

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

Humid weather departed the state mid-week and a comfortable pattern featuring crisp nights and mild days began. Abundant sunshine resulted in seasonable daytime temperatures mainly in the 70s to low 80s, with overnight lows ranging from the 40s to 60s. Aside from a few widely scattered showers and storms, conditions were mostly dry during the week. Overall sunny and favorable growing weather prevailed, though crop progress remained about two weeks behind average and condition ratings for alfalfa, oats, soybeans, potatoes declined from the previous week. An estimated 63% of the state's corn acreage and 65% of soybeans were reported in good to excellent condition as of August 18, well below last year's 75% for both crops. For the fourth consecutive season, farmers are depending on continued warmth and a late frost to ensure their corn and soybeans reach maturity.

LOOKING AHEAD

CORN ROOTWORM: Preliminary results of the annual beetle survey indicate populations are mostly low and comparable to last season. District averages thus far range from 0.1 beetle per plant in the southeast region to 0.5 per plant in the south-central area. The state average in 201 fields surveyed as of August 21 is 0.3 beetle per plant, only marginally higher than last year's historically

low average of 0.2 per plant. A count of 0.75 or more beetles per plant in continuous corn is considered the threshold which indicates a heightened risk of root damage to non-Bt corn in 2020.

BROWN MARMORATED STINK BUG: Late-summer populations are increasing in areas of the state where BMSB is established, and it is particularly important for fruit and vegetable growers, gardeners, and property owners to remain alert for stink bug activity from now through October. Populations in the Madison, Milwaukee and Green Bay areas are large enough that swarming will occur on warm fall days as the stink bugs aggregate before seeking overwintering sites.

EUROPEAN CORN BORER: The treatment window for second-generation larvae has closed in advanced locations in southern Wisconsin, and remains open only a few more days in the central areas. Final inspections of sweet corn for egg masses and small larvae are advised before 2,100 degree days (modified base 50°F) have been reached.

WESTERN BEAN CUTWORM: Counts have declined markedly at most sites as the annual moth flight period ends. Only 26 of DATCP's 56 traps captured moths this week, with totals at or below 17 moths per trap at all but the Kewaunee County location which captured 55 moths. The cumulative state count as of August 21 is 3,582

moths. This season’s moderate flight has likely produced localized damaging larval populations in areas of the state (namely the central counties) that traditionally experience western bean cutworm pressure.



Western bean cutworm larva Krista Hamilton DATCP

CORN EARWORM: Late-season migration flights continued this week. The DATCP pheromone trapping network captured 110 moths in 9 traps between August 15 and 21, for a cumulative total of 634 moths since mid-July. The high count for the reporting period was 57 moths at Beaver Dam in Dodge County. The latest activity signals that fresh market and processing sweet corn remains at risk of infestation and should be monitored until harvest.

LATE BLIGHT: The UW has confirmed late blight in Adams, La Crosse, Monroe, Portage, Vernon, Waushara and Wood counties as of August 20. According to UW-Madison Vegetable Plant Pathologist Dr. Amanda Gevens, it is critical that susceptible potatoes and tomatoes in close proximity to the counties listed above be treated with a combination of antispore and protectant fungicides to limit reproduction of the pathogen and prevent new infections.

FORAGES & GRAINS

PLANT BUG: Nymphs were less common in fields sampled this week, indicating population growth is slowing. Counts averaged 0.5 plant bugs per sweep and ranged from 0.1-1.6 per sweep.

POTATO LEAFHOPPER: Late August surveys in alfalfa found moderate to high counts of 0.2-2.7 leafhoppers per

DEGREE DAYS JAN 1 - AUGUST 21

LOCATION	50°F	2018	NORM	40°F
Dubuque, IA	2399	2610	2230	3737
Lone Rock	2175	2340	—	3460
Beloit	2223	2309	2266	3515
Sullivan	2063	2188	2144	3306
Madison	2197	2297	2159	3492
Juneau	1984	2213	—	3207
Racine	1924	2087	—	3148
Waukesha	2042	2116	—	3283
Milwaukee	2003	2139	2066	3236
Hartford	1949	2150	—	3167
Appleton	1964	2242	—	3170
Green Bay	1911	2191	1938	3110
Big Flats	1932	2213	—	3160
Hancock	1855	2077	2094	3060
Port Edwards	1850	2091	2054	3044
La Crosse	2144	2448	2359	3430
Eau Claire	2039	2352	2127	3267
Cumberland	1714	1919	1993	2841
Bayfield	1481	1665	—	2544
Wausau	1625	1878	1951	2739
Medford	1584	1804	1788	2687
Crivitz	1768	2019	—	2909
Crandon	1595	1820	1520	2679

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

sweep, with an average of 1.7 per sweep. Pressure from this insect has been generally high this season, likely influenced by spring weather patterns that brought large migrations into the state. A few western Wisconsin fields sampled in July contained “hotspots” of 5-7 leafhoppers per sweep, the highest counts recorded in several years.

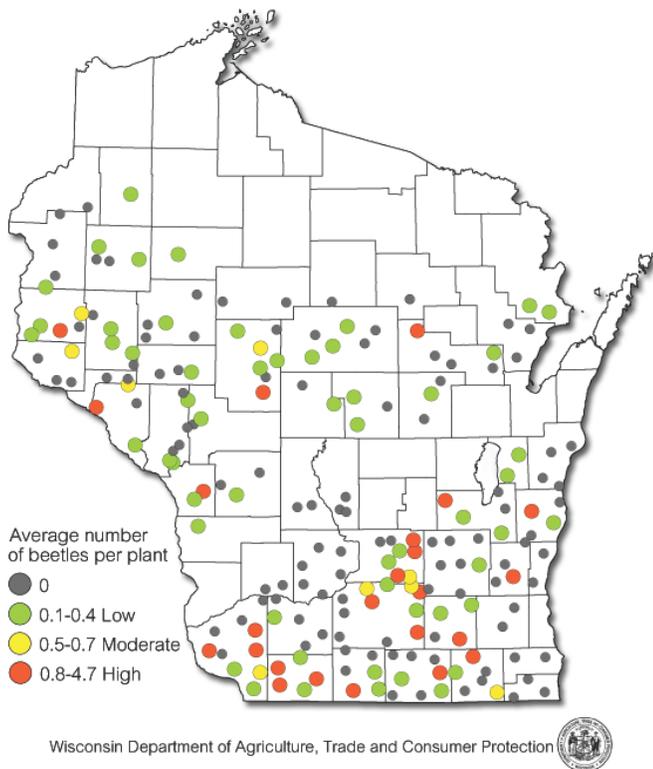
GRASSHOPPER: Late-season grasshopper activity has increased in alfalfa and other crops. Grasshopper damage to forage crops can be serious at this time of year, especially in new alfalfa seedings and when dry weather slows plant regrowth after harvest. Insecticide use is justified if populations reach 20 grasshoppers per square yard at the margins or eight per square yard within an alfalfa field. Spot treatment is acceptable when the defoliation is concentrated at the field edges.

PEA APHID: Populations of this forage pest are still low. Most fields sampled from August 15-21 contained fewer than 0.5 per sweep (50 per 100 sweeps).

CORN

CORN ROOTWORM: Surveys in the last three weeks (August 1-21) have found variable but generally low beetle populations, with district averages in the central and northern areas nearly equal to last season's very low counts (<0.2 per plant). Averages in south-central and southwestern Wisconsin have shown a noteworthy increase, from 0.3 in 2018 to 0.5 per plant this year. The preliminary state average of 0.3 beetle per plant is slightly higher than the 0.2 survey averages in 2018 and 2017. An average of 0.75 or more adult corn rootworms per plant in continuous corn indicates control should be considered to prevent root damage in 2020, either in the form of crop rotation, using a Bt-rootworm hybrid, or applying a soil insecticide at planting. Beetle populations exceeding this threshold have been recorded in 24 (12%) of the 201 fields surveyed this month, represented by orange circles on the map below. The annual survey will be finalized next week.

Preliminary Corn Rootworm Survey Results
State Ave. = 0.03 beetle per plant



CORN LEAF APHID: Colonies of this aphid are appearing on corn ears and leaves in southern and western Wisconsin. Corn leaf aphids usually do not interfere with pollination unless they develop early and populations

grow rapidly, and a large percentage of corn tassels become saturated with aphids and their honeydew secretions.



Corn leaf aphids

Krista Hamilton DATCP

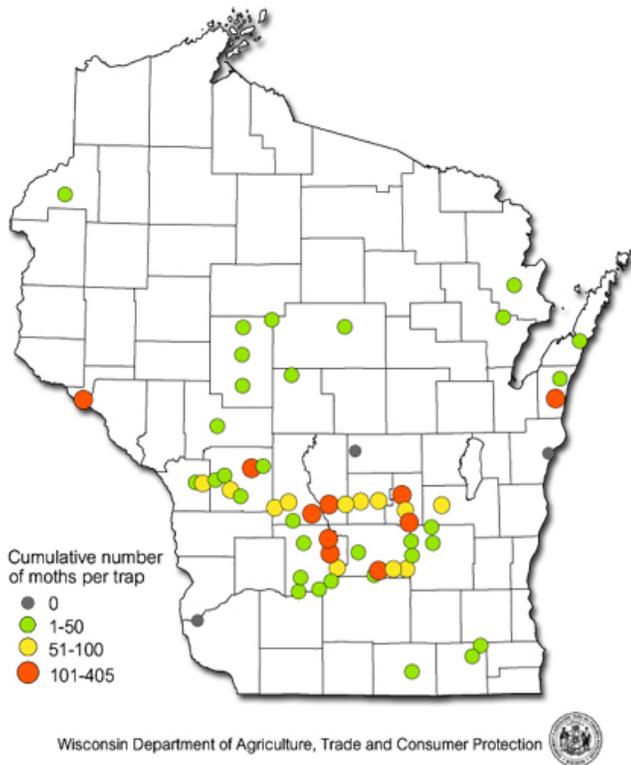
EUROPEAN CORN BORER: The treatment window for second-generation larvae has closed near Beloit, Eau Claire, La Crosse, Lancaster and Madison, but will remain open for 1-2 more weeks in parts of central and northern Wisconsin. Final inspections should be performed before degree day accumulations surpass 2,100 (modified base 50°F) and larvae begin boring into corn stalks.

CORN EARWORM: A locally significant flight of 55 moths per trap was reported from the Beaver Dam (Dodge County) monitoring location, while the 13 other sites collected no more than 16 moths per trap during the week. A cumulative total of 634 moths have been captured in 15 pheromone traps to date. Sweet corn growers should continue to follow CEW migration reports and maintain treatments as long as moth activity persists and green silks are available for oviposition. Counts for the week ending August 22 were: Arlington 1, Beaver Dam 57, Bristol 5, Coon Valley 7, Cottage Grove 4, Janesville 0, Madison North 5, Marshfield 0, Mayville 16, Pardeeville 0, Ripon 11, Sun Prairie 0, Watertown 4, and Wausau 0.

WESTERN BEAN CUTWORM: Moth counts have declined at most monitoring locations. The traps in Door and Kewaunee counties continued to register moderate captures of 17-55 moths per trap this week, while counts at nearly all other sites fell to near zero for the reporting period. As of August 21, the state cumulative total is 3,582 moths in 56 traps (60 per trap average). The high-

est individual count for the 10-week monitoring period is 405 moths near Princeton in Green Lake County.

Western Bean Cutworm Moth Counts 2019



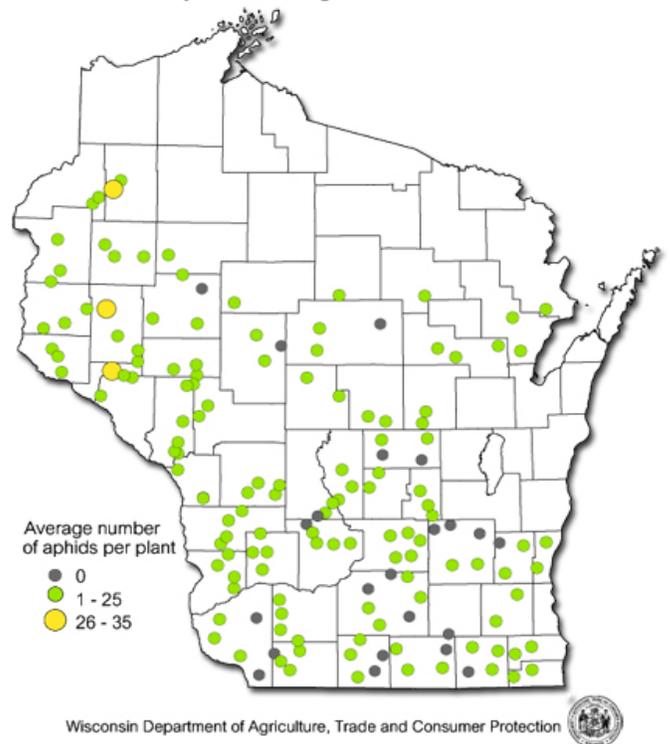
SOYBEANS

JAPANESE BEETLE: Defoliation has been observed in 74% of the soybean fields examined in late July and August. Last season at this time, 52% of surveyed fields had some degree of Japanese beetle feeding. Counts taken during the aphid survey ranged from 1-184 beetles per 100 sweeps, with a state average of 14 per 100 sweeps (8 per sweep in 2018). The highest counts of 50 or more beetles per 100 sweeps were recorded in Pierce, Rock, Sauk and Walworth counties. Although many fields have an abundance of beetles and varying levels of perimeter defoliation, the degree of injury is generally not severe enough to justify treatment.

SOYBEAN APHID: Densities recorded during the annual survey this month have been very low, aside from a few moderate-population fields in the west-central area. The state average count in 155 fields sampled from July 25-August 21 is only four aphids per plant, with no surveyed fields showing above-threshold populations of 250 aphids per plant. For comparison, the 2018 survey found an

average of 14 aphids per plant, the 2017 average was six aphids per plant, averages from 2013-2016 ranged from 8-55 aphids per plant, and surveys from 2010-2012 documented counts of 7-16 aphids per plant. This season's state average is the lowest in the 18-year history of Wisconsin soybean aphid surveys. Although some localized fields have likely developed economic populations (>250 aphids per plant), survey results suggest that aphid control has generally not been required for most soybean acres this month.

Soybean Aphid Survey Results July 25 - August 21, 2019



FRUITS

OBLIQUEBANDED LEAFROLLER: DATCP cooperators are reminded to maintain pheromone traps for this insect well into September. Second-generation larvae occasionally cause severe fruit damage late in the growing season and moth counts in late August and September can be a predictor of damage potential of the overwintered larval population next spring.

BROWN MARMORATED STINK BUG: Adults have been captured on survey traps in Dane, Racine and Rock counties this month, signaling the potential for fruit injury in apple orchards prior to harvest. Late-summer popula-

tions are likely increasing in areas of the state where BMSB is established, and it will be important for fruit and vegetable growers to remain alert for stink bug activity through October.



Brown marmorated stink bug nymph on raspberry Ric Bessin UK

APPLE MAGGOT: Peak emergence of flies occurred about two weeks ago and activity has generally declined. Apple maggot pressure has been variable but generally low this season, though the external depressions and brown, internal larval tunnels indicative of AM infestation are appearing on apples at some orchard sites where AM flies have been more abundant. Growers should continue to monitor AM traps through the first week of September since the flies are still active and could cause problems in late cultivars.



Apple maggot damage simplicitysoil.wordpress.com

CODLING MOTH: Moderate to high counts were recorded in a few orchard locations in the past week, confirming that significant codling moth flights are still occurring. Large captures of 21-33 moths per trap were reported

from Iowa and Racine counties. Approximately 90% of second-flight adults will have emerged once 1,700 degree days (modified base 50°F) have accumulated from the first biofix, and pheromone trap checks may be discontinued after August 30.

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season continued this week, with counts ranging widely from 3-1,359 moths at 20 monitoring locations. Most orchards registered lower weekly captures of fewer than 100 moths. Moth activity is expected to subside by mid-September.

VEGETABLES

LATE BLIGHT: Cases of late blight have been confirmed by the UW in Adams, La Crosse, Monroe, Portage, Vernon, Waushara and Wood counties as of August 20. The western Wisconsin cases (La Crosse, Monroe, and Vernon counties) were diagnosed on tomato samples, whereas the central Wisconsin late blight was found in potatoes.



Late blight lesions on tomato Krista Hamilton DATCP

According to UW-Madison Vegetable Plant Pathologist Dr. Amanda Gevens, it is critical that susceptible potatoes and tomatoes in close proximity to the counties listed above be treated with a combination of antisporeulant and protectant fungicides to limit reproduction of the pathogen and new infections. Antisporeulants include: Orondis, Forum, Curzate, Tanos, Ariston, Previcur, Revus, and Ridomil. All Wisconsin samples tested to date are of the US-23 genotype which can be managed with phenylamide fungicides such as mefenoxam and metalaxyl. A list of late blight fungicides registered for

use in Wisconsin is available at: <https://wivegdis.wiscweb.wisc.edu/wp-content/uploads/sites/210/2019/06/2019-Potato-Late-Blight-Fungicides.pdf>.

SQUASH BUG: Egg deposition is still underway on squash in home gardens. Adults and nymphs are likely to continue feeding on ripening vine crops throughout fall. Chemical control of squash bugs becomes less useful late in the growing season as fruits mature, whereas cultural controls such as removing plant debris around the garden gain importance and are critical for eliminating winter hibernation sites. Crop rotation is also suggested to reduce habitat for the overwintering adult population, which can survive the winter months under plant debris and cause damage to transplants and seedlings next spring.



Squash bug adult

escalantecommunitygarden.blogspot.com

ONION MAGGOT: Third-generation flies have begun emerging in southeastern and central Wisconsin. Larvae resulting from this final generation of the season will overwinter in cull onions or bulbs left behind in fields. Destruction of crop debris and removal of culls from the field or garden are basic cultural controls. Rotation to a non-host crop should also be considered in spring of 2019 for onion fields or plantings that had onion maggot problems this summer.

NURSERY & FOREST

BACTERIAL LEAF SPOT: Symptoms of this disease, also known as “bacterial shot hole,” were noted on ‘Corinthian Rose’ ornamental shrub peach trees at a central Wisconsin grower this week. The angular purple-brown spots appear on the foliage as the disease begins, and soon

the center of the lesions fall out, giving the leaves a “shot hole” appearance.

Bacterial spot pathogens overwinter inside bark cracks and in leaf scars that were infected during the previous season. As budding begins, the bacteria multiply and spread from the cankers via dripping dew, rain splash, or wind. Severe bacterial fruit tree infections occur most frequently when excessive rainfall combines with high humidity, especially in trees on light, sandy soil or those suffering other stressors. The disease results in overall physiological malaise from recurrent defoliation, reduced fruit production, and weakened trees that are more susceptible to winter injury.

Best management practices include keeping trees healthy by properly pruning out diseased or dead limbs and only fertilizing and watering as necessary, as too much nitrogen can aggravate the disease. Though preventative chemical sprays with copper-based bactericide and antibiotic oxytetracycline can be beneficial, the best long term control is to seek out and plant resistant cultivars.



Bacterial spot on ‘Corinthian rose’ peach

Tim Boyle DATCP

FOLIAR NEMATODE: The necrotic leaf streaks indicative of infestation from microscopic roundworms known as foliar nematodes (*Aphelenchoides sp.*) were found on several cultivars of anemone, hosta and stachys at multiple growers in Kenosha, Walworth, and Waukesha counties this month.

Typically, leaf discoloration initially appears in June and becomes more noticeable in late summer as the necrotic streaks develop. Foliar nematodes are spread by water splashing among infected hosts and through vegetative

propagation (from a fragment of an infected parent plant or a specialized reproductive tissue), and as a result are becoming an increasingly common pest in the nursery trade. Infested plants sometimes appear symptomless until the nematode populations grow very high, causing serious problems for growers and in display plantings.

Although they rarely kill their host, foliar nematodes reduce overall vigor and can make plants unsightly and unmarketable. 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.

JAPANESE BEETLE: Japanese beetle feeding and mating activity continues to be high on fruit trees, lindens, and ornamental plants at nursery growers in central and southern Wisconsin. Control of adult beetles is difficult. Insecticides may reduce beetle numbers and damage, but applications often need to be repeated every 3-4 days since new migrations of beetles can occur daily. Physically removing beetles or protecting valuable plants with floating row covers is the recommended control measure for small areas. Dropping the beetles into a container of soapy water will eliminate the aggregation pheromone released to attract more beetles.

stems, giving plants a white, powdery appearance. Caused by several closely-related, primarily host-specific fungi that survive in plant debris or on infected plants, powdery mildew is usually cosmetic and non-lethal for many trees and shrubs. However, on plants such as ninebark, powdery mildew can result in severe leaf loss and branch tip dieback.



Powdery mildew on apple leaves

DATCP Nursery Program



Japanese beetles

Krista Hamilton DATCP

POWDERY MILDEW: This fungal disease has been especially prevalent on Wisconsin nursery stock this season. Powdery mildew occurs on the upper and (less frequently) lower surfaces of leaves, as well as the

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 15 - 21

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	DWB ⁵	LPTB ⁶	BMSB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	14	4	1	2	0	1	0	2	*3
Bayfield	Oriente	31	10	0	0	17	1	—	0	*2
Brown	Oneida	500	5	11	0	9	1	0	0	0
Columbia	Rio	12	51	0	0	0	0	0	0	0
Crawford	Gays Mills	—	52	0	—	0	—	—	*4	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Mt. Horeb	50	98	3	6	0	0	1	0	0
Dane	Stoughton	—	—	—	—	—	—	—	—	—
Fond du Lac	Campbellsport	200	14	0	17	0	0	0	0	0
Fond du Lac	Malone	10	20	6	0	0	0	0	**7	0
Fond du Lac	Rosendale	3	17	0	3	4	7	0	0	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	—	—	—	—	—	—	—	—	—
Iowa	Mineral Point	220	103	33	14	1	1	—	**5	*2
Jackson	Hixton	38	27	4	4	2	0	0	0	0
Kenosha	Burlington	950	42	4	3	4	0	0	*0	—
Marathon	Edgar	—	—	—	—	—	—	—	—	—
Marinette	Niagara	—	—	—	—	—	—	—	—	—
Marquette	Montello	1280	101	0	1	2	3	0	0	0
Ozaukee	Mequon	125	24	9	5	0	0	0	3	0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	118	19	0 ^{MD}	4	17	0	0	*1	0
Racine	Raymond	1359	42	21	4	2	2	—	0	0
Racine	Rochester	118	56	5	2	0	0	1	*2	0
Richland	Hill Point	179	62	8	1	4	8	0	**4	**2
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	21	2	0 ^{MD}	3	0	1	0	*0	*0
Walworth	Elkhorn	55	3	0 ^{MD}	1	1	0	0	*0	*0
Waukesha	New Berlin	25	7	0	1	4	0	—	0	0

¹Spotted tentiform leafminer; ²Redbanded leafroller; ³Codling moth; ⁴Obliquebanded leafroller; ⁵Lesser peachtree borer; ⁶Dogwood borer; ⁷Brown marmorated stink bug; ⁸Apple maggot red ball; *Unbaited; **Baited; ⁹Apple 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	—	—	—	—	—	—	—	—	—	—
Columbia	Pardeeville	0	0	0	19	18	3	0	11	0	0
Dodge	Beaver Dam	0	0	0	1	1	0	2	1	0	1
Fond du Lac	Ripon	0	0	1	13	3	2	0	1	0	2
Grant	Prairie du Chien	0	0	0	2	0	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	0	0	0	16	0	3	12	0	0	2
Monroe	Sparta	—	—	—	—	—	—	—	—	—	—
Rock	Janesville	0	2	1	10	1	19	0	8	0	0
Walworth	East Troy	0	0	0	15	0	0	0	0	0	0
Wood	Marshfield	0	1	1	11	1	0	12	2	0	0

¹Black cutworm; ²Celery looper; ³Corn earworm; ⁴Dingy cutworm; ⁵European corn borer; ⁶Forage looper; ⁷Spotted cutworm; ⁸True armyworm; ⁹Variegated cutworm; ¹⁰Western bean cutworm.