

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

Excessive heat and humidity accelerated summer crop development across the state during the week. A brief but intense heat wave began on July 21 and lingered until July 24, with highs approaching the mid-90s and heat index values exceeding 110°F in many locations. Overnight lows were abnormally warm and cooled to only the upper 60s and mid-70s. Significant weekend rain eased heat stress on crops and boosted soil moisture supplies, which averaged 94% adequate or surplus statewide at the start of the week, while tropical conditions spurred crop growth even farther ahead of average. Corn is advancing rapidly through the temperature-sensitive tassel and silk stages, and development is four days ahead of last year and six days ahead of the five-year average. Soybean pod setting progressed by more than 20 percentage points and development of the state's crop is now approximately two weeks ahead of last year and the long-term average. Condition ratings for corn and soybeans remain very favorable with 86% of both crops categorized as good to excellent.

LOOKING AHEAD

WESTERN BEAN CUTWORM: Moth counts have peaked at most southern and central monitoring sites. The cumulative state total as of July 27 is 1,185 moths in 75 pheromone traps, which is an increase from last year's

count of 644 moths but still low in comparison to the numbers documented from 2007-2012, when flights of 2,200-10,800 moths were recorded. Preliminary results of the 2016 annual trapping survey are summarized in the map on page 91.

SOYBEAN APHID: Monitoring efforts should be increased in all areas of the state as more fields enter the pod-setting stages. DATCP surveys indicate average densities are low at fewer than 35 aphids per plant, though individual fields could develop economic populations early next month. Foliar treatment is not recommended until soybean fields have been thoroughly sampled to determine if the established threshold of 250 aphids per plant on 80% of the plants has been exceeded.

SPOTTED WING DROSOPHILA: Emergence has surged since mid-July and is expected to intensify in August. Inspecting fruits for larvae, installing exclusion netting, and maintaining protective insecticide coverage are all important measures for protecting berry crops from SWD at this time. Chemical spray programs, alternating at least three different materials (different modes of action), should be initiated as fruit begins to color and continue every 4-5 days through harvest, with consideration of pre-harvest and reentry intervals. Chilling berries immediately after harvest to 34°-36° F is recommended to slow development of larvae and eggs in fruits that may be infested.

CORN EARWORM: Migrants arrived in very low numbers for the third week. Although the monthly total count of only 20 moths at 18 pheromone trap locations signals a low risk of earworm infestation as of late July, scouting of silking cornfields should be increased. Monitoring network participants are reminded to replace lures on a weekly basis.

JAPANESE BEETLE: Reports suggest that these beetles are more abundant than in the previous 6-7 years, and significant damage is occurring in some apple orchards, nurseries and vineyards. Continued weekly scouting is advised in August for apples, corn, grapes, soybeans, and all other susceptible crops as long as beetles are present.



Japanese beetle

Benimoto flickr.com

EUROPEAN CORN BORER: The treatment window for second-generation larvae has opened across southern and central Wisconsin with the accumulation of 1,550 degree days (modified base 50°F). Susceptible corn should be inspected next week for egg masses and small larvae. Chemical control directed against early-instar corn borers will remain an option until 2,100 degree days have been surpassed, or for approximately 2-3 weeks under normal August temperatures.

FORAGES & GRAINS

BLACK BLISTER BEETLE: A few alfalfa fields surveyed in Fond du Lac, Jackson, Monroe and Trempealeau counties contained low counts of 1-2 beetles per 100 sweeps. Blister beetles can be an indicator of potentially high grasshopper populations since the immature stages are predaceous upon grasshopper eggs. Survey observa-

DEGREE DAYS JANUARY 1 - JULY 27

LOCATION	50°F	2015	NORM	48°F	40°F
Dubuque, IA	1796	1706	1711	1927	2843
Lone Rock	1752	1631	—	1881	2764
Beloit	1842	1703	1734	1996	2894
Sullivan	1548	1342	1634	1664	2473
Madison	1728	1603	1654	1860	2710
Juneau	1528	1472	—	1648	2458
Racine	1616	1275	—	1758	2578
Waukesha	1500	1342	—	1609	2419
Milwaukee	1610	1284	1529	1762	2568
Hartford	1507	1342	—	1621	2431
Appleton	1468	1409	—	1590	2378
Green Bay	1446	1304	1461	1579	2354
Big Flats	1614	1521	—	1721	2518
Hancock	1614	1521	1605	1721	2518
Port Edwards	1590	1473	1570	1699	2510
La Crosse	1884	1714	1809	2049	2943
Eau Claire	1663	1543	1624	1791	2644
Cumberland	1387	1377	1510	1482	2277
Bayfield	1162	1079	—	1244	1912
Wausau	1457	1296	1477	1551	2314
Medford	1333	1253	1348	1387	2149
Crivitz	1321	1224	—	1415	2116
Crandon	1290	1147	1154	1353	2060

*Method: ModifiedB50; Sine48; ModifiedB40 as of Jan 1, 2016.
NORMALS based on 30-year average daily temps, 1981-2010.*

tions suggest that grasshoppers have increased sharply in the margins of many alfalfa, corn and soybean fields.

POTATO LEAFHOPPER: Surveys continue to yield below-threshold counts of less than two leafhoppers per sweep, despite favorably hot temperatures of late July. Nevertheless, weekly monitoring of third- and fourth-crop alfalfa throughout August is recommended.

PLANT BUG: Counts are similar to last week at 0.1-1.3 adults and nymphs per sweep. Most fields contain 0.5 plant bugs or fewer per sweep, a fraction of the economic threshold of five per sweep. Nymphs have become more abundant in alfalfa in the last two weeks and now comprise about 50-75% of the plant bugs in sweep net collections.

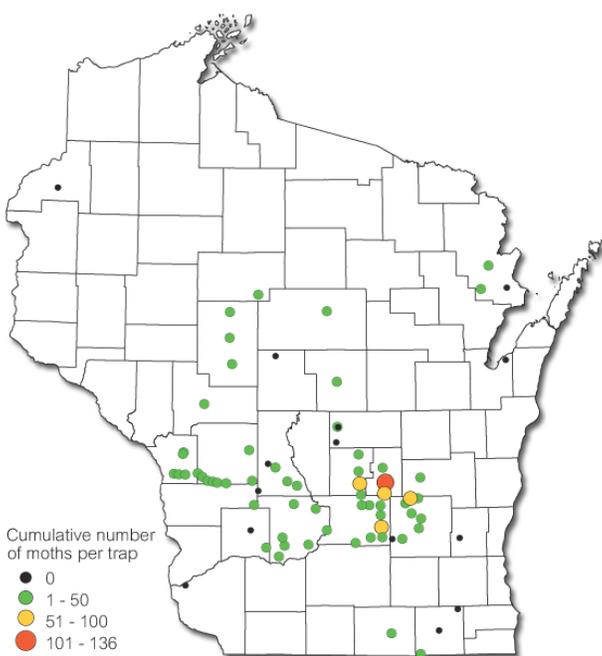
PEA APHID: Levels are still low at less than two aphids per sweep in most alfalfa fields sampled in southern and western Wisconsin. Average counts in the eastern

counties of Brown, Marinette, Oconto, Outagamie and Winnebago are slightly higher at 2-7 per sweep.

CORN

WESTERN BEAN CUTWORM: The western bean cutworm degree day model indicates that 75% or more of the moth population has emerged near Beloit, La Crosse, Spring Green and other advanced locations. Emergence is about 50% complete in the central counties where activity appears to have peaked. High counts for the period of July 21-27 was 71 moths in the pheromone trap near Markesan in Marquette County and 32 in the Beaver Dam (Dodge County) black light trap. The cumulative state count to date is 1,185 moths in 75 pheromone traps, which is still comparatively low based on the trap counts documented since surveys for this pest began in Wisconsin in 2005.

Western Bean Cutworm Trap Counts 2016



Wisconsin Department of Agriculture, Trade and Consumer Protection 

JAPANESE BEETLE: Moderate infestations of 10-30 beetles per 100 plants have been observed since early July in scattered fields in the southern and west-central counties. The greatest threat to corn at this time of year is when large numbers of beetles converge on corn silks, potentially impairing pollination. Control is warranted for populations that exceed three beetles per ear when pollination is occurring.

EUROPEAN CORN BORER: Moths of the second flight continue to appear in black light traps, signaling that eggs are being deposited on corn and other hosts. The peak of summer moth activity can be expected by August 12 across the southern two-thirds of Wisconsin. Sweet corn and non-Bt field corn should be inspected for egg masses and larvae before 2,100 degree days (modified base 50°F) are surpassed and the treatment window for second generation corn borers closes.



European corn borer moth

Krista Hamilton DATCP

CORN LEAF APHID: Light populations of 15-40 aphids per plant were noted on a few corn plants in La Crosse and Monroe County fields on July 25. Pressure of 50 or more aphids per plant on 50% of the tassels and silks can interfere with pollination and may require treatment.



Corn leaf aphid

Tom Harvey insects.tamu.edu

CORN EARWORM: Moth counts remained low this week, with pheromone traps in Cottage Grove, Madison, Mayville, Pardeeville, and Ripon registering only 1-5 migrants

per trap. A pheromone trap capture of 5-10 moths for three consecutive nights indicates the need for protective treatment of sweet corn fields with green silks. Counts for the week ending July 27 were as follows: Arlington 0, Beaver Dam 0, Coon Valley 0, Cottage Grove 1, Hancock 0, Janesville 0, Madison 1, Marshfield 0, Mayville 5, Par-deeville 3, Prairie du Chien 0, Ripon 1, Sun Prairie 0, Sun Prairie North 0, Watertown 0, Waupun 0 and Wausau 0.



Corn earworm larva

Krista Hamilton DATCP

SOYBEANS

SOYBEAN APHID: Observations from the annual aphid survey currently underway suggest populations are increasing but remain low for late July. Only three of the 49 fields sampled as of July 27 had an average count greater than 25 aphids per plant on 100% of the plants: one in La Crosse County, one in Outagamie County, and another in Trempealeau County. Aphid counts on individual plants in the margins of those fields ranged from 300-580 per plant. All other surveyed fields had extremely low averages of less than 10 aphids per plant. Soybean aphids can reproduce rapidly under the moderately warm weather pattern predicted for the last days of July, with the greatest population growth occurring at temperatures of 70-80°F. Insecticide treatment, if required, is most effective when applied during the full bloom to full pod (R2-R4) stages.

JAPANESE BEETLE: Light to moderate defoliation is widespread in soybeans, though treatment has not been justified for any field sampled so far this season. The economic threshold for Japanese beetle and other leaf feeding soybean pests is 20% defoliation between bloom and pod fill.

OBLIQUEBANDED LEAFROLLER: Most of the larval population observed in the state's soybeans throughout July has pupated. Adult moths should begin emerging by early August.

GREEN CLOVERWORM: Larvae are appearing in southern and western Wisconsin soybean fields. Numbers are still low and defoliation is light (<5% fieldwide), but outbreaks of this caterpillar occur every 5-6 years and conditions are favorable for damaging populations to develop this season.

WHITEFLY: Minor infestations were observed this week in soybeans in the west-central counties. Whiteflies are a common pest of greenhouse plants and commercial vegetables, with high reproductive potential and known resistance to several insecticides. Their sporadic appearance in Wisconsin soybeans is primarily a curiosity since yield reductions have never been documented.



Whiteflies on underside of soybean leaf

Joe Spencer Illinois NHS

FRUITS

JAPANESE BEETLE: Apple orchards near McFarland and Stoughton in Dane County are reporting heavy beetle populations, with significant damage to foliage and the terminal ends of branches along orchard perimeters. If the beetles are causing unacceptable injury and treatment is required, growers can minimize insecticide use by spot treating only the most infested varieties. Conventional growers may use pyrethroids or Imidan for immediate knockdown control, while organic producers could target first with PyGanic and follow up the next day with Neem oil as a repellent. Because sprayed trees can be reinvaded, infested orchard blocks should be in-

spected weekly as long as beetles are present. Never spray when bees are foraging.

APPLE MAGGOT: Counts have been variable but generally low since emergence began four weeks ago. Reports indicate that the largest captures (10 or more flies per trap per week) are occurring in orchards with fruits damaged during hailstorms. According to John Aue of Threshold IPM Services, the volatiles produced by ripening, hail-damaged apples are highly attractive to AM and other fruit flies, and the number of AM flies captured on traps represents only a fraction of the fruit flies population potentially entering the orchard. He notes that other flies in the genera *Rhagoletis* and *Drosophila* can inflict similar damage on hail-injured fruit. Continued maintenance of traps will be important as harvest begins in August. Baited traps should be concentrated in late summer varieties (i.e., cultivars ripening before Paula Red) for monitoring of apple maggot pressure.



Apple maggot fly

Thaddeua McCamant Central Lakes College

CODLING MOTH: Orchardists are advised to continue monitoring pheromone traps to determine options for second generation control. If counts exceed five moths per trap per week and treatment is warranted, materials such as Altacor and Delegate can be applied within five to seven days of harvest. The three formulations of codling moth granulosis virus may be used until harvest and will provide 5-7 days of protection.

STINK BUG: Surveys in field crops suggest that activity is escalating and stink bugs are likely to start invading orchards in greater numbers. Growers can begin inspecting fruits in the week ahead for dimples or dark, irregular circular depressions typical of stink bug feeding, and should flag sites with multiple depressions on the

same fruit or tree. Damage is often limited to specific areas in the orchard and depending on the distribution of the population, spot treatment may be adequate.



Stink bug damage to apples

Maryland Dept of Agriculture

WHITE APPLE LEAFHOPPER: Second generation eggs are beginning to hatch. Apple growers who observed damage caused by the first generation several weeks ago should scout for stippling and whitish spots on leaves in the interior of tree canopies. The summer nymphs feed well into September and can cause significant chlorophyll loss. Ordinarily, control should target first generation nymphs, but if justified, treatments for the second generation are also effective.



White apple leafhopper stippling Whitney Cranshawforestryimages.org

VEGETABLES

SQUASH BUG: Extension personnel and vegetable growers continue to report damaging squash bug populations on cucumber, summer squash and zucchini.

The simplest control is to remove the eggs, nymphs and adults from plants, and submerge the bugs in a bucket of soapy water. Gardeners are also advised to dispose of dead leaves and other plant material which can harbor large numbers of nymphs.



Squash bug nymphs

shyzaboy flickr.com

BLOSSOM END ROT: This disorder of tomatoes, peppers, watermelons and squash is appearing in gardens as tomatoes ripen. The dark, water-soaked spot that starts at the blossom end of the fruit and enlarges around the fruit surface is caused by calcium deficiency or inconsistent soil moisture levels. Since this disease is physiological in nature, fungicides and insecticides are not an effective control. Maintaining even soil moisture levels throughout the season will usually limit the incidence of blossom end rot.



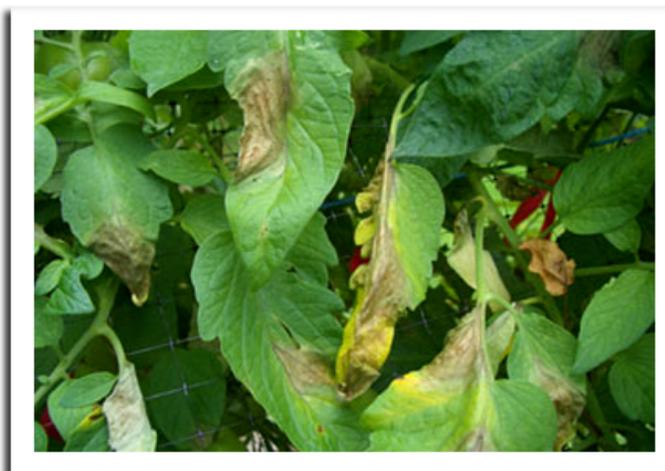
Blossom end rot on tomato

Krista Hamilton DATCP

LATE BLIGHT: The state's first case of late blight of the 2016 season is suspected in an Adams County potato

field. UW Potato and Vegetable Pathologist Dr. Amanda Gevens reports that the dark brown, water soaked lesions with pale green borders characteristic of late blight were observed in the field, though the *Phytophthora infestans* pathogen has not yet been confirmed. Dr. Gevens emphasizes the need for conventional and organic potato and tomato growers in Central Wisconsin to maintain a five- to seven-day preventive fungicide program (copper-containing fungicide treatments approved for organic use). Scouting efforts should also be intensified and concentrated on higher risk areas such as field corners and areas sheltered by trees, where late blight symptoms generally first appear. Registered fungicides for late blight in Wisconsin are listed at the UW-Madison Vegetable Pathology website:

<http://www.plantpath.wisc.edu/wivegdis/pdf/2016/Potato%20Late%20Blight%20Fungicides%202016.pdf>



Late blight symptoms on tomato leaves

Sandy Feather Penn State

NURSERY & FOREST

IRIS RUST: This disease was diagnosed by the Plant Industry Lab on iris 'Louisiana' from Waukesha County. Symptoms of rust on iris are numerous small, pale leaf spots that display an orange-brown 'pustule' of spores when viewed under magnification. As summer progresses, these orange pustules are replaced by black ones and infected leaves turn yellow or brown and die back from the tip. Removing and disposing of all leaf debris at the end of the year is important where iris rust is a problem.

JAPANESE BEETLE: Damage to nursery plants has been noted by inspectors in Eau Claire, St. Croix and Waukesha counties. The pattern of Japanese beetle feeding on

tissues between the leaf veins causes leaves to appear lacy or “skeletonized.” Although most established, healthy trees and shrubs can withstand severe beetle defoliation, repeated years of attack can reduce vigor, quality, and render trees more susceptible to secondary pests. Spot treatment with a contact insecticide should be considered for nurseries if Japanese beetle pressure is high and defoliation levels are unacceptable.



Japanese beetles

Tim Allen DATCP

RAGWORT LEAFMINER: Nursery inspectors found leaf mines caused by the larval stages of this insect on ragwort (*ligularia*) plants in a Sawyer County nursery. The serpentine mines are formed as the larvae tunnel through the leaf tissue and initially appear whitish in color, eventually turning tan or brown later in the season. Damage from leaf miners is usually minor and a cosmetic concern.



Leafminer on ragwort

Timothy Allen DATCP

LECANIUM SCALE: Severe dieback of hackberry limbs caused by this scale insect has been reported in St. Croix

County. Egg hatch occurred several weeks ago and the mobile crawlers are no longer active in most parts of the state. Mid- to late June is usually the optimal time to target the yellow crawlers with horticultural oils or soaps, insect growth regulators, or conventional insecticides, before they settle onto the twigs and branches. DATCP inspectors noted that some of the observed scales had been parasitized, indicating that biological controls were present. Chemical control may not be necessary where natural enemies are active.



Lecanium scale on hackberry

Konnie Jerabek DATCP

TOBACCO RATTLE VIRUS: Epimedium plants from a St. Croix County nursery were diagnosed with tobacco rattle virus (TRV) this week. TRV infects numerous ornamentals, and has been particularly prevalent on astilbe, coral bells, dicentra, and peony in Wisconsin. Symptom expression varies by plant species, but usually includes yellowish ringspots on epimedium. TRV is readily transmitted through contaminated pruning and propagating tools that spread sap from one plant to another, as well as by natural vectors such as nematodes. To limit the spread of these destructive plant diseases to garden plants and crops, DATCP requires all virus-infected nursery stock to be removed from sale and destroyed.

WHITE PINE WEEVIL: Examination of spruce and pine trees for evidence of larval infestation, such as wilted leaders and brown, discolored needles on the top lateral growth, is recommended before the end of the month. This insect can be controlled by pruning the infested area 6-10 inches below the wilted leader before adults emerge (by mid- to late July). The cut end must appear clean with no brown frass ring. Pruned tops should be removed and disposed of away from fields to prevent reinfestation, since the adults will continue to emerge from cut leaders.

APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 21 - 27

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	APB ⁵	LPTB ⁶	DWB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	0	11	0	5	0	0	4	3	2
Bayfield	Orienta	32	0	0	13	0	5	33	—	—
Brown	Oneida	575	23	0	4	0	0	23	0	0
Columbia	Rio	4	23	4	0	0	15	0	0	0
Crawford	Gays Mills	119	0	0	—	—	—	33	6	—
Dane	DeForest	130	11	1	7	—	—	—	—	—
Dane	Edgerton	—	—	—	—	—	—	—	—	—
Dane	McFarland	222	7	2	5	—	—	—	—	*5
Dane	Mt. Horeb	47	96	6	4	8	3	5	0	0
Dane	Stoughton	109	36	10	3	2	2	3	0	3
Fond du Lac	Campbellsport	200	57	0	8	0	9	25	0	0
Fond du Lac	Malone	40	43	5	23	0	1	3	**2	0
Fond du Lac	Rosendale	53	34	0	5	0	3	0	2	1
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	30	11	0	5	11	2	16	0	0
Iowa	Mineral Point	1080	107	41	0	7	4	26	*8	—
Jackson	Hixton	39	18	2	0	0	8	5	0	1
Kenosha	Burlington	204	34	12	5	7	2	70	1	—
Marathon	Edgar	961	49	2	3	0	6	118	0	0
Marinette	Niagara	95	26	0	3	0	3	0	1	0
Marquette	Montello	494	9	4	1	—	—	—	—	—
Ozaukee	Mequon	47	20	4	18	—	—	—	*0	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	152	11	0	1	0	12	72	*2	0
Racine	Raymond	295	53	7	7	26	19	24	0	0
Racine	Rochester	300	25	25	0	0	0	7	*2	0
Richland	Hill Point	31	6	4	1	1	11	27	4	1
Sheboygan	Plymouth	171	59	6	0	0	7	26	**4	0
Walworth	East Troy	160	30	0	7	—	—	—	0	0
Walworth	Elkhorn	130	106	0	17	—	—	—	1	0
Waukesha	New Berlin	43	5	9	13	21	2	10	0	0

¹Spotted tentiform leafminer; ²Redbanded leafroller; ³Codling moth; ⁴Obliquebanded leafroller; ⁵American plum borer; ⁶Lesser peachtree borer; ⁷Dogwood borer; ⁸Apple maggot red ball; *Unbaited; **Baited; ⁹Apple maggot yellow board.

COUNTY	SITE	BCW ¹	CEL ²	CE ³	DCW ⁴	ECB ⁵	FORL ⁶	SCW ⁷	TA ⁸	VCW ⁹	WBC ¹⁰
Columbia	Arlington	0	3	0	0	0	0	0	1	0	3
Columbia	Pardeeville	0	1	1	0	0	2	0	3	0	13
Dodge	Beaver Dam	0	5	0	0	9	2	1	0	0	32
Fond du Lac	Ripon	0	1	1	3	2	0	0	0	0	9
Grant	Prairie du Chien	0	0	0	0	0	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	5	0	0	24	10	22	0	2	0	15
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	0	4	0	0	2	2	0	10	1	1
Walworth	East Troy	0	0	0	0	1	2	0	0	0	14
Wood	Marshfield	7	2	0	1	1	10	0	2	0	14

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