

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

As the end of summer arrived, Wisconsin experienced historic wet weather. Early-week storms soaked much of the state, producing flooding in the southwest, central and eastern areas, and damaging maturing summer crops. Rainfall was heaviest in La Crosse, Vernon and Monroe counties, where 5 to 11 inches fell overnight on August 27-28. Locally heavy showers also drenched the southeast region with 3 to 6 inches of rain in areas north of Milwaukee. The storms largely bypassed Dane County, still recovering from last week's flooding. Rain persisted through August 29, when a pronounced change in the weather pattern brought dry and markedly cooler fall weather. Following this month's damaging storms and flooding, crop condition ratings have declined slightly. Overall, 73% of the corn crop was reported in good to excellent condition at the start of the week, two percentage points below last week but four points higher than the same time last year. Conversely, conditions in the dry northern counties have improved, although this week's rain was too late for some moisture-stressed fields.

LOOKING AHEAD

CORN EARWORM: Migrants arrived in high numbers for the third consecutive week. The pheromone traps near Beaver Dam, Mayville and Ripon captured 514-1,093

moths, a significant increase from 101-348 moths recorded last week. The extremely large August 23-29 count of 3,357 moths brings the season's cumulative total to 5,293 moths in 15 monitoring traps, with nearly all (96%) having arrived during the second half of August. Sweet corn growers are advised to maintain corn earworm scouting and management programs as long as moth activity persists and green silks are available for egg laying.

LATE BLIGHT: Development of this disease has been confirmed by the UW on commercial potatoes in three counties as of August 30: Adams, Marquette, and Waushara. All samples tested this season have been the US-23 genotype, which can be managed with phenylamide fungicides such as mefenoxam, applied preventatively. Potato and tomato plants that are exhibiting symptoms of late blight cannot be saved and should be disposed of in plastic bags to limit its spread.

FALL PESTS: Nuisance insects including the boxelder bug, brown marmorated stink bug, multicolored Asian lady beetle, and western conifer seedbug will begin aggregating on warm southern and western exposures of buildings next month, in advance of their indoor invasion. Exterior insecticide treatments may temporarily deter these insects from entering homes, but exclusion measures such as sealing cracks around windows, doors, siding and other openings are preferred. Insecticides should be only applied by a licensed pest control technician and consid-

ered for severe infestations. Fall nuisance insects do not reproduce inside the home or cause structural damage.



Boxelder bug

www.batzner.com

BROWN MARMORATED STINK BUG: This invasive pest has been collected on survey traps in Dane, Door, Kenosha, Marquette, Racine, and Rock counties this summer, with four Wisconsin apple orchards reporting their first BMSB detections. The August 13 capture near Montello in Marquette County is a new county record. Similar to the multicolored Asian lady beetle and boxelder bug, BMSB clusters on the exteriors of buildings in autumn and overwinters in homes and other structures. Densities in Dane, Rock, Milwaukee, Outagamie, Waukesha, and Winnebago counties are high enough that BMSB has become an urban nuisance, and swarming should be expected this fall.

CORN ROOTWORM: Beetle pressure has been unusually low for the second season in a row. The August survey in 229 cornfields found a state average count of 0.2 beetle per plant, tying 2017 for the lowest population since 1971. Although this summer's low adult rootworm levels indicate a generally lower threat of larval root damage to continuous corn next summer, survey data represent regional populations and not pressure in individual fields. Producers and consultants are advised to sample beetle populations once more by early September to inform next year's rootworm management decisions and/or planting rotation.

FORAGES & GRAINS

POTATO LEAFHOPPER: Surveys during the last week of August found very little change in leafhopper populations.

DEGREE DAYS JANUARY 1 - AUG 29

LOCATION	50°F	2017	NORM	40°F
Dubuque, IA	2787	2551	2404	4196
Lone Rock	2499	2281	—	3869
Beloit	2471	2328	2445	3835
Sullivan	2345	2186	2315	3665
Madison	2460	2273	2329	3813
Juneau	2364	2164	—	3680
Racine	2257	2163	—	3554
Waukesha	2278	2140	—	3579
Milwaukee	2306	2162	2249	3611
Hartford	2304	2114	—	3611
Appleton	2397	2105	—	3676
Green Bay	2345	2049	2095	3617
Big Flats	2356	2143	—	3667
Hancock	2212	1991	2258	3478
Port Edwards	2225	1975	2213	3496
La Crosse	2599	2357	2543	3963
Eau Claire	2496	2179	2294	3793
Cumberland	2030	1682	2152	3252
Bayfield	1785	1430	—	2944
Wausau	1994	1758	2106	3224
Medford	1912	1679	1931	3129
Crivitz	2153	1851	—	3382
Crandon	1938	1532	1635	3137

*Method: Modified B50; Modified B40 as of January 1, 2018.
NORMALS based on 30-year average daily temps, 1981-2010.*

Counts were below 0.9 per sweep in all fields sampled. Levels of this insect have been below threshold since peaking in July. Significant population increases are unlikely to occur during the remainder of the growing season.

PEA APHID: Counts ranged from 0.1-3.5 per sweep and averaged less than one per sweep. Pea aphid numbers have been comparatively low this month.

PLANT BUG: Mixed populations of the tarnished and alfalfa plant bugs are still common in alfalfa. Counts this week varied from 0.1-2.0 per sweep, with an average of 0.6 per sweep. Nymphs continue to appear in sweep net collections, suggesting that reproduction is likely to continue into September.

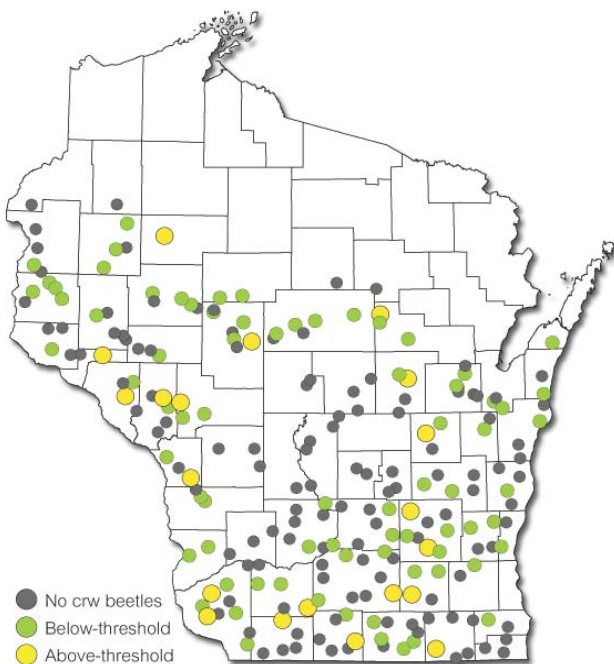
CORN

CORN ROOTWORM: The annual rootworm beetle survey completed earlier this week documented low counts

similar to those recorded in 2017. District averages in the state's nine crop reporting regions remained at or below 0.3 beetles per plant for the second year in a row, while the 2018 state average count of only 0.2 beetle per plant is equivalent to the historically low 2017 average, the lowest since surveys for this pest began in 1971. The only district-level increase recorded this season was in the west-central area, where the average rose from 0.2 beetle per plant in 2017 to 0.3 per plant. Minor decreases occurred in the southeast and central districts. Above-threshold counts of 0.75 or more beetles per plant were found in 21 of 229 (9%) fields surveyed, compared to last year's 24 fields (10%), and no beetles were observed in 127 (55%) of the surveyed sites.

In addition, again this season the northern species outnumbered the western species by a 2:1 ratio. The 2018 total beetle count was 566, with 379 being the northern variety and 187 western beetles. In 2017, a total of 347 northerns, 176 westerns, and 5 southern were counted, 517 adult rootworms in all.

Corn Rootworm Beetle Survey Results 2018



Wisconsin Department of Agriculture, Trade and Consumer Protection



WESTERN BEAN CUTWORM: Larval infestations were noted in Buffalo, Columbia, Trempealeau, and Vernon counties in the last two weeks. An exceptional cornfield near Pardeeville was 10% infested with 1-2 larvae ($\frac{1}{2}$ - $\frac{1}{4}$ inches long) per ear, while infestation rates in other fields

were lower and ranged from 1-3%. In all instances, the larvae were located in the ear tips where control is virtually impossible. Most larvae were in the late instars and should enter the pre-pupal overwintering stage by early September.

CORN EARWORM: Locally heavy flights of 193-1,093 moths were reported from Columbia, Dane, Dodge, and Fond du Lac counties in the past week. The primary late-season migration first accelerated from August 9-15 and a cumulative total 5,293 migrants have been captured to date. The count for the week of August 23-29 was 3,357 moths in 12 of 15 monitoring traps. Egg laying is expected to continue well into September. All susceptible sweet corn fields should be closely inspected until harvest.



Corn earworm larva

Krista Hamilton DATCP

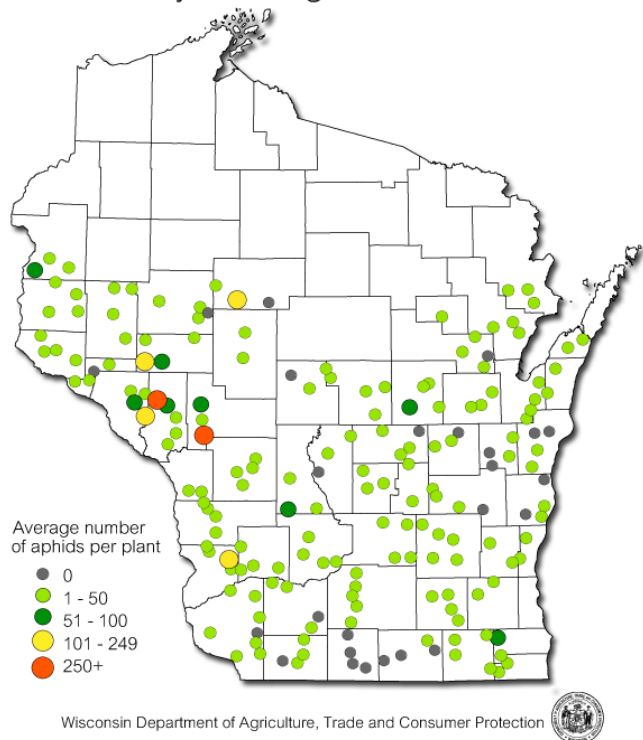
SOYBEANS

SOYBEAN APHID: The annual survey conducted from July 23-August 21 found a statewide average count of 14 aphids per plant. This average compares to six aphids per plant last year, eight aphids per plant in 2016, and indicates aphid pressure was slightly higher in sampled fields this season. One hundred and ninety soybean fields in the R2-R6 growth stages were surveyed, with aphids counted on 40 plants per field. Only two sites, one each in Jackson and Trempealeau counties, contained above-threshold populations of 260 and 290 aphids per plant. Densities were below 100 aphids per plant in 96% fields, and the majority of those sites (86%) had average counts of less than 25 per plant. Results of the survey suggest that while aphid populations did reach treatable levels in some fields, populations on a statewide scale were low or moderate this season. In addition, no cases

of pyrethroid insecticide failure were reported or confirmed in the state in 2018.

than those mentioned above should be reported to DATCP at 1-866-440-7523.

Soybean Aphid Survey Results July 23 - August 21, 2018



JAPANESE BEETLE: Beetles are still apparent in crops, orchards and residential areas, although numbers have decreased. Defoliation was observed in about 52% of the soybean fields examined during the aphid survey in August, signaling that this invasive pest continues to pose significant threat to the state's agronomic crops. Last season, 87% of surveyed fields had some degree of feeding. Although beetles may persist into September, much of their activity should decline within two weeks.

FRUITS

BROWN MARMORATED STINK BUG: Fruit growers and homeowners are advised to watch for this pest as the bugs swarm during warm fall days in search of overwintering sites. The brown marmorated stink bug is established throughout much of southern and eastern Wisconsin, with captures in survey traps reported this season from monitoring sites in Dane, Door, Kenosha, Marquette, Racine, and Rock counties. Nymphs and adults usually remain active through October or early November. Any swarms of stink bugs noticed this fall in counties other



Brown marmorated stink bug Washington State University Extension

CODLING MOTH: Heavy moth flights continued in a few southern orchard locations in the past week, but numbers have declined at most sites. The largest captures of 33 and 15 moths per trap were reported from Iowa and Racine and counties. Apple growers are reminded that evaluating second-generation larval damage by early September will help to anticipate first-generation codling moth pressure next season. Orchards that have recorded captures higher than 10 moths per trap per week since the second flight began in July will likely find visible fruit damage at harvest, if the pest population is established in the orchard. If no damage is observed this fall or less than 1% of fruits are affected, then the source of the moths may be from outside of the orchard.

APPLE MAGGOT: Flies are expected to persist in orchards for 2-3 more weeks, or until about 2,800 degree days (modified base 50°F) have been reached. The base 50°F accumulation as of August 29 was 2,599 at La Crosse, 2,460 at Madison, 2,257 at Racine, and 2,345 near Green Bay. Apple maggot pressure has been variable but generally low this season. Continued maintenance of red sphere traps is recommended through September.

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season has declined in most orchards. A few sites in Bayfield and Marquette counties reported higher counts of 306-739 moths from August 23-29, but captures at all other sites were below 111 moths per trap, which is relatively low for this pest. Moth flights are likely to subside by mid-September.

SPOTTED WING DROSOPHILA: This invasive fruit pest will remain a threat to ripening fruit as the fall raspberry season continues. Berry growers are advised to maintain treatment programs. Sprays applied in the early evening, 1.5 hours before or after sunset, will maximize contact exposure with SWD in the canopy since peak fly activity occurs between 6:00 and 10:00 pm. Insecticide rotation is critical for preventing SWD resistance development if short-interval sprays are being used, and pre-harvest interval (PHI) must be followed. Also necessary for SWD control are clean, daily harvests of all mature raspberries and cooling fruits to 34-38°F immediately after harvest, if the berries are not being delivered to markets the same day.



Male spotted wing drosophila fly David Handley extension.umaine.edu

VEGETABLES

NEW STATE RECORD: The UW-Madison Insect Diagnostic Lab has confirmed the first detection in Wisconsin of the purple carrot-seed moth (*Depressaria depressana*), a non-native European pest of carrots, dill, and related plants. Several larvae have been observed on the umbels of dill plants, as well as on cilantro and Queen Anne's lace, since mid-July. The first specimens, from the Village of Luxemburg in Kewaunee County, were identified by PJ Leisch on July 10. Additional reports have subsequently come in from Brown, Columbia, Dodge, Milwaukee, Sheboygan and Washington counties.

First documented in North America roughly a decade ago, the purple carrot-seed moth is now occurs in parts of the northeastern U.S. and Canada, and has recently been found in Illinois, Indiana, and Ohio. The small (~1 cm) caterpillars are either dark green or reddish-purple with

rows of distinct white spots. Adult moths have a wingspan of ~1 cm and are grey with a pale patch near the head.

The greatest impact expected from this insect would be to plants in the carrot family specifically grown for seed, such as coriander, dill, and fennel. According to Wisconsin reports, some of the dill umbels were infested with 2-3 dozen or more caterpillars.



Purple carrot-seed moth larva on dill

whatsthatbug.com

LATE BLIGHT: Potato and tomato growers are encouraged to continue protective fungicide treatments and monitoring plants for signs of infection. Development of this disease has been confirmed by the UW on potato in three counties (Adams, Marquette, and Waushara), though late blight could become more widespread given recent cool, wet weather conditions. Removal and destruction of infected plants is required if lesions are noticed. Composting will not generate sufficient heat to kill the pathogen and is not recommended.



Late blight on potato

Sue Boyetchko AAFC

SQUASH BUG: Egg deposition is still occurring in home gardens and larger plantings. Several fresh egg masses and many small nymphs were found this week on acorn squash in La Crosse County, emphasizing the need for thorough fall clean-up of garden debris to reduce populations and eliminate winter hibernation sites. Crop rotation is also suggested if squash bugs have been a problem this summer.

BASIL DOWNY MILDEW: The state's first basil downy mildew (BDM) case of the 2018 season was confirmed in Rock County in the past week. Basil samples with BDM symptoms, including yellow angular lesions between the leaf veins, and dark gray or purplish sporulation on leaf undersides, can be submitted for testing to the UW Plant Disease Diagnostics Clinic, 1630 Linden Drive, Madison, WI 53706-1598. Information on how to properly send samples is available at <https://pddc.wisc.edu/sample-collection-and-submission/>.



Basil downy mildew

Meg McGrath blogs.extension.org

CORN EARWORM: Moths appeared in very high numbers in pheromone trap collections for the third consecutive week. Counts at the Dodge and Fond du Lac County monitoring sites were particularly high and ranged from 830-1,093 moths per trap. The latest activity signals that the threat to late sweet corn plantings has intensified. Pheromone trap counts for the August 23-30 reporting period were as follows: Arlington 193, Beaver Dam 1,093, Cottage Grove 98, Hancock 16, Janesville 40, Madison north 72, Marshfield 1, Mayville 830, Pardeeville 32, Ripon 514, Sun Prairie 220 and Watertown 248.

CUCURBIT DOWNY MILDEW: New reports were common in the past week, with detections in Dane, Ozaukee, and Portage counties. The first cucurbit downy mildew (CDM)

case of the season was identified on August 17 in Columbia County. UW Vegetable Pathologist Dr. Amanda Gevens recommends a five-day preventive fungicide spray interval for cucumbers now that CDM inoculum has arrived in the state. A seven to 10-day interval is appropriate for cantaloupe, gourd, melon, pumpkin, squash and zucchini. Fungicide options are listed in UW-Extension publication A3978: <http://learningstore.uwex.edu/Assets/pdfs/A3978.pdf>. Cucurbit downy mildew is best managed before symptoms develop.

NURSERY & FOREST

VERTICILLIUM WILT: Catalpa and sugar maple trees in Racine and Washington county nurseries were showing symptoms of this fatal vascular disease, often misidentified as decline caused by seasonal or environmental factors. Verticillium is a soil-borne fungus that invades trees through weakened areas in their roots, progressing upward to infect the xylem structure and leading to blockage of water and nutrient uptake. Acute symptoms, including premature fall coloration, wilting, and defoliation, can progress to dieback that causes mortality. Trees with chronic symptoms often show slow growth and stunting, sparse foliage, leaf scorch, and abnormally heavy seed production.



Catalpa tree with Verticillium wilt

Marcia Wensing DATCP

Best practices include keeping mulch two inches from the main trunks of trees and shrubs, pruning out dead branches as they occur, and sanitizing pruning tools between cuts. Regular watering during dry periods may help reduce symptom severity. Because the causal fungus persists in the roots and soil, diseased landscape trees should be replaced with a species not susceptible to the

Verticillium fungus: birch, bur oak, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, poplar, serviceberry, white oak, willow, or with conifers such as fir, juniper, pine, or spruce.

MAGNOLIA SCALE: This scale insect was recently found on magnolias at a nursery in southeastern Wisconsin. Early signs of infestation include yellowing of leaves, as well as leaf and stem dieback. As the largest of the soft-scaled insects found in the U.S., this very conspicuous species can range up to ½ an inch in size. Magnolia scale damages its hosts by removing sap and producing sticky honeydew that promotes sooty mold growth. Magnolia varieties commonly infested include 'Royal star', saucer, cucumbertree, and lily magnolia. Gardeners and nursery managers are advised to begin inspecting their magnolia trees and shrubs now for scale crawlers, and consider treating heavily infested plants with a crawler spray in late September. Minor infestations can be removed any time of the year by pruning out branches with scales.



Magnolia scale

Michael Falk DATCP

this insect. The black, slug-like larvae feed on the upper leaf surface, skeletonizing the leaves. Larvae first appear in June, feed for a month then drop to the soil to pupate. A second generation appears in August. Several control options are available including manual removal, horticultural oils and insecticidal soaps.



Pear sawfly larvae

Lesley Ingram bugwood.org

LILAC BACTERIAL BLIGHT: Caused by *Pseudomonas syringae* pv. *syringae*, this bacterial disease was observed by inspectors on common lilac shrubs at several southern Wisconsin nurseries. Symptoms ranged from light to severe, with light symptoms appearing as leaf spots and severe symptoms exhibiting as leaf and shoot dieback. The pathogen overwinters on diseased plant tissue, therefore pruning infected branches well below the visibly infected area may help reduce reoccurrence.

PEAR SAWFLY: Pear trees in La Crosse County were noted to have been severely damaged by the larvae of

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 23 - 29

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	DWB ⁵	LPTB ⁶	BMSB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	41	0	0	12	0	0	0	0	11
Bayfield	Orienta	306	7	0	3	0	0	0	4	1
Brown	Oneida	—	—	—	—	—	—	—	—	—
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	40	95	2	3	17	1	0	5	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	—	—	—	—	—	—	—	—	—
Dane	Stoughton	111	86	1	8	0	2	0	0	0
Fond du Lac	Campbellsport	21	37	0	8	0	0	0	0	0
Fond du Lac	Malone	—	—	—	—	—	—	—	—	—
Fond du Lac	Rosendale	63	24	2	5	0	1	0	0	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	—	—	—	—	—	—	—	—	—
Iowa	Mineral Point	—	193	33	8	—	0	0	—	—
Jackson	Hixton	—	—	—	—	—	—	—	—	—
Kenosha	Burlington	0	83	3	11	0	1	0	0	0
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	24	0	0	4	0	0	0	0	0
Marquette	Montello	739	145	2	1	0	2	0	0	0
Ozaukee	Mequon	85	10	3	13	0	0	—	*1	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	11	92	—	5	2	1	0	2	0
Racine	Raymond	10	71	15	5	8	3	0	0	0
Racine	Rochester	8	38	5	33	1	0	0	*2	0
Richland	Hill Point	—	—	—	—	—	—	—	—	—
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	—	—	—	—	—	—	—	—	—
Walworth	Elkhorn	—	—	—	—	—	—	—	—	—
Waukesha	New Berlin	—	—	—	—	—	—	—	—	—

¹Spotted tentiform leafminer; ²Redbanded leafroller; ³Codling moth; ⁴Obliquebanded leafroller; ⁵Lesser peachtree borer; ⁶Dogwood borer; ⁷Brown marmorated stink bug; ⁸Apple maggot red ball; *Unbaited; **Baited; ⁹Apple maggot yellow board; ¹⁰Mating disruption.

COUNTY	SITE	BCW ¹	CEL ²	CEW ³	DCW ⁴	ECB ⁵	FORL ⁶	SCW ⁷	TA ⁸	VCW ⁹	WBC ¹⁰
Columbia	Pardeeville	0	0	2	52	4	2	3	11	1	0
Dodge	Beaver Dam	0	0	1	9	3	2	1	6	0	0
Fond du Lac	Ripon	1	0	0	2	5	0	12	6	5	9
Grant	Prairie du Chien	—	—	—	—	—	—	—	—	—	—
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	0	1	28	22	1	11	0	17	0	0
Walworth	East Troy	—	—	—	—	—	—	—	—	—	—
Wood	Marshfield	0	0	2	2	0	1	19	2	1	0

¹Black cutworm; ²Celery looper; ³Corn earworm; ⁴Dingy cutworm; ⁵European corn borer; ⁶Forage looper; ⁷Spotted cutworm; ⁸True armyworm; ⁹Variegated cutworm; ¹⁰Western bean cutworm.