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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

Sunny skies and near- to above-normal temperatures promoted fieldwork and continued rapid crop development in Wisconsin. An approaching warm front produced a few showers across the northern counties early in the week, otherwise little to no rain fell. Soybeans continued to advance 1-2 weeks ahead of schedule under warm temperatures in the 80s to lower 90s, and 69% of the crop was setting pods at the start of the week, a 21 percentage point increase over the previous week and nearly two-weeks ahead of the five-year average. Condition ratings for soybeans increased by two percentage points and 88% of the crop now is rated in the good to excellent categories, seven percentage points better than the same time last year. Other crops are also faring exceptionally well following July's abundant heat and precipitation, though soil moisture supplies are declining after this week's limited shower activity. Signs of the two-spotted spider mite, a dry weather opportunist, have become apparent in soybean fields on sandy soils and more timely rain will be needed this month to ensure optimal yields.

LOOKING AHEAD

CORN ROOTWORM: Beetles are appearing in greater numbers on corn silks. Corn surveyed in the southwest and west-central districts yielded averages of 0-2.9 beetles per plant, with an average of 0.7 per plant and economic counts of 0.75 or more beetles per plant in 30% of fields sampled. Compared to recent years, populations appear to be moderate for early August. Beetle counts could increase markedly as emergence peaks this month.

CORN EARWORM: The primary migration has not started as of August 4. This week's count of 28 moths at 17 pheromone trap locations is an increase over last week's total of 11 moths, but is still very low. Monitoring network participants should continue to scout silking corn and replace lures on a weekly basis.

EUROPEAN CORN BORER: Moth collections have increased at several black light trap locations since the last report. The degree day model for this pest suggests that summer flight has peaked in the southwest, south-central and west-central areas. 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: The annual flight has peaked and is now declining. Black light and pheromone trap counts have begun to decrease in areas of the state where degree-day accumulations are well past 1,526 (modified base 50°F), the point at which 75% emergence is expected. The high count for the week of August 3 was

57 moths registered near Mauston in Juneau County. As of August 3, the cumulative count is 1,380 moths in 75 traps, or approximately 18 per trap.

JAPANESE BEETLE: Damage has increased in field, fruit and vegetable crops. As an indicator of the prevalence of this insect in 2016, beetles were observed in 91 of the 125 (73%) soybean examined from July 25-August 3, with defoliation severity levels ranging from 1-18%. Circumstances in soybeans thus far have not justified treatment, but defoliation rates are approaching the 20% economic threshold for R3-R5 fields.

BROWN MARMORATED STINK BUG: Nymphs were captured in a trap at the Allen Centennial Garden on the UW-Madison campus pheromone trap last week, marking the first official capture of BMSB in a pheromone trap in Wisconsin. Fifty additional traps in 12 counties have not yielded any additional specimens to date. The trapping of juvenile BMSBs is evidence of established, reproducing populations in Dane County and indicates fruit growers should increase scouting for BMSB in August.

Brown marmorated stink bug nymph Steve Schoof NC State University

DEGREE DAYS JAN 1 - AUGUST 3

LOCATION	50°F	2015	NORM	48°F	40°F
Dubuque, IA	1953	1870	1865	2085	3071
Lone Rock	1906	1792	—	2035	2988
Beloit	2006	1871	1891	2162	3130
Sullivan	1694	1499	1785	1825	2690
Madison	1884	1766	1805	2032	2938
Juneau	1666	1628	—	1800	2666
Racine	1775	1441	—	1932	2808
Waukesha	1635	1499	—	1758	2624
Milwaukee	1775	1449	1688	1942	2804
Hartford	1640	1499	—	1767	2633
Appleton	1610	1564	—	1746	2590
Green Bay	1580	1463	1604	1729	2560
Big Flats	1763	1679	—	1886	2739
Hancock	1763	1679	1750	1886	2739
Port Edwards	1739	1620	1716	1864	2731
La Crosse	2054	1881	1974	2238	3188
Eau Claire	1818	1696	1775	1963	2872
Cumberland	1514	1508	1655	1623	2474
Bayfield	1285	1203	—	1378	2102
Wausau	1590	1437	1620	1699	2518
Medford	1447	1377	1481	1515	2333
Crivitz	1446	1370	—	1487	2284
Crandon	1411	1270	1265	1487	2250

Method: ModifiedB50; Sine48; ModifiedB40 as of Jan 1, 2016. NORMALS based on 30-year average daily temps, 1981-2010.

FORAGES & GRAINS

GRASSHOPPER: Late-season grasshopper activity is escalating in alfalfa and other crops. Moderate to severe defoliation in field margins was observed in the past two weeks at surveyed sites in the southern and west-central areas. 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 control is justified if populations reach 20 grasshoppers per square yard at the margins or eight per square yard within an alfalfa field. Spot treatment should be considered when defoliation is concentrated at the field edges.

POTATO LEAFHOPPER: Counts are approaching the two-leafhopper-per-plant economic threshold for alfalfa 12-inches and taller in a few Jackson and Monroe County fields, although most sites still have averages below 0.7 leafhoppers per sweep. Above-threshold counts have not been found as of August 3. Nymphs are still very common in sweep nets indicating that populations are increasing.

CORN

WESTERN BEAN CUTWORM: Moth counts have begun to decline across southern and central Wisconsin. Preliminary results of the 12th annual trapping survey indicate that the 2016 state moth count is more than two times higher than in 2015 when survey traps captured 644 moths, the second smallest count on record.

Although these results suggest that western bean cutworm moths are more numerous this season, the 2016 cumulative count of 1,380 moths in 75 pheromone traps is still low in comparison to the numbers documented from 2007-2012, when more substantial flights of 2,200-10,800 moths were recorded. The highest individual trap total for the nine-week monitoring period is 136 moths near Markesan in Marquette County.

EUROPEAN CORN BORER: Larvae are appearing in the ear tips of corn. A few surveyed fields in the southwestern and west-central counties had 1-10% of the ears infested with one or two small caterpillars ranging in development from newly hatched to second-instar. The treatment window for second-generation corn borers will remain open for another 1-2 weeks across the southern half of the state. Controls directed against the summer larvae must be applied during the period after egg hatch and before larvae bore into the stalks, prior to the accumulation of 2,100 degree days (modified base 50°F). Degree day totals as of August 3 were: Beloit 2,006, La Crosse 2,054, Madison 1,884 and Hancock 1,763.

European corn borer third instar larva *Krista Hamilton DATCP*

JAPANESE BEETLE: A DATCP survey specialist reports that approximately 6% of the plants in a Richland County field had silks pruned to the ear tip and as many as 5-6 beetles per plant were feeding on the silks, potentially impairing pollination. Silk pruning was also noted in scattered fields in Jackson, Monroe, Trempealeau and Vernon counties. Control of this pest in field corn is warranted for populations that exceed three beetles per ear fieldwide when pollination is incomplete.

CORN EARWORM: Counts remained low during the week of July 28-August 4. Twenty-eight moths were registered at 17 pheromone trap sites, compared to 11 moths captured the previous week. Despite these low numbers, the appearance of even a few moths in traps signals that sweet corn producers should continue to monitor fields with green silks. Small larvae were observed this week in corn ears in a field near Cataract in Monroe County.

Corn earworm larva *Krista Hamilton DATCP*

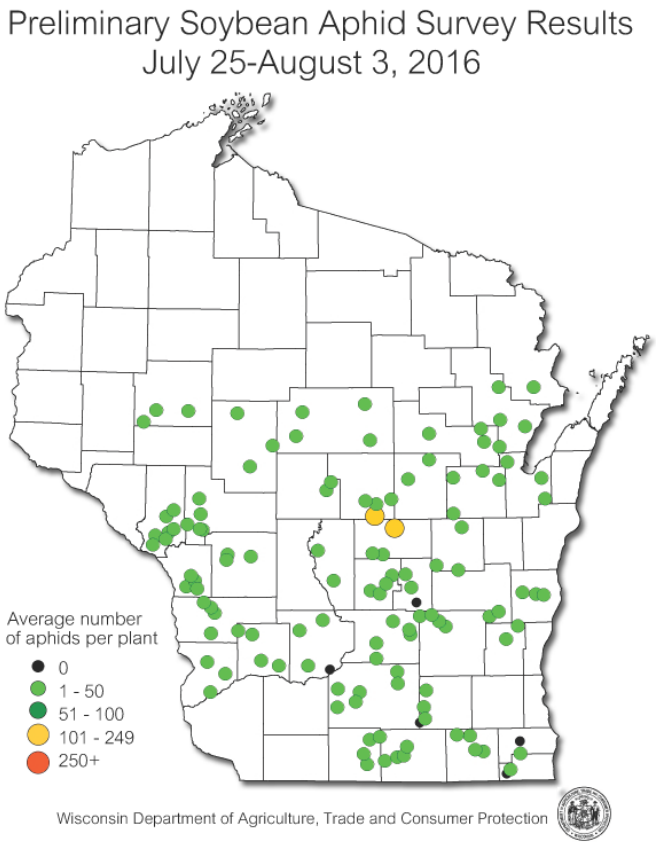
SOYBEANS

SOYBEAN APHID: Surveys conducted from July 26-August 3 failed to detect economic populations in 125 sampled fields. Densities ranged from 0-151 aphids per plant but averaged less than 10 per plant. Only two fields, one each in Portage and Waushara counties, had average counts above 100 aphids per plant.

Soybean aphids *Krista Hamilton DATCP*

Although populations are generally low, aphid pressure is intensifying and some fields could require treatment

before mid-August. Soybean producers are reminded that insecticide treatment is neither economical nor advisable until the threshold of 250 aphids per plant on 80% of the plants throughout the field has been exceeded. Once again, fieldwide 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. Final treatments must be applied before the R5.5 growth stage to provide any economic benefit.



JAPANESE BEETLE: As previously noted, this insect is particularly abundant this year. The beetles are causing moderate to severe damage to soybeans in parts of Richland County and control treatments have been applied in a few instances. Defoliation levels in most fields surveyed since late July varied from 1-18% which is below the 20% threshold for soybeans in the seed-filling stages. Japanese beetles were observed in 91 of the 125 fields sampled (73%) from July 25-August 3.

TWO-SPOTTED SPIDER MITE: Symptoms associated with early mite infestation are appearing in soybeans on lighter soils in Jackson and Monroe counties. Consultants and soybean growers are advised to monitor fields every 4-5 days for the bronzing and stippling of lower leaves indicative of active mite populations, especially where soils are dry and measurable rainfall is not expected. Since most pyrethroid products that control Japanese beetles also eliminate beneficial insects and can cause mite levels to surge, soybeans should not be treated for Japanese beetle unless the defoliation threshold of 20% is exceeded. Fields recently treated for aphids or Japanese beetle will require scouting in August for mite flare-ups. No economic threshold has been developed for two-spotted spider mite on soybeans in Wisconsin, but a field may qualify for treatment if 10-15% of leaves show stippling or discoloration and mite infestation has been confirmed.

Soybean leaf stippling caused by spider mites agfax.com

FRUITS

APPLE MAGGOT: Emergence increased this week at a few orchard locations. Counts of nine and 16 flies per red sphere trap were reported from Rochester and Plymouth, respectively, while 20 of 29 orchards registered one or more flies. Apple growers should 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.

STINK BUG: Numbers are increasing in field crops and apple orchards, indicating the potential for fruit injury prior to harvest. All of the stink bugs observed since late July have been native species (i.e., brown, green, spined soldier bug), though growers should remain alert for the invasive brown marmorated stink bug that is now being observed in the Madison area and at various sites throughout Dane County. Damage by stink bugs is often limited to specific areas in the orchard and depending

on the distribution of the population, spot treatment may be appropriate.

OBLIQUEBANDED LEAFROLLER: Moths of the second flight are appearing in pheromone traps statewide, from Burlington to Bayfield. The summer flight is underway and will likely continue until early September this year, in which case surface feeding damage would also persist into fall. OBLR larvae have been unusually abundant and widespread in soybeans and other field crops for the second year in a row.

Obliquebanded leafroller moth *Christine Hanrahan www.pbase.com*

CODLING MOTH: Apple orchards across the state are currently 1,200-1,400 degree days from the spring biofix, and peak emergence of summer codling moths has occurred or should soon occur. Large numbers of second-flight moths have been registered from July 28-August 3 at several sites. Continued monitoring of pheromone traps is recommended until the end of August 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. Growers are reminded to review pre-harvest intervals before making an application. If trap counts do not exceed the action threshold, an insecticide application is not necessary.

BROWN MARMORATED STINK BUG: The UW Entomology Department has confirmed the state's first capture of brown marmorated stink bug (BMSB) in a pheromone trap. Three nymphs were collected last week in a trap at the Allen Centennial Garden on the UW-Madison campus, marking the first time BMSB has been trapped in Wisconsin. Several nymphs and a mating pair were also found on dogwood shrubs.

According to Insect Diagnostician PJ Liesch, juvenile stink bugs were first observed in the Allen Centennial Garden on July 15 and nymphs have since been found on buildings in east Madison. His report suggests the stink bugs may be more abundant in Madison than what has been confirmed.

DATCP, the UW-Madison, and the IPM Institute are currently maintaining a statewide monitoring program for BMSB. The program consists of 51 traps distributed in 12 counties, as well as a few sites in eastern Minnesota and northern Illinois. To date there has been no official confirmation of BMSB injury in any fruit or agronomic crop in Wisconsin and it remains unclear if BMSB will become a late-season problem this year. Established, reproducing populations exist in portions of Dane County, but have not been confirmed in other areas.

VEGETABLES

LATE BLIGHT: No cases of late blight have been detected in any Wisconsin potato field or home garden this season. According to UW Potato and Vegetable Pathologist Dr. Amanda Gevens, the suspect case of "late blight" reported last week from Adams County was not late blight caused by *Phytophthora infestans*. Nevertheless, all potato growing areas in the state have reached the threshold for late blight management and routine protection of susceptible tomato and potato crops is recommended at this time.

Late blight on potato *ag.umass.edu*

SQUASH BUG: Adult and nymphs are still very active in pumpkin and winter squash plantings across the state. Vegetable growers should continue to inspect the under-

sides 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 nymphs *www.gardensimply.com*

CABBAGE LOOPER: Migrants are being captured in low numbers in black light traps. Increased scouting is advised beginning now and continuing through early September. A 10% infestation threshold should be used from early heading until harvest to protect the market quality of cabbage. The same threshold applies to broccoli and cauliflower once flowers or curds begin to develop.

TRUE ARMYWORM: A report from a Fond du Lac County vegetable processor states that armyworm larvae are concentrating in later-planted sweet corn fields. The report notes that the larvae are not affecting the quality of the corn, but the defoliation is pronounced and contamination has become a concern. This development emphasizes the need for closer inspection of corn for second-generation armyworms, particularly in Columbia, Dodge, Fond du Lac and Green Lake counties.

NURSERY & FOREST

TWO-SPOTTED SPIDER MITE: Signs of spider mite damage have become apparent with the recent drier weather pattern and have been observed in several nurseries throughout the state. Inspectors are reporting mite damage to numerous perennials, especially bee balm and hollyhock. Although minor mite infestations can go unnoticed, heavier infestations are recognizable by the leaf stippling that develops on affected leaves. Examination of the leaf undersides with a hand lens may reveal fine webbing or the mites, which can be identified by the two dark lateral spots. Mite damage is likely to increase late in the season as plants experience heat or moisture stress.

PINE LEAF ADELGID: The cone-shaped galls, which form when needles are injured by adelgid feeding were observed in late July on black spruce trees in Chippewa County. This adelgid species alternates between black spruce and eastern white pine in Wisconsin. At this time of year empty galls are evident on black spruce, while the nymphs have migrated to eastern white pine to feed on the newer shoots. Damage to white pines can be significant and repeated attacks on white pine may cause mortality in low-vigor trees. High value white pine plantings adjacent to black spruce areas should be inspected to determine if control is warranted. Drooping or weeping pine shoots are an indicator of adelgid infestation.

Pine leaf adelgid *Konnie Jerabek DATCP*

LIRULA NEEDLECAST: Spruce trees in a Pierce County nursery field were diagnosed with lirula needlecast, a common fungal disorder that causes second-year needles to turn brown. Lirula is easily identified by a single longitudinal row of black fruiting bodies or spores along the midrib on the undersides of dead needles. Environmental conditions that favor its development are high humidity, low temperatures and overcrowding or inadequate plant spacing. As with most fungal disorders, measures that increase air circulation are usually effective in preventing new infections. Properly timed fungicide treatments can help also reduce disease problems if cultural treatments are insufficient.

SPRUCE NEEDLE MINER: The clusters of brown needles held together by webbing observed on Black Hills spruce in Pierce County were caused by this spruce pest. Spruce needle miner (SNM) larvae enter and hollow out needles that are at least one year old, then spin silk nests in early summer. The larvae tend to aggregate and feed gregariously. The partially grown larvae overwinter in the nests and pupate the following spring. Controls, if necessary, should be applied in early spring.

Spruce needle miner *Konnie Jerabek DATCP*

GYPSY MOTH: The moth flight and oviposition period are ending across southern Wisconsin. Approximately 5,382 traps (48%) of the DATCP trap set total have been checked to date and 21,511 male gypsy moths have been captured. Removal of gypsy moth pheromone traps in scheduled to begin on August 10 in areas south of Highway 21.

SPRUCE NEEDLE RUST: Colorado blue spruce infected with spruce needle rust were found late last month in Pierce County. Spruce needle rust (SNR) can be identified now by the pale yellowish bands that surround new needles. As the season progresses, yellow-orange fruiting bodies or telia develop on new needles and eventually spread spores that infect new needles.

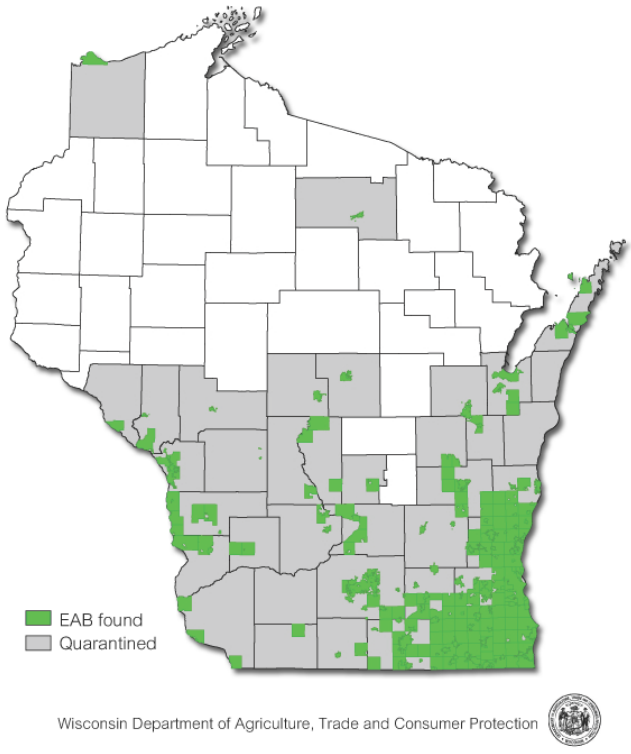
Unlike many rusts, SNR is an autoecious rust, which does not require an alternate host to propagate and spread from tree to tree. Needles infected from the previous year will turn black-brown and eventually drop. Heavily infected trees lose vigor and aesthetic appeal and may die if other stressors are also present.

Mowing, pruning and other cultural practices that reduce humidity and improve air flow around trees can help minimize the occurrence and severity of this disease. Properly timed fungicide applications may be justified for severe cases. Spruce trees infected with SNR should not be offered for sale until they are treated and the rust disease controlled.

EMERALD ASH BORER: Beetle emergence recently peaked along the eastern lakeshore counties and throughout the northern portions of the state. Meanwhile, the adult flight is subsiding across the remainder of Wisconsin. Mid-season monitoring of the nearly 800 EAB traps set in Wisconsin's non-quarantined counties has been completed and no trap captures have been reported as of August 3, although results are preliminary.

By contrast, five new detections were confirmed in the last two weeks in the following counties with known EAB populations: Brown County (City of De Pere), Dodge County (City of Mayville), Richland County (Town of Akan), Sheboygan County (City of Plymouth), and Washington County (Village of Kewaskum).

EAB Detections 2008 to August 3, 2016



APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 28 - AUGUST 3

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	APB[5]	LPTB[6]	DWB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	4	7	0	5	0	0	6	0	4
Bayfield	Orienta	29	1	0	2	0	8	23	0	**0
Brown	Oneida	70	52	16	13	0	0	7	0	0
Columbia	Rio	2	0	11	1	0	2	0	0	0
Crawford	Gays Mills	56	0	0	0	0	—	5	**19	—
Dane	DeForest	—	—	—	—	—	—	—	—	—
Dane	Edgerton	—	—	—	—	—	—	—	—	—
Dane	McFarland	77	3	1	—	—	—	—	—	*3
Dane	Mt. Horeb	103	53	7	5	12	0	5	2	0
Dane	Stoughton	145	25	26	11	2	0	9	0	2
Fond du Lac	Campbellsport	100	20	0	5	5	1	6	0	3
Fond du Lac	Malone	80	2	7	38	0	0	1	0	0
Fond du Lac	Rosendale	106	29	0	2	0	4	6	0	0
Grant	Sinsinawa	—	—	—	—	—	—	—	—	—
Green	Brodhead	25	26	1	8	0	3	3	0	0
Iowa	Mineral Point	790	56	36	1	4	0	—	**4	—
Jackson	Hixton	63	11	4	1	0	0	13	0	0
Kenosha	Burlington	222	8	17	5	8	1	46	0	—
Marathon	Edgar	177	11	1	38	0	0	45	0	1
Marinette	Niagara	52	2	0	0	4	2	6	0	0
Marquette	Montello	648	4	4	7	—	—	—	*1	0
Ozaukee	Mequon	20	7	2	14	—	—	—	*3	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	243	10	0	0	0	5	15	*2	0
Racine	Raymond	249	13	7	14	10	10	28	0	0
Racine	Rochester	200	4	12	5	0	0	1	*1	0
Richland	Hill Point	114	7	7	5	8	4	16	5	0
Sheboygan	Plymouth	96	0	5	1	0	4	2	**4	0
Walworth	East Troy	40	14	0	3	—	20	2	1	1
Walworth	Elkhorn	251	39	0	14	—	25	2	4	0
Waukesha	New Berlin	97	7	15	10	15	2	2	0	0

[1]Spotted tentiform leafminer; [2]Redbanded leafroller; [3]Codling moth; [4]Obliquebanded leafroller; [5]American plum borer; [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	4	2	0	0	0	0	0	0	4
Columbia	Pardeeville	1	2	0	2	14	7	0	4	1	9
Dodge	Beaver Dam	0	10	2	0	5	0	0	1	0	25
Fond du Lac	Ripon	0	1	1	4	13	0	0	0	0	30
Grant	Prairie du Chien	0	0	0	0	4	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	9	2	0	40	5	16	2	3	0	20
Monroe	Sparta	0	0	0	0	31	2	0	1	0	15
Rock	Janesville	2	3	0	0	11	1	0	9	1	0
Walworth	East Troy	0	0	0	3	1	1	0	0	0	14
Wood	Marshfield	4	4	1	4	1	9	1	10	0	9

[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.