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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

Mild weather and periodic rain benefited summer crop development across the state. Partly sunny skies prevailed during the week, with comfortable humidity and high temperature readings in the 70s to lower 80s, which is about normal for mid-August. A third consecutive week of predominantly dry conditions supported harvesting of alfalfa, oats and winter wheat, while scattered showers maintained adequate to abundant moisture supplies for corn, soybeans and pastures. According to the latest USDA NASS report, crop prospects remained generally unchanged from the previous week at 70-80% good to excellent, though development continued to be widely variable. After a cool start to August and significant spring planting delays, several more weeks of late-season heat are needed to advance crops toward maturity. Surveys indicate corn rootworm beetles, which are usually abundant in corn by this time of year, are unexpectedly scarce.

LOOKING AHEAD

CORN ROOTWORM: The annual survey completed earlier this week documented the lowest beetle populations in the history of Wisconsin rootworm surveys dating back to 1972. Sampling for beetles in 229 cornfields yielded a state average of 0.2 beetles per plant, with uniformly low averages of 0.1-0.3 per plant across all nine agricultural districts. Economic populations of 0.75 or more beetles per plant were recorded in only 11% of the fields examined, while no beetles were observed at 153 (67%) of the sites. The very low 2017 survey average indicates a pronounced decrease in beetle abundance and a reduced risk of larval root damage next summer.

LATE BLIGHT: Development has been confirmed by the UW in commercial potatoes in Portage County and on tomato in Dane, Pierce and Waukesha counties. Protective fungicidal treatments of green vines on a five- to seven-day schedule should be maintained. This advisory is particularly important for growers and gardeners in southern, central and northwestern Wisconsin since late blight is present in the area.

CORN EARWORM: Migrants have not yet arrived in significant numbers. Captures during the week ending August 16 were extremely low 1-2 per trap, with only six of DATCP's 15 monitoring locations reporting moths. The early July to mid-August cumulative count of 128 moths in 15 traps suggests that the corn earworm migration flights registered this season have been too minor to produce widespread or severe larval infestations, although this could change if a large influx were to occur by early September.

EUROPEAN CORN BORER: Egg deposition has been underway since late July and is expected to continue

through August. The treatment window for second-generation larvae has closed in advanced portions of southern Wisconsin, and remains open only a few more days in the central areas. Final inspection of sweet corn for egg masses and small larvae is advised before 2,100 degree days (modified base 50°F) have been reached.

WESTERN BEAN CUTWORM: Counts have declined to low levels as the annual flight subsides. Only eighteen of DATCP's 70 monitoring network traps captured moths this week, for a total of 36 moths compared to 110 the week before. The cumulative count as of August 17 is 1,850 moths in 70 pheromone traps (26 per trap average). Network participants may remove their traps at this time.

BROWN MARMORATED STINK BUG: Seven specimens were captured in the pheromone trap near Janesville from August 10-16. Late-summer populations are likely increasing in areas of the state where BMSB is established, including Brown, Dane and Rock counties, and it will be particularly important for fruit and vegetable growers, gardeners, and property owners to remain alert for stink bug activity in August and September. This new invasive pest is naturally attracted to lights, so growers who suspect its presence in their orchards or on their farms should watch for BMSB adults near lights throughout fall.

Brown marmorated stink bugs *macgardens.org*

DEGREE DAYS JAN 1 - AUGUST 16

LOCATION	50°F	2016	NORM	40°F
Dubuque, IA	2314	2251	2132	3690
Lone Rock	2069	2206	—	3358
Beloit	2109	2314	2166	3450
Sullivan	1972	1988	2049	3264
Madison	2055	2192	2066	3353
Juneau	1954	1949	—	3225
Racine	1937	2112	—	3215
Waukesha	1923	1912	—	3203
Milwaukee	1933	2123	1966	3204
Hartford	1903	1918	—	3172
Appleton	1896	1901	—	3129
Green Bay	1842	1867	1853	3061
Big Flats	1935	2056	—	3163
Hancock	1799	2056	2005	2998
Port Edwards	1781	2032	1968	2973
La Crosse	2130	2377	2258	3437
Eau Claire	1969	2106	2036	3217
Cumberland	1522	1744	1906	2687
Bayfield	1527	1525	—	2638
Wausau	1583	1867	1868	2747
Medford	1507	1672	1709	2659
Crivitz	1663	1733	—	2818
Crandon	1383	1659	1457	2500

Method: Modified B50; Modified B40 as of January 1, 2017. NORMALS based on 30-year average daily temps, 1981-2010.

FORAGES & GRAINS

ALFALFA CATERPILLAR: The adult butterfly stage of this insect is prevalent in fields across the southern and western areas of the state, suggesting an increase in larvae may occur by late August or 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.

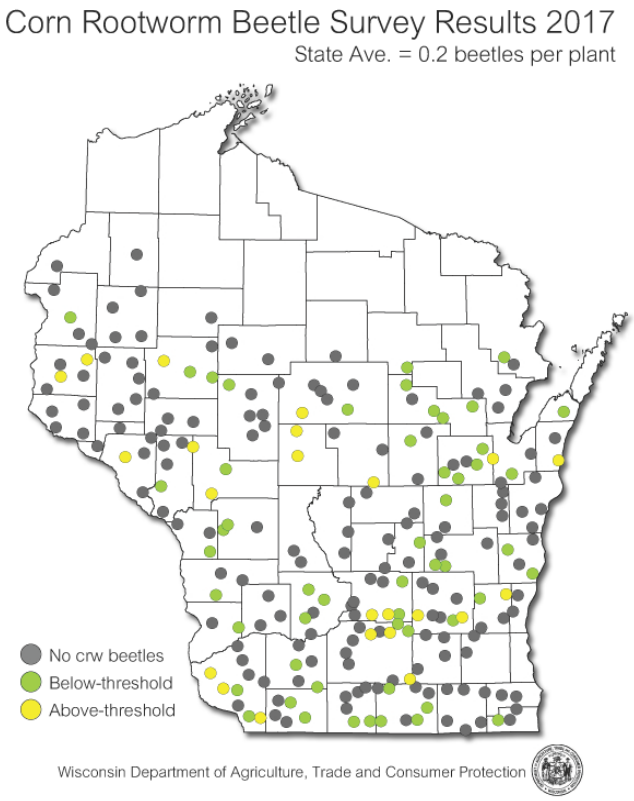
POTATO LEAFHOPPER: Surveys from August 10-16 found only non-economic populations. Counts were below 0.9 per sweep in all fields sampled and the average was 0.4 per sweep. Nymphs are no longer appearing in sweep net collections, and adult leafhoppers are the predominant development stage.

PEA APHID: Counts remain very low. All alfalfa fields surveyed in the northwest and west-central counties contained fewer than one per sweep, which has been the case since populations collapsed in late June.

CORN

CORN ROOTWORM: The 2017 rootworm survey found the lowest beetle population in the 46-year history of the

annual count, based upon observations in 229 cornfields from July 31-August 16. The state average of 0.2 beetle per plant is less than half that of last season and the lowest since Wisconsin rootworm beetle surveys began in 1972. District averages were uniformly low at 0.1 to 0.3 beetle per plant. The most substantial reductions in beetle abundance occurred in the north-central and northeast areas, where average counts declined from 0.7 beetles per plant last year to 0.2 per plant in 2017. A significant decrease from 0.7 to 0.3 beetles per plant was also recorded in the southwestern counties where beetle populations have historically been the highest. Economic populations of 0.75 or more beetle per plant were found in only 11% of the 229 fields sampled, and no beetles were found in 67% of the fields, which is an unusually high percentage. The map below summarizes this year's unexpected survey findings.



WESTERN BEAN CUTWORM: Infestations have been observed in the last two weeks at sites in Adams, Barron, Dunn, Jackson, Marquette and Sauk counties, where 2-10% of ear tips were infested with one or two larvae. An exceptional field in Columbia County was estimated to have 75% of the ears infested with small caterpillars. Most of the larvae have reached the intermediate instars by now and should enter the pre-pupal stage before the end of the month. A few late moths are still being captured in eastern and northern pheromone traps, but the flight has effectively ended.

Western bean cutworm larva *Krista Hamilton DATCP*

EUROPEAN CORN BORER: Second-generation larvae range from first- to third-instar in the southern and central counties. Larval infestations affecting 32-56% of the plants have been observed in a few cornfields, but most sites have lower populations involving less than 16% of plants. The treatment window for summer corn borers is expected to close statewide in another week. Final management decisions for sweet corn must be made before the caterpillars have started boring into corn stalks and ears.

CORN LEAF APHID: Small colonies of 20-40 aphids per plant are appearing on corn ears and leaves in southern and western Wisconsin. Corn leaf aphids usually do not interfere with pollination unless aphids appear early and populations grow rapidly, and a large percentage of corn tassels become saturated with aphids and their honeydew secretions.

JAPANESE BEETLE: An unusually heavy infestation was encountered this week in the Sparta area of Monroe County. As many as 25 beetles per ear were feeding on the silks of edge row plants, though most were infested with 5 or 6 beetles. The infestations extended 10-12 rows into the field. This insect has caused economic damage to field, fruit and vegetable crops across the state this season, with populations being the highest in many years.

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 110 fields sampled from July 28-August 16 was only eight per plant, with moderate averages of 50 or more aphids per plant found at only 2% of sites. Aphid populations are expected to decline by late August due to biological controls, reduced nutritional content of soybeans at R5 and beyond, and other environmental factors. Final management decisions for fields in the R5-R5.5 (beginning to mid-seed) stages must be made very soon.

GREEN CLOVERWORM: Larvae of various sizes continue to cause 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 became apparent last month.

Green cloverworm *Krista Hamilton DATCP*

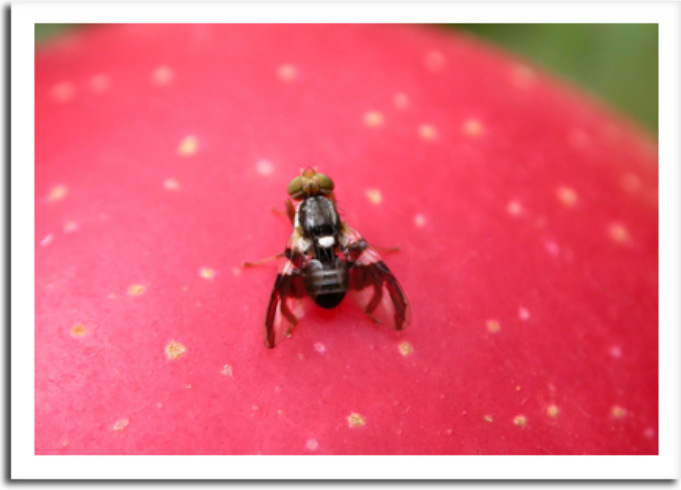
JAPANESE BEETLE: This beetle remains common in soybeans over much of the state. Economic defoliation above the 20% threshold for soybeans in the seed-filling stages was observed in five of the 110 fields surveyed in the past three weeks. Although many fields have an abundance of beetles and varying levels of perimeter defoliation, the degree of injury is generally not severe enough at this point in the season to justify treatment.

FRUITS

CODLING MOTH: Significant moth flights are still occurring in some eastern and southern Wisconsin locations. Above-threshold weekly counts were registered in 10 of 20 reporting orchards during the week ending August 16. Assessing larval damage is recommended before the end of the month to forecast first-generation codling pressure next season. According to Orchard IPM Specialist John Aue, captures higher than 10 moths per trap per week should result in visible fruit damage at harvest. If no damage is observed this fall or less than 1% of fruits are affected, then moth pressure is probably coming from outside of the orchard.

Codling moth larval damage to apples *Patrick Clement flickr.com*

APPLE MAGGOT: Counts were generally low again this week and ranged from 1-5 per trap, with the exception of 15 flies captured on a baited red sphere trap in Sheboygan 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.



Apple maggot fly *ics.ifas.ufl.edu*

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season has likely peaked in most apple orchards. Moths have been very abundant at some locations during this flight, with a high count of 1,662 moths registered last

week at Mineral Point in Iowa County and an additional 1,110 moths captured this week. 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 have recorded large numbers of third brood moths this month can assess infestations in September by monitoring orchard perimeters for leaf mines.

STINK BUG: Late-season activity is expected to increase in the next 2-3 weeks, especially in orchards with ground covers or adjacent to uncultivated areas. Apple growers should begin scouting fruits for the dimples or dark, irregular circular depressions typical of stink bug feeding and flag sites with multiple depressions on the same fruit or tree. Damage by this pest is often limited to specific areas in the orchard and depending on the distribution of the population, spot treatment may be adequate. Apple growers should not mow cover crops or weeds when stink bugs are present to prevent the insects from moving up into the trees.

Stink bug damage to apples *Maryland Dept of Agriculture*

VEGETABLES

LATE BLIGHT: UW-Extension Vegetable Pathologist Dr. Amanda Gevens reports that late blight has been confirmed in commercial potato fields in Portage County, and on tomato in Dane, Pierce and Waukesha counties. 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 lesions, 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 discouraged.

Potato late blight lesion *Dr. Amanda Gevens UW-Madison*

ONION DOWNY MILDEW: The confirmation of onion down mildew (ODM) in Walworth County by the UW last week should signal to onion growers to begin closely monitoring production fields and gardens for disease symptoms. ODM is a very destructive disease that can rapidly develop and spread throughout onion plantings when temperatures are favorable (less than 72°F) and foliage remains wetted by dew, fog, humidity, irrigation or rain. Symptoms are most noticeable on older leaves, and include small whitish patches that elongate and produce purple-gray, velvety growth on the foliage surface. Infected leaves become pale green or yellow, turn brown and then collapse. Although ODM does not kill onion, it can reduce bulb size and quality, and can affect storability.

Onion downy mildew *onvegetables.com*

Management recommendations include implementing a three or more-year rotation to non-hosts, eliminating culls and volunteer onions, avoiding excess N and overhead irrigation, and planting rows parallel to prevailing wind to avoid prolonged leaf wetness.

CABBAGE LOOPER: Migrants are expected to begin arriving soon. Increased scouting is advised beginning now and continuing through early September. A 10% infestation threshold is suggested from early heading until harvest to protect the market quality of cabbage. The same threshold applies to broccoli and cauliflower once flowers or curds begin to develop.

Cabbage looper larva *Jay scientificgardener.blogspot.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. Proper sanitation and rotating to a non-crop host are the recommended controls for growers who experience onion maggot problems this summer.

NURSERY & FOREST

VERTICILLIUM WILT: Catalpa trees in a southern Wisconsin nursery were exhibiting symptoms of this fatal vascular disease, frequently misidentified as decline caused by environmental factors. Verticillium is a soil-borne fungus that first invades trees through weakened areas of the roots. Once inside the tree, the fungus spreads upward and infects the phloem. Acute symptoms include wilting and dieback which can lead to mortality. Trees with severe wilt and dieback cannot be saved. Because the causal fungus can persist in the roots and soil, diseased trees should be replaced with a species not susceptible to Verticillium such as aspen, beech, sycamore, poplar, willow or any conifer.

Catalpa tree with Verticillium wilt *Marcia Wensing DATCP*

WILLOW PINECONE GALL MIDGE: The conspicuous "pinecones" observed on willow trees in Price County were identified as galls of the pinecone gall midge, a tiny fly which induces the formation of new galls when the female lays a single egg in the terminal buds of willows in spring. Each gall contains a midge larva that over-winters, pupates in March or April, and emerges as an adult around May. The galls cause no appreciable harm and should be tolerated.

Willow pinecone gall *Timothy Allen DATCP*

HACKBERRY ISLAND CHLOROSIS: This virus of hackberry trees has been found by inspectors at several nurseries this month. Symptoms include sharp blocky, bright yellow spots on the leaves that follow the veins, with a distinct margin between the green and yellow

areas. Severely affected foliage turns mostly yellow by late summer. Hackberry island chlorosis is thought to be spread by seed and aphid probing. As with all viral diseases, there are no practical curative treatments. Maintaining tree vigor is the best preventative measure.

Island chlorosis on hackberry *Shanon Hankin DATCP*

CUCUMBER MOSAIC VIRUS: Daylilies at a nursery in southern Wisconsin were recently diagnosed with this virus. Symptoms include stunting, a yellow-green mosaic pattern on the foliage, and yellow leaf streaks and/or spots. Because these general symptoms are similar to herbicide damage and other disorders, CMV must be confirmed by laboratory diagnosis. There is no cure for this virus. Preventive measures include removal of infected plants, control of aphids (likely transmitters), and purchasing clean stock.

Cucumber mosaic virus on daylily *Michael Falk DATCP*

DOWNY MILDEW: This fungal disease has been a common problem in nurseries this season, on grapes, cranberry-bush viburnum, and many other plants. Downy mildew thrives during periods of cool weather and high humidity, and is recognizable by whitish mold that develops on the leaf undersides, stems, and on fruits. Upper leaf surfaces may show yellowing opposite the moldy leaf undersides. Mildew occurrence can be minimized by reducing humidity and improving air circulation. The fungus overwinters as spores on old leaves, so thorough end-of-season sanitation is important where mildew infection has been severe.

EASTERN SPRUCE GALL ADELGID: These distinctive galls were found on white spruce at a nursery in southern Wisconsin. Feeding by adelgid nymphs in spring triggers gall formation, which in aggregate appears as a pineapple-shaped growth. Eventually the galls dry, turn brown and split open, allowing the adult inside to emerge, usually from late July to October. There is generally one generation per year. Dormant oil treatments made in October and November, or in April, are usually effective against this pest.

Eastern spruce galls *Konnie Jerabek DATCP*

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 10 - 16

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	OFM[5]	LPTB[6]	DWB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	32	5	0	3	0	0	5	0	**0
Bayfield	Orienta	73	0	0	0	0	0	0	**0	**0
Brown	Oneida	350	13	9	8	0	0	0	1	**0
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	—	—	—	—	—	—	—	—	—
Dane	DeForest	109	52	11	14	0	—	—	2	**0
Dane	Mt. Horeb	176	42	9	2	0	2	0	0	**0
Dane	Stoughton	204	25	21	0	0	0	0	0	**0
Fond du Lac	Campbellsport	85	25	0	5	0	0	0	*0	**0
Fond du Lac	Malone	120	38	10	26	0	0	0	**2	**2
Fond du Lac	Rosendale	31	24	2	1	0	2	0	*0	**1
Grant	Sinsinawa	—	—	—	—	—	—	—	—	**3
Green	Brodhead	114	76	5	0	—	0	—	*0	**0
Iowa	Mineral Point	1110	21	23	—	3	2	0	**2	—
Jackson	Hixton	120	23	0	0	0	0	1	*0	**1
Kenosha	Burlington	670	17	8	5	4	1	0	0	**0
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	97	0	0	0	0	3	0	1	**1
Marquette	Montello	1134	25	4	8	0	1	7	0	**0
Ozaukee	Mequon	30	9	2	9	0	0	1	*1	**0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	664	12	0	0	0	0	0	*1	**0
Racine	Raymond	534	11	16	9	1	3	4	0	0
Racine	Rochester	325	10	10	0	3	0	0	*5	**0
Richland	Hill Point	420	43	3	2	0	8	1	**0	**0
Sheboygan	Plymouth	405	8	2	0	—	2	2	**15	**0
Walworth	East Troy	110	5	0	1	3	16	1	0	**0
Walworth	Elkhorn	—	—	—	—	—	—	—	1	**1
Waukesha	New Berlin	171	11	6	13	4	6	20	0	0

[1]Spotted tentiform leafminer; [2]Redbanded leafroller; [3]Codling moth; [4]Obliquebanded leafroller; [5]Oriental fruit moth; [6]Lesser peachtree borer; [7]Dogwood borer; [8]Apple maggot red ball; *Unbaited; **Baited; [9]Apple 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	1	0	0	1	0	0
Columbia	Pardeeville	0	0	0	4	3	0	0	1	1	0
Dodge	Beaver Dam	0	0	0	0	2	0	0	0	0	0
Fond du Lac	Ripon	0	0	0	7	14	0	0	0	0	0
Grant	Prairie du Chien	0	0	0	1	0	2	0	0	0	0
Manitowoc	Manitowoc	0	0	0	7	0	0	8	0	0	0
Marathon	Wausau	1	0	0	48	13	4	5	0	0	2
Monroe	Sparta	1	0	0	5	1	2	1	0	0	0
Rock	Janesville	1	0	0	1	2	3	0	2	0	0
Walworth	East Troy	2	0	0	9	0	4	0	0	0	0
Wood	Marshfield	0	1	0	6	0	1	1	1	0	2

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