

# WISCONSIN PEST BULLETIN

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



Wisconsin Department of Agriculture, Trade and Consumer Protection

Division of Agricultural Resource Management | Bureau of Plant Industry  
2811 Agriculture Dr., Madison, WI 53718 • <http://pestbulletin.wisconsin.gov>

## WEATHER & PESTS

Continued dry weather with scorching late August heat across western Wisconsin contrasted with unsettled, stormy conditions in the central and southeastern areas. Numerous thunderstorms on Tuesday, August 25 impacted the central and eastern counties, bringing hail, damaging winds and several inches of rainfall to some locations. A band of storms that dropped up to 6 inches of rain was observed from Wood County to Dodge County. Meanwhile, little or no rain fell in the west, and the latest U.S. Drought Monitor reports that moderate drought has developed in west-central Wisconsin (Buffalo, La Crosse, Trempealeau, and Vernon counties) for the first time since 2018. Clark, Crawford, Jackson, Monroe, and Richland counties are considered abnormally dry. Corn fields on lighter soils are firing, while two-spotted spider mite problems in soybeans have intensified with the persistent dryness. Rain is urgently needed in western Wisconsin for crop maturation and pasture growth.

## LOOKING AHEAD

**NOTE TO READERS:** This is the last scheduled weekly issue of the Wisconsin Pest Bulletin for 2020. Our end-of-season summary Bulletin will be published on November 12, 2020.

**CORN ROOTWORM:** Beetle counts in southern and western Wisconsin increased substantially from the historic low levels of 2017-2019. This month's corn rootworm survey found higher populations in seven of the nine crop districts compared to last year, and a state average count of 0.6 beetle per plant, which represents a two-fold increase from the low average of 0.3 per plant in 2019. Approximately 27% of the corn sites sampled in August had above-threshold beetle pressure (>0.75 per plant). Corn producers and crop advisors are reminded that beetle populations must be evaluated by early September to inform next year's rootworm management decisions and planting rotation.

**CORN EARWORM:** Locally heavy flights were reported from the Arlington (184 moths), Beaver Dam (153 moths), Mayville (115), and Ripon (81 moths) monitoring locations, while eight other sites from Grant to Marathon counties collected no more than 40 moths per trap in the past week. A cumulative total of 1,650 moths have been captured in 18 pheromone traps as of August 26. Egg laying is likely to intensify with this late-season migration and the risk of damage to sweet corn will persist into September.

**BROWN MARMORATED STINK BUG:** This invasive pest has been collected on orchard survey traps in Chippewa, Dane, Fond du Lac, Racine, and Walworth counties in July and August. Similar to the multicolored Asian lady

beetle and boxelder bug, BMSB aggregates on the exteriors of buildings in autumn and overwinters in homes and other structures. Densities in southern and eastern Wisconsin are high enough that BMSB swarming is expected this fall.



Brown marmorated stink bugs macgardens.org

**FALL PESTS:** Nuisance insects such as boxelder bugs, brown marmorated stink bugs, and multicolored Asian lady beetles will begin aggregating on warm southern and western exposures of buildings next month, in advance of their indoor invasion. Although exterior insecticide treatments may temporarily deter these insects from entering homes, non-chemical exclusion measures such as sealing cracks around windows, doors, siding and other openings are preferred. Fall nuisance insects do not reproduce inside the home or cause structural damage. Insecticides should only be considered for severe infestations, and any treatments must be applied by a licensed pest control technician.

**WESTERN BEAN CUTWORM:** The annual trapping program from June-August captured a cumulative total of 3,783 moths in 58 traps, or 65 per trap. This is the second highest average in 16 years of surveys, following the record of 79 moths per trap set in 2010. This season's relatively large flight has produced damaging larval populations scattered through the central and west-central areas of the state this month.

**LATE BLIGHT:** A second report of late blight was confirmed by the UW on August 20, on tomato in Pierce County. The season's first case was diagnosed in an Adams County potato field on August 10. Potato and tomato growers in counties surrounding the recent late blight de-

## DEGREE DAYS JANUARY 1 - AUG 26

LOCATION	50°F	2019	NORM	40°F
Dubuque, IA	2577	2497	2329	3983
Lone Rock	2302	2244	—	3665
Beloit	2404	2298	2368	3789
Sullivan	2238	2134	2241	3574
Madison	2364	2269	2256	3723
Juneau	2146	2050	—	3443
Racine	2191	2003	—	3512
Waukesha	2267	2115	—	3588
Milwaukee	2251	2081	2170	3567
Hartford	2109	2015	—	3398
Appleton	2232	2027	—	3511
Green Bay	2190	1975	2028	3446
Big Flats	2150	1993	—	3447
Hancock	2060	1913	2186	3328
Port Edwards	2059	1909	2144	3332
La Crosse	2355	2224	2463	3709
Eau Claire	2347	2115	2223	3675
Cumberland	1877	1772	2083	3102
Bayfield	1775	1537	—	2942
Wausau	1815	1673	2040	3023
Medford	1750	1631	1868	2954
Crivitz	1996	1824	—	3199
Crandon	1776	1641	1585	2941

*Method: Modified B50; Modified B40 as of January 1, 2020. NORMALS based on 30-year average daily temps, 1981-2010.*

tections are advised to continue routine scouting through harvest for disease symptoms, including leaf, stem, and fruit lesions that have a water-soaked appearance. Removal and destruction of infected plants is required if lesions are noticed. Composting will not kill the pathogen and is not recommended.

## FORAGES & GRAINS

**POTATO LEAFHOPPER:** Counts were below economic levels (< 2.0 per sweep) in most fields surveyed during the last week of August, with a few exceptions in the dry west-central counties where scattered sites had 2.5-3.0 per sweep. Some alfalfa stands are exhibiting moderate to severe yellowing, though the symptoms are likely due to moisture stress, late-summer diseases, nutrient deficiency, or a combination of these factors, since high leafhopper pressure was not recorded in these fields. Nymphs remain common in sweep nets, but a significant population decrease should occur by mid-September.

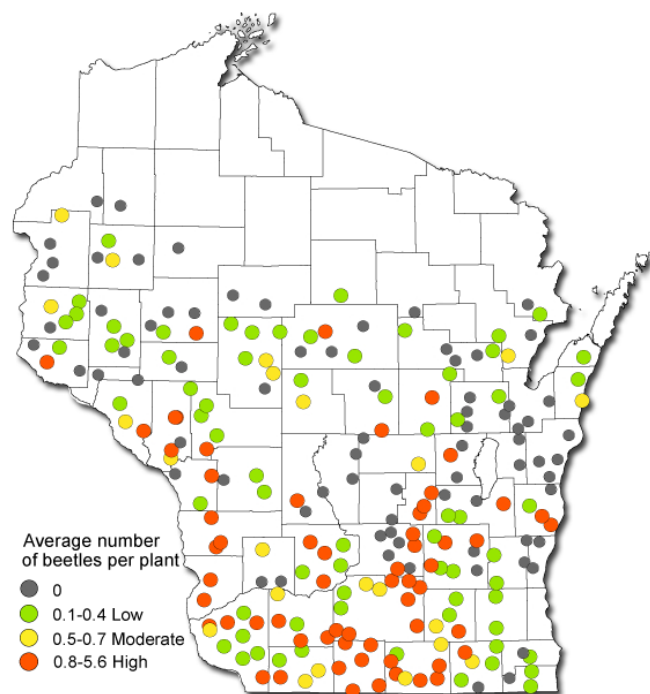
**PEA APHID:** Dry weather appears to have favored aphids in the last 2-3 weeks and counts in some western Wisconsin fields have increased to 10-12 per sweep for the first time since June. Most sites sampled had lower populations in the range of 2-5 aphids per sweep. Pea aphid population growth usually slows during periods of extreme heat, but the lack of rain this month may have limited development of fungal pathogens and other natural enemies that would ordinarily suppress aphids late in the season.

## CORN

**CORN ROOTWORM:** The annual survey conducted from July 30-August 26 documented an increase in adult rootworm populations across much of Wisconsin, and the highest state average in five years. Average counts rose from 2019 levels in seven of the nine crop reporting districts, and remained unchanged in the east-central and northeast areas. The largest increase was recorded in the south-central district where the count escalated considerably from 0.5 beetle per plant last year to 1.3 per plant this season. Beetle pressure was also relatively high in the southwest and central regions (0.6-0.7 per plant).

### Corn Rootworm Beetle Survey Results 2020

State Ave. = 0.6 beetle per plant



Wisconsin Department of Agriculture, Trade and Consumer Protection



In addition, above-threshold counts of 0.75 or more beetles per plant were found in 62 of the 229 (27%) fields surveyed, compared to last year's 27 fields (12%). The 2020 total count of 1,341 beetles was 47% higher than the 711 beetles counted in 2019. Seventy percent of this season's beetles were the northern corn rootworm, which has been the predominant species in the state for seven consecutive years.

Based on the overall increase in beetle pressure this summer, evaluating adult rootworm populations by early September is strongly advised. An average count of 0.75 or more beetles per plant in continuous corn indicates control should be considered to prevent root damage in 2021, either in the form of crop rotation, using a Bt-rootworm trait package, or applying a soil insecticide at planting. Planting continuous corn with the same trait should be avoided.

**EUROPEAN CORN BORER:** The second flight of moths continued at very low levels ( $\leq 11$  moths) at a few black light trap locations. Meanwhile, surveys in corn found light infestations and larvae ranging from third- to fifth-instar in Brown, Clark, Door and Oconto counties. The European corn borer treatment window has closed for the season across the southern and central counties.



European corn borer larva

Krista Hamilton DATCP

**WESTERN BEAN CUTWORM:** The June-August trapping program collected a cumulative total of 3,783 moths in 58 traps, or 65 per trap. This average ties 2019 for the second highest count since surveys began in 2005 and is well above the 16-year average of 28 moths per trap. The survey record of 79 moths per trap was set in 2010. Localized damaging populations resulting from this summer's relative large flight have been observed in scatter-

ed cornfields in the west-central and central counties this month. In all instances, the 0.75 to 1.5-inch caterpillars were located in the ear tips where control is ineffective. Most larvae are now in the late instars and should enter the pre-pupal overwintering stage by mid-September.

**CORN EARWORM:** Late-season moth migrations escalated this week. The DATCP pheromone trapping network captured 645 moths in 18 traps between August 20 and 26, for a cumulative total of 1,650 moths since mid-July. The high count for the reporting period was 184 moths at Arlington in Columbia County. The latest activity signals that fresh market and processing sweet corn remains at risk of infestation and should be monitored until harvest. Counts for the week ending August 26 were: Arlington 40, Arlington North 184, Beaver Dam 153, Bristol 27, Coon Valley 6, Cottage Grove 3, Hancock 3, Madison airport 11, Mayville 115, Ripon 81, Sun Prairie 15, Sun Prairie North 6, and Wausau 1.



Corn earworm larva

Krista Hamilton DATCP

## SOYBEANS

**SOYBEAN APHID:** Populations recorded during the annual survey were mostly low. Only 4% of the 179 fields sampled from July 20-August 21 had moderate populations of 101-163 aphids per plant, 5% had 51-100 per plant, and 91% had fewer than 50 aphids per plant. The 2020 state average count was just 15 aphids per plant, with no surveyed fields showing above-threshold populations of 250 aphids per plant. For comparison, the 2019 survey found a record-low average of five aphids per plant, the 2018 average was 14 aphids per plant, and surveys from 2010-2017 documented average counts of 6-55 aphids per plant. Although reports indicate that

some fields developed economic populations of >250 aphids per plant this season, DATCP's survey results suggest that aphid control was generally not required for most soybean acres in 2020. Nearly all of the state's soybean crop has now matured beyond the growth stage (R 5.5) where treatment is economically worthwhile.



Soybean aphids

Krista Hamilton DATCP

**TWO-SPOTTED SPIDER MITE:** Leaf stippling and bronzing symptoms have intensified in some western Wisconsin fields with this month's dry weather pattern. Scouting for mites is suggested for one more week. Treatment of this pest is only beneficial prior to the R5 to R5.5 or full pod growth stages.



Soybeans with yellowing and stippling due to mites Krista Hamilton DATCP

**JAPANESE BEETLE:** Defoliation has been observed in 80% of the 179 soybean fields sampled by DATCP since late July. Counts recorded during the annual aphid survey ranged from 1-138 beetles per 100 sweeps, with a state average of 17 per 100 sweeps (14 per 100 sweeps

in 2019). The highest counts of 100 or more beetles per 100 sweeps were observed in Clark, Crawford, and Lafayette counties. Although beetles are still apparent in crops, orchards and residential areas, much of their activity should decline within the next two weeks.



Japanese beetles

Krista Hamilton DATCP

## FRUITS

**APPLE MAGGOT:** Flies are expected to persist in orchards for several more weeks, or until about 2,800 degree days (modified base 50°F) have been reached. The modified base 50°F accumulation as of August 26 was 2,404 at Beloit, 2,364 at Madison and 2,191 at Racine. Apple maggot pressure has been variable but generally low this season. Continued maintenance of red sphere traps is recommended through early September.



Apple maggot damage

simplicitysoil.wordpress.com

**SPOTTED TENTIFORM LEAFMINER:** The third and last flight of the season has peaked in most apple orchards.

Another larval generation should be anticipated in September. The third-generation pupae that develop by fall will remain dormant in the mines and overwinter inside of leaves on the ground. Apple growers who recorded large numbers of moths this month (>500 per trap) can assess infestations in September by monitoring orchard perimeters for leaf mines.

**BROWN MARMORATED STINK BUG:** Fruit growers are advised to watch for swarms of this pest on warm fall days as the bugs aggregate in search of overwintering sites. Brown marmorated stink bug is now well established throughout much of southern and eastern Wisconsin, with the highest densities concentrated in the areas from Fond du Lac north to Green Bay and in southern Wisconsin from Dane and Rock counties east to Milwaukee. Nymphs and adults usually remain active through October or early November.



Brown marmorated stink bug

Krista Hamilton DATCP

**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 berries are not being delivered to markets the same day.

**CODLING MOTH:** Large moth flights continued in a few southern orchard locations in the past week, though num-

bers have begun to decline at most sites. 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 should find visible fruit damage at harvest. If trap counts were high (>10 per week) yet no damage is observed this fall or less than 1% of fruits are infested, then the source of the moths is likely from outside of the orchard.



Codling moth larval damage to apples

Patrick Clement flickr.com

## VEGETABLES

**LATE BLIGHT:** Potato and tomato growers are advised to continue routine scouting for signs of infection. Late blight has been confirmed in Adams and Pierce counties as of August 27. Rigorous sanitation including complete removal and destruction of all infected plants and debris is required if lesions are noticed. Late blight spores can travel significant distances, making this disease a community matter. Control of active infections is required by law, by either fungicide treatment or crop destruction. For removed plants, composting will not generate sufficient heat to kill the pathogen and is not recommended.

**WHITEFLIES:** A severe infestation of whiteflies was observed on tomato plants in La Crosse County. The flies were abundant enough that the tomato foliage and fruits had become covered in sooty mold from their honeydew secretions. Whitefly populations on this order can produce a noticeable yield reduction by impairing photosynthesis and contaminating the fruits. Control is particularly difficult late in the season once heavy infestations have developed. Management through biological control, includ-

ing the commercially available parasitic wasp *Encarsia formosa*, is an option for growers who experience consistent whitefly problems.



Whiteflies on tomato leaf

Krista Hamilton DATCP

**SQUASH BUG:** Egg laying is still occurring in home gardens and larger cucurbit plantings. Several fresh egg masses and many small nymphs were found this week on squash, pumpkins and zucchini on several southern Wisconsin community gardens, emphasizing the need for thorough fall cleanup 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.



Squash bug eggs and nymphs

Krista Hamilton DATCP

**BASIL DOWNY MILDEW:** Symptoms of this rapidly-spreading, destructive disease are appearing on basil on western Wisconsin CSA farms. If basil downy mildew is suspected, harvesting immediately is the best option for avoiding total crop loss. Plants that are already showing

noticeable BDM symptoms, such as yellowing leaves and gray downy growth on the lower leaf surface, should be promptly removed and disposed of off-site.



Basil downy mildew

Angela Madeiras UMass

## NURSERY & FOREST

**REDHEADED FLEA BEETLE:** Damage caused by redheaded flea beetles has been notably high in nurseries throughout the state this season. Once considered mainly a pest of agricultural crops, this generalist defoliator has become an increasingly serious pest on a wide assortment of nursery stock. Favored plants include dogwood, hydrangea, Itea, weigela, and various fruits and berries. Nursery managers have expressed concern about the beetles migrating from nearby crops into nursery production areas, where the threshold for damage is much lower.



Redheaded flea beetle

Tim Boyle DATCP

Because the adult flea beetles also feed on many weed species, weed control in nurseries, including container

stock, is important for flea beetle management. Recent research has shown that inoculating containers with the entomopathogenic nematode *Steinernema carpocapsae*, when beetle larvae are active, has significantly reduced larval and adult populations. The fungi *Beauveria bassiana* and *Metarhizium anisopliae* also show promise for controlling larvae, as does azadirachtin (from neem seed), and several insecticides labeled for that use. If chemical control is justified, thorough coverage of all plant parts and growing medium is critical. Rotation of active ingredients is important to prevent resistance and limit outbreaks of other pests during the treatment cycles.



Red headed flea beetle

NC State Extension

**MOUSE-EAR DISORDER:** The river birch disorder known as “mouse-ear” disorder, “little leaf,” or “squirrel ear” was observed by inspectors in a central Wisconsin nursery. According to the grower, mouse-ear has been a periodic problem in the nursery since the 1970s, particularly in container-grown river birch trees.



Mouse ear disorder on river birch

Tim Boyle DATCP

Symptoms include stunted, wrinkled and cupped foliage, with leaves often being abnormally dark green with necrotic margins. New growth commonly has shortened internodes that give affected trees a “witches-broom” or spikey appearance.



*Mouse ear disorder on river birch*

*Tim Boyle DATCP*

Mouse-ear commonly develops later in summer when containers become root-bound, on border rows where high root-zone temperatures reduce growth, and where sprinklers or damaged drip systems cause moisture stress. Nickel micronutrient deficiency is also thought to be a contributing factor, and foliar and drench applications of nickel sulfate are sometimes effective in reversing the disorder if applied in the early stages. Lowering soil media pH to 5.0-6.0 is also recommended.

**SPIDER MITES:** Nursery inspections continue to find heavy spider mite pressure on a variety of plants, including daylily, rose, and many other ornamentals and trees.



*Boxwood spider mite stippling*

*Tim Boyle DATCP*

Mite damage often intensifies as summer weather becomes hotter and drier. Initial symptoms appears as stippling or speckling on leaves and sometimes a fine webbing on the foliage. Severely infested plants eventually turn yellow and stop growing.

Light infestations can be resolved with insecticidal oil or a soap spray applied two times, 7-10 days apart. Heavy infestations may require a residual miticide. Natural enemies (ladybugs, minute pirate bugs, predatory thrips or predatory mites) are also very important for regulating mite outbreaks. Since spider mites thrive in dry, dusty conditions, rinsing tree branches and keeping bare patches of ground damp to reduce flying dust can help with control on tree farms and in orchards.



*Boxwood spider mite damage*

*Tim Boyle DATCP*



## APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 20 - 26

COUNTY	SITE	STLM <sup>1</sup>	RBLR <sup>2</sup>	CM <sup>3</sup>	OBLR <sup>4</sup>	DWB <sup>5</sup>	LPTB <sup>6</sup>	BMSB <sup>7</sup>	AM RED <sup>8</sup>	YELLOW <sup>9</sup>
Bayfield	Keystone	29	0	0	0	0	0	0	3	6
Bayfield	Oriente	48	0	0	0	4	0	0	0	0
Brown	Oneida	815	56	15	10	10	0	0	1	0
Columbia	Rio	0	32	1	0	—	0	0	0	0
Crawford	Gays Mills	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	27	120	2	0	0	0	0	0	0
Dane	McFarland	—	—	—	—	—	—	—	—	—
Dane	Stoughton	164	260	9	0	0	2	3	0	0
Fond du Lac	Campbellsport	—	—	—	—	—	—	—	—	—
Fond du Lac	Malone	42	16	9	4	6	0	1	2**	0**
Fond du Lac	Rosendale	143	21	2	4	1	0	0	1	2
Green	Brodhead	17	55	2	2	44	4	—	0	0
Iowa	Mineral Point	195	45	9 MD	0 MD	2	—	0	0**	—
Jackson	Hixton	67	8	2	0	1	0	0	0	0
Kenosha	Burlington	163	115	4	1	24	1	0	1**	—
Lafayette	Belmont	17	5	0 MD	0	0	1	0	0	0
Marathon	Edgar	245	11	1	0	3	0	0	0	1
Marinette	Niagara	83	1	0 MD	1	1	0	0	1	0
Marquette	Montello	648	96	5	0	0	3	0	0*	0*
Ozaukee	Mequon	30	0	1	0	0	0	0	0	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	124	76	0 MD	0	8	0	0	0*	0
Racine	Raymond	174	101	5	0	8	2	—	0	0
Racine	Rochester	0	40	10	0	2	2	2	12*	0
Richland	Hill Point	17	9	6	0	1	1	0	0**	2**
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	65	8	0 MD	4	4	0	0	0	0
Walworth	Elkhorn	21	10	0 MD	4	2	1	0	1	1
Waukesha	New Berlin	230	21	4	1	7	4	—	0	0

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

COUNTY	SITE	BCW <sup>1</sup>	CEL <sup>2</sup>	CE <sup>3</sup>	DCW <sup>4</sup>	ECB <sup>5</sup>	FORL <sup>6</sup>	SCW <sup>7</sup>	TA <sup>8</sup>	VCW <sup>9</sup>	WBC <sup>10</sup>
Columbia	Arlington	—	—	—	—	—	—	—	—	—	—
Columbia	Pardeeville	0	0	0	0	1	5	0	10	1	0
Dodge	Beaver Dam	0	0	0	25	7	1	1	0	0	0
Fond du Lac	Ripon	0	2	2	31	8	1	16	2	0	0
Grant	Prairie du Chien	—	—	—	—	—	—	—	—	—	—
Langlade	Antigo	0	0	0	3	0	7	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	0	0	0	27	0	0	45	0	0	4
Monroe	Sparta	0	0	1	11	9	0	7	0	0	0
Rock	Janesville	0	0	2	4	11	0	0	0	0	0
Walworth	East Troy	—	—	—	—	—	—	—	—	—	—
Waushara	Hancock	—	—	—	—	—	—	—	—	—	—
Wood	Marshfield	1	0	0	3	0	0	21	0	0	0

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