

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

Humid and warm weather with scattered showers continued across the state, maintaining exceptional growing conditions for summer crops in the latter reproductive stages of development. Daytime temperatures averaged 1-10°F above normal, with most areas recording highs in upper 70s and lower 80s. Lows ranged from the upper 40s and lower 50s in north-central Wisconsin, to the mid-60s in the southeast. A few isolated showers and thunderstorms impacted the northern half of the state on Wednesday afternoon, but conditions were otherwise dry and suitable for harvesting alfalfa, potatoes, small grains and processing vegetables. This season's prevailing hot, humid weather pattern with adequate precipitation has promoted rapid crop development, and summer crops are maturing about 1-2 weeks ahead of average. The state's apples are also ripening early and harvesting is underway in many orchards.

LOOKING AHEAD

CORN EARWORM: Migrants arrived in substantial numbers for the first time this season. DATCP's monitoring network of 17 pheromone traps registered a total of 994 moths during the week ending August 17, with the largest flights occurring in Columbia, Dodge, Fond du Lac and Vernon counties. The weekly high count was 421 moths per trap near Arlington in Columbia County.

Egg laying is likely to intensify with this late-season migration and the risk of damage to sweet corn will persist into September.

EUROPEAN CORN BORER: Moths are still appearing in black light traps and egg deposition is expected to continue for another two weeks. The treatment window for second-generation larvae has closed across southern and central Wisconsin, and remains open only a few more days in the eastern and northern districts. Final inspections of sweet corn for egg masses and small larvae are advised before 2,100 degree days (modified base 50°F) are reached.

WESTERN BEAN CUTWORM: The annual trapping survey documented the highest moth count since 2012. The 2016 state cumulative count was 1,528 moths in 75 traps, or an average of 20 per trap. This compares to 3,290 moths in 132 traps in 2012 (25 per trap) and a 12-year average of 23 moths per trap. Infestations resulting from the flight have been found in 13% of 155 cornfields surveyed this month. Most larvae are fully developed and should enter the pre-pupal overwintering stage by September.

LATE BLIGHT: Development on tomato and potato has been confirmed in Dane and Polk counties. Protective treatments of green vines with a late blight-specific fungicide on a five- to seven-day schedule should be maintained. This advisory is particularly important for

growers and gardeners in south-central and northwestern Wisconsin since late blight spores are in the area.

CORN ROOTWORM: The August survey continued for the third week. Sampling for beetles in 155 cornfields has so far yielded counts of 0-3.4 per plant, with an average of 0.6 per plant. Economic populations of 0.75 or more beetles per plant have been documented in 26% of fields examined as of August 17. Early results suggest that adult rootworm populations are comparable to last year, although the survey is incomplete.



Western corn rootworm beetle

Krista Hamilton DATCP

SOYBEAN APHID: Densities are not expected to exceed the 250 aphid-per-plant threshold in the majority of Wisconsin soybean fields this season. According to surveys conducted in 170 fields from July 25-August 10, only 2% of sites had average counts of 51-151 aphids per plant, 7% of sites had counts of 26-50 per plant, and the other 91% of fields had averages below 25 aphids per plant. The statewide average was extremely low at eight aphids per plant. Many of this year's advanced soybean fields have reached R5.5-R6, the growth stages at which no yield benefit is gained by insecticide treatment. Late-season aphid control is probably uneconomical for most soybeans at this point.

FORAGES & GRAINS

POTATO LEAFHOPPER: Surveys from August 11-17 found only non-economic populations. Counts were below 1.8 per sweep in all fields sampled and the average was 0.8 per sweep. Nymphs are still common in sweep net collections, although adult leafhoppers are the predominant development stage.

DEGREE DAYS JAN 1 - AUGUST 17

LOCATION	50°F	2015	NORM	48°F	40°F
Dubuque, IA	2276	2180	2153	2407	3393
Lone Rock	2232	2102	—	2365	3318
Beloit	2342	2190	2188	2517	3485
Sullivan	2010	1786	2070	2169	3034
Madison	2216	2076	2086	2388	3294
Juneau	1970	1920	—	2141	3007
Racine	2139	1734	—	2313	3189
Waukesha	1933	1786	—	2056	2922
Milwaukee	2151	1739	1988	2331	3193
Hartford	1939	1786	—	2063	2929
Appleton	1923	1847	—	2092	2936
Green Bay	1891	1743	1871	2064	2895
Big Flats	2079	1972	—	2222	3075
Hancock	2079	1972	2024	2222	3075
Port Edwards	2055	1903	1987	2200	3067
La Crosse	2403	2194	2279	2599	3549
Eau Claire	2127	1988	2056	2295	3204
Cumberland	1760	1763	1925	1868	2719
Bayfield	1547	1449	—	1685	2409
Wausau	1888	1698	1887	2034	2853
Medford	1689	1622	1727	1758	2576
Crivitz	1757	1632	—	1774	2594
Crandon	1676	1507	1471	1797	2560

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

PEA APHID: Counts have escalated in individual fields. Several alfalfa fields surveyed in the west-central counties contained 5-6 per sweep, the highest populations documented in several weeks. Other sites had less than one per sweep. Pea aphids have been of minor importance in alfalfa again this year.

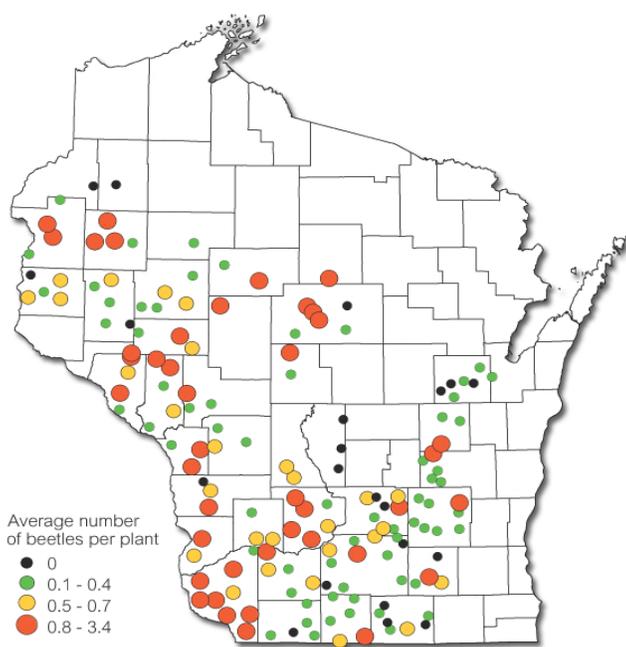
ALFALFA CATERPILLAR: The adult stage of this insect is prevalent in fields across the southern two-thirds of the state, suggesting an increase in larvae may occur by early September. Severe alfalfa caterpillar damage is rare, but results when large numbers of female butterflies oviposit on recently cut alfalfa and the emerging larvae defoliate the regrowth.

CORN

CORN ROOTWORM: The map below summarizes the early findings of the 2016 corn rootworm beetle survey, completed in 155 of the expected 229 fields. Preliminary

results show population increases in west-central and northwest Wisconsin and decreases in beetle abundance in the southwest and south-central regions. District averages thus far range from 0.4 beetle per plant in the south-central area to 0.7 per plant in the southwest. The state average as of August 17 is 0.6 beetle per plant. Economic populations of 0.75 or more beetles per plant have been recorded at 41 of the sites, or 26%. The highest average count of 3.4 beetles per plant was found north of Ripon in Fond du Lac County. The survey will be finalized next week.

Preliminary Corn Rootworm Beetle Survey Results August 2016



Wisconsin Department of Agriculture, Trade and Consumer Protection



WESTERN BEAN CUTWORM: Larval infestations were observed this week in Adams, Chippewa, Dunn, Eau Claire, Juneau, Outagamie, Rock and St. Croix counties, where an estimated 1-7% of ear tips were infested with one or two larvae. Most of the caterpillars were in the intermediate instars and should enter the prepupal stage by the end of the month. A few late moths are still appearing in black light traps, but the flight has effectively ended.

Although the 2016 trapping survey documented the largest cumulative moth count in the last four years, this season's state total count of 1,528 moths in 75 traps (20 moths per trap average) ranks seventh in the 12-year history of western bean cutworm trapping surveys in

Wisconsin. The record high count was 10,807 moths in 2010 (79 per trap) and the low was 521 moths in 2014 (five per trap).



Western bean cutworm larva

Krista Hamilton DATCP

EUROPEAN CORN BORER: Second-generation larvae range from first- to fourth-instar in the southern and central counties. Larval infestations affecting 50-72% of the plants have been observed in a few later-planted corn fields, but most sites have lower populations involving less than 20% of plants. The treatment window for summer corn borers is expected to close statewide next week. Final management decisions for sweet corn must be made before the caterpillars have started boring into corn stalks and ears.

CORN EARWORM: The early-August moth migration has resulted in minor infestations, mostly in western Wisconsin. Larvae ranging from $\frac{3}{4}$ - $1\frac{1}{2}$ inches were found this week in Eau Claire, Grant and Monroe counties, and egg laying is expected to intensify following the latest heavy moth flights. Sweet corn producers are strongly advised to continue monitoring traps and taking necessary treatment steps if warranted in the week ahead. Counts during the period of August 11-17 were: Arlington 421, Beaver Dam 30, Coon Valley 70, Cottage Grove 14, Hancock 0, Janesville 3, Madison airport 29, Marshfield 1, Mayville 92, Pardeeville 16, Prairie du Chien 3, Ripon 296, Sun Prairie 6, Sun Prairie North 13, and Watertown 0.

SOYBEANS

SOYBEAN APHID: Densities have not surpassed the 250 aphid-per-plant economic threshold in any soybean field surveyed by DATCP this season. The statewide average

aphid count in 170 fields sampled from July 25-August 10 was only eight per plant, and surveys this week found averages ranging from 11-128 aphids per plant. Aphid populations are expected to decline soon due to biological controls, reduced nutritional content of soybeans at R5 and beyond, and other environmental factors. A few eastern or northern Wisconsin soybean fields may still exceed the threshold to warrant treatment, but any management decisions for fields in the R5-R5.5 (beginning to mid-seed) stages must be made very soon.



Soybean aphids

Krista Hamilton DATCP

GREEN CLOVERWORM: Larvae of various sizes are still causing light defoliation of soybeans in the southern and west-central counties. The damage observed in the past week was minor. Populations have been low since the first caterpillars appeared last month.



Green cloverworm

Krista Hamilton DATCP

JAPANESE BEETLE: This beetle is still common in soybeans over much of the state, from Kenosha to Polk County. Defoliation levels varied from 1-15% in the past

week, which is below the 20% threshold for soybeans in the seed-filling stages.

FRUITS

APPLE MAGGOT: Counts were generally low again this week and ranged from 1-10 per trap, with the high capture reported from Bayfield County. This season's AM emergence has been variable but mostly light. Apple 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.

SPOTTED WING DROSOPHILA: Reports indicate that this summer's sustained heat and moisture have exacerbated SWD problems and infestations are widespread. This insect poses a serious risk to ripening fruit, making it imperative for berry growers with SWD infestations to continue treatments every 4-5 days through harvest. A list of insecticide options can be found on the UW-Madison SWD website at: <http://labs.russell.wisc.edu/swd/management-2/>. For organic operations, the OMFI-approved insecticides PyGanic and Entrust are available for SWD control.



Spotted wing drosophila flies

Joyce Gross calphotos.berkeley.edu

CODLING MOTH: Significant moth flights are still underway in a few eastern and northern Wisconsin locations. Above-threshold weekly counts were registered in seven of 22 reporting orchards during the week ending August 17. Assessing larval damage is recommended at this time to forecast first-generation CM pressure next season. According to Orchard IPM Specialist John Aue, a cumulative capture of 250 moths per generation, or an average of 50 moths per week, should result in visible

CM damage at harvest. If no CM damage is observed this fall or fewer than 1% of fruits are affected, then the moths are likely coming from outside of the orchard.

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season has peaked in most apple orchards. Moths have been very abundant at some locations during this flight, with a weekly high count of 940 moths registered at Rochester in Racine County. Another larval generation should be anticipated in September based on the trap counts registered in the last two weeks. Apple growers experiencing large numbers of third brood moths may assess infestations by monitoring orchard perimeters for leaf mines.



Spotted tentiform leafminer mine Tomasz Binkiewicz www.lepidoptera.eu

VEGETABLES

TOMATO FRUITWORM: Tomatoes are at increased risk of egg deposition and larval infestation by this pest as more of the state's sweet corn matures beyond the green silk stage and no longer provides attractive egg laying sites. The female moths lay eggs near green fruits and the larvae rapidly enter tomatoes from the stem end, consuming the interior and leaving a cavity filled with fluid and droppings. Fruits are inedible after fruitworm infestation and should be removed and discarded.

LATE BLIGHT: UWEX Vegetable Pathologist Dr. Amanda Gevens reports that late blight has been confirmed on potato and tomato from Polk County (August 15) and on tomato in Dane County (August 18). This disease can develop rapidly under current weather conditions, and entire plants may decline and die in as few as 7-10 days. Gardeners are advised to monitor plants for signs of infection, including brownish-black water soaked leaf le-

sions, dark stem lesions or sunken golden- to dark brown spots with distinct rings on the fruit surface. Removal and destruction of infected plants is required if lesions are noticed. Composting will not generate sufficient heat to kill the pathogen and is not recommended.



Late blight symptoms on tomato

plantdoctor.pbworks.com

ONION MAGGOT: Third-generation maggots are feeding on cull onions and bulbs left behind in fields. Onion growers should remove all cull piles and thoroughly clean fields to reduce overwintering populations. Rotation to a non-host crop is recommended for fields with a history of onion maggot problems.

NURSERY & FOREST

JAPANESE BEETLE: Adults are still feeding on birch, elm, linden and many other varieties of nursery trees. DATCP surveys and inspections, as well as reports from the industry, suggest that beetle populations are significantly higher this season than in recent years. This development may be associated with sufficient summer rainfall in 2015 and 2016, which favors the subterranean grubs.

HONEY LOCUST PLANT BUG: Nursery inspectors report that 'Skyline' honey locust trees in a St. Croix County nursery were exhibiting moderate to severe shoot tip yellowing. Although early-season feeding by the immature nymphs is usually more of a concern for nursery operators and homeowners, mid-summer feeding by adult plant bugs can also lead to severe leaf distortion, discoloration and stunting. Symptoms usually begin in June or early July and may persist throughout August. Damage resulting from the honey locust plant bug is usually only an aesthetic problem. If control is needed, the optimal treatment window is 7-10 days after budbreak

in spring. Yellow-leaved honey locust cultivars, such as 'Sunburst', are more susceptible to injury than some of the green-leaved strains like 'Sunset' or 'Shademaster.'



Honeylocust plant bug damage

Konnie Jerabek DATCP

ERINEUM GALL: The reddish-pink, felt-like patches appearing on the undersides of littleleaf linden leaves in St. Croix County were identified by inspectors as erineum galls. The galls appear similar to a fungus at first glance but are caused by tiny eriophyid mites and have no impact on tree health. Control is not necessary.



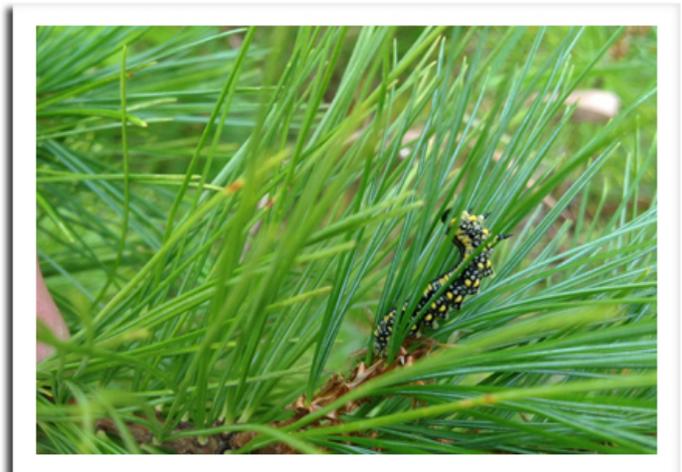
Erineum mite on littleleaf linden

Konnie Jerabek DATCP

FALL WEBWORM: Webs constructed by these larvae are conspicuous on alder, aspen, birch and other host trees statewide. Fall webworm is a native species that feeds on a wide range of deciduous forest, shade, fruit, and ornamental trees. Its characteristic webs appear at this time of year, later than nests made by other web- and tent-making species found in Wisconsin. This pest is primarily a cosmetic problem that can be controlled by

removing and destroying the web and the surrounding branches. Insecticides or *Bacillus thuringiensis* (Bt) products are also effective against small larvae. Fall webworm feeding rarely results in severe or long-term damage and populations are usually regulated by more than 50 different species of parasites and 36 known species of predators.

INTRODUCED PINE SAWFLY: Larvae of this pine pest are defoliating white pines in Eau Claire County. The gregarious caterpillars feed in groups on the previous years' needles, consuming all the needles on a single branch before moving to another branch to feed. Damage is usually most severe in the upper half of trees, but entire trees may be defoliated during severe infestations. Insecticidal soap or conventional insecticides are effective against the young larvae if applied early in the season. Attempted control of the larger, full-grown larvae at this time of year is not recommended since most of the damage has already occurred.



Introduced pine sawfly

Konnie Jerabek DATCP

EMERALD ASH BORER: The flight period of EAB beetles has ended across the southern half of the state and is subsiding in the northern counties. Newly laid eggs in bark cracks and crevices of ash trees are hatching and the small larvae are tunneling through the bark into the cambial region where they will remain until next spring.

Since the last report, six new EAB detections were confirmed, all in counties with known EAB infestations: Buffalo County (Town of Buffalo), Monroe County (City of Tomah), Sheboygan County (Town of Plymouth), and Waukesha County (City of Delafield, Village of North Prairie and Wales).

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 11-17

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	APB ⁵	LPTB ⁶	DWB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	7	0	0	10	0	0	0	3	10
Bayfield	Orienta	21	1	0	0	0	0	7	1	**0
Brown	Oneida	300	12	8	15	0	0	16	0	0
Columbia	Rio	—	—	2	0	0	0	0	0	0
Crawford	Gays Mills	121	0	1	1	0	—	10	*7	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Edgerton	—	—	—	—	—	—	—	—	—
Dane	McFarland	29	21	0	—	—	—	—	*2	*2
Dane	Mt. Horeb	75	186	3	4	3	0	0	1	0
Dane	Stoughton	78	71	10	1	0	0	0	2	4
Fond du Lac	Campbellsport	300	33	0	6	0	0	0	—	—
Fond du Lac	Malone	60	78	12	14	0	1	0	**4	0
Fond du Lac	Rosendale	—	—	—	—	—	—	—	—	—
Grant	Sinsinawa	31	—	5	—	—	—	—	4	3
Green	Brodhead	31	148	0	1	0	2	98	0	0
Iowa	Mineral Point	510	74	31	7	0	0	1	—	—
Jackson	Hixton	11	2	6	4	0	0	2	0	0
Kenosha	Burlington	—	—	—	—	—	—	—	—	—
Marathon	Edgar	867	7	4	30	0	0	2	0	2
Marinette	Niagara	126	35	0	0	0	0	2	1	0
Marquette	Montello	241	51	0	14	—	—	—	*0	0
Ozaukee	Mequon	30	4	3	1	—	—	—	*3	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	—	—	—	—	—	—	—	—	—
Racine	Raymond	150	135	15	17	7	1	4	3	0
Racine	Rochester	940	15	18	11	1	0	3	*2	0
Richland	Hill Point	132	68	1	1	0	—	3	**2	**1
Sheboygan	Plymouth	945	22	5	4	0	30	4	**0	0
Walworth	East Troy	23	1	0	2	0	2	1	0	0
Walworth	Elkhorn	70	0	4	6	0	3	3	0	0
Waukesha	New Berlin	45	54	29	17	4	10	42	1	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	0	0	0	0	0	0	0	0	1
Columbia	Pardeeville	0	0	0	15	9	4	0	1	1	1
Dodge	Beaver Dam	0	0	5	16	5	1	0	5	0	7
Fond du Lac	Ripon	0	2	2	37	9	1	0	7	0	3
Grant	Prairie du Chien	0	0	0	0	0	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	4	2	1	3	7	6	2	11	1	0
Walworth	East Troy	0	0	0	26	0	28	0	2	0	0
Wood	Marshfield	0	0	0	13	1	3	6	1	0	1

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