

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

Cooler air with seasonal temperatures prevailed across the state, accompanied by unusually heavy downpours in the south. A strong late summer storm system moved through southern Wisconsin overnight on August 20, producing torrential rain of 2-4 inches per hour and generating significant local flooding in Dane County. According to the National Weather Service, the official rainfall total for Monday night was 11.63 inches in Middleton, close to the Wisconsin record for a 24-hour period – 11.72 inches set near Mellen in Ashland County on June 24, 1946. An unofficial total of 15.33 inches was reported in Cross Plains. Meanwhile, much of northern and central Wisconsin remained abnormally dry, receiving less than one-quarter inch of rain. Crop quality has been degraded throughout the state this month, with contrasting causes ranging from depleted topsoil moisture in the central and northern areas, to record flooding in the south. Summer crops in the northern half of the state are showing signs of stress and hay yields have been below average.

LOOKING AHEAD

BROWN MARMORATED STINK BUG: This invasive pest has been confirmed for the first time in a Marquette County apple orchard, representing a new county record. Adults have also been captured this season on survey

traps in Dane, Door, Kenosha, Racine, and Rock counties. The trap located near Janesville in Rock County has collected a total of 47 adults and 30 nymphs since the first stink bug appeared on June 29. Late-summer populations are increasing in areas of the state where BMSB is established, and it is particularly important for fruit and vegetable growers, gardeners, and property owners to remain alert for stink bug activity from now through October. Populations in the Madison, Milwaukee and Green Bay areas are large enough that swarming will occur on warm fall days as the stink bugs aggregate before seeking overwintering sites.

CORN ROOTWORM: Preliminary results of the annual beetle survey indicate populations are mostly low and comparable to last season. District averages thus far range from 0.0 beetle per plant in the southeast region to 0.3 per plant in the southwest. The state average in 175 fields surveyed as of August 23 is 0.3 beetle per plant, only marginally higher than last year's historically low average of 0.2 per plant. A count of 0.75 or more beetles per plant in continuous corn is considered the threshold which indicates a heightened risk of root damage to non-Bt corn in 2019.

WESTERN BEAN CUTWORM: Moth flights have ended statewide. This season's cumulative total capture of 625 moths in 55 traps (11 per trap average) from June 20-August 23 suggests the moth population was lower than

last year, when 1,854 moths were collected in 70 traps (26 per trap average). The 2018 average count is also well below the 13-year survey average of 23 moths per trap and the second lowest since surveys began in 2005. Most larvae resulting from the flight are in the intermediate development stages and should enter the pre-pupal overwintering stage by early September. Monitoring network participants may remove their traps at this time.



Western bean cutworm larva

Krista Hamilton DATCP

CORN EARWORM: Large late-season migration flights continued for the second week. The DATCP pheromone trapping network captured 1,086 moths in 15 traps between August 16 and 22, for a cumulative total of 1,936 moths to date. Counts in Dane, Dodge, and Fond du Lac counties were particularly high at 101-348 moths per trap. The latest activity signals that the threat to fresh market sweet corn plantings has intensified and egg laying will persist into September.

LATE BLIGHT: Fresh market tomato producers and home gardeners are advised to continue monitoring plants for signs of late blight infection. Development of this disease has been confirmed by the UW on potato in Adams and Marquette counties. Plants showing symptoms of late blight cannot be saved and should be disposed of in plastic bags to limit its spread. Symptomatic potato and tomato plants may be submitted for free testing to the UW Plant Disease Diagnostic Clinic: <https://pddc.wisc.edu/sample-collection-and-submission/>.

FORAGES & GRAINS

POTATO LEAFHOPPER: Late August surveys in alfalfa found only low to moderate counts of 0.2-1.5 leafhoppers

DEGREE DAYS JANUARY 1 - AUG 22

LOCATION	50°F	2017	NORM	40°F
Dubuque, IA	2626	2441	2269	3965
Lone Rock	2354	2183	—	3655
Beloit	2323	2231	2306	3616
Sullivan	2202	2090	2182	3452
Madison	2312	2176	2197	3596
Juneau	2227	2073	—	3473
Racine	2103	2067	—	3330
Waukesha	2131	2046	—	3361
Milwaukee	2155	2063	2107	3390
Hartford	2163	2023	—	3401
Appleton	2258	2019	—	3467
Green Bay	2206	1962	1973	3408
Big Flats	2228	2052	—	3469
Hancock	2091	1909	2130	3287
Port Edwards	2105	1890	2090	3307
La Crosse	2462	2249	2400	3756
Eau Claire	2369	2084	2164	3596
Cumberland	1932	1612	2028	3085
Bayfield	1717	1362	—	2806
Wausau	1890	1685	1986	3051
Medford	1816	1605	1819	2965
Crivitz	2034	1773	—	3193
Crandon	1833	1474	1545	2963

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

per sweep, with an average of 0.5 per sweep. Levels of this insect have generally been below threshold all summer long, despite a timely spring arrival and very favorable temperatures. Although a few individual fields sampled in late July contained localized “hotspots” of high leafhopper counts, none had a fieldwide average exceeding the two leafhopper-per-plant threshold for alfalfa growth 12 inches or taller.

PLANT BUG: Nymphs were less abundant in fields sampled this week, indicating population growth is slowing. Counts averaged 0.6 plant bugs per sweep and ranged from 0.1-1.8 per sweep.

GRASSHOPPER: Late-season grasshopper activity has increased in alfalfa and other crops in the abnormally dry central and northern counties. Grasshopper damage to forage crops can be serious at this time of year, especially in new alfalfa seedings and when dry weather slows plant regrowth after harvest. Insecticide use is justified if populations reach 20 grasshoppers per square yard at

the margins or eight per square yard within an alfalfa field. Spot treatment is acceptable when the defoliation is concentrated at the field edges.

PEA APHID: Populations of this forage pest are still low. Most fields sampled from August 16-22 contained fewer than 0.5 per sweep (50 per 100 sweeps).

CORN

JAPANESE BEETLE: Adults are still numerous on corn silks in later-planted fields. A heavy infestation was encountered this week in the Ettrick area of Trempealeau County. As many as 16 beetles per ear were feeding on the silks of edge row plants, though most ears were infested with 3-5 beetles. The infestations extended 10 rows into the field. Beetle emergence has peaked and much of the threat to the state's corn and soybean crops has passed, but scouting should continue in fields where pollination is incomplete and silk feeding remains a concern. Japanese beetle activity is expected to diminish by early September.



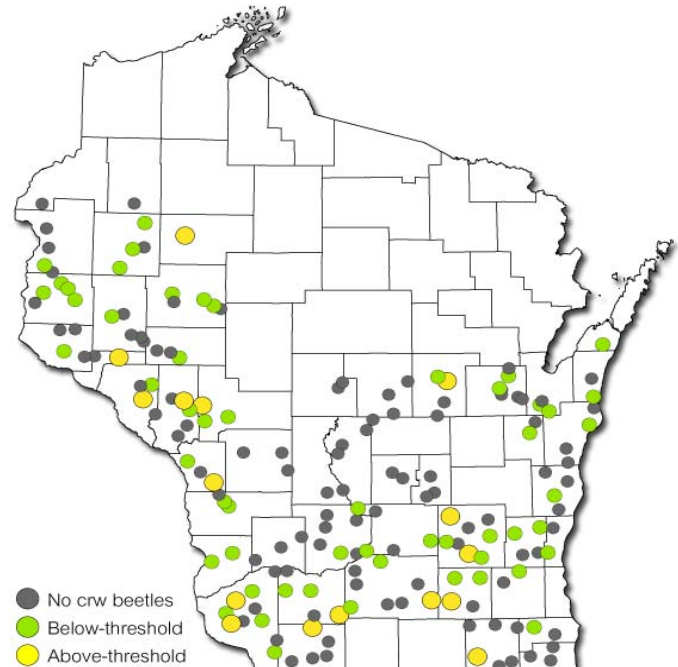
Japanese beetles feeding on corn

Krista Hamilton DATCP

CORN ROOTWORM: Surveys in the last two weeks have found generally low or moderate beetle populations, with district averages in the southern, central and northwest areas nearly equivalent to last season's counts. The preliminary state average of 0.3 beetle per plant is only slightly higher than the 0.2 survey average in 2017. An average of 0.75 or more adult corn rootworms per plant in continuous corn indicates control in the form of crop rotation, using a Bt-rootworm hybrid, or applying a soil insecticide at planting should be considered to prevent root damage in 2019. Beetle populations exceeding this

threshold have been recorded in 16 (9%) of the 174 fields surveyed from August 7-22, represented by orange circles on the map below. The annual survey will be finalized early next week.

Preliminary Corn Rootworm Beetle Survey Results 2018



Wisconsin Department of Agriculture, Trade and Consumer Protection



WESTERN BEAN CUTWORM: Moth flights have ended at all pheromone trap monitoring locations. As of August 23, the state total is only 625 moths in 55 traps (11 per trap average), a marked decrease from the 1,856 moths in 70 traps (27 per trap average) collected last year and the second-lowest state cumulative count since western bean cutworm trapping surveys began in 2005 (after 2014). The highest individual count for the season was 78 moths near Durand in Pepin County.

CORN EARWORM: The primary migration accelerated this week. Large flights of 101-348 moths per trap were reported from the Beaver Dam, Mayville, and Ripon monitoring locations. A total of 1,086 moths were captured in 15 pheromone traps this week, for a cumulative total of 1,936 moths to date. The Janesville black light trap also collected 65 moths. Sweet corn growers should continue to follow corn earworm migration reports and maintain treatments as long as moth activity persists and green silks are available for oviposition. Counts for the week ending August 23 were as follows: Arlington 36, Beaver

Dam 348, Coon Valley 14, Cottage Grove 44, Hancock 15, Janesville 23, Madison north 64, Marshfield 1, Mayville 273, Ripon 101, Sun Prairie 108, Watertown 58, and Wausau 2.



Corn earworm larva

Krista Hamilton DATCP

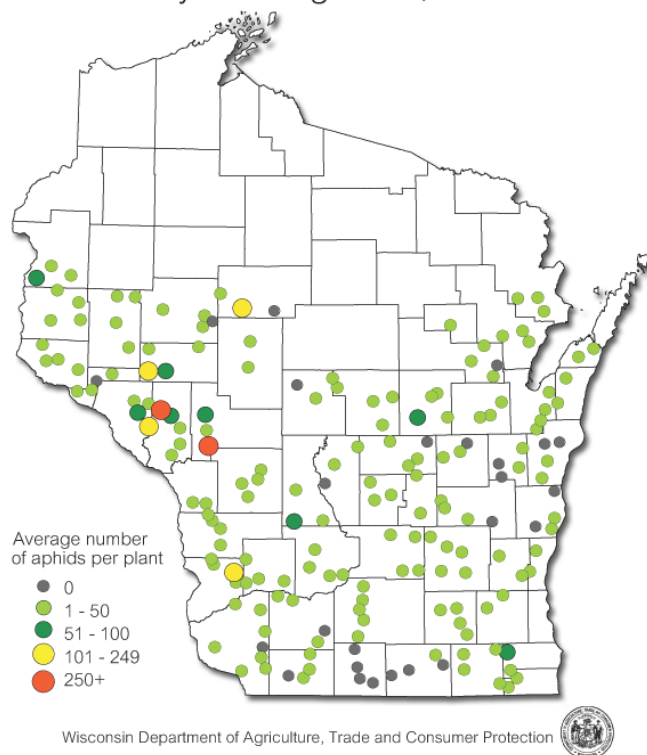
SOYBEANS

JAPANESE BEETLE: Defoliation has been observed in 52% of the soybean fields examined in late July and August. Last season, 87% of surveyed fields had some degree of Japanese beetle feeding. Counts taken during the aphid survey ranged from 1-140 beetles per 100 sweeps, with a state average of eight per 100 sweeps. The highest counts of 50-140 beetles per 100 sweeps were recorded in Grant, Jefferson, Trempealeau, Walworth counties. Although some beetles may persist into September, much of their activity should decline in another two weeks.

SOYBEAN APHID: Densities recorded during the annual survey this month were low, aside from a few high-population fields in the west-central area where reports indicate scattered soybean fields were treated earlier this month for aphid control. The state average count in 190 fields sampled from July 23-August 20 is 14 aphids per plant, with only two surveyed fields showing above-threshold populations of 260 and 290 aphids per plant. For comparison, the 2017 survey found an average of six aphids per plant, the 2016 average was eight aphids per plant, averages from 2013-2015 ranged from 35-55 aphids per plant, and surveys from 2010-2012 documented counts of 7-16 aphids per plant. The lowest state average in the 17-year history of Wisconsin soybean aphid surveys was six aphids per plant, in 2017. Although some localized fields developed economic populations (>250

aphids per plant) by first week of August, survey results suggest that widespread treatment for aphid control has generally not been required this season.

Soybean Aphid Survey Preliminary Results July 23 - August 22, 2018



Average number of aphids per plant

- 0
- 1 - 50
- 51 - 100
- 101 - 249
- 250+

FRUITS

OBLIQUEBANDED LEAFROLLER: Orchardists are reminded to maintain pheromone traps for this insect well into September. Second-generation larvae occasionally cause severe fruit damage late in the growing season and moth counts in late August and September can be a predictor of damage potential of the overwintered larval population next spring.

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season continued this week, with counts ranging from 6-405 moths reported from 21 monitoring locations. Most orchards registered low weekly captures of fewer than 100 moths. Moth activity is expected to subside by mid-September.

BROWN MARMORATED STINK BUG: Adults have been captured on clear sticky panel traps in Dane, Kenosha, Marquette, and Racine County apple orchards this month, signaling the potential for fruit injury prior to harvest. The

recent detection of BMSB near Montello is the first confirmed case for Marquette County and a new county record. Late-summer populations are likely increasing in areas of the state where BMSB is established, and it will be important for fruit and vegetable growers to remain alert for stink bug activity through October.



BMSB clear sticky panel trap

stopbmsb.org

CODLING MOTH: Moderate to high counts were recorded in a few orchard locations in the past week, confirming that significant codling moth flights are still occurring. Large captures of 16-35 moths per trap were reported from Iowa and Racine counties. Approximately 90% of second-flight adults will have emerged once 1,700 degree days (modified base 50°F) have accumulated from the first biofix, and pheromone trap checks may be discontinued after August 30.



Codling moth larva and damage

www.agric.wa.gov.au

APPLE MAGGOT: Peak emergence of flies occurred about two weeks ago depending upon the area of the

state, and activity has generally declined. Apple maggot pressure has been variable but generally low this season, though the external depressions and brown, internal larval tunnels indicative of AM infestation are appearing on apples at some orchard sites where AM flies have been more abundant this season. Growers should continue to monitor AM traps through the first week of September since the flies are still active and could cause problems in late cultivars.



Apple maggot fly

Hannes Schuler news.rice.edu

VEGETABLES

SQUASH BUG: Egg deposition is still underway on squash in home gardens. Adults and nymphs are likely to continue feeding on ripening vine crops throughout fall. Chemical control of squash bugs becomes less useful late in the growing season as fruits mature, whereas cultural controls such as removing plant debris around the garden gain importance and are critical for eliminating winter hibernation sites. Crop rotation is also suggested to reduce habitat for the overwintering adult population, which can survive the winter months under plant debris and cause damage to transplants and seedlings next spring.

CUCURBIT DOWNY MILDEW: This disease was reported in Columbia County on August 17, representing the first case of cucurbit downy mildew (CDM) in the state this season. A 7-day interval fungicide program is advised by UW for cucumber crops when inoculum is likely in the region, narrowing to a 5-day program after disease is confirmed. Leaf samples with CDM symptoms, including angular chlorotic lesions between the leaf veins, should be submitted for diagnosis to the UW Plant Disease

Diagnostic Clinic. A map showing the current status of CDM in Wisconsin and the U.S. can be found at the CDM ipmPIPE forecasting site: <http://cdm.ipmpipe.org/>.



Cucurbit downy mildew angular lesions on cucumber www.planetnatural.com

ONION MAGGOT: Third-generation flies have begun emerging in southeastern and central Wisconsin. Larvae resulting from this final generation of the season will overwinter in cull onions or bulbs left behind in fields. Destruction of crop debris and removal of culls from the field or garden are basic cultural controls. Rotation to a non-host crop should also be considered in spring of 2019 for onion fields or plantings that had onion maggot problems this summer.



Onion maggots on leek stalk

Rasbak

LATE BLIGHT: Cases of late blight have been confirmed by the UW on commercial potatoes in Adams and Marquette counties. Protective fungicide treatments should be maintained to prevent this disease from developing in tomato and potato crops as harvest continues. Home

gardeners, direct marketers and commercial producers who suspect late blight are encouraged to send symptomatic plant material to the UW Plant Disease Diagnostic Clinic: <https://pddc.wisc.edu/sample-collection-and-submission/>. Late blight testing is free of charge.



Late blight on tomato

ag.umass.edu

NURSERY & FOREST

POWDERY MILDEW: This fungal disease has been especially prevalent on Wisconsin nursery stock this season, with the extreme heat and humidity cycles being a major causal factor. Powdery mildew occurs on the upper and (less frequently) lower surfaces of leaves, as well as the stems, giving plants a white, powdery appearance.



Powdery mildew on ninebark

Tim Boyle DATCP

Caused by several closely-related, primarily host-specific fungi that survive in plant debris or on infected plants, powdery mildew is usually cosmetic and non-lethal for many trees and shrubs. However, on plants such as

ninebark, powdery mildew can result in severe leaf loss and branch tip dieback.

Fungicides containing dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate methyl are registered for use against powdery mildew. A combination of baking soda (1 ½ tablespoons) and light weight horticultural oil (e.g., Sunpray®) (3 tablespoons) in water (1 gallon) has also been shown to be effective. Most products should be applied every seven to 14 days from bud break until humid weather subsides. Be sure to read and follow all label instructions of the selected fungicide to ensure that you use the fungicide in the safest and most effective manner possible. Test-treating a small number of leaves or plants before treating a larger area is a best practice.

SPIDER MITES: Nursery inspectors report considerable spider mite damage at several central Wisconsin growing locations, on a variety of plants such as daylily, rose, and other ornamentals and trees. Spider mite damage appears as stippling or speckling on leaves and may also include a fine webbing on the plant. Heavily infested plants turn completely yellow and stop growing. Although spider mites are difficult to observe without magnification, they can be detected by gently shaking infested foliage over a sheet of paper where they can be more easily seen against the white background.



Spider mite damage on rose

Tim Boyle DATCP

Control options include using a stream of water to dislodge the mites from the plant, use of insecticidal oil or soap, employing natural predators including ladybugs, minute pirate bugs, predatory thrips or predatory mites, or a miticide application. Since spider mites thrive in dusty conditions, rinsing tree branches and keeping bare

patches of ground lightly moist to reduce flying dust can help with control on tree farms and in orchards.

JAPANESE BEETLE: Japanese beetle feeding and mating activity continues to be high on fruit trees, lindens, and ornamental plants at nursery growers in central and southern Wisconsin. Control of adult beetles is difficult. Insecticides may reduce beetle numbers and damage, but applications often need to be repeated every 3-4 days since new migrations of beetles can occur daily. Physically removing beetles or protecting valuable plants with floating row covers is the recommended control measure for small areas. Dropping the beetles into a container of soapy water will eliminate the aggregation pheromone released to attract more beetles.



Japanese beetles feeding on linden leaves

DATCP Nursery Program

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 16 - 22

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	DWB ⁵	LPTB ⁶	BMSB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	23	0	0	2	0	0	0	0	2
Bayfield	Orienta	53	9	0	1	0	1	0	3	0
Brown	Oneida	150	85	6	8	0	0	0	1	0
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	109	15	0	5	0	8	0	2	0
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	15	112	4	4	0	1	0	**0	0
Dane	Stoughton	75	21	4	4	0	0	2	3	4
Fond du Lac	Campbellsport	57	63	0	3	0	0	0	0	0
Fond du Lac	Malone	15	78	4	3	0	0	0	**1	**0
Fond du Lac	Rosendale	78	51	4	3	0	1	0	2	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	—	—	—	—	—	—	—	—	—
Iowa	Mineral Point	—	183	35	2	0	2	0	—	—
Jackson	Hixton	17	0	6	0	6	2	0	0	2
Kenosha	Burlington	41	117	5	3	3	2	0	0	0
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	89	0	0	5	4	0	0	1	0
Marquette	Montello	405	55	2	2	0	0	1	0	0
Ozaukee	Mequon	130	15	7	0	0	0	—	*4	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	41	98	0 ^{MD}	2	5	2	0	2	0
Racine	Raymond	285	54	16	12	7	1	0	0	0
Racine	Rochester	6	34	7	9	1	0	0	*8	0
Richland	Hill Point	26	89	2	1	1	4	0	**2	**6
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	20	3	0	2	1	0	—	0	0
Walworth	Elkhorn	21	5	0	3	0	0	—	1	1
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; ^{MD}Mating 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	2	0	0	63	1	1	11	10	1	0
Dodge	Beaver Dam	3	1	3	48	17	7	0	22	0	5
Fond du Lac	Ripon	8	6	7	43	11	0	23	48	3	7
Grant	Prairie du Chien	1	1	1	41	0	13	0	3	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	0	1	1	90	0	5	57	7	0	1
Monroe	Sparta	0	0	0	7	0	1	4	0	0	0
Rock	Janesville	0	8	65	15	2	26	7	73	1	0
Walworth	East Troy	0	0	0	39	0	2	0	1	0	0
Wood	Marshfield	0	3	0	16	1	2	57	8	0	1

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