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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

Dry weather improved summer crop prospects over much of the state after an exceptionally wet July. Isolated showers and storms developed mid-week, but rainfall was light and less than 0.5 inch. Sunny skies and seasonable heat spurred growth of maturing corn and soybeans, and supported a rapid rate of alfalfa harvesting. Soybean development continued to advance on pace with the five-year average and 39% of the crop was setting pods at the start of the week, a 17 percentage point increase over the previous week. Corn silking progressed 24 percentage points to 58% complete, still 27 points below last year and 11 points below average. Overall, crop conditions remained favorable despite heavy downpours and severe weather in July, though ratings at the start of August are the lowest since 2013, with about three-quarters of all the state's alfalfa, corn, oats, potatoes, soybeans and wheat in good to excellent health and one-quarter rated as poor to fair. Warm nighttime temperatures in the past week were conducive for activity by nocturnal pest insects, including codling moths, western bean cutworm moths and the European corn borer.

LOOKING AHEAD

CORN ROOTWORM: The annual beetle survey is underway. Counts in the southern and central districts were variable this week at 0-2.9 beetles per plant, with a low average of 0.2 per plant and economic counts of 0.75 or more beetles per plant found in only 9% (7 of 78) of cornfields sampled. Based on very preliminary survey results, populations appear to be low for early August. Beetle levels are expected to increase markedly as emergence peaks this month.

CORN EARWORM: Significant migration flights have not been documented as of August 3. This week's count of 38 moths at 15 pheromone trap locations is an increase over last week's total of 24 moths, but is still low. Monitoring network participants should continue to scout silking sweet corn and replace lures on a weekly basis.

EUROPEAN CORN BORER: Moth collections have increased at the Dodge, Fond du Lac and Rock County black light trap locations. The degree day model for this pest suggests that summer flight will peak next week throughout southern and central 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.

WESTERN BEAN CUTWORM: Contrary to last week's forecast, the annual flight had not peaked, but instead accelerated sharply from July 27-August 2 in central Wisconsin. Pheromone traps captured the season's

highest weekly total of 747 moths, an increase from 477 moths the week before. The 2017 cumulative count of 1,677 moths in 70 traps has now exceeded last year's total capture of 1,530 moths in 75 traps. Black light and pheromone trap counts should begin to decrease across the southern two-thirds of the state where the western bean cutworm degree day model estimates that 75% or more of the moth population has emerged.

BROWN MARMORATED STINK BUG: Nymphs were observed by a DATCP field specialist on July 27 near Green Bay, in a raspberry planting. This invasive insect has previously been confirmed as occurring in Brown County and in parts of the east-central region, though it has never been found or reported in a fruit crop in that area of the state. The appearance of juvenile stink bugs is evidence of established, reproducing populations in Brown County and suggests that eastern Wisconsin fruit growers should increase scouting for BMSB this month.

Brown marmorated stink bug nymph Steve Schoof NC State University

JAPANESE BEETLE: Damage has intensified in field, fruit, nursery and vegetable crops. A nursery manager in La Crosse County reports that numerous linden and cherry trees have been severely defoliated and the beetles are still extremely abundant.

As an indicator of the prevalence of this insect in field crops this summer, beetles have been observed in about 82% of the soybean fields sampled from July12-August 2 and in 45% of cornfields surveyed in the past week. Defoliation rates have surpassed the 20% threshold for reproductive soybeans at a few sites, and moderate to severe silk clipping is common in the edge rows of corn.

DEGREE DAYS JANUARY 1 - AUGUST 2

LOCATION	50°F	2016	NORM	40°F
Dubuque, IA	2052	1926	1842	3288
Lone Rock	1836	1878	—	2988
Beloit	1868	1978	1868	3069
Sullivan	1738	1668	1763	2890
Madison	1816	1856	1782	2973
Juneau	1720	1640	—	2850
Racine	1692	1747	—	2830
Waukesha	1687	1610	—	2828
Milwaukee	1685	1745	1665	2817
Hartford	1672	1614	—	2801
Appleton	1660	1583	—	2753
Green Bay	1612	1554	1584	2691
Big Flats	1711	1736	—	2800
Hancock	1586	1736	1729	2646
Port Edwards	1575	1711	1695	2629
La Crosse	1880	2025	1950	3047
Eau Claire	1744	1792	1753	2852
Cumberland	1348	1490	1634	2376
Bayfield	1335	1264	—	2306
Wausau	1404	1564	1599	2431
Medford	1338	1424	1462	2357
Crivitz	1465	1419	—	2484
Crandon	1225	1389	1248	2209

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

FORAGES & GRAINS

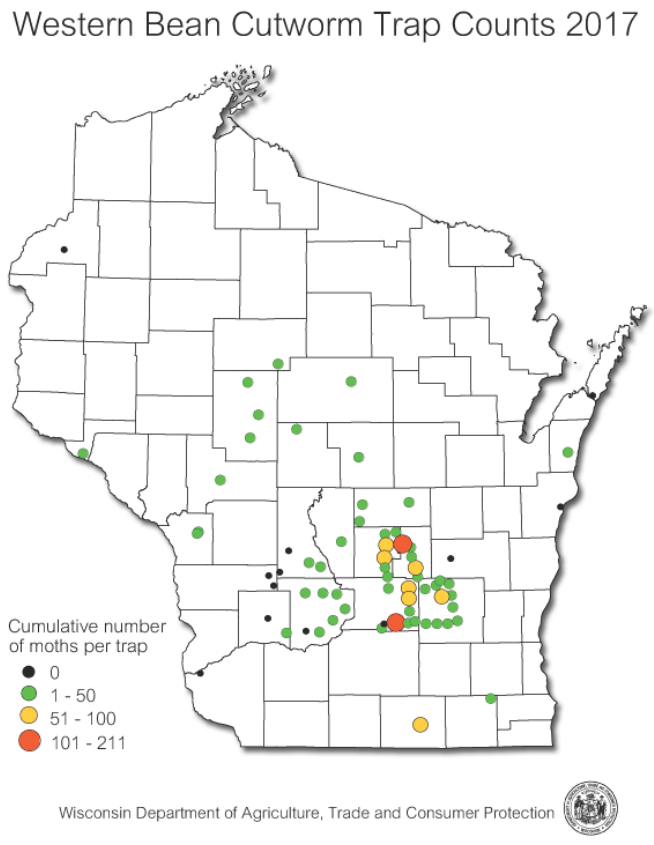
POTATO LEAFHOPPER: Counts remain below the two-leafhopper-per-plant economic threshold for alfalfa 12 inches and taller in southern and west-central fields, with most sites having averages less than 0.6 leafhoppers per sweep. Above-threshold counts have not been found in the past two weeks. Heavy rains in July and harvesting of the second and third alfalfa crops appear to have reduced populations from the high levels observed 3-4 weeks ago. Nymphs are still very common in sweep nets, indicating that populations could still increase in August.

GRASSHOPPER: Late-season grasshopper activity is escalating in alfalfa and other crops. Defoliation has become pronounced along field margins since mid-July across the southern two-thirds of the state. 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 populations reach 20 grasshoppers per square yard at the margins or eight per square yard within an alfalfa field.

CORN

WESTERN BEAN CUTWORM: Moth counts escalated significantly this week at monitoring sites in Columbia, Dodge, Green Lake and Marquette counties. Pheromone traps captured 747 moths from July 27-August 2, compared to 477 moths the week before. Counts across southern and central Wisconsin have likely peaked and should begin to decline soon. Moth emergence is expected to continue in the northern areas for two more weeks. Preliminary results of the 13th annual trapping survey show that the 2017 state count of 1,677 moths in 70 pheromone traps (24 per trap average) is now larger than the 2016 cumulative capture of 1,530 moths in 75 pheromone traps (20 per trap average). The highest individual trap total as of August 2 is 211 moths registered near Cambria in Columbia County.



JAPANESE BEETLE: A DATCP survey specialist reports that approximately 60% of the plants in a La Crosse County field had silks pruned to the ear tip and as many as 12 beetles per plant were feeding on the silks, potentially impairing pollination. A similar infestation involving 50% of the border plants and 5-6 beetles per ear was noted in Dane County. 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 into the field interior. Control of this pest in corn is warranted if **field-wide** populations exceed three beetles per ear and pollination is less than 50% complete. Chemical treatment of entire fields is seldom necessary. Border area spot treatments are usually sufficient for reducing beetles during the critical pollination period.

CORN ROOTWORM: Corn surveyed in the southern and central districts yielded variable averages of 0-2.9 beetles per plant, with the week's highest population recorded near Lancaster in Grant County. Economic averages of 0.75 or more beetles per plant were found in only 7 of 78 fields sampled from July 31-August 2. Counts at most sites are still fairly low for early August. The 2017 beetle survey is now in progress and will continue for the next 2-3 weeks.

Northern corn rootworm beetles feeding on corn silks Krista Hamilton DATCP

EUROPEAN CORN BORER: The peak in summer moth activity should occur before August 12 in the southern and central counties and around August 21 in the northern counties. Pupae and fifth-instar larvae are still common in many cornfields, and these stages will contribute to the flight in coming weeks. The treatment period for second generation larvae has opened across the southern two-thirds of the state with the accumulation of 1,550 degree days (modified base 50°F).

CORN EARWORM: Counts remained low during the past week. Thirty-eight moths were registered at 15 pheromone trap sites, compared to 24 moths captured the previous week. Despite the low numbers, the arrival of even a few moths in traps signals that sweet corn producers should begin monitoring fields with green silks. Small larvae were observed this week in corn ears in a field near Tomah in Monroe County.

Corn earworm larva Krista Hamilton DATCP

SOYBEANS

SOYBEAN APHID: Surveys conducted from July 27-August 2 found no economic populations at 40 sampled sites. Densities were low in all fields, ranging from 0-34 aphids per plant and averaging less than five per plant. Only two fields, both in La Crosse County, had average counts above 20 aphids per plant. Although surveys indicate populations are low, aphid pressure usually intensifies at this time of year, and some fields could require treatment by mid-August. Soybean producers are reminded that insecticide treatment is not advised until the 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 surpassed this level in any soybean field surveyed by DATCP this season. All soybeans should be examined next week to evaluate aphid densities.

JAPANESE BEETLE: Defoliation is particularly prevalent this year. Japanese beetles are causing moderate to severe damage to soybean field margins in the southern and western counties and control treatments have been applied in some instances. Average defoliation rates in fields surveyed since late July have generally been below the 20% threshold for soybeans in the reproductive stages, but a few fields have developed economic defoliation levels in the range of 25-30%.

SOYBEAN LEAFMINER: This red and black leafmining beetle was collected by a DATCP specialist from La Crosse County soybeans on August 1. Soybean leafminer has not previously been documented on soybeans in the state. UW-Madison Insect Research Collection (IRC) records show that the insect has been found in five other Wisconsin counties since 1975, including: Dane, Grant, Rock, Sauk and Waukesha. The species feeds on various legumes and most of the 15 IRC records were from tick trefoil. It is not known to cause economic soybean damage, though the beetles can transmit bean pod mottle virus and contribute to the spread of this pathogen in soybean fields.

Soybean leafminer beetle Krista Hamilton DATCP

FRUITS

BROWN MARMORATED STINK BUG: Nymphs from eggs deposited by overwintering generation adults were observed last week on raspberries in Brown County. Summer adults should begin appearing shortly, and the arrival of new adults could coincide with intensified movement of BMSB into orchards. For Dane County apple orchards where BMSB is known to be established, it is particularly important to be alert for late-season populations and fruit injury. Most BMSB feeding occurs at night, so the stink bugs may not be as noticeable during the day. Growers should also watch for BMSB adults near lights as an indicator of BMSB pressure. In eastern states where BMSB is a severe orchard pest, damage to apples has been misidentified as cork spot and/or bitterpit, disorders rela-

ted to calcium deficiency. As levels of this pest increase sharply in Wisconsin in coming years, on-site monitoring will be the best determinant of whether or not treatments targeting BMSB are necessary. DATCP encourages growers interested in trapping for BMSB to email DATCPDARMBulletin@wi.gov to be included in next season's monitoring program.

Brown marmorated stink bug *Matt Rourke www.newsworks.org*

APPLE MAGGOT: Emergence is increasing and should peak soon. High counts of 17 and 13 flies per yellow sticky trap were reported from Mineral Point and Rochester, respectively, while 11 of 23 orchards registered one or more flies. 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 economic thresholds.

CODLING MOTH: Substantial flights of 11-37 moths have been registered in the past week. Based on the extended flight of first-generation moths and the presence of varying sizes of CM larvae still feeding inside the fruit, this second flight will likely continue for several more weeks. 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 preharvest intervals before making an application.

VINYL-SPIRAL-TREE GUARDS: Certain brands of vinyl-spiral-tree guards intended to protect young trees from rabbits, rodents and mechanical injury do not expand as the tree grows and can constrict and girdle the trees if not adjusted seasonally. Trees with severe constriction are often found with dead vascular tissue in the trunk, which can lead to infection by a range of diseases that cause tree decline. Orchard IPM Specialist John Aue reports that phomopsis and cytospora canker have been Isolated this season from trunks where tree guards were used. These diseases cannot be eradicated from the tree. Orchardists, homeowners, and landscapers who use spiral guards must inspect the trunks periodically to determine if the guards need to be adjusted.

STINK BUG: Populations of native stink bugs are increaseing in field crops, indicating a potential for movement into apple orchards prior to harvest. Orchard sites adjacent to uncultivated areas or with ground covers provide favored habitat. 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 perimeter areas in the orchard and depending on the distribution of the population, spot treatment may be adequate.

Brown marmorated stink bug damage *www.carrollcountytimes.com*

VEGETABLES

BLOSSOM END ROT: This disorder of tomatoes, peppers, watermelons and squash is developing in gardens as tomatoes ripen. The dark, water-soaked lesion that starts at the blossom end of the fruit and enlarges around the fruit surface is caused by calcium deficiency and inconsistent soil moisture levels. Blossom end rot is a physiological problem that cannot be controlled with fungicides and insecticides. Maintaining even soil mois-

ture levels throughout the season usually reduces the occurrence of blossom end rot.

Blossom end rot on tomato Krista Hamilton DATCP

SQUASH BUG: Adult and nymphs are very active in pumpkin and winter squash plantings across the state. Vegetable growers should continue to inspect the undersides of leaves for the metallic bronze eggs, deposited in groups of 15-40 between leaf veins or on stems, as long as small nymphs are present. Squash bugs are capable of damaging mature fruit, thus control may be needed as the crop nears harvest. OMRI-listed materials include PyGanic, insecticidal soaps and certain oils.

Squash bug eggs Krista Hamilton DATCP

BACTERIAL WILT: Reports indicate this insect-transmitted disease is developing on cucumbers in western Wisconsin. Bacterial wilt is vectored by the yellow and black striped cucumber beetle. Infestations of 4-5 beetles per 50 plants are considered high and signal an elevated risk of damage.

CORN EARWORM: Counts have been consistently low (<10 moths per trap per week) since the first migrants began appearing in pheromone traps four weeks ago. Large flights have not been recorded at any monitoring location as of August 3.

EUROPEAN EARWIG: Earwigs are abundant this year in vegetable and flower gardens, greenhouses and basements, and are likely to remain so for several more weeks. Minor damage to arugula, beans, lettuce, hostas, marigolds, potatoes, roses, sweet potato vine, Swiss chard and many other plants is common. Rainy weather in June and July has contributed to the high populations of this nocturnal, moisture-favoring pest.

European earwig Pondman2 flickr.com

NURSERY & FOREST

FOLIAR NEMATODE: Numerous catmint (Nepeta sp.) plants at a nursery in Vilas County were showing symptoms indicative of feeding by foliar nematodes. These microscopic worm-like organisms live on and within the leaf tissue of hundreds of herbaceous and woody ornamental plant species, as well as vegetables. Nematode infestation can cause stunting or twisting of foliage in young plants, and often produces angular, necrotic leaf streaks bordered by leaf veins in mature plants. The symptoms become more pronounced and recognizable later in the growing season.

This pest is readily spread among plants by splashing water, such as from rainfall or overhead irrigation. Reducing leaf wetness is advised to prevent the nematodes from spreading. Replanting susceptible stock in areas recently infested with nematodes should be avoided

since the nematodes can temporarily survive in soil. Cuttings from infected stock should never be used for propagation, and decontamination of tools following contact with plants suspected of being infected is good practice. Chemical control is not effective against this pest.

Nepeta damaged by foliar nematode *Timothy Allen DATCP*

OAK TWIG PRUNER: Damage attributed to this long-horned beetle was observed last week in Dunn County. Boring by the larval stages in small branches and twigs can result in considerable branch-drop by late summer. If lawns are covered with twigs and branches 20-40 inches long with the leaves still attached, the oak twig pruner is likely the cause. Property owners should look for a small plug of wood or frass at the end of the twig to confirm. Hardwood trees attacked by this beetle may be seriously damaged but are usually not killed. The most effective control is to collect and burn the fallen branches in autumn or winter.

Oak litter caused by oak twig pruner *Timothy Allen DATCP*

TAR SPOT: This late-season leaf blight disease is developing on maple trees across Wisconsin. The pale yellow lesions now apparent will soon become raised, black, tar-like lesions. Tar spot is an aesthetic disorder best controlled by clearing and disposing of infected leaves in fall to prevent the spores from spreading. In rare cases where treatment is warranted, three fungicide applications are necessary for control: one at bud break, one when leaves are half expanded, and one when leaves are fully expanded.

DOWNY MILDEW: This common fungal problem was confirmed on 'Valiant' grapes from Iron County earlier this week. Downy mildew is characterized by whitish mold that develops on the grape 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 or as mycelium in bud tissue, so thorough end-of-season sanitation is important where mildew infection has been severe in 2017.

Downy mildew on grapes *Timothy Allen DATCP*

GYPSY MOTH: Oak trees severely infested with this defoliating pest were observed by inspectors last week in Washington County. Both male and female moths, caterpillars, and pupae were found. A few of the gypsy moth caterpillars were suspended from the bark of trees in an inverted "V," and were presumed to have succumbed to gypsy moth nuclear polyhedrosis virus (NPV), a virus that kills caterpillars and can reduce gypsy moth populations in Wisconsin in some years. Gypsy moth larvae are also susceptible to the fungus, *Entomophaga maimaiga*, which can be recognized by dead caterpillars that hang straight down from the tree bark.

APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 27 - AUGUST 2

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	OFM[5]	LPTB[6]	DWB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	37	3	0	0	0	4	8	4	**0
Bayfield	Orienta	64	0	0	6	0	0	2	—	—
Brown	Oneida	700	41	11	1	5	2	6	0	**1
Columbia	Rio	42	1	2	1	4	5	0	0	**0
Crawford	Gays Mills	—	—	—	—	—	—	—	—	—
Dane	DeForest	110	8	5	11	4	—	—	—	—
Dane	Mt. Horeb	158	25	3	0	0	3	5	1	**0
Dane	Stoughton	334	29	19	2	5	0	2	2	**0
Fond du Lac	Campbellsport	51	28	0	11	0	2	4	*0	**0
Fond du Lac	Malone	40	37	8	18	0	0	2	**1	**0
Fond du Lac	Rosendale	32	36	5	12	1	5	1	*3	**7
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	25	1	4	15	—	3	—	*0	**0
Iowa	Mineral Point	1353	43	33	1	2	3	1	**5	**17
Jackson	Hixton	76	22	7	2	0	3	5	*0	**0
Kenosha	Burlington	445	6	5	2	7	3	12	0	**0
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	383	31	0	0	0	8	0	1	**0
Marquette	Montello	821	73	5	1	0	11	18	0	**0
Ozaukee	Mequon	42	17	7	0	0	0	8	*0	**0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	448	30	0	0	0	8	1	*2	**0
Racine	Raymond	510	9	11	0	7	11	10	0	**0
Racine	Rochester	344	18	37	0	8	0	0	*10	**13
Richland	Hill Point	180	30	0	1	0	7	7	**0	**0
Sheboygan	Plymouth	109	62	0	0	1	—	2	**2	**0
Walworth	East Troy	—	—	—	—	—	—	—	—	—
Walworth	Elkhorn	—	—	—	—	—	—	—	—	—
Waukesha	New Berlin	140	6	16	3	8	5	19	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	1	0	0	0	0	0	0	1	6
Columbia	Pardeeville	0	0	2	0	0	1	0	1	0	5
Dodge	Beaver Dam	2	0	0	0	10	0	0	2	0	27
Fond du Lac	Ripon	2	0	0	7	5	2	0	0	0	29
Grant	Prairie du Chien	3	0	0	0	0	1	0	0	0	0
Manitowoc	Manitowoc	0	0	0	0	0	0	3	11	0	0
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	1	0	0	0	0	1	0	0	0	7
Rock	Janesville	0	2	0	0	1	0	0	4	0	0
Walworth	East Troy	0	1	0	2	0	1	0	2	0	2
Wood	Marshfield	3	7	1	3	0	3	0	8	1	13

[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.