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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

A cooler weather pattern with below-normal temperatures lingered during the last days of June. Early-week showers maintained adequate to abundant soil moisture for summer crop growth, while drier weather returned for the second half of the week. Strong to severe isolated storms on June 29 produced large hail and heavy rain that damaged crops and caused localized rural flooding in southern and western Wisconsin. Most crops affected by the storms are expected to recover, but saturated soils and the large acreage of fields left with standing water have increased concerns over nitrogen loss and whether enough fertilizer remains in the soil to supply the corn crop. Reports from the USDA NASS continue to depict very favorable crop condition ratings, though an extended period of warmer, drier weather will be critical as crops advance through reproduction.

LOOKING AHEAD

SPOTTED WING DROSOPHILA: Emergence of the first flies of the season was documented by UW researchers on June 22 in Dane County. Several male and female specimens were captured in a yeast and sugar trap at a Cottage Grove monitoring location. Last year the first flies were collected on June 30 and infestations in raspberries and other fruits were prevalent by mid-July. The early appearance of SWD adults should be viewed as a warning to fruit growers to increase monitoring efforts and make preparations for possible insecticidal control. The use of insecticides is not advised until SWD infestation is verified by trapping or visual inspection.

WESTERN BEAN CUTWORM: The annual flight has started in southern Wisconsin where the first moths appeared in pheromone traps from June 18-24. Only six additional moths were collected in Columbia, Sauk and Waushara counties this week. Participants in the DATCP western bean cutworm trapping network are reminded to begin reporting weekly moth totals to Tracy Schilder at tracy.schilder@wisconsin.gov or by phone at (608) 224-4544 by July 8.

EUROPEAN CORN BORER: The treatment window for first generation larvae has closed near Beloit, La Crosse, Madison, Spring Green and other southern locations where 1,100 degree days (modified base 50°F) were surpassed as of July 1. Third and fourth-instar larvae are entering corn midribs, tassels and stalks. Chemical control remains an option in the southeastern, central and northern counties for another one to two weeks.

CEREAL LEAF BEETLE: Larvae are reportedly causing light to moderate defoliation of wheat in Dane, Columbia, Rock, Sheboygan and Winnebago counties. Economic damage has not been observed thus far, though indivi-

dual plants are showing significant feeding on the flag leaf. Larval populations must reach or exceed three larvae per plant or one larva per flag leaf to qualify for treatment.

Cereal leaf beetle Ken bugguide.net

APPLE MAGGOT: Adult flies were captured on traps in Dane and Iowa County apple orchards earlier this week, marking the start of the adult emergence period. Close monitoring of red sphere and yellow sticky traps is recommended, particularly for orchards impacted by recent heavy rain. The apple maggot fly is distinguished from similar fruit flies by an F-shaped wing banding pattern and a pronounced white spot on the thorax.

FORAGES & GRAINS

POTATO LEAFHOPPER: Counts in alfalfa are increasing but remain below established economic thresholds. Surveys conducted in Calumet, Clark, Columbia, Dane, Grant, Iowa, Outagamie, Vernon, Winnebago and Wood counties found a range of 0.1-1.2 adults and nymphs per sweep and an average of 0.6 per sweep. Nymphs are appearing in more fields, indicating a potential for populations to increase this month.

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 been reduced to less than 0.05 per sweep, and no further problems are anticipated this year.

PEA APHID: Numbers have not changed significantly since the last report. Sweep net counts in fields surveyed as far north as Clark County are still very low and average less than 0.4 per sweep. Pea aphid levels have shown a considerable decline since mid-June.

CEREAL LEAF BEETLE: Defoliation of wheat has been observed in the last two weeks in Columbia, Dane, Rock, Sheboygan and Winnebago counties. In Dane County, it is reported that 10-25% of the flag leaves were damaged in several fields. Although most of the infestations were minor and yield loss was not expected, it is recommended that crop advisors and growers increase scouting efforts and consider control for populations of three larvae per plant for grain that has not reached the boot stage or one larva per flag leaf when grain is heading. Larval CLB development is brief and requires about 10 days to complete. Peak larval feeding may have already occurred in southern and eastern Wisconsin.

Cereal leaf beetle damage blogs.cornell.edu

CORN

EUROPEAN CORN BORER: Larval infestation rates remain about the same as reported in previous weeks, with the typical population affecting less than 10% of the plants and a few exceptional fields showing 20-40% whorl feeding. Larvae range in development from second- to fourth-instar in surveyed areas. The most prevalent stage is the third instar.

STALK BORER: Damage to corn has become pronounced as larvae approach maturity. Surveys of V7-V11 corn found infestation rates of 1-20%, with the highest population noted near Lake Mills in Jefferson County. Spot treatment is no longer effective for many southern and western Wisconsin fields since the larvae have bored into

the stalks and unemerged tassels. Treatments must be applied from 1,400-1,700 degree days (base 41°F), or prior to the V7 stage. Stalk borer feeding is unlikely to kill corn plants beyond V7.

Stalk borer larva *Krista Hamilton DATCP*

ZEBRA CATERPILLAR: This infrequent pest with prominent black and yellow longitudinal stripes was defoliating corn leaves in the Chilton area of Calumet County on June 22. Larvae feed during the day on the foliage of a variety of broadleaf field and vegetable crops, ornamental trees and flowers, causing ragged leaves. The young caterpillars initially feed together in groups, but later separate and feed individually. The zebra caterpillar occurs sporadically in Wisconsin and is generally not considered a serious pest.

Zebra caterpillar *www.toronto-wildlife.com*

TRUE ARMYWORM: The significant flight of 271 moths reported from Janesville last week declined to 22 this week, but continued scouting of corn and wheat is recommended. Small larvae ranging from ¼-½ inch are very common in alfalfa sweep net collections and a report from Sheboygan County states that four winter wheat fields there were treated for armyworms earlier in the week.

SOYBEANS

SOYBEAN APHID: Levels of this insect remain well below the economic threshold of 250 aphids per plant and over 85% of the soybean fields surveyed in the past two weeks still had no detectable population. Average counts at the sites sampled from June 25-July 1 were less than five aphids per plant and 35 per infested plant, based upon examination of 100 plants per field. The highest total count was 350 aphids on 10 of 100 plants in (3.5 aphids per plant) in a field near Black River Falls in Jackson County.

Soybean aphids *Zachary VanNatta DATCP*

Despite the low sample numbers, aphid populations could increase rapidly in flowering soybean fields and economic densities may develop later this month. This pest requires consistent monitoring from now until the R5.5 stage of soybean growth in August.

DEFOLIATORS: Defoliation is common but light, ranging from 2-25% on 10-20% of plants in most surveyed fields. The leaf feeding insects observed during recent surveys were the rose chafer, bean leaf beetle, Japanese beetle, slugs and various caterpillars. Slug feeding damage was most prevalent. Defoliation rates have not exceeded the 30% economic threshold for soybeans in the pre-bloom vegetative stages as of July 1.

FRUITS

CODLING MOTH: The first flight has declined at some locations and continued at others. The weekly average count based on reports from 32 orchards was only three moths per trap. Apple growers should continue to monitor degree days and trap captures until 650-700 degree days (base 50°F) have accumulated from the spring biofix to determine the flight timing and if reapplication of CM insecticides is needed. Most flights should subside once 700 degree days are reached after the first biofix.

JAPANESE BEETLE: A grape grower reports that these insects are defoliating grape vines in the Genoa area of Vernon County. Beetles are also appearing in some western Wisconsin apple orchards. Damage to fruits, ornamentals and field crops is expected to intensify over the next five or six weeks and control may be necessary to prevent fruit loss. Most chemical treatments are only effective against Japanese beetle when populations are low and the adults are first immigrating into vineyards and orchards. Fruit growers should note the daily location of beetles when timing an insecticide application since feeding occurs in trees and on vines during the day and closer to the ground at night.

Japanese beetles on grape leaf *cindyha.wordpress.com*

GRAPE BERRY MOTH: According to the grape berry moth (GBM) degree-day model developed by MSU, egg laying increases at approximately 810 and 1,620 degree days after wild grape bloom for the second and third GBM generations, respectively. A total of about 600 degree days (simple base 47°F) have accumulated near Viroqua in Vernon County since wild grape bloom began on June 5. The start of egg laying has been predicted for July 12 in the Viroqua area. Insecticides targeting GBM just before egg hatch (i.e., insect growth regulators) will be most effective if applied at this time. By contrast, broad spectrum insecticides directed against GBM larvae should be delayed until 1,010 degree days, or approximately 10 calendar days later (July 22). The use of pheromone traps to monitor GBM flights and properly time controls is strongly recommended.

POTATO LEAFHOPPER: This insect is appearing in greater numbers in orchards as harvesting of second-crop hay increases. Non-bearing, one- to two-year-old trees are most susceptible to leafhopper feeding and should be monitored for upwards leaf cupping and yellowing of terminal shoots caused by the adults and nymphs. Treatment is justified at levels of one or more nymphs per leaf when symptoms are apparent.

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

VEGETABLES

SQUASH VINE BORER: Early-stage larvae are excavating squash stems and runner vines, causing plants to wilt. Closer examination of the vines should reveal entrance holes from which their sawdust-like frass is expelled. Continued inspection of pumpkins, squash, gourds, and other vine crops for eggs and evidence of larval feeding is advised for another two weeks. Insecticidal controls are only effective if applied before the larvae bore into vines and reapplication may be required during the adult flight period now under way. Squash varieties most susceptible to infestation are ‘Blue Hubbard’, ‘Boston Marrow’ and ‘Golden Delicious’, while 'Butternut', ‘Dickenson pumpkin’ and ‘Green Striped Cushaw’ have shown some degree of resistance.

SQUASH BUG: Adults are feeding and reproducing on cucurbits from Grant to La Crosse County, and populations are expected to increase sharply by mid-July with the addition of many small nymphs. Insecticide options for commercial plantings include synthetic pyrethroids (e.g. Brigade, Mustang, Pounce, Warrior, etc.) or neonicotinoids (Assail, Belay, Scorpion and Endigo). Organic growers should use directed applications of pyrethrum (PyGanic) or the pre-mix with azadirachtin (Azera). An average of one egg mass per plant when plants are flowering is recommended as the basis for initiating treatment. For home gardens, soapy water or carbaryl treatment provides some control but repeated applications are usually needed.

Squash bug adult female *Krista Hamilton DATCP*

STRIPED CUCUMBER BEETLE: Extension personnel and vegetable growers continue to report considerable damage to cucurbits. Control may be justified for populations of one beetle per plant in melons, cucumbers and young pumpkins, and five beetles per plant for less susceptible cucurbits such as watermelon and squash.

CABBAGE CATERPILLARS: Populations of diamondback moths and imported cabbageworms are reportedly high in southern and western Wisconsin cabbage plantings. 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*

LATE BLIGHT: Late blight was confirmed for the first time this season in an Adams County potato field on June 23. Dr. Amanda Gevens emphasizes that conditions have been favorable for this disease and anti-sporulant fungicides are critical for protection of potato and tomato crops at this time. Scouting efforts should also be intensified and concentrated on higher risk areas such as field corners and areas sheltered by trees, where late blight symptoms generally first appear. Registered fungicides for late blight in Wisconsin are listed at the UW-Madison Vegetable Pathology website: http://www.plantpath.wisc.edu/wivegdis/pdf/2015/Potato%20Late%20Blight%20Fungicides%202015.pdf

NURSERY & FOREST

GYPSY MOTH: Mating disruption treatments were completed by July 1 in Crawford, Richland, Trempealeau and Vernon counties and should resume next week in north-central Wisconsin. Planes are applying a non-toxic pheromone flake intended to reduce populations by disrupting moth mating. Phenology models indicate that pupation is occurring as far north as Eau Claire. No moths have been observed to date. Gypsy moth trapping is now about 90% complete, with 10,841 traps of the expected total of 12,002 traps set.

CEDAR-HAWTHORN AND CEDAR-QUINCE RUST: Symptoms of these two rust diseases are apparent on

hawthorns in Douglas, Dodge, Jefferson, Kenosha and St. Croix counties. The bright orange spots characteristic of cedar-hawthorn rust are noticeable on the leaves, whereas cedar-quince rust is infecting the fruits and twigs. Both rusts have a life cycle that requires a rosaceous host and a juniper host. Selecting resistant hawthorn cultivars and thorough sanitation by removing infected twigs, fruit and leaves are the recommended controls. Fungicide treatments applied to new growth in spring may be needed for severe cases.

Cedar-hawthorn rust on hawthorn *DATCP Nursery Program*

GUIGNARDIA LEAF BLOTCH: This leaf spot disease is developing on horse chestnut trees in Kenosha County. Symptoms include irregular, reddish-brown leaf lesions with yellow margins that distort affected foliage as they increase in size and severity. Disease development can be suppressed by disposing of fallen leaves in autumn to reduce inoculum levels.

Guignardia leaf blotch on buckeye *Liz Meils DATCP*

PINE NEEDLE SCALE: Light infestations of this insect were found on Scots pine in Kenosha County. At low densities, pine needle scale causes little damage, but larger populations lead to needle discoloration and potentially branch death. Controls are most effective in spring when applied against the crawler stage shortly after egg hatch. This event corresponds with first bloom of common lilac, usually around early to mid-May. The proper timing of insecticidal treatments should be determined by monitoring infested pines for newly emerged crawlers.

FIR-FERN RUST: Balsam firs in Oneida County were infected with this disease, diagnosed by the presence of white fungal pustules on the underside of current-year needles. Fir-fern rust infects balsam, white and Frasier fir. Some rust species develop on and kill infected fir needles in one season, subsequently overwintering on an alternate fern host. Other species overwinter in living fir needles and twigs and kill the infected trees over the course of several seasons. Infected needles dry out and drop prematurely in quantities that can render trees unmarketable. Removing alternate fern hosts, particularly bracken ferns, from the field perimeter by mowing or applying herbicide sprays may reduce its incidence.

Fir-fern rust *Tim Allen DATCP*

HOLLYHOCK RUST: Nursery inspectors report that this rust disease is developing on hollyhocks in northern Wisconsin. Hollyhock rust is identified by yellowish splotches on the upper surface of leaves that correspond with rusty orange pustules on the leaf underside. Rust symptoms begin low on the plant and progress upward, worsening throughout summer and killing most foliage by early fall. Disease spread occurs by windborne spores, splashing water or infected transplants and is favored by

warm, humid weather. The disease cycle can be broken by cutting stalks back to ground-level in fall and destroying all infected plant material.

APPLE INSECT & BLACK LIGHT TRAP COUNTS JUNE 25 - JULY 1

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	APB[5]	LPTB[6]	AM RED[7]	YELLOW[8]
Bayfield	Keystone	9	0	2	7	—	—	—	—
Bayfield	Orienta	6	0	0	0	0	20	—	—
Brown	Oneida	725	5	4	14	0	10	—	—
Clark	Greenwood	0	8	0	7	0	20		
Columbia	Rio	30	5	5	3	0	1	0	0
Crawford	Gays Mills	707	43	0	5	0	2	—	—
Dane	Deerfield	461	125	7	3	—	—	—	—
Dane	DeForest	157	51	0	6	0	10	—	—
Dane	Edgerton	—	*107	*1	*46	*0	*60	—	—
Dane	McFarland	311	83	2	—	—	—	—	—
Dane	Mt. Horeb	297	128	0	12	0	24	0	0
Dane	Stoughton	362	166	7	2	0	4	—	4
Dane	West Madison	—	—	—	—	—	—	—	—
Fond du Lac	Campbellsport	300	26	0	38	0	25	0	0
Fond du Lac	Malone	288	68	15	34	1	16	—	—
Fond du Lac	Rosendale	65	17	0	11	0	4	0	0
Green	Brodhead	35	0	2	4	1	18	0	0
Iowa	Mineral Point	415	125	1	7	4	54	3.5	0
Jackson	Hixton	87	0	6	4	0	17	—	—
Kenosha	Burlington	615	98	1	52	0	25	—	—
Marathon	Edgar	2178	9	6	6	0	27	—	—
Marinette	Niagara	13	0	0	31	0	9	—	—
Marquette	Montello	65	13	0	2	—	—	—	—
Ozaukee	Mequon	440	21	4	9	0	5	—	—
Pierce	Beldenville	243	18	9	0	0	23	—	—
Pierce	Spring Valley	456	32	0	4	0	45	—	—
Racine	Raymond	375	32	11	10	0	6	—	—
Racine	Rochester	675	63	7	23	0	4	—	0
Richland	Hill Point	1755	63	7	17	0	10	—	0
Sheboygan	Plymouth	450	34	1	15	0	14	0	—
Walworth	East Troy	200	15	0	3	0	2	0	0
Walworth	Elkhorn	97	142	0	17	0	8	0	0
Waukesha	New Berlin	248	22	2	4	0	0	—	—

[1]Spotted tentiform leafminer; [2]Redbanded leafroller; [3]Codling moth; [4]Obliquebanded leafroller; [5]American plum borer; [6]Lesser peachtree borer; [7]Apple maggot red ball; *Unbaited AM trap; **Baited AM trap; [8]Apple maggot yellow board; *Counts represents a two-week period.

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	2	1	0	0	0	0	1
Columbia	Pardeeville	0	0	0	0	3	9	3	3	0	0
Crawford	Prairie du Chien	0	0	0	0	0	3	0	3	0	0
Fond du Lac	Ripon	0	0	0	0	3	72	0	47	0	0
Manitowoc	Manitowoc	0	0	0	0	0	0	3	4	0	0
Marathon	Wausau	0	0	0	0	0	0	3	3	0	0
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	1	7	0	0	1	1	1	22	0	0
Walworth	East Troy	0	0	0	0	0	5	3	0	0	0
Wood	Marshfield	0	2	0	0	0	1	10	7	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.