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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

Hot, humid weather settled over Wisconsin early in the week, accelerating summer crop development. Calm, mostly dry conditions briefly prevailed following last week's torrential downpour in the southeast, until a complex of severe thunderstorms arrived on Wednesday evening. According to the National Weather Service, rainfall of more than six inches was recorded in portions of western Wisconsin overnight on July 19, primarily along the Mississippi River, and many roads became impassable due to flash flooding and debris from mud-slides. Damage to crops from the storms is expected to be widespread and severe. Additional storms with substantial rain are forecasted for the western and southern areas of the state later in the week, which will likely increase river flooding and cause more crop damage in these regions.

LOOKING AHEAD

WESTERN BEAN CUTWORM: Moth activity has peaked or is expected to peak next week across the southern half of the state. As of July 19, the Wisconsin network of 69 pheromone traps has reported a cumulative total of 440 moths, well below last year's capture of 701 moths in 72 traps. High counts in the past week were 87 moths in the black light trap near Sparta in Monroe County and 40 moths in a Green Lake County pheromone trap.

CORN EARWORM: Minor moth flights were registered in Adams, Columbia, Dodge, Fond du Lac and Rock counties again this week. Numbers were low at only 1-10 moths per trap. Egg deposition on corn silks is occurring and is likely to increase if migrants continue to arrive this month. Regular scouting should begin in sweet corn fields with green silks.

SOYBEAN APHID: Surveys indicate aphid pressure remains low. Of the 67 soybean fields examined in the last two weeks, none had an average density greater than 21 aphids per plant. Moderate counts of 100-200 aphids could be found on individual plants in localized areas within fields, but field-wide averages were low. Insecticide treatment has not yet been justified for any site sampled by DATCP in July. Scouting to assess soybean aphid densities should be underway and continue weekly through mid-August.

EUROPEAN CORN BORER: Moths have been observed in corn near Reedsburg and Richland Center since the last report. The peak flight of summer moths is projected for July 30-August 5 in the south-central, southwestern and west-central areas, and August 6-12 in the southeastern and central counties. The treatment window for second-generation larvae will reopen over the weekend of July 22-23 in advanced southern and western locations, with the accumulation of 1,550 degree days (mod base 50°F).

SPOTTED WING DROSOPHILA: SWD captures in western Wisconsin have increased markedly since early July and now exceed 100 per trap per week in raspberries in La Crosse and Trempealeau counties. Extremely high weekly captures of 392 and 592 flies have been reported from two Trempealeau County monitoring sites. These counts indicate a heightened risk of severe maggot infestation on farms and in gardens where SWD control programs are not in place.

Spotted wing drosophila pheromone trap *Krista Hamilton DATCP*

FORAGES & GRAINS

POTATO LEAFHOPPER: Alfalfa fields surveyed in Chippewa, Columbia, Dane, Dunn, Iowa, Jackson, Monroe, Richland, Sauk and Vernon counties in western and southern Wisconsin contained 0.1 -2.2 adults and nymphs per sweep, with an average of 0.7 per sweep. Economic populations above two leafhoppers per sweep (for 12-inch alfalfa) were not as prevalent this week as in the previous week. The relatively high proportion nymphs in most fields indicates significant reproduction is occurring and populations are likely to increase in alfalfa and on fruit and vegetable crops this month.

PEA APHID: Levels of this insect remain very low at less than 0.5 aphids per sweep in all surveyed fields. The July 13-19 average of only 0.2 per sweep is nearly unchanged from 0.3 per sweep recorded the week before.

PLANT BUG: Mixed populations of alfalfa and tarnished plant bugs currently average 0.6 per sweep across the lower two-thirds of the state, with a range of 0.1-1.8 per sweep. The week's highest count was noted in Monroe County. Nymphs are generally more abundant than adults.

DEGREE DAYS JANUARY 1 - JULY 19

LOCATION	50°F	2016	NORM	40°F
Dubuque, IA	1728	1590	1536	2829
Lone Rock	1537	1546	—	2553
Beloit	1566	1631	1555	2631
Sullivan	1444	1347	1462	2462
Madison	1519	1515	1483	2542
Juneau	1427	1333	—	2423
Racine	1386	1397	—	2390
Waukesha	1396	1301	—	2401
Milwaukee	1381	1383	1354	2377
Hartford	1381	1304	—	2375
Appleton	1356	1269	—	2313
Green Bay	1314	1245	1301	2259
Big Flats	1410	1415	—	2364
Hancock	1301	1415	1439	2226
Port Edwards	1290	1391	1405	2208
La Crosse	1569	1662	1623	2601
Eau Claire	1431	1457	1454	2404
Cumberland	1088	1218	1347	1981
Bayfield	1081	979	—	1912
Wausau	1138	1262	1316	2029
Medford	1083	1166	1199	1968
Crivitz	1191	1118	—	2075
Crandon	987	1111	1033	1838

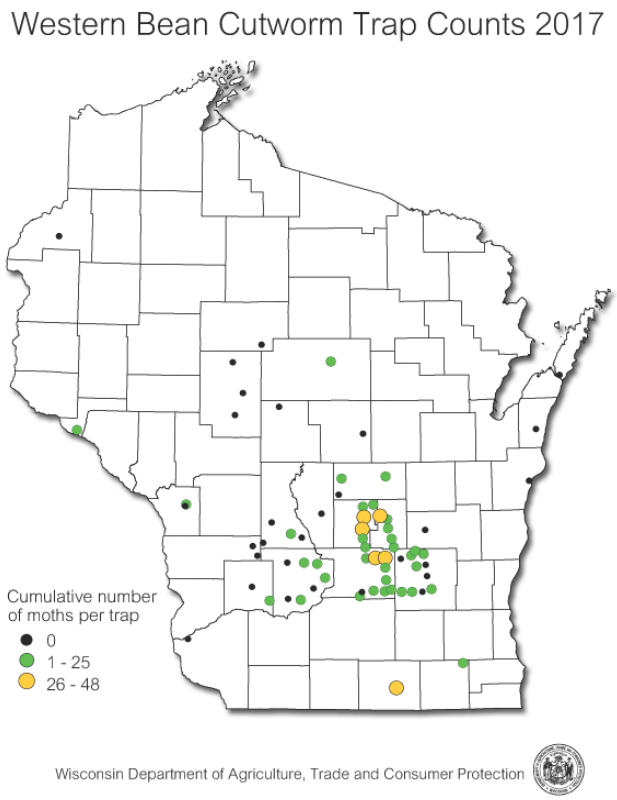
Method: Modified B50; Modified B40 as of January 1, 2017. NORMALS based on 30-year average daily temps, 1981-2010.

ALFALFA CATERPILLAR: Larvae are prevalent in field collections, especially in southern and western alfalfa fields where counts occasionally average 0.2 per sweep (20 per 100 sweeps). Adults are also common in alfalfa, signaling that egg laying is occurring and more larvae should appear soon.

CORN

WESTERN BEAN CUTWORM: Moth emergence accelerated during the past week and has peaked in some areas. According to the degree day model for this insect, 25-50% of the adult population has emerged across the southern half of the state, while the annual flight is beginning near Wausau and in the northern counties. The DATCP network of pheromone traps registered a total of 237 moths from July 13-19, compared to 98 moths during the previous week. The current state cumulative count of 440 moths in 69 traps is much lower than the 701 moths captured in 72 traps by the same time last season.

Oviposition on corn is increasing as the moth flight peaks. Scouting should continue in the week ahead.



CORN ROOTWORM: Beetles have become more common since the first adults of 2017 were observed two weeks ago. Counts this week were variable at 0.1-5.0 per plant, with the beetles mostly limited to silking plants at the edges of advanced fields. Inspection of corn with emerging silks should start in the week ahead. An average of five or more beetles per plant and silks that have been clipped to less than ½ inch suggest pollination is being impaired.

Northern corn rootworm beetle *Krista Hamilton DATCP*

EUROPEAN CORN BORER: Surveys of 43 sites this week found only two significant infestations affecting 56% and 96% of corn plants in Monroe and Vernon counties. Fifth-instar larvae and pupae were the predominant developmental stages in the southern and west-central areas. Larvae in eastern Wisconsin have reached the intermediate third instar and are beginning to bore into the midribs of corn leaves. The treatment window for the second larval generation has opened near Beloit, La Crosse and other advanced locations where 1,550 degree days (mod base 50°F) have accumulated, and will remain open until 2,100 degree days are surpassed.

JAPANESE BEETLE: Beetles are prevalent in low to moderate numbers in corn. DATCP surveys indicate that counts range from 3-50 beetles per 100 plants and are well below the economic threshold of three or more beetles per ear, when silks are being clipped to ½-inch during pollination. Infestations are generally limited to the field margins. Beetles are expected to become more numerous and damaging when silks are more widely available. Scouting several areas in the field interior, in addition to field edges where beetles are usually concentrated, is suggested for corn that has reached the silking stage.

Japanese beetle damage to corn leaf *Krista Hamilton DATCP*

SOYBEANS

JAPANESE BEETLE: This pest continues to cause light to moderate (5-15%) defoliation of soybeans along field margins. Infestations were noted in Dane, Dunn, Chippewa, Eau Claire, Iowa, Jefferson, Jackson, La Crosse, Monroe, Richland, Rock, Sauk, Trempealeau and Vernon counties this week. The economic threshold for Japanese beetle and other leaf feeding soybean pests decreases to

20% defoliation between bloom and pod fill. Limited spot treatment should be adequate to control beetles in fields where severe leaf feeding injury is confined to the perimeter areas.

Japanese beetle *Krista Hamilton DATCP*

GREEN CLOVERWORM: Low populations have been observed in southern and western Wisconsin soybeans since the first week of July. Defoliation attributed to this caterpillar and other leaf feeding pests has not surpassed the 20% threshold for reproductive soybeans. Conditions are favorable for higher-than-normal green cloverworm population to develop this season. The last serious outbreaks occurred in 2010.

Green cloverworm larva *Krista Hamilton DATCP*

SOYBEAN APHID: Colonies on reproductive soybeans are low for mid-July. The average count in 40 fields sampled from July 13-19 was less than two aphids per plant. The highest average documented to date was only 21 aphids per plant in the Centerville area of Trempealeau County. Localized spots of 100-200 aphids per plant are not unusual within some fields, but field-wide averages are still extremely low, emphasizing the need for thorough scouting before control decisions are made. Insecticide treatment is not warranted until the threshold of 250 aphids per plant on 80% of the plants has been exceeded. Once again, aphid counts have not surpassed this level in any soybean field surveyed by DATCP this month.

FRUITS

RASPBERRY CANE BORER: Raspberry canes in Sauk County are showing wilted, blackened tips caused by this wood-boring beetle. Borer damage can be identified by two rings about 1/2 inch apart located 4-6 inches below the growing tip. An egg is inserted into the cane between the two rings. Symptoms become more conspicuous as the larva burrows to the base of the cane, causing the entire cane to die before the fruit matures. Infested tips should be pruned several inches below the lowest girdle mark as soon as they are noticed.

Raspberry cane borer adult *Goshzilla-Dann flickr.com*

SPOTTED WING DROSOPHILA: SWD flies have to date been captured across all monitoring sites in Columbia, La Crosse, Pierce, Sauk and Trempealeau counties, in blueberry, cherry, raspberry and strawberry plantings. The UW has also reported captures in Dane and Door counties. Counts first escalated sharply from July 1-7 when six of DATCP's 18 traps collected 50 or more flies. Four sites have now reported weekly counts of 200 or more flies, including two Trempealeau County traps which captured 392 and 594 flies. The localized rapid buildup of SWD in the west-central area indicates that

populations will soon expand regionally, and infestations of small fruits are intensifying. Damage is already being reported on some fruit farms and in community gardens.

Cultural management practices are particularly important for reducing SWD infestation and population buildup and include: netted exclusion of the plant canopy, sanitation and orchard/berry floor management, and development of a harvest and cold storage system. Cooling fruit to 34-38°F immediately after harvest is advised.

Chemical control of SWD is intensive and involves insecticide applications at the onset of adult activity to prevent adult egg laying, short intervals between sprays, and insecticide rotation. For organic operations, the OMRI-approved insecticides PyGanic and Entrust are available. A list of insecticide options for conventional small fruit growers can be found on the UW-Madison SWD website: http://labs.russell.wisc.edu/swd/management-2/.

Spotted wing drosophila larva in rapsberry *wrir4.ucdavis.edu*

APPLE MAGGOT: Emergence increased in the past week at several orchard locations. Economic counts of 5-7 flies per baited trap were reported from Dane, Fond du Lac, Grant and Iowa counties. Growers should reapply sticky coating to traps and maintain apple maggot controls as long as counts exceed the established economic thresholds of one fly per trap per week on unbaited traps or five flies per trap per week on baited traps.

CODLING MOTH: Most apple orchards are beyond the summer biofix and treatments targeting second-generation larvae have started. Pheromone trap counts should be used at this time to assess efficacy of first-generation control or to identify a deficiency in the current codling moth management program. According to John Aue of Threshold IPM Services, orchards with counts that remain uniform from trap to trap during the second flight likely have a local, in-orchard population. If using organophosphates such as Imidan for control of the summer generation, growers should replace trap liners before an application to monitor the effectiveness of the material. Moth counts that do not decline to zero or near-zero following treatment suggest resistance issues have developed and use of organophosphate material should be discontinued.

Potato leafhopper damage to apple foliage *fruit.cornell.edu*

POTATO LEAFHOPPER: High pressure continues to be reported in several orchards and hopperburn symptoms are appearing. One- to two-year-old, non-bearing apple trees are most susceptible to leafhopper feeding and should be monitored for leaf curling and yellowing caused by the adults and nymphs. Treatment is justified at levels of one or more nymphs per leaf.

OBLIQUEBANDED LEAFROLLER: Larvae are primarily in the late instars and pupal stages in the southern and western counties. Beyond the first and second instars, this leafroller becomes increasingly difficult to control and much of its feeding damage has already occurred. Emergence of the summer brood of moths is anticipated by August.

VEGETABLES

COLORADO POTATO BEETLE: Second-generation larvae are appearing on potatoes in the southwestern and west-central areas. Late-season control of this pest may be warranted if defoliation exceeds 30% during tuber forma-

tion. Treatments applied after egg hatch and before the majority of the larval population reaches the destructive fourth-instar stage are most effective. Potato growers who opt to chemically control the larvae should follow CPB resistance management guidelines by avoiding consecutive use of the same insecticide product or products with similar modes of action.

Colorado potato beetle Jiri Bohdal www.naturephoto-cz.com

LATE BLIGHT: Disease severity value accumulations in the state's primary potato production regions (i.e., Antigo, Grand Marsh, Hancock and Plover) have far exceeded the late blight risk threshold, thus conditions are appropriate for disease development. Home gardeners and farmers, whether conventional or organic, should consider preventive fungicide applications to protect their tomatoes and potatoes. Registered fungicides for potato late blight in Wisconsin are listed at the UW-Madison Vegetable Pathology website: http://www.plantpath.wisc.edu/wivegdis/pdf/2017/May%2022,%202017.pdf. No cases of late blight have been confirmed in Wisconsin as of July 19.

HOP POWDERY MILDEW: The confirmation of hop powdery mildew (HPM) in Dodge County by the UW on July 13 should signal to hop growers to begin closely monitoring production fields for disease symptoms. HPD is a very destructive fungal disease that can rapidly develop and spread throughout hop fields when temperatures are favorable (64-70°F), causing significant damage and crop loss. Unlike hop downy mildew, HPW infection does not require rain or wet foliage. Symptoms include white, fluffy fungal colonies that may appear on both the upper and lower leaf surfaces as distinct colonies or large, coalesced areas of fungal growth. Developing burrs become distorted and necrotic, while infected cones turn brown and exhibit reduced quality. Growers who suspect HPM are advised to submit a sample to the UW Plant Disease Diagnostic Clinic for confirmation.

SQUASH BUG: Counts of 1-2 egg clusters per plant were found on squash in a La Crosse County community garden, along with adult and nymphs. Handpicking the eggs and all squash bug stages from the undersides of leaves is suggested if only a few plants are infested, or dusting diatomaceous earth over plants may help reduce numbers. Levels that become intolerable can be spot treated with an organic insecticide or a pyrethroid, but insecticides are generally only effective against the small, newly hatched nymphs, and thorough coverage is critical. The economic threshold for this pest in one egg cluster per plant when vines are flowering.

Squash bug nymph Krista Hamilton DATCP

NURSERY & FOREST

CALLIGRAPHA LEAF BEETLE: These ornately-marked beetles were found on ninebark and 'snowball viburnum in Crawford and St. Croix counties. Beetles in the genus Calligrapha are known to defoliate spiraea, ninebark, and Ribes. Healthy, established shrubs can tolerate significant leaf feeding, even complete defoliation. Shrubs that are already severely defoliated should not be treated.

DAYLILY RUST: Daylily plants in a Milwaukee County nursery were infected with this rust disease. Symptoms include small, raised yellowish-orange pustules that appear on the lower leaf surface and eventually release spores that spread to other daylilies. The disease cycle involves a secondary host, Patrina spp. Daylily rust is not known to overwinter in Wisconsin. The spores either

arrive on southerly winds or on infected plants from out-of-state suppliers.

Daylily rust *DATCP Nursery Program*

POWDERY MILDEW: Bee balm plants in a Price County nursery were infected with this common fungal disease. Powdery mildew is characterized and easily diagnosed on most plants by a grayish white powdery dusting on the upper leaves, which causes foliage to turn yellow and senesce prematurely. Cultural practices that increase air circulation usually reduce mildew development.

Powdery mildew on bee balm *Timothy Allen DATCP*

BLACK SWALLOWTAIL: Nursery inspectors observed larvae of the black swallowtail butterfly on fennel earlier this week. These beneficial pollinators feed on a variety of plants in the parsley family. Two broods occur in Wisconsin, one in early May and another in late July. The adult butterflies are commonly seen in August.

GENETIC REVERSION: The phenomenon of genetic reversion was recently observed by a DATCP inspector on Alberta spruce in Marathon County. According to the report, the affected Alberta spruce had vigorous growth of white spruce tree emerging from the midsection, and essentially appeared to have another tree growing from it. Genetic reversion occurs when trees or shrub cultivars produced from a genetic mutation (commonly dwarf evergreens) revert to their natural, non-mutated form. In the case of Alberta spruce, the original form is the white spruce. Reversion is also common in variegated Norway maples. When reversion occurs, the rapidly-growing portion should be pruned out promptly. If left unpruned, reversions will dominate the tree and the home-owner who purchased a dwarf Alberta spruce or variegated maple will be left with a white spruce or Norway maple.

Genetic reversion of Alberta spruce to white spruce *Timothy Allen DATCP*

MALLOW SAWFLY: Light to moderate damage to glade mallow plants caused by this sawfly species was noted in a St. Croix County nursery the past week. The larvae, which have black heads and green bodies, feed on the underside of hibiscus, hollyhock, and other ornamentals in the rose mallow family. The mallow sawfly is considered a minor pest and its feeding should be tolerated.

PINE BARK ADELGID: The white cottony egg masses laid by female adelgids were observed on the bark, branches and trunks of 'Twisted' eastern white pine trees at a nursery in Price County. The infestation was not severe, but pine bark adelgids can coat the surface of trees, stunting growth and causing needles to turn black from sooty mold. Tree death is rare and usually impacts older trees. Smaller trees are generally not attacked. Dormant oils may be applied in fall or spring to kill the nymphs. Pine bark adelgid also occurs on Austrian and Scots pine.

APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 13 - 19

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	OFM[5]	LPTB[6]	DWB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	42	0	0	0	0	5	10	0	**2
Bayfield	Orienta	33	0	0	1	0	4	23	—	—
Brown	Oneida	650	33	9	14	0	4	13	0	**0
Columbia	Rio	—	—	—	—	—	—	—	—	—
Crawford	Gays Mills	—	35	0	4	—	10	16	0	0
Dane	DeForest	8	40	5	13	—	—	—	—	—
Dane	Mt. Horeb	133	209	0	0	0	1	5	0	**0
Dane	Stoughton	278	75	6	0	0	4	11	3	**5
Fond du Lac	Campbellsport	150	0	0	3	0	0	15	*1	—
Fond du Lac	Malone	100	18	3	0	0	0	9	**0	**0
Fond du Lac	Rosendale	33	14	0	0	3	0	4	*2	**7
Grant	Sinsinawa	38	—	18	—	—	—	—	—	**5
Green	Brodhead	6	101	2	0	—	10	—	*0	**0
Iowa	Mineral Point	1026	75	7	0	3	8	0	*6	**1
Jackson	Hixton	270	12	1	0	3	1	4	*0	**0
Kenosha	Burlington	134	18	2	0	2	6	10	1	**0
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	136	2	0	7	2	0	0	0	**0
Marquette	Montello	891	108	0	2	0	0	17	—	—
Ozaukee	Mequon	210	117	1	1	0	0	36	*1	**0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	387	30	0	3	0	9	6	*0	**0
Racine	Raymond	344	48	9	0	0	14	80	0	**0
Racine	Rochester	670	85	9	1	2	1	11	*4	**1
Richland	Hill Point	107	18	0	2	0	6	6	**0	**0
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	—	—	—	—	—	—	—	—	—
Walworth	Elkhorn	—	—	—	—	—	—	—	—	—
Waukesha	New Berlin	20	9	1	1	6	11	110	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	2	0	1	0	5
Columbia	Pardeeville	0	0	0	0	0	0	0	3	0	48
Dodge	Beaver Dam	0	2	0	21	0	10	0	14	0	17
Fond du Lac	Ripon	5	3	0	3	2	3	0	17	0	14
Grant	Prairie du Chien	4	0	0	0	0	6	0	4	0	1
Manitowoc	Manitowoc	0	0	0	0	0	0	0	6	0	0
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	0	0	0	0	0	1	0	0	0	87
Rock	Janesville	1	1	0	0	0	1	1	9	1	0
Walworth	East Troy	0	0	0	0	0	1	0	2	0	12
Wood	Marshfield	7	10	0	0	1	8	0	15	0	4

[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.