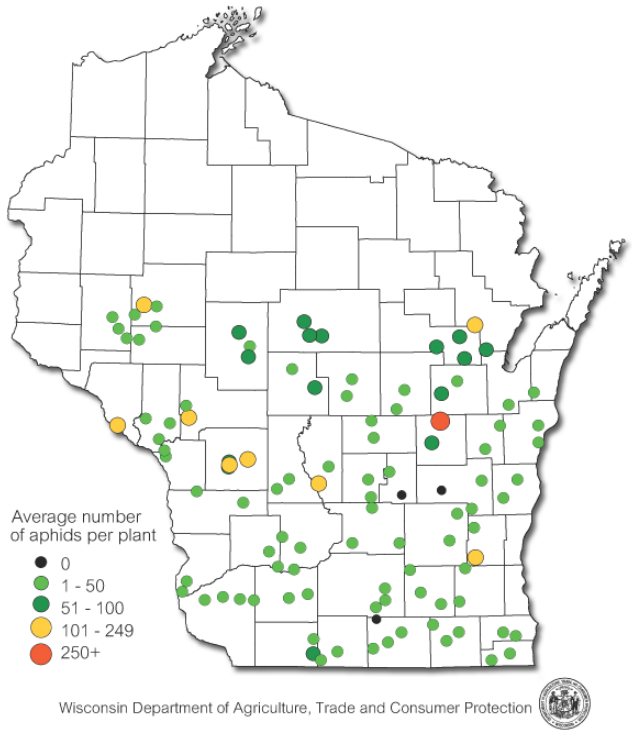
TAR SPOT: Reported for the first time in the U.S. in September (in Indiana and Illinois), this new fungal disease of corn was not observed in Wisconsin in 2015.

SOYBEANS

SOYBEAN APHID: Densities remained well below the 250 aphid-per-plant threshold in the vast majority of Wisconsin soybean fields in 2015. Colonization of soybeans began by June 1, but aphid pressure increased slowly and did not intensify until early August. Control measures were initiated in a few fields by August 12 and continued throughout the month. According to the results of the annual survey, 78% of sites sampled in August had low

average densities of less than 50 aphids per plant, while 21% contained moderate counts of 51-249 aphids per plant. A single Winnebago County field sampled on August 24 had an economic population of 313 aphids per plant. The low state average aphid count of 35 per plant at 108 sites surveyed from August 6-26 indicates that most soybeans did not require treatment for aphids this year.

Soybean Aphid Survey Results August 2015



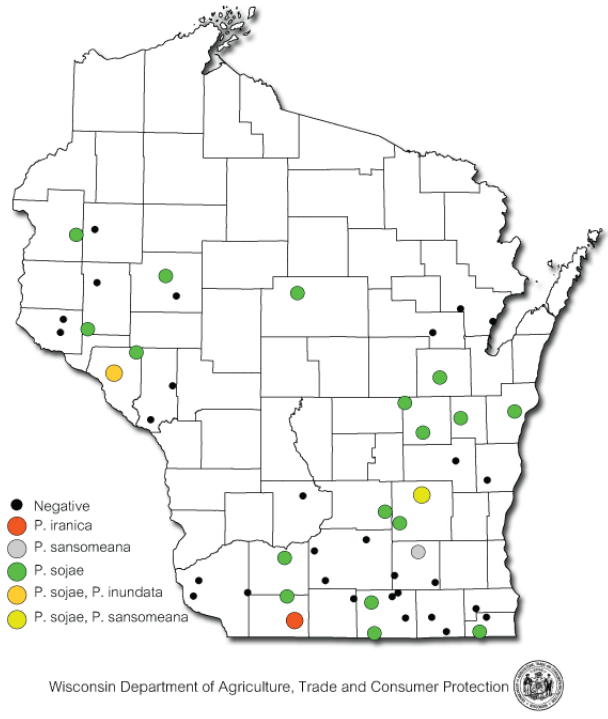
GREEN CLOVERWORM: Larvae became common in soybeans during the second half of July. Populations were not particularly large, although combined defoliation by cloverworms, grasshoppers and Japanese beetles was severe enough in a few western Wisconsin fields to justify control by mid-August.

OBLIQUEBANDED LEAFROLLER: This generalist leafroller was unusually abundant this season. Larvae began emerging by early June and were prevalent in soybean fields throughout July. Most of the larval population pupated by early August. Their sporadic appearance in Wisconsin soybeans was primarily a curiosity and not of economic importance.

PHYTOPHTHORA ROOT ROT: A June survey to determine the prevalence of soybean root rot caused by *Phytophthora sojae* found a 38% positive rate among the 50 samples tested. This substantial level of prevalence suggests that root rot was a common problem again this season, almost comparable to the 2014 results of 49% of fields sampled, the highest incidence of root rot since the DATCP soybean root rot survey began in 2008. Counties in which *P. sojae* was confirmed were Buffalo, Calumet, Chippewa, Columbia, Dodge, Dunn, Iowa, Kenosha, Lafayette, Manitowoc, Outagamie, Polk, Rock and Winnebago.

A recently-described Phytophthora species, *P. sansomeana*, was detected again this year in soybean roots from Dodge and Jefferson counties. *Phytophthora sansomeana* had previously been found on soybean in eight other counties: Calumet, Dane, Dunn, Eau Claire, Green, Outagamie, Marathon and Sheboygan, for a total of 10 counties since the first Wisconsin detection in Jefferson County in 2012.

Soybean Phytophthora Survey Results 2015



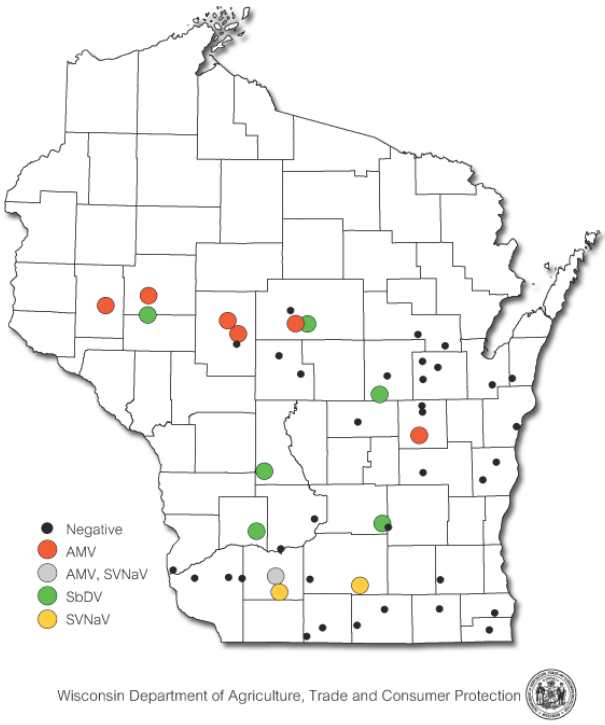
Two other species of Phytophthora, *P. inundata* and *P. iranica*, were also found in 2015. The former was detected in soybean roots from Buffalo County, while the latter was isolated from plants from a Lafayette County field. It is not known if these new species cause disease on soybeans.

Cumulative results of this eight-year survey include the detection of five distinct Phytophthora species in the state's soybean fields (also *P. pini* and *P.* sp. *personii*),

four of which had never been found on soybeans in Wisconsin prior to this effort.

SOYBEAN VIRUSES: Fifty soybean fields were sampled and tested for alfalfa mosaic virus (AMV), soybean dwarf virus (SbDV), and soybean vein necrosis-associated virus (SVNaV) this season. Twelve percent of fields were infected with SbDV, a marked decline from the 24% infection rate in 2014. Alfalfa mosaic virus was found in 12% of fields tested compared to 3% the year before. Soybean vein necrosis-associated virus, a tospovirus first detected in Wisconsin in 2012, was found in 6% of samples. The detection of SVNaV has declined since its initial find in 2012 when 35% of fields tested positive. Soybean vein necrosis-associated virus is transmitted by thrips; the decrease in incidence may be associated with lower thrips populations in 2015. The PIB Laboratory has surveyed for AMV, SbDV and other soybean viruses since 2003.

Soybean Virus Survey Results 2015



Wisconsin Department of Agriculture, Trade and Consumer Protection

FRUITS

CODLING MOTH: Management proved challenging in 2015 due to fluctuating temperatures and heavy June rains. Spring moths began emerging during the week of May 7-13, but periods of cool weather interspersed with warm conditions disrupted the flight and made it difficult to establish a firm biofix. The first CM biofix was set from May 21-27 at most monitoring sites. Small larvae were evident in fruits by early July.

Emergence of summer moths began in mid-July and the second flight peaked by August 13. Moths continued to appear in pheromone traps through early September, though most growers reported lower pressure from the second generation.

APPLE MAGGOT: The first flies of the season were captured on sticky traps by July 1. Counts varied in July and August, with the highest numbers occurring in orchards with fruits damaged during June hailstorms. Apple maggot (AM) flies persisted well into September and damage to late cultivars became evident in a few orchards. This summer's AM emergence pattern was erratic and not necessarily correlated with heavy rainfall.

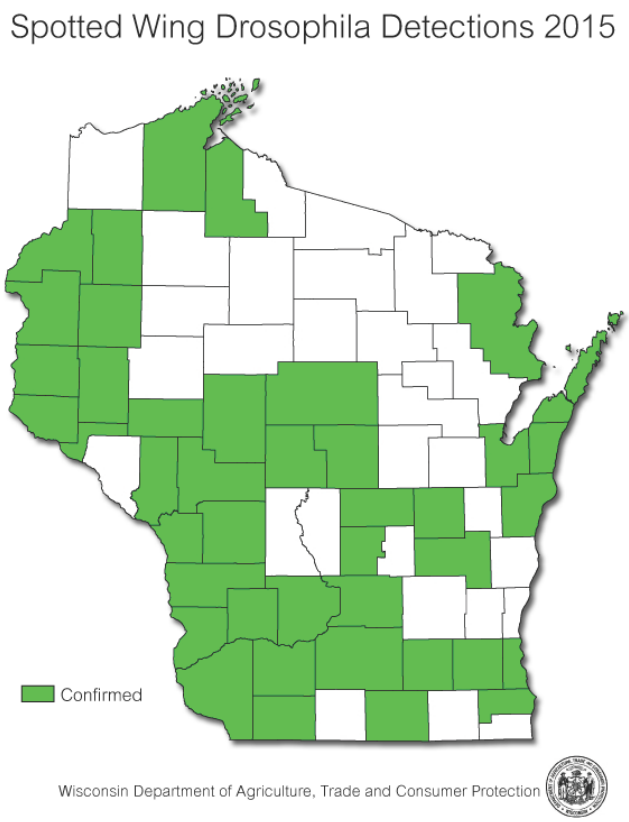
MULTICOLORED ASIAN LADY BEETLE: This beetle was a more serious problem for fruit growers and homeowners this fall than in the last several years. Many residents had their homes treated by an exterminator to reduce entry of overwintering beetles, while grape growers who observed large numbers of MALB in their vineyards expressed concern about the beetles as a contaminant in wine production (only 1-2 MALB per 30 lbs. of grapes can cause a detectable level of contamination). The reason for their abundance in September and October is unknown but may have been associated with warm fall temperatures and an increase in aphids or other prey.

Multicolored Asian lady beetles on grapes plantmanagementnetwork.org

JAPANESE BEETLE: Beetles began migrating into vineyards and apple orchards by late June. Damage to fruit and field crops intensified over the following six weeks

and control was necessary in some instances to prevent defoliation and fruit injury. Growers' accounts suggest that populations were heaviest in western Wisconsin where the beetle's range is still expanding and it remains a more recent pest.

SPOTTED WING DROSOPHILA: Larvae and adults were confirmed in 42 Wisconsin counties this year. The first flies appeared in traps set by UW researchers on June 22 and infestations in fruits were prevalent by mid-July. Severe losses to raspberries and other berry crops were reported for the fourth consecutive season. Spotted wing drosophila, the fastest-spreading invasive fruit pest detected in the U.S. and Wisconsin in recent history, has been documented in over 50 of the state's 72 counties since 2010.



EXOTIC GRAPE MOTHS: Eleven vineyards in Brown, Door, Kewaunee, Manitowoc and Sheboygan counties were systematically trapped for exotic grape moths from May 1-September 1. The target pests were the light brown apple moth, European grape berry moth, European grapevine moth, and silver Y moth, all exotic insects of high concern to the state's emerging grape industry and considered "priority pests" for grapes by USDA APHIS. Survey results were negative for all four species.

VELVET LONGHORNED BEETLE: Detection survey work was initiated this season in four apple orchards in Dane, Kenosha and Racine counties following the recent discovery of this potential fruit and landscape tree pest in the Chicago area. Similar to other invasive wood-boring insects, the VLB is transported in wood shipping materials and firewood, and has been intercepted in many warehouses across the U.S. since 2002. Established populations are known to occur in Illinois and Utah, in a two-county area in both states. No VLB were detected in Wisconsin as a result of the survey.

Velvet longhorned beetle, Trichoferus campestris *Barry macroid.ru*

VEGETABLES

LATE BLIGHT: The state's first case of late blight in 2015 was confirmed by the UW in an Adams County potato field on June 23. Additional cases of the disease were subsequently identified in 23 counties, approximately double the number of counties with confirmed cases in 2014. This season marked the seventh consecutive year that environmental conditions favored late blight development in Wisconsin potatoes. Prior to 2009, the disease had not been observed in the state since 2002.

STRIPED CUCUMBER BEETLE: This sporadic pest was a common problem for cucurbit growers again in 2015. On June 16, an organic CSA farm in Milwaukee County reported extraordinary numbers of beetles appearing on winter squash transplants, apparently at the highest levels observed in their 19 years of farming. Reports of damage to cucumber, melon, squash and other vine crops continued in July and August. Treatment specifically for the striped cucumber beetle was warranted earlier than normal this year.

BASIL DOWNY MILDEW: First reported in Wisconsin in 2010, this highly destructive disease was found by DATCP inspectors at a Milwaukee County garden center on May 29, and was also diagnosed by the UW on basil plants submitted for testing in late July. Basil downy mildew easily spreads via wind-dispersed spores throughout entire production fields, rapidly causing complete crop loss. Management options are limited since most growers are opposed to using fungicides on basil. DATCP requires basil plants infected with this disease to be removed from sale.

Basil downy mildew *Betty Cahill gardenpunchlist.blogspot.com*

NURSERY & FOREST

INVASIVE SPECIES RULE: Rule violations increased sharply in 2015 following the enactment of revisions involving the addition of 70 prohibited and restricted plant species in May. DATCP inspectors documented violations at 43 locations this season, compared to 13 locations in 2014 and 19 in 2013. Nursery operators and brokers still unfamiliar with the Chapter NR 40 rule changes can find a complete list of regulated species at: http://dnr.wi.gov/topic/Invasives/documents/Nursery_plantlist.pdf.

SUDDEN OAK DEATH: One rhododendron sample tested negative for this regulated disease. The sample was a "trace-forward" from a nursery confirmed to have plants infected with *Phytophthora ramorum*, the plant pathogen known to cause sudden oak death (SOD). As of December 2015, SOD has never been detected in the state.

FOLIAR NEMATODE: An increasingly common and serious problem in the nursery industry, foliar nematode was detected this year in seven plant samples, on the hosts anemone, hosta, and toad lily. DATCP enforces zero tolerance to foliar nematodes in production nurseries and recommends that any nematode occurrence be thoroughly cleaned and disinfested. Diseased plants and old foliage should be destroyed.

TAR SPOT: This common leaf disorder of maples was especially prevalent this season. The raised, black tar-like lesions which characterize tar spot are generally associated with wet weather during the period of maple leaf expansion in spring. Heavy infection may cause early leaf drop but long-term damage is rare. Raking and destroying leaves in fall is the most effective management practice.

Tar spot on maple *Krista Hamilton DATCP*

WALNUT TWIG BEETLE: A trapping survey for this insect component of the thousand cankers disease complex was conducted for the fourth consecutive year. The survey included 37 pheromone-baited funnel traps, set at seven municipal brush disposal sites and 11 sawmills in Buffalo, Chippewa, Crawford, Dane, Grant, La Crosse, Langlade, Manitowoc, Richland, Sauk, Shawano, Trempealeau and Waupaca counties. Approximately half of the trap collection samples have been processed as of December 3, and to date no walnut twig beetles have been found.

DAYLILY LEAFMINER: Reported for the first time in 2014 in Wisconsin, the daylily leafminer (DLM) was observed to have overwintered successfully and has been found in the landscape. The larvae of this insect feed between the upper and lower leaf surfaces, creating long, white mines that run parallel to leaf veins. Infested daylilies are not killed by DLM, but usually are unmarketable. Removal

and destruction of mined leaves is advised to reduce the spread of this new exotic pest.

Daylily leafminer *Marcia Wensing DATCP*

SURVEY OF VIRUSES IN ORNAMENTALS: Nursery inspectors submitted 150 virus-symptomatic plant samples from 50 producers and retailers to the Plant Industry Laboratory for diagnosis this spring. Plants representing 14 genera were tested for up to 12 host-appropriate viruses. Seventy-five of the samples (50%) were infected with at least one virus. Tobacco rattle virus was the most common, with 44 of 85 samples testing positive (52%), followed by the potyvirus group in 15 of 30 samples (50%). Tomato chlorotic dwarf viroid was diagnosed in 10 of 42 samples (24%), impatiens necrotic spot virus was found in six of 41 begonia samples (15%), and cucumber mosaic virus was found in two of 45 samples (4%). Seven of twelve hosta samples were positive for hosta virus X and a single dahlia sample was infected with dahlia common mosaic caulimovirus. Results of the survey are summarized in the table on page 141.

INSV symptoms on tuberous begonia *Anette Phibbs DATCP*

BOXWOOD BLIGHT: Eight suspect boxwood blight samples, four boxwoods and four pachysandras, were tested by the Plant Industry Lab in 2015. None were found to be positive for boxwood blight. All four were instead infected with the more common Volutella blight.

TOMATO CHLOROTIC DWARF VIROID: Laboratory analysis of 42 petunia samples from seven greenhouses and retailers found 10 (24%) to be positive for this emerging disease of greenhouse-produced tomatoes that can be carried in symptomless petunias. Although several petunia varieties including “Peppy Red”, “Johnny Flame”, “Queen Bee”, “Supertunia”, “Sweetunia”, and “Royal Velvet” were tested, TCDVd was traced to only a single variety: “Peppy Lavender.” None of the infected petunias had visible disease symptoms. All “Peppy Lavender” plants were removed from sale and destroyed.

EMERALD ASH BORER: Continuing survey work for EAB resulted in 39 new detections in 2015. Beetles were captured on four traps and infested trees were identified at 35 new municipal sites. Most of this year’s detections were in the southeastern part of the state where EAB was first discovered in 2008.

The 2015 Wisconsin EAB trapping survey consisted of 934 baited traps, 888 purple panel traps and 46 green multi-funnel traps, set across 47 counties. The green funnel traps used for the first time this season have been shown to perform better than the purple traps in low EAB-density areas. Four purple traps, one each in Crawford, Grant, Lafayette and Marquette counties, and one green funnel trap in Richland County, captured EAB adults.

Emerald ash borer infestations are now known to occur in nearly half of the state’s 72 counties. The Wisconsin EAB quarantine also includes the counties of Iowa, Juneau, Kewaunee and Manitowoc, for a total of 39 counties.

MOUNTAIN PINE BEETLE: Survey work to detect the mountain pine beetle, 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, was carried out for the second year in a row. Twelve multi-funnel traps were placed at eight forest products facilities in Barron, Brown, Dunn, Forest, La Crosse, Marathon, Portage and Price counties. Sample screening is still under way, but results have been negative so far.

CORN ROOTWORM BEETLE SURVEY RESULTS 2006-2015 AVE. NO. OF BEETLES PER PLANT

DISTRICT	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10-YR
NW	0.1	0.4	0.5	0.4	0.3	0.1	0.5	0.7	0.5	0.2	0.4
NC	0.9	0.7	0.9	0.4	0.1	0.1	0.3	0.2	0.2	0.5	0.4
NE	1.8	0.5	0.6	0.6	0.1	0.3	0.6	0.2	0.1	0.2	0.5
WC	0.8	0.4	0.6	0.5	0.4	0.6	0.4	0.4	0.6	0.3	0.5
C	0.7	0.8	0.5	0.4	0.4	0.8	0.5	0.2	0.2	0.5	0.5
EC	2.2	1.4	1.0	0.6	0.3	0.5	0.4	0.3	0.3	0.8	0.8
SW	2.2	0.4	1.1	0.7	0.3	1.1	0.8	0.6	0.9	0.8	0.9
SC	1.7	2.2	1.5	1.1	0.3	1.4	0.9	0.5	0.3	0.8	1.1
SE	1.4	1.0	1.6	0.3	0.2	0.7	0.9	0.8	0.4	0.7	0.8
STATE AVE.	**1.4**	**1.0**	**1.0**	**0.6**	**0.3**	**0.7**	**0.6**	**0.5**	**0.4**	**0.6**	**0.7**

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

EUROPEAN CORN BORER FALL SURVEY RESULTS 2006-2015 AVE. NO. OF LARVAE PER PLANT

DISTRICT	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10-YR
NW	0.27	0.24	0.12	0.06	0.08	0.15	0.04	0.07	0.06	0.03	0.11
NC	0.16	0.35	0.18	0.10	0.02	0.07	0.01	0.02	0.04	0.00	0.10
NE	0.23	0.07	0.12	0.12	0.19	0.13	0.05	0.02	0.01	0.04	0.10
WC	0.42	0.52	0.04	0.10	0.08	0.12	0.09	0.06	0.12	0.03	0.16
C	0.51	0.42	0.11	0.06	0.06	0.05	0.01	0.01	0.00	0.01	0.12
EC	0.11	0.21	0.20	0.09	0.01	0.03	0.01	0.01	0.01	0.04	0.07
SW	0.20	0.28	0.05	0.06	0.12	0.03	0.03	0.06	0.00	0.03	0.09
SC	0.38	0.33	0.07	0.02	0.07	0.20	0.01	0.08	0.01	0.02	0.12
SE	0.16	0.12	0.04	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.03
STATE AVE.	**0.29**	**0.31**	**0.09**	**0.06**	**0.07**	**0.09**	**0.03**	**0.04**	**0.03**	**0.02**	**0.10**

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

SURVEY OF VIRUSES IN ORNAMENTALS 2015 PLANT INDUSTRY LABORATORY RESULTS

VIRUS SAMPLES	TRV[1]	POTY[2]	TCDVd[3]	INSV[4]	CMV[5]	HVX[6]	DMV[7]	AMV[8]	ArMV[9]	TMV[10]	TSWV[11]
No. of positives	44	15	10	6	2	7	1	0	0	0	0
No. of plants tested	85	30	42	41	45	12	1	5	10	40	38
Percent of positives	52%	50%	24%	15%	4%	58%	NA	0%	0%	0%	0%

[1] Tobacco rattle virus; [2]Potygroup viruses; [3]Tomato chlorotic dwarf viroid; [4]Impatiens necrotic spot virus; [5]Cucumber mosaic virus; [6]Hosta virus X; [7]Dahlia mosaic virus; [8]Alfalfa mosaic virus; [9]Arabis mosaic virus; [10]Tobacco mosaic virus; [11]Tomato spotted wilt virus.