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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
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WEATHER & PESTS

Scattered to widespread showers and storms August 3-5 interrupted a mostly dry weather pattern across the state. Some of the heaviest rain, locally 1 to 2 inches or more, fell near Green Bay and Wausau. Gradually warming daytime temperatures during the week ranged from the 70s to 92°F, while overnight lows were in the 50s to mid-60s. The weekend storms brought much-needed moisture for crops in the reproductive stages, though a few localized areas were missed and short-term dryness has become a concern. Despite the recent drying trend, condition ratings for alfalfa, corn, oats, potatoes, wheat and soybeans all increased 2-7 percentage points from the previous week, according to the USDA NASS. Corn and soybean development remains about 13 days behind last year and 10-11 days behind average, and most summer crops will require additional rainfall soon to ensure pollination and support growth.

LOOKING AHEAD

WESTERN BEAN CUTWORM: The annual flight has peaked in all areas south of Highway 29. Black light and pheromone trap counts should begin to decrease in the southern two-thirds of Wisconsin now that degree day accumulations are well past 2,838 (modified base 38°F/max 75°F), the point at which 75% emergence is expected. By contrast, the peak has yet to occur in the northern one-third of the state. The highest individual trap count for the week was 258 moths at Princeton in Green Lake County. The cumulative state count to date is 2,960 moths in 57 traps, or approximately 52 per trap.

SOYBEAN APHID: Routine monitoring of soybeans is advised as fields enter the critical pod-filling stages. Most sites sampled by DATCP this week still contained very low average counts of less than 10 aphids per plant, though a few fields had moderate averages approaching 50 aphids per plant. Foliar treatment should not be considered 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.

JAPANESE BEETLE: Damage has intensified in field, fruit, nursery and vegetable crops. As an indicator of the prevalence of this insect this summer, beetles have been observed in about 72% (72 of 101) of the soybean fields and 35% (34 of 97) of the corn sites sampled August 1-7. Defoliation rates are generally below the 20% economic threshold for reproductive soybeans, and light to moderate silk clipping is common in the edge rows of corn.

BASIL DOWNY MILDEW: This rapidly-spreading disease has become more prevalent in the last two weeks. The first basil downy mildew (BDM) case of the 2019 season was confirmed by the UW in early June, and DATCP

surveys indicate the disease is now developing in Dane and Milwaukee County community gardens. If basil downy mildew is suspected, harvesting early may be 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 immediately removed and disposed of off-site.

Basil downy mildew *Krista Hamilton DATCP*

EUROPEAN CORN BORER: The degree day model for this pest suggests that the summer flight has peaked throughout much of southern Wisconsin. Susceptible corn should be inspected for egg masses and larvae before 2,100 degree days (modified base 50°F) have been surpassed and the treatment window for second-generation corn borers closes.

LATE BLIGHT: Fresh market tomato producers and home gardeners are advised to increase monitoring of plants for signs of late blight infection. As of August 8, this disease has been confirmed on tomato in La Crosse County and on potato in Portage and Wood counties. Plants showing symptoms of late blight cannot be saved and should be disposed of in plastic bags to prevent the disease from spreading. Symptomatic potato and tomato plants may be submitted for free testing to the UW Plant Disease Diagnostic Clinic: https://pddc.wisc.edu/sample-collection-and-submission/.

CORN EARWORM: Minor migration flights into Wisconsin continued again this week. The August 1-7 count of 67 moths at nine pheromone trap locations is a decrease from last week's total of 179 moths in 11 traps, but even captures of 5-10 moths for three nights in a row are considered significant enough to prompt protective treatment of silking sweet corn.

DEGREE DAYS JANUARY 1 - AUGUST 7

LOCATION	50°F	2018	NORM	40°F
Dubuque, IA	2094	2257	1948	3291
Lone Rock	1903	2013	—	3049
Beloit	1936	1984	1978	3088
Sullivan	1791	1869	1868	2894
Madison	1915	1978	1887	3070
Juneau	1722	1902	—	2805
Racine	1630	1762	—	2714
Waukesha	1759	1797	—	2860
Milwaukee	1701	1812	1774	2794
Hartford	1692	1838	—	2771
Appleton	1698	1918	—	2764
Green Bay	1649	1871	1683	2708
Big Flats	1688	1903	—	2776
Hancock	1621	1778	1830	2687
Port Edwards	1618	1788	1795	2673
La Crosse	1863	2113	2062	3009
Eau Claire	1770	2015	1856	2858
Cumberland	1496	1639	1734	2485
Bayfield	1298	1418	—	2226
Wausau	1425	1614	1698	2400
Medford	1393	1548	1553	2359
Crivitz	1537	1730	—	2540
Crandon	1406	1543	1326	2352

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

FORAGES & GRAINS

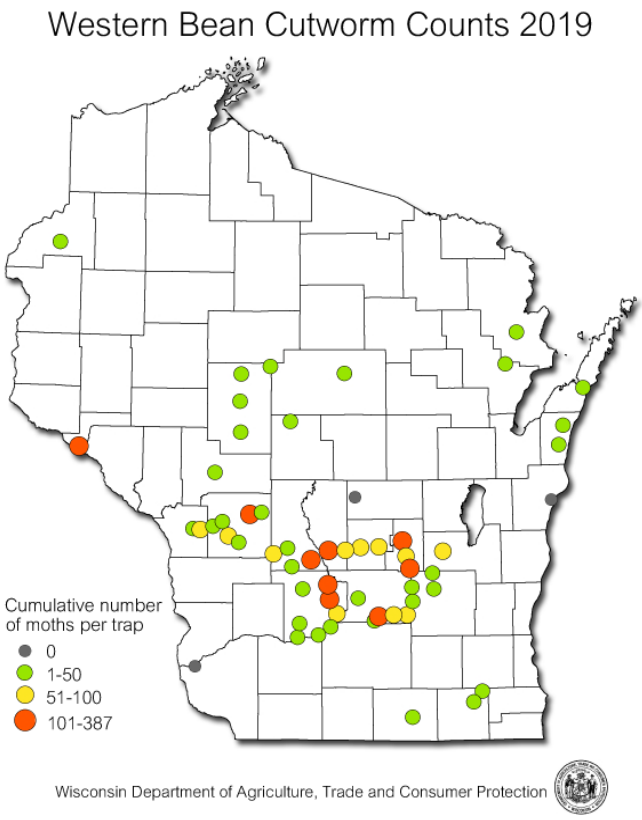
POTATO LEAFHOPPER: Surveys continue to yield above-threshold counts of 2.0 or more leafhoppers per sweep. High populations were recorded in about one-half of the fields sampled last month, and reports indicate that treatments were applied to many alfalfa acres. Nymphs are still common in sweep nets, and weekly monitoring of the third alfalfa crop throughout August is recommended.

GRASSHOPPER: Late-season grasshopper activity is escalating in alfalfa and other crops. Defoliation has become pronounced along field margins since mid-July. Grasshopper damage to forage crops can be serious at this time of year, especially in new alfalfa seedings and when dry weather slows plant regrowth after harvest. Chemical intervention is not necessary unless popula-

tions reach 20 grasshoppers per square yard at the margins or eight per square yard within an alfalfa field.

CORN

WESTERN BEAN CUTWORM: Moth counts have peaked across southern and central Wisconsin and should begin to decline soon. The annual flight is expected to peak next week in the northern counties. Pheromone traps captured a total of 1,619 moths from August 1-7, compared to 1,121 the week before. Preliminary results of the 15th annual trapping survey show that the 2019 state count is 3,054 moths in 57 traps (52 per trap average). The highest individual trap total to date is 258 moths registered near Princeton in Green Lake County.



EUROPEAN CORN BORER: The peak in summer moth activity has occurred in the southern counties and should be reached by August 12 in the central areas. The treatment window for second-generation corn borers will remain open for approximately two more weeks. Controls directed against the summer larvae must be applied during the period after egg hatch and before larvae bore into the stalks, prior to the accumulation of 2,100 degree days (modified base 50°F). The larvae observed during this week's surveys were in the early to intermediate (3rd instar) development stages. Degree day totals as of August 7 were: Beloit 1,936, La Crosse 1,863, Madison 1,915, and Eau Claire 1,770.

European corn borer leaf feeding *Krista Hamilton DATCP*

CORN ROOTWORM: Beetle counts at most sites are low for early August. Surveys in 97 cornfields in the southern, central and northwest districts found no detectable beetle population at 69 (71%) of the sites. Twenty fields (21%) contained low adult rootworm populations ranging from 0.1-0.4 beetles per plant, while only eight (8%) of the sites had economic averages of 0.75 or more beetles per plant. An exceptional field in Lafayette County had an extremely high average of 7.2 beetles per plant. The official 2019 corn rootworm survey is now underway.

Northern corn rootworm beetles feeding on corn silks *Krista Hamilton DATCP*

CORN EARWORM: Fewer moths arrived this week compared to the week before. Nine pheromone traps captured a total of 67 migrants from August 1-7, a decrease from 179 moths collected in 11 traps during the previous

week. However, the arrival of even a few corn earworm moths in traps (5-10 moths for three consecutive nights) signals that sweet corn producers should increase monitoring of fields with green silks. Corn earworm caterpillars ranging from ¾-1 inch long were found this week in corn in Green, Rock and Sauk counties.

Corn earworm larva Tracy Schilder DATCP

JAPANESE BEETLE: Silk pruning has become evident along field edges, although at most sites the heaviest feeding is limited to the outer rows and the infestations do not extend more than 5-6 rows into the field interior. Control of this pest in corn is warranted if fieldwide populations exceed three beetles per ear and pollination is less than 50% complete. Chemical treatment of entire fields is rarely necessary. Border area spot treatments are usually sufficient for reducing beetles during the critical pollination period.

SOYBEANS

SOYBEAN APHID: Surveys conducted during the two-week period from July 25-August 7 found no economic populations in 101 sampled fields. Densities were very low (<10 aphids per plant) at the majority of sites, with only two fields in Chippewa and Washburn counties having averages of 20-35 aphids per plant. Although surveys indicate populations are low, aphid pressure usually intensifies this time of year, and some fields may still require treatment in the next 1-2 weeks. Soybean producers are reminded that control is not advised until the economic threshold of 250 aphids per plant on 80% of the plants throughout the field has been exceeded. Once again, field-wide average counts have not sur-passed this level in any soybean field surveyed by DATCP this season. All soybeans should be examined next week to evaluate aphid densities.

GREEN CLOVERWORM: Larvae of all sizes are common in soybeans, particularly in fields from the west-central to the northwest areas of the state. This week's highest counts of 20-30 caterpillars per 100 sweeps were found in Jackson, La Crosse and Trempealeau counties. The majority of larvae observed were newly hatched and still relatively small, suggesting that feeding injury will likely intensify by mid-August. Based on recent survey observations, populations and defoliation could be locally high this season.

Green cloverworm larvae Krista Hamilton DATCP

JAPANESE BEETLE: Defoliation is prevalent again this year. Japanese beetles are causing variable damage to soybean field margins, with the highest counts (40-184 beetles per 100 sweeps) documented in Eau Claire, Grant, Sauk and Trempealeau counties in the southwest and west-central districts. Average defoliation rates in fields surveyed since late July have been below the 20% threshold for soybeans in the reproductive stages, therefore treatment has generally not been warranted.

FRUITS

BROWN MARMORATED STINK BUG: Nymphs and adults are appearing on survey traps in Dane and Rock counties. For apple orchards where BMSB is known to be established, it is particularly important to be alert for late-summer populations and fruit injury. Most BMSB feeding occurs at night, so the stink bugs may not be as noticeable during the day. In addition to the clear sticky traps, growers monitoring BMSB this season should also watch

for BMSB adults near lights as an indicator of stink bug pressure. In eastern states where BMSB is a severe orchard pest, damage to apples has been misidentified as cork spot and/or bitterpit, disorders related to calcium deficiency.

As populations of this pest continue to increase and spread in Wisconsin, on-site monitoring will be the best determinant of whether or not treatments targeting BMSB are necessary. An economic threshold for clear sticky panel traps is not yet available. However, USDA-ARS Research Entomologist Dr. Tracy Leskey has specified a provisional threshold of 10 BMSB per week for black pyramid traps to apply an alternate-row-middle spray, noting that the occasional BMSB caught in traps may not warrant BMSB sprays and growers should wait for sustained captures.

Brown marmorated stink bug *Krista Hamilton DATCP*

APPLE MAGGOT: Emergence has peaked in all but the far northern counties. The high weekly count of 18 flies per red sphere trap was reported from Gays Mills in Crawford County, while 11 of 22 reporting orchards registered economic captures of flies (1 fly per unbaited trap or 5 flies per baited trap). Apple growers are advised to maintain traps through the first week of September and continue apple maggot sprays as long as the flies are being captured and counts exceed established thresholds.

CODLING MOTH: Reports from cooperating orchards indicate variable CM pressure. Economic counts of 5-18 moths were reported this week from 10 sites, while seven locations reported low counts of 0-1 moths (mating disruption sites excluded from counts). Summer codling moth pressure is often a direct indicator the efficacy of spring generation management programs.

Monitoring of pheromone traps is recommended until the end of the month to determine the need for late-season CM control. Spot treatment may be appropriate for blocks where trap counts remain above the economic threshold of five moths per trap per week. An insecticide application is not necessary if trap counts do not exceed this action threshold. Growers are reminded to review pre-harvest intervals before making an application.

Codling moth larva and damage *www.agric.wa.gov.au*

VEGETABLES

LATE BLIGHT: Two new cases of late blight were confirmed by the UW and DATCP this week, one on garden tomatoes in La Crosse County and the second on potato in Portage County. Protective fungicide treatments should be maintained to prevent this disease from developing in susceptible crops. Home gardeners are advised to continue inspecting tomato and potato plants for leaf lesions and fruit spots.

Late blight on potato *ag.umass.edu*

Growers who suspect late blight are encouraged to send symptomatic plant material to the UW Plant Disease Diagnostic Clinic: https://pddc.wisc.edu/ sample-collection-andsubmission/. Late blight testing is free of charge.

CABBAGE LOOPER: Surveys indicate that populations of this cole crop pest are currently very high, and growers should be aware that the second larval generation that will appear this month is usually even more damaging than the first generation. Severe infestations affecting 70-90% of cabbage and cauliflower heads have been observed in gardens and on CSA farms in the past two weeks. The predominant development stages noted were full-grown larvae and adult moths. From early heading until harvest, control is justified when 10% of plants are infested to maintain marketability.

Cabbage looper larva Krista Hamilton DATCP

JAPANESE BEETLE: Beetles are abundant this year in gardens and on farms, and are likely to remain so into September. Physical removal is the recommended control option for small gardens. The best times to hand-pick beetles are in the evening and the early morning, when the insects are less active. Use of pheromone traps should be avoided since they attract additional beetles from afar.

COLORADO POTATO BEETLE: Late summer control of this pest may be warranted if defoliation exceeds 30% during tuber formation. Treatments should be applied when most of the population reaches the intermediate third instar stage, presuming this does not conflict with label recommendations or resistance management. Proper timing permits most eggs to hatch, but kills the larvae before they reach the destructive fourth instar. Potato growers are reminded to avoid the consecutive use of the same insecticide product or use of different products with similar modes of action.

Colorado potato beetle larvae Krista Hamilton DATCP

NURSERY & FOREST

VIBURNUM LEAF BEETLE: Adults of this relatively new pest to Wisconsin were observed on viburnums in a Milwaukee County garden center during the last week of July. This invasive defoliator has now been found in eight counties since 2009, including Iron, Kenosha, Milwaukee, Ozaukee, Walworth, Washington, Waukesha, and Winnebago. As its name suggests, the viburnum leaf beetle (VLB) feeds exclusively on viburnums, completing one generation per year beginning with egg hatch in May.

Viburnum leaf beetle defoliation Marcia Wensing DATCP

This pest is particularly damaging because successive defoliation by both the larvae and adults can kill healthy plants after 2-3 years of heavy infestation. Effective

control of VLB is important for protecting the health of native Wisconsin viburnums. DATCP is recommending timely chemical treatment (systemic and/or contact insecticides) to prevent the further spread of VLB in the state. Additional information can be obtained by contacting DATCP Nursery Program at 608-224-4572 or Elizabeth.Meils@wisconsin.gov.

Viburnum leaf beetle *www.forestryimages.org*

TWO-SPOTTED SPIDER MITE: Populations have been favored by the recent predominantly dry weather pattern. Inspections found mite damage on "Regal Prince" oak trees at a nursery in Dane County, and problems are likely to increase in August if dry conditions continue.

Spider mites on oak 'Regal Prince' *Shanon Hankin DATCP*

Spider mite damage appears as stippling or speckling on leaves and may also include a fine webbing on the plant. Heavily infested plants turn completely yellow and stop growing. Although the mites are difficult to observe without magnification, they can be detected by gently shaking infested foliage over a sheet of paper where they can be more easily seen against the white background. Control options include using a stream of water to dislodge the mites from the plant, use of insecticidal oil or soap, employing natural predators including ladybugs, minute pirate bugs, predatory thrips or predatory mites, or a miticide application. Since spider mites thrive in dusty conditions, rinsing tree branches and keeping bare patches of ground lightly moist to reduce flying dust can help with control on tree farms and in orchards.

FALL WEBWORM: Nests have become more common on nursery stock since mid-July. The larvae inside are pale yellow with blackish lateral spots. Mature caterpillars develop tufts of silky hairs and are about one inch long. The fall webworm is a native species that feeds on over 120 different species of deciduous forest, shade, fruit, and ornamental trees, but avoids conifers. Manual removal of the webs is the preferred form of control.

Fall webworm *Shanon Hankin DATCP*

PHYLLOSTICTA NEEDLECAST: This fungal blight which causes noticeable browning of interior needles in midsummer was found on concolor fir trees in Rock County. Pycnidia or fruiting bodies visible to the unaided eye will develop on affected needles in late summer to early fall. Information on this disease is not widely available, but its development is thought to be caused by environmental parameters similar to other needle blight diseases of conifers, such as high humidity and limited air flow. Management includes increasing tree spacing, weed control, and preventative fungicide treatment.

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 1 - 7

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	DWB[5]	LPTB[6]	BMSB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	35	17	0	2	0	0	0	3	*6
Bayfield	Orienta	52	1	0	23	44	9	0	0	*2
Brown	Oneida	140	58	8	0	40	1	0	0	0
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	318	8	1	0	0	—	—	**18	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	—	50	9	9	9	9	9	0	0
Dane	Stoughton	232	55	7	14	3	0	0	0	0
Fond du Lac	Campbellsport	65	32	0	4	3	6	0	0	0
Fond du Lac	Malone	70	12	12	4	0	0	0	**5	0
Fond du Lac	Rosendale	11	17	1	2	3	2	0	0	2
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	—	—	—	—	—	—	—	—	—
Iowa	Mineral Point	685	42	18	12	3	0	0	**6	*0
Jackson	Hixton	17	31	0	0	6	0	0	0	1
Kenosha	Burlington	800	27	7	5	52	4	0	0	—
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	49	32	0 MD	0	15	0	0	0	0
Marquette	Montello	22	35	0	0	13	2	0	0	0
Ozaukee	Mequon	50	1	5	0	2	0	0	0	0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	38	39	0MD	0	49	3	0	*0	0
Racine	Raymond	146	9	5	2	21	1	—	0	0
Racine	Rochester	364	17	15	1	7	0	0	*14	0
Richland	Hill Point	106	12	10	0	4	10	0	**0	**1
Sheboygan	Plymouth	170	0	0 MD	0	8	0	0	**7	0
Walworth	East Troy	54	6	0 MD	0	2	1	0	*1	*1
Walworth	Elkhorn	110	13	0 MD	12	6	0	0	*1	*1
Waukesha	New Berlin	70	0	8	0	12	0	—	0	0

[1]Spotted tentiform leafminer; [2]Redbanded leafroller; [3]Codling moth; [4]Obliquebanded leafroller; [5]Lesser peachtree borer; [6]Dogwood borer; [7]Brown marmorated stink bug; [8]Apple maggot red ball; *Unbaited; **Baited; [9]Apple 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	0	1	0	0	5	0	0	9	0	0
Columbia	Pardeeville	0	1	1	8	11	3	0	3	1	2
Dodge	Beaver Dam	0	0	0	1	0	0	0	3	0	13
Fond du Lac	Ripon	0	0	0	1	0	1	0	1	1	3
Grant	Prairie du Chien	—	—	—	—	—	—	—	—	—	—
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	0	0	1	21	5	16	2	2	0	3
Monroe	Sparta	0	0	0	0	27	2	2	0	0	11
Rock	Janesville	3	3	0	0	1	15	0	10	1	0
Walworth	East Troy	0	0	0	2	0	0	0	0	0	22
Wood	Marshfield	2	2	0	14	0	2	0	1	2	7

[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.