

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

Early July heat and humidity accelerated crop development throughout Wisconsin. High temperatures at the start of the week reached or exceeded the 90-degree mark in several locations, with lows ranging from the upper 40s to lower 70s. Scattered thunderstorms on July 4-5 produced locally heavy rainfall, otherwise mainly dry weather prevailed over the weekend as high pressure brought calm and pleasant summer conditions. Harvest of second crop alfalfa continued across the state, with growers reporting widely variable quality and yields. Crop condition ratings for corn and soybeans were also reported to be variable. Corn was rated as 59% good to excellent at the start of the week, which compares to 84% at this time last year. Sixty-four percent of soybeans were in the good and excellent categories, far lower than last year's 83%. Surplus rain from recent storms have caused crop damage and left excess water in low areas, especially in central and eastern Wisconsin where fields are generally wetter than in the western region.

LOOKING AHEAD

WESTERN BEAN CUTWORM: The annual flight began last week, though only four moths have been collected in four of DATCP's 54 survey traps as of July 10. The moths were reported from Dodge, La Crosse, Monroe

and Sauk counties. Scouting corn plants for egg masses and small larvae should begin at 25% moth emergence, which is predicted for the week of July 15-21 in southern Wisconsin.

LATE BLIGHT: Disease severity value (DSV) accumulations near Grand Marsh, Hancock, Plover and Antigo (except for the latest plantings in Antigo) have exceeded the late blight risk threshold triggering preventative fungicide application. UW-Extension Vegetable Plant Pathologist Dr. Amanda Gevens recommends that treatments to limit initial late blight infection begin at this time. As of July 10, no cases of late blight have been detected in the state.

EUROPEAN CORN BORER: Pupation of first generation corn borers is expected to start in advanced southern locations next week. Surveys indicate that larvae from the spring flight are presently in the second to fifth instars. The treatment window for first-generation larvae has closed in the southwest quarter of the state, from Sullivan northwest to La Crosse. Chemical control remains an option for a few more days in the eastern and northern counties.

APPLE MAGGOT: Adult flies were captured on orchard traps this week, signaling the start of the adult emergence period. Close monitoring of red sphere and yellow sticky traps is recommended, particularly for orchards

impacted by recent heavy rain. Maintenance of traps will be important as oviposition on apples increases in late July and early August.

BROWN MARMORATED STINK BUG: Newly hatched brown marmorated stink bug (BMSB) nymphs were observed in Madison on June 29, confirming the start of the first-generation of stink bugs in Dane County. BMSB is thought to have a single generation per year in Wisconsin depending on temperatures, although an early spring and summer heat could permit the development of two generations in warmer years.



Brown marmorated stink bug nymphs and eggs marylandbiodiversity.com

JAPANESE BEETLE: Numbers are increasing in fruit and field crops over much of the state. This beetle could become a serious problem this season since soil moisture levels have been very favorable for the larval stages. Damage to fruit trees, ornamentals and field crops will intensify this month and control may be necessary. Spot treatment of individual trees or problem areas is usually an effective approach.

SPOTTED WING DROSOPHILA: Fly emergence has escalated in the last two weeks and eggs are being laid on fruits. The small white SWD maggots should be noticeable in berries. The UW-Extension recommends the salt-water floatation method (four cups water and ¼ cup salt added to sealable bag with slightly crushed berries) to check for larvae in fruits. Allow 10-15 minutes for the larvae to emerge and float to the surface.

According to the Door County Agriculture Educator, the first SWD flies of the season are now appearing at the Peninsular Research Station. Female flies were captured in three separate traps on July 9.

DEGREE DAYS JANUARY 1 - JULY 10

LOCATION	50°F	2018	NORM	40°F
Dubuque, IA	1347	1596	1334	2255
Lone Rock	1219	1415	—	2075
Beloit	1241	1386	1351	2103
Sullivan	1119	1283	1263	1932
Madison	1209	1375	1285	2073
Juneau	1059	1312	—	1852
Racine	976	1161	—	1770
Waukesha	1074	1209	—	1885
Milwaukee	1006	1203	1151	1809
Hartford	1040	1257	—	1829
Appleton	1005	1311	—	1781
Green Bay	971	1264	1118	1740
Big Flats	1035	1335	—	1833
Hancock	984	1234	1251	1760
Port Edwards	987	1246	1218	1754
La Crosse	1158	1499	1411	2014
Eau Claire	1102	1415	1260	1900
Cumberland	922	1171	1159	1622
Bayfield	754	1010	—	1394
Wausau	857	1145	1133	1545
Medford	852	1119	1030	1532
Crivitz	924	1194	—	1639
Crandon	852	1084	891	1512

Method: Modified B50; Modified B40 as of January 1, 2019.
 NORMALS based on 30-year average daily temps, 1981-2010.

FORAGES & GRAINS

POTATO LEAFHOPPER: Counts in alfalfa have increased above established economic thresholds in many fields. Levels at some sites are extremely high. Surveys conducted in Grant, Lafayette, Richland and Vernon counties found a range of 0.9-7.0 adults and nymphs per sweep and a very high average of 3.5 per sweep. Two Grant County fields, one near Fennimore and the other near Benton, had averages of 7.0 per sweep. Counts in Adams, Juneau, Marquette, Green Lake and Waushara counties were also generally high and varied from 0.1-4.3 per sweep, with an average of 1.7 per sweep. Of the 40 fields sampled this week, 19 or 48% had economic leafhopper populations.

Adjusting harvest schedules cannot generally be used to manage leafhopper population buildup. Control may be necessary when scouting indicates populations have exceeded the economic threshold of 1.0 per sweep for

alfalfa 8-11 inches and 2.0 per sweep for fields 12 inches or taller in height.



Alfalfa with hopperburn

Krista Hamilton DATCP

PEA APHID: Populations have decreased sharply since late June. The average from July 4-10 was only 0.5 per sweep. Potato leafhoppers have replaced pea aphids as the most abundant insect pest in alfalfa at this time.

ALFALFA WEEVIL: Pupation is occurring statewide and feeding should subside next week. Larval populations in central and southwestern Wisconsin have declined to near zero in the past two weeks, with 0-10 weevils per 100 sweeps being the typical count.

PLANT BUG: Combined averages of the alfalfa and tarnished plant bugs varied from 0-0.2 per sweep and averaged 0.1 per sweep. These counts are considered extremely low for this pest. Once again, the economic threshold for combined counts of plant bug adults and nymphs is 5.0 per sweep.

CORN

CORN ROOTWORM: Beetle emergence is beginning in southern Wisconsin. These insects will become increasingly noticeable throughout July, with peak emergence anticipated around mid-August. Two consecutive years of historically low beetle counts (2017-18) indicate that overall beetle pressure could be down again this season, although individual fields with root damage should still be expected. The state average of 0.2 beetle per plant recorded in both 2017 and 2018 was the lowest on record. Excessively wet soils throughout much of the state in June also may have impacted egg populations.

STALK BORER: Surveys of V9- VT corn found infestation rates of 1-16%, with the highest population noted in Richland County. Treatment is no longer an option for many southern and western Wisconsin fields since the larvae have bored into the stalks and unemerged tassels. Treatments must be applied from 1,400-1,700 degree days (base 41°F), or prior to the V7 stage. Stalk borer feeding is unlikely to kill individual corn plants beyond V7.

EUROPEAN CORN BORER: Larval infestation rates are generally less than 5% in surveyed fields. Corn borer caterpillars range in development from second to fifth instar, with the third instar being the most prevalent stage. Only 5% of the cornfields sampled from July 4-10 had signs of ECB infestation.



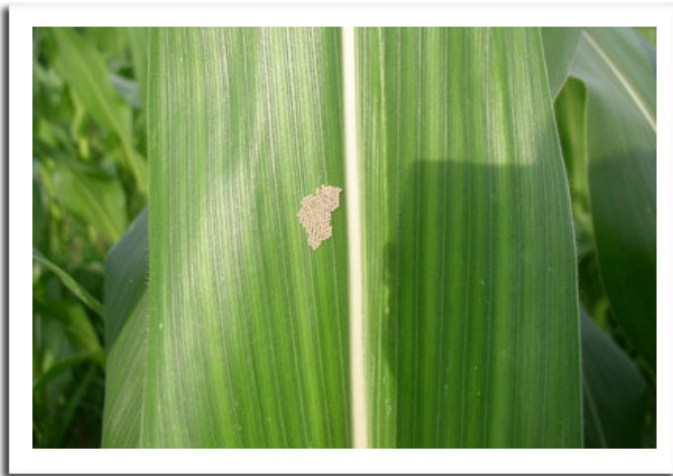
Fifth-instar European corn borer larva

Krista Hamilton DATCP

TRUE ARMYWORM: Significant flights have ended at black light trap locations, but continued scouting of corn and wheat is recommended. Larvae from heavy moth flights (400-1,100 moths) in June should be noticeable soon and localized armyworm problems often develop in at least a few scattered corn and wheat fields in July. Field conditions remain very favorable for armyworm problems.

WESTERN BEAN CUTWORM: Moth emergence began last week. Based on projected degree-day accumulations, 25% emergence of the moth population can be expected during the week of July 15-21 in the southern counties. A revised model developed by UNL and UMN entomologists shows that the optimal method for forecasting the western bean cutworm flight uses simple degree-day calculations beginning March 1, with a 38°F lower threshold and a 75°F upper threshold. The new cumulative flight model indicates that 25% of moth flight

should be complete when 2,577 degree-days have accumulated. Scouting pretassel corn to estimate egg density is recommended at 25% moth emergence.



Western bean cutworm egg mass

Krista Hamilton DATCP

SOYBEANS

DEFOLIATORS: Defoliation is common but light in surveyed fields, usually affecting 1-5% of plants. The leaf feeding insects observed during recent surveys were the rose chafer, bean leaf beetle, Japanese beetle, sand chafer, slugs and various caterpillars (including thistle caterpillars and the silver-spotted skipper). Defoliation rates have not exceeded the 20% economic threshold for soybeans in the early bloom stages as of July 11.



Sand chafer

Krista Hamilton DATCP

SOYBEAN APHID: Levels of this insect remain very low. In fact, 30 of the 33 (91%) soybean fields surveyed this week still had no detectable aphid population. Average counts at the sites sampled from July 4-10 were less than

one aphid per plant and seven per infested plant, based upon examination of 100 plants per field. The highest total count was only 37 aphids on 1 of 100 plants in a Fond du Lac County field.

Despite the low sample numbers, aphid populations could increase rapidly in flowering soybean fields and economic densities may develop by early August. This pest requires consistent monitoring from now until the R5.5 stage of soybean growth in August.

FRUITS

APPLE MAGGOT: Emergence of adults began this week, with captures of 1-2 flies reported from cooperating orchards in Fond du Lac, Iowa and Sheboygan counties. Apple maggot traps should be cleaned of non-target flies periodically and recoated with insect sticky trap material as needed.



Apple maggot fly

growing fruit.org

CODLING MOTH: Egg hatch has peaked in most apple orchards. First-generation larvae are presently in the early to intermediate growth stages, and now is an opportune time to inspect fruits for entry holes and frass to assess codling moth control programs. Moth counts in pheromone traps varied widely this week from 1-22 per trap, with eight sites reporting economic counts of five or more moths.

SPOTTED TENTIFORM LEAFMINER: The second flight will likely peak soon at southern and central monitoring sites. Heavy egg laying is expected as long as pheromone traps continue to register high numbers of moths. Apple orchards with populations greater than one mine per leaf

or a history of infestation may consider treatment of second generation larvae to reduce build-up of leafminers before the third flight begins in August. The highest trap count for the week ending July 10 was 1,262 moths in Marathon County.



Spotted tentiform leafminer mine Tomasz Binkiewicz www.lepidoptera.eu

GRAPE BERRY MOTH: Female moths will soon begin laying second-generation eggs in southern and western Wisconsin vineyards. Scouting for infested fruits and other signs of GBM, particularly in border rows adjacent to wooded areas in the vineyard, is advised. Treatment of perimeter rows, if warranted, usually provides satisfactory control of this pest. The use of pheromone traps to monitor GBM flights and properly timed controls is also strongly recommended.



Grapes infested with grape berry moth larvae Krista Hamilton DATCP

OBLIQUEBANDED LEAFROLLER: Developing fruits should be inspected for first-generation leafroller larvae and early damage. Effective control of the current brood will

minimize injury and reduce the size of the later generation in August and September. Treatment is justifiable when 3% of terminals are infested, based on examination of five growing points per tree in at least 10 widely separated trees.

BROWN MARMORATED STINK BUG: Nymphs are emerging in Dane County. BMSB clear sticky panel traps should be in place to monitor summer stink bug activity. Cooperators are reminded that the sticky traps now supplied by DATCP must be baited with a combination of BMSB lure and the green stink bug (GSB) lure provided with this season's trapping supplies.

VEGETABLES

TOMATO HORNWORM: Moths have begun laying eggs on the undersides of tomato leaves in southern Wisconsin. Tomato growers who have experienced past problems with this pest should start inspecting plants for the smooth, spherical, pale green eggs deposited individually on the lower surface of leaves. Once the eggs hatch, the larvae grow rapidly and can quickly defoliate plants. Prompt removal of the larvae is the best control measure.



Tomato hornworm larva

[braddock outdoor.bloggning.com](http://braddockoutdoor.bloggning.com)

STRIPED CUCUMBER BEETLE: Gardeners and farmers should continue scouting cucurbit plants for these yellow and black striped beetles that transmit bacterial wilt. Surveys indicate economic infestations of 2-4 beetles per plant are common in southern and western Wisconsin gardens. Cucurbits infected with bacterial wilt first exhibit flagging of individual lateral leaves, followed by wilting and death of the entire plant. The treatment threshold for cucumber beetles is one beetle per plant in melons, cu-

cumber, Hubbard and butternut squash, and younger pumpkins. For other squash varieties, watermelon and older pumpkins, the threshold is five adults per plant.

BACTERIAL SPOT: This disease is developing on bell pepper foliage in a La Crosse County community garden for the second year in a row. Bacterial leaf spot (BLS) is a very common, destructive disease of peppers in the U.S. Symptoms include leaf spots that initially appear water-soaked, then become brown and irregularly shaped. Infected leaves often turn yellow and drop. Raised, scab-like spots may develop on fruits, reducing yield and exposing peppers to potential sunscald. In severe cases, complete crop failure can occur.

Infected seed is an important source of the bacterium that causes BLS in pepper. Therefore, the use of disease-free seed and transplants are important in BLS management. Infected plant debris and weeds are additional sources of the pathogen and must also be eliminated to reduce the amount of the pathogen available to initiate disease.



Bacterial spot on bell pepper

Krista Hamilton DATCP

EUROPEAN EARWIG: Rainy weather this season is contributing to the high populations of this nocturnal, moisture-favoring pest. Earwigs are prevalent in vegetable and flower gardens, greenhouses and basements, as are reports of leaf and flower damage on arugula, beans, cabbage, lettuce, hostas, marigolds, potatoes and other favored hosts.

ONION MAGGOT: Second-generation flies are emerging near Madison, La Crosse, Spring Green and other locations where 1,950 GDD (simple base 40°F) have been surpassed. Emergence is anticipated near Fond du Lac,

Eau Claire and Hancock in the week ahead. Management of the summer generation is less critical than spring and fall populations since egg desiccation and mortality rates are higher at warmer temperatures, but season-long sanitation is still important for preventing future infestations. Second-brood eggs are deposited near previously-damaged onions.

BASIL DOWNY MILDEW: This disease was confirmed by the UW on basil in south-central Wisconsin last week. First reported in Wisconsin in 2010, basil downy mildew (BDM) can rapidly destroy entire basil crops. Diagnostic characteristics include yellowing and downward curling of foliage and grayish-purple, fuzzy sporulation on leaf undersides. This disease can spread by infected seed, transplants or by windblown spores and thrives under moderate temperatures and high humidity, with symptoms progressing from the lower leaves upward.



Basil downy mildew

Angela Madeiras UMass

Basil crops should be routinely inspected for yellowed leaves and gray downy growth on the lower leaf surface now that BDM has been found in the state. If basil downy mildew is suspected, the infected plant should be promptly removed and destroyed. Only certain fungicides can protect plants from this disease and treatments must begin before symptoms develop. Harvesting early may be the best option for avoiding losses. For BDM control recommendations refer to the June 2 UWEX Vegetable Crop Update: <https://wivegdis.wiscweb.wisc.edu/wp-content/uploads/sites/210/2019/06/Update-6-June-2-2019.pdf>

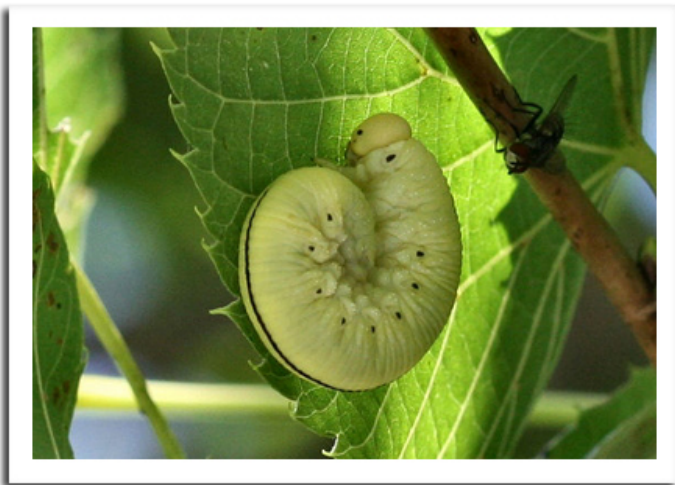
SQUASH BUG: Populations of this vine crop pest typically increase sharply by mid-July with the appearance of many small nymphs. An average of one egg mass per plant when plants are flowering is recommended as the

basis for initiating treatment. For gardens, hand picking and destroying the bugs and their eggs is most effective. Another option is to place cardboard or newspaper on the ground next to the plants. At night the squash bugs will collect beneath the cardboard and can be destroyed in the morning. Organic growers may use directed applications of pyrethrum (PyGanic) or the pre-mix with azadirachtin (Azera). Refer to UWEX publication A3422 "Commercial Vegetable Production in Wisconsin" for a list of registered insecticides.

NURSERY & FOREST

POISON IVY GALL MITE: A light infestation of poison ivy gall mite was found earlier this week on sumac 'Gro-Low' in Sawyer County. The unsightly leaf bumps are caused by a tiny eriophyid mite (*Aculops rhois*), which can also infest poison ivy. Eriophyid mites are generally not cause for concern in terms of plant health, but they can become an aesthetic issue.

ELM SAWFLY: Leaf feeding injury thought to be caused by the larvae of the elm sawfly (*Climbex americana*) was observed on elm foliage in a Rocky County nursery. This native species prefers elms but has a broad host range that also includes maples and willows. The pale yellow larvae with a black lateral stripe can grow up to 2 inches long and are one of the largest North American sawflies. Defoliation by this insect usually does not threaten tree health.



Elm sawfly larva

Moni Hayne buggide.net

ELM LEAFMINER SAWFLY: Elm trees at nurseries in multiple counties across southern Wisconsin were showing

leaves with mines caused by this species (*Fenusa ulmi*). Unlike the native elm sawfly, the elm leafminer sawfly is endemic to Europe and Asia. The larval stages damage foliage by mining the mesophyll tissue between the upper and lower epidermis, creating visible blotchy leaf mines. Damage is considered mostly aesthetic, though treatment targeting adults can be warranted in rare situations to control severe infestations.



Elm leafminer sawfly larvae

Joe Boggs OSU Extension

CHOCOLATE VINE: Nursery inspectors found this prohibited plant for sale at an Eau Claire County dealer location. Also known as fiveleaf akebia, chocolate vine is classified as a prohibited plant under the DNR Invasive Species Rule. The "prohibited" category includes plants not yet found in the state, but if introduced, "are likely to survive and spread, potentially causing significant environmental or economic harm or harm to human health."

Chocolate vine tolerates a wide range of sun exposure and moisture and has the potential to invade Wisconsin forests and wetlands. It infests trees and can grow densely up into the canopy and on top of ground cover, shading out other vegetation. The small purple flowers are known to emit a chocolate-like odor. Additional information about the Department of Natural Resources NR 40 rule is available at: <https://dnr.wi.gov/topic/Invasives/classification.html>.

APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 4 - 10

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	DWB ⁵	LPTB ⁶	BMSB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	0	0	3	0	4	15	0	—	—
Bayfield	Orienta	2	0	0	0	9	17	—	—	—
Brown	Oneida	670	11	2	5	50	4	0	—	—
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	—	—	—	—	—	—	—	—	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	108	84	1	3	6	0	0	0	0
Dane	Stoughton	336	51	8	41	38	—	—	—	—
Fond du Lac	Campbellsport	200	10	0	2	2	1	0	—	—
Fond du Lac	Malone	120	37	5	3	22	0	0	**1	0
Fond du Lac	Rosendale	46	21	3	1	4	2	0	0	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	—	—	—	—	—	—	—	—	—
Iowa	Mineral Point	185	128	8	9	—	0	—	*1	—
Jackson	Hixton	52	2	3	2	8	13	—	—	—
Kenosha	Burlington	150	51	9	22	38	3	0	0	0
Marathon	Edgar	1262	11	4	2	86	6	0	0	0
Marinette	Niagara	12	0	0 ^{MD}	7	10	4	—	—	—
Marquette	Montello	648	103	1	2	14	5	0	0	0
Ozaukee	Mequon	50	6	5	5	0	2	0	0	0
Pierce	Beldenville	26	6	1	2	0	2	0	0	0
Pierce	Spring Valley	226	20	0 ^{MD}	16	59	26	0	—	—
Racine	Raymond	660	28	16	38	63	8	0	0	0
Racine	Rochester	434	62	9	42	23	0	0	0	0
Richland	Hill Point	196	42	4	0	9	6	0	0	**0
Sheboygan	Plymouth	775	0	0 ^{MD}	0	0	1	—	**3	0
Walworth	East Troy	—	—	0 ^{MD}	—	—	—	—	—	—
Walworth	Elkhorn	—	—	0 ^{MD}	—	—	—	—	—	—
Waukesha	New Berlin	250	32	22	5	20	15	0	0	0

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	CE ³	DCW ⁴	ECB ⁵	FORL ⁶	SCW ⁷	TA ⁸	VCW ⁹	WBC ¹⁰
Columbia	Arlington	—	—	—	—	—	—	—	—	—	—
Columbia	Pardeeville	0	0	0	0	14	2	17	6	0	0
Dodge	Beaver Dam	0	0	0	0	0	0	2	2	1	1
Fond du Lac	Ripon	0	0	0	0	0	0	2	0	0	0
Grant	Prairie du Chien	0	0	0	0	0	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	0	0	0	0	0	2	71	4	0	0
Monroe	Sparta	0	0	0	0	0	3	0	0	0	0
Rock	Janesville	0	2	0	0	0	6	5	28	11	0
Walworth	East Troy	0	0	0	0	0	0	0	0	0	0
Wood	Marshfield	1	0	0	3	0	0	21	1	0	0

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