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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

Overcast skies and seasonal temperatures dominated Wisconsin during the last days of June. Early-week showers soaked portions of the state, maintaining adequate to surplus soil moisture for vegetative crop growth, while drier weather returned for the latter half of the week. A few thunderstorms impacted southern Wisconsin on Tuesday, June 26, and two tornadoes were confirmed in Lafayette County. Daytime high temperatures were mostly in the 70s and 80s across the state, with lows in the 50s and 60s. The above-average June rainfall kept summer crops well-watered in most areas, but the frequent precipitation has also caused localized delays in fieldwork and left standing water in low fields. Reports from the USDA NASS continue to depict favorable crop condition ratings, but many field, fruit and vegetable crops are showing signs of flooding damage.

LOOKING AHEAD

SPOTTED WING DROSOPHILA: Emergence is rapidly increasing and populations are expected to surge by early July. Flies have been appearing in UW survey traps since June 1. The University of Minnesota reported its first significant SWD fly captures during the week of June 17-23 at all monitoring sites in the twin cities metro area, as well as in the southeast region. SWD poses that greatest threat to June-bearing strawberries at this time of year, and thorough, frequent harvesting is imperative for SWD control, especially for pick-your-own strawberry operations. Berry growers are advised to increase monitoring efforts and make preparations for SWD management.

EUROPEAN CORN BORER: Larvae are in the early to intermediate instars and have begun entering corn leaf midribs and unemerged tassels. The treatment window for first-generation corn borers is forecast to close near Beloit, Madison, La Crosse, Platteville and across the far southern and western areas by June 29, following the accumulation of 1,100 degree days (modified base 50°F). Chemical control remains an option in the southeastern, central and northern counties for an additional week, or approximately through July 8.

ROSE CHAFER: Reports of minor damage to grapes, raspberries, strawberries, fruit trees, roses and ornamentals are common. Chafer feeding is expected to continue for another two weeks and should subside in most areas by mid-July. Insecticide treatment of grape vines and landscape plants is usually not necessary.

WESTERN BEAN CUTWORM: The annual flight has started in southern and central Wisconsin, though only two moths were captured in 54 survey traps in the past week. The specimens were collected near West Salem in La Crosse County. Twenty-five percent emergence of the

adult population is anticipated by July 8-14 throughout the southern portion of the state and during the week of July 15-21 in the central counties. Cornfields reaching the pretassel stage will be most attractive for oviposition and should be closely inspected from early to mid-July for egg masses and small larvae.

Western bean cutworm moth themothman.blogspot.com

SOYBEAN APHID: Counts remain extremely low in most soybean fields. Of the 31 sites surveyed from June 21-27, nine had averages below one aphid per plant and 71% of the fields had no detectable aphid population. The highest count noted on an individual plant was 21 aphids. Routine monitoring for aphids should begin by early July.

APPLE MAGGOT: Adult flies were captured on traps in Brown, Dane and Fond du Lac counties in the past week, signifying the start of the adult emergence period. More frequent monitoring of red sphere and yellow sticky traps should begin at this time. The apple maggot fly is recognizable by an F-shaped wing banding pattern and a prominent white spot on the thorax.

TRUE ARMWORM: Significant flights of 30-95 moths were registered in the Janesville, Manitowoc and Pardeeville black light traps from June 21-27. This development emphasizes the need for continued monitoring of corn, wheat and other susceptible crops in July.

FORAGES & GRAINS

POTATO LEAFHOPPER: Counts in central and southern alfalfa fields have increased in the last two weeks, although averages remain below established economic thresholds. Surveys conducted in 28 fields during the week ending June 28 found moderate counts of 0.5-0.9 per sweep at 10% of sites, while 90% had low counts of less than 0.4 per sweep. Nymphs are appearing in more fields, indicating a potential for populations to increase to above-threshold levels next month.

DEGREE DAYS JANUARY 1 - JUNE 27

LOCATION	50°F	2017	NORM	40°F
Dubuque, IA	1254	1207	1081	2033
Lone Rock	1106	1065	—	1847
Beloit	1074	1101	1095	1807
Sullivan	976	997	1015	1666
Madison	1057	1046	1039	1781
Juneau	1003	979	—	1690
Racine	854	940	—	1520
Waukesha	898	956	—	1568
Milwaukee	884	934	903	1559
Hartford	950	941	—	1628
Appleton	978	900	—	1627
Green Bay	935	870	889	1577
Big Flats	1031	965	—	1713
Hancock	944	884	1015	1580
Port Edwards	955	873	986	1598
La Crosse	1176	1072	1142	1910
Eau Claire	1097	953	1015	1764
Cumberland	898	713	924	1494
Bayfield	670	512	—	1199
Wausau	866	751	906	1473
Medford	860	712	821	1458
Crivitz	893	797	—	1494
Crandon	804	647	716	1377

Method: Modified B50; Modified B40 as of January 1, 2018. NORMALS based on 30-year average daily temps, 1981-2010.

ALFALFA WEEVIL: A few late-stage larvae persist, but most of the population has pupated and new adults are appearing in sweep net collections. Larval counts in second-crop alfalfa have declined to less than 0.1 per sweep, and further problems are not anticipated this year.

PEA APHID: Numbers average approximately 10 aphids per sweep, with a few sites containing very high counts of 20-29 per sweep. Pea aphid levels have shown a considerable increase since mid-June.

PLANT BUG: Counts in the southern half of the state range from 0.2-1.4 per sweep. The average is only 0.4 per sweep, based on surveys in 28 fields. Nymphs of

various maturities can be found in most fields and reports suggest that these insects are causing damage in some nurseries, apple orchards, and in fruit crops.

CORN

EUROPEAN CORN BORER: Early whorl feeding was observed in 20% of the V9-V12 fields sampled this week. Infestations were light, affecting no more than 6% of the plants field-wide. Larvae varied in development from first to third-instar and a few had begun boring into the midribs of corn leaves. The treatment window is expected to close June 29 in the south-central and southwestern counties and will remain open only until about July 8 in the southeastern and central areas. Scouting and management decisions made in the week ahead will be most effective against first-generation corn borers.

European corn borer larva (3rd or early 4th instar) Krista Hamilton DATCP

WESTERN BEAN CUTWORM: Moth emergence continued at very low levels for a second consecutive week. The DATCP network of 54 pheromone traps captured only two moths during the period of June 21-27 and a cumulative total of six moths to date, which is far lower than the 38 moths collected by the same time last year. The appearance of western bean cutworm adults indicates that the annual flight is beginning in the southern half of the state and close inspection of corn plants for egg masses and small larvae should start once fields enter the late-whorl and pre-tassel stages. The eggs are deposited on the upper surface of the top 3-4 leaves, often on the flag leaf, and the larvae can be found in developing tassels. The economic threshold for this pest remains at 5% of plants infested for field corn and 4% for processing sweet corn. Insecticide treatments applied at 90-95% tassel emergence are most effective.

TRUE ARMYWORM: Conditions are still very favorable for armyworms after the recent rains, and the significant flights of 309 moths registered in the Janesville black light trap in the past two weeks suggests that the second generation of caterpillars should begin emerging soon. Continued inspection of corn and small grains throughout July is recommended. Light larval infestations involving fewer than 10% of the plants were noted in about 8% of cornfields surveyed by DATCP this month.

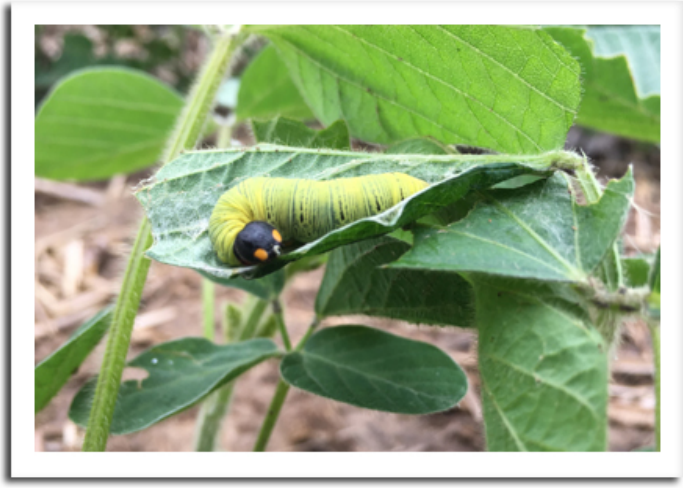
True armyworm leaf feeding Krista Hamilton DATCP

SOYBEANS

SOYBEAN APHID: Densities have not increased noticeably since aphids were first observed on June 4. Counts averaged less than one aphid per plant in 29% of the fields surveyed this week, and the other 71% had no detectable aphid population. Routine monitoring should begin by the second week of July or once fields reach the R1 (first flower) development stage.

DEFOLIATORS: Leaf feeding by rose chafers, bean leaf beetles, Japanese beetles, sand chafers, slugs and various caterpillars is common in soybeans, though defoliation is light, ranging from 5-10% on no more than 10% of plants in most fields. The distinctive silver-spotted skipper caterpillar, recognizable for its two large orange eyespots on a dark purple head, were observed in Dane and Jefferson County fields this week. Defoliation rates have not exceeded the 30% economic threshold for soybeans in the vegetative stages as of June 28 and

control has not been warranted for any field surveyed by DATCP.



Silver-spotted skipper larva Tracy Schilder DATCP

FRUITS

SPOTTED WING DROSOPHILA: A national team of researchers lead by the University of Georgia has released a new guide to organic management of spotted wing drosophila (SWD). The guide details information on non-chemical and insecticide approaches to protect berry crops against this invasive fly. Controlling SWD is particularly challenging, requiring a rigorous, persistent and diverse management plan. The guide provides several management recommendations and suggests using as many control techniques as possible to reduce SWD infestation. Funding for the research was provided by the USDA National Institute of Food and Agriculture's Organic Agriculture Research and Extension Initiative (OREI). Download the guide in PDF form here, http://www.ipm.msu.edu/uploads/files/SWD/SWDOrganicBerryCrops.PDF.

JAPANESE BEETLE: Numbers are increasing in fruit and field crops over much of the state. Neem-based products that contain azadirachtin (e.g., BioNeem) are still effective in northern and central locations where beetle populations are low and the first adults are just starting to move into vineyards and orchards. These materials can be used to deter beetles for 3-4 days before reapplication is needed. Products sold as "neem oil" that do not list the ingredient azadirachtin on the label are not effective against Japanese beetle.

CODLING MOTH: The first flight is expected to decline soon. The weekly average count based on reports from 26 orchards was 6.5 moths per trap, which is comparable to seven per trap last week. Fourteen of the cooperating sites had economic counts of 5-37 moths. Apple growers should continue to monitor degree days and trap captures until 700 degree days (base 50°F) have accumulated from the spring biofix, to determine if late flights require treatment. Orchards near Janesville, La Crosse and Madison have accumulated about 650-750 degree days since May 20-26 when the biofix was recorded at a few warmer southern sites.

Codling moth larva Kevy3534 flickr.com

SAN JOSE SCALE: First-generation nymphs or crawlers began emerging in southern Wisconsin orchards 2-3 weeks ago, and have now settled onto the fruits and leaves. Continued sampling by taping scaffold branches is advised to confirm that nymph activity is complete. Neonicotinoids, insect growth regulators or other materials directed against mobile crawlers are ineffective once the scales have begun to secrete their waxy covering.

San Jose scale yellow crawlers and white caps Jack Kelly Clark UC IPM

SPOTTED TENTIFORM LEAFMINER: Moths of the second flight are appearing in greater numbers, with pheromone trap counts ranging as high as 702 per trap and averageing 178 per trap. This is up markedly from last week's average of 66 per trap, which was low for this pest. Peak moth activity should occur by early July across southern and central Wisconsin and a week or two later in the southeastern, east-central and northern areas. Apple orchards with populations exceeding one mine per leaf or a history of STLM damage are candidates for control of second-generation larvae.

VEGETABLES

SQUASH VINE BORER: Continued inspection of pumpkins, squash, gourds, and other vine crops for eggs and evidence of larval feeding is advised during the next two weeks. The early- and intermediate-stage larvae are boring into squash stems and runner vines, causing plants to wilt. Insecticidal controls are only useful if applied before the larvae tunnel into vines, and reapplication may be necessary during the adult flight period.

Squash vine borer larva *Julie sanguinaria-budding.blogspot.com*

CABBAGE CATERPILLARS: Low to moderate infestations of diamondback moths and imported cabbageworms were observed this week in southern and western Wisconsin community gardens. The larvae of these cabbage pests feed on leaves and cause large ragged holes, eventually infesting the developing heads of broccoli, cabbage and cauliflower. Treatment thresholds are reached when 10% of cabbage in the early heading to mature head stages are infested, or 10% of broccoli and cauliflower in the first flower or curd to maturity phase are damaged. Cole crop growers are reminded that imported cabbageworms, diamondback moths and cabbage loopers are considered to be a single caterpillar complex, and the same infestation threshold applies to all three species. *Bacillus thuringiensis* (Bt) and chemical insecticides are effective forms of control.

Diamondback moth caterpillar damage *Krista Hamilton DATCP*

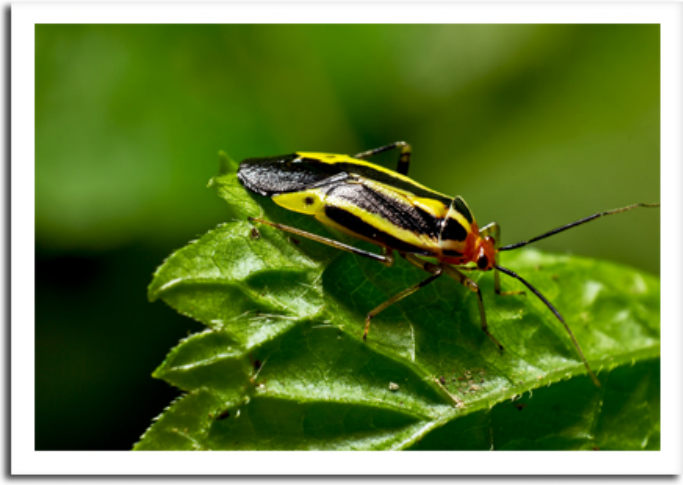
COLORADO POTATO BEETLE: The summer generation of beetles is expected to begin appearing in potatoes by early July. Pupation occurs in 7-10 days at this time of year and larval development proceeds much faster under average July temperatures. Summer beetles and all second-generation larval stages are considered damaging.

Colorado potato beetle larvae *Tracy Schilder DATCP*

ONION MAGGOT: Emergence of second-generation flies is anticipated near Madison, La Crosse, Spring Green and other advanced southern location in the week ahead (around 1,950 GDD simple base 40°F). Management of the summer generation is less critical than spring and fall populations since egg desiccation and mortality

rates are higher at warmer temperatures, but season-long sanitation is still important for preventing future infestations. Second-brood eggs are deposited near previously-damaged onions.

FOUR-LINED PLANT BUG: Again this season, gardeners, nursery managers and vegetable growers are reporting damage to vegetables, fruits, ornamentals, flowering annuals and perennials. In most instances, four-lined plant bug feeding only affects the appearance of plants, though moderate to large populations of four-lined plant bugs can be destructive, especially to herbs. The aesthetic damage should be tolerated or ignored when possible. Contact residual insecticides are effective against plant bugs, but these broad-spectrum products also kill non-target insects and natural enemies and the pre-harvest interval may not be acceptable for herbs or other edible plants.



Four-lined plant bug *noahblades flickr.com*

NURSERY & FOREST

GOOSEBERRY ANTHRACNOSE: Gooseberry plants with significant spotting attributed to *Ribes* anthracnose were found in Marathon County last week. This disease, caused by the fungus *Drepanopeziza ribis*, progresses quickly when leaves remain damp and can lead to significant premature leaf drop, as well as reduced vigor and productivity. Symptoms include small, dark-brown, round or irregular leaf spots with grayish bodies (acervuli) developing into leaf lesions with purple margins and tan centers. Adequate plant spacing allowing for good air circulation is important when considering location and density of stock. Removing fallen leaves and cultivating the area around the plant helps reduce the occurrence of infections by limiting the amount of inoculum available to infect plants the following spring.

Ribes anthracnose *Timothy Allen DATCP*

MAGNOLIA SCALE: Nymphs are maturing, and their white mealy wax is appearing on the branches of infested magnolias in southeastern Wisconsin. As the wax fades in August, the elliptical, shiny brown adult females will become noticeable. Nursery managers and residents are advised to inspect magnolias now and plan to spray heavily-infested trees in late August or early September, following with a second treatment 10 to 14 days later. Proper timing of the application is critical as only the young crawlers are easily controlled. Products containing bifenthrin, carbaryl, cyflulthrin, horticultural oil, insecticidal soap, malathion, or permethrin are appropriate for use in late summer.

Magnolia scale *Marcia Wensing DATCP*

ROSE CHAFER: Beetles are a common problem in nurseries, with light to moderate leaf skeletonization and

damage to the shoot tips of trees observed by inspectors. Chafer populations are especially high in areas of the state with sandy soils. The adult beetles are only active for about 3-4 weeks in June and should soon disappear for the season.

Rose chafers on 'Shasta' daisy *Konnie Jerabek DATCP*

HOLLYHOCK RUST: Nursery inspectors report that this disease is evident on hollyhock plants throughout the state. Symptoms include conspicuous yellow pinspots on the upper surface of leaves that correspond with orange-brown rust pustules on leaf undersides. Rust symptoms spread rapidly under favorably wet conditions and increase in severity as the season progresses, killing most foliage on infected plants by late summer. In severe cases, the fungus enters the stem and kills the plant. The flowers are generally not affected.

Hollyhock rust *Tim Allen DATCP*

WHITE PINE BLISTER RUST: Homeowners and landscapers are reminded that species in the Ribes genus (currant and gooseberry) are alternate hosts for the white pine blister rust fungus. Planting currants and gooseberries near white pines should be avoided. White pine blister rust damages trees by causing branch cankers, ultimately killing trees by preventing nutrient flow.

POWDERY MILDEW: Rose and Black-eyed Susan plants in Milwaukee County were infected with this common fungal disease. Powdery mildew is easily diagnosed on most plants, characterized by a grayish white powdery dusting on the upper leaves, which causes foliage to turn yellow and senesce prematurely. Widespread powdery mildew infestation can be difficult to manage. Cultural practices that increase air circulation help reduce mildew development, and applications of copper-based fungicides remain the only practical chemical control option.

Powdery mildew on monarda *Konnie Jerabek DATCP*

APPLE INSECT & BLACK LIGHT TRAP COUNTS JUNE 21 - 27

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	DWB[5]	LPTB[6]	BMSB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	0	0	0	8	4	6	—	—	—
Bayfield	Orienta	0	0	0	—	17	2	—	—	—
Brown	Oneida	650	4	10	13	24	3	0	0	**2
Columbia	Rio	79	53	5	15	—	21	—	—	0
Crawford	Gays Mills	149	11	0	7	10	—	—	—	—
Dane	DeForest	56	36	11	8	0	11	0	0	0
Dane	Mt. Horeb	145	115	2	43	7	6	0	—	—
Dane	Stoughton	82	47	10	26	0	2	0	—	**2
Fond du Lac	Campbellsport	107	7	0	23	3	0	—	—	—
Fond du Lac	Malone	42	41	4	18	32	7	0	**1	0
Fond du Lac	Rosendale	12	6	3	1	0	2	0	—	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	99	30	5	29	—	5	—	—	—
Iowa	Mineral Point	210	109	23	36	—	23	0	—	0
Jackson	Hixton	8	5	2	0	0	6	0	—	—
Kenosha	Burlington	420	27	4	3	—	18	0	0	0
Marathon	Edgar	385	0	5	5	0	13	0	0	0
Marinette	Niagara	5	0	0	23	—	6	—	—	—
Marquette	Montello	162	60	1	30	—	0	0	—	—
Ozaukee	Mequon	65	5	3	10	0	0	—	—	—
Pierce	Beldenville	436	13	3	10	—	0	—	0	0
Pierce	Spring Valley	60	20	0 MD	20	78	50	0	—	—
Racine	Raymond	358	27	46	50	—	10	—	—	—
Racine	Rochester	304	29	11	15	4	0	0	—	—
Richland	Hill Point	171	112	0	13	—	12	0	—	—
Sheboygan	Plymouth	702	0	0 MD	21	1	10	0	0	0
Walworth	East Troy	16	9	0	4	0	3	—	—	—
Walworth	Elkhorn	21	13	0	5	0	0	—	—	—
Waukesha	New Berlin	100	23	32	34	—	48	—	—	—

[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.

COUNTY	SITE	BCW[1]	CEL[2]	CE[3]	DCW[4]	ECB[5]	FORL[6]	SCW[7]	TA[8]	VCW[9]	WBC[10]
Columbia	Pardeeville	2	2	0	0	2	3	7	30	2	0
Dodge	Beaver Dam	1	1	0	0	4	0	0	6	0	0
Fond du Lac	Ripon	1	0	0	0	6	0	0	10	0	0
Grant	Prairie du Chien	1	2	0	0	0	0	1	0	0	0
Manitowoc	Manitowoc	0	0	0	0	0	1	14	49	0	1
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	2	3	0	0	0	4	3	95	3	0
Walworth	East Troy	1	2	0	3	0	2	0	16	0	0
Wood	Marshfield	2	2	0	0	0	0	25	15	0	0

[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.