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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

Brisk, showery weather prevailed across the state during the final week of April. After last week's warm spell, temperatures on April 25 declined abruptly and chilly conditions persisted throughout the week. Highs ranged from the lower 40s to upper 50s, about 5-10 degrees below normal for this time of year. Lows were in the upper 20s to lower 40s. Seasonal showers provided timely precipitation for corn planting and maintained mostly adequate soil moisture levels, but fieldwork stalled as the cold snap and periods of light rain slowed planting progress made last week. Corn planting was 10% complete by April 24, three days ahead of last year, and four days ahead of the five-year average. Despite the unfavorable weather, Wisconsin growers are optimistic about prospects for the 2016 growing season after a mild winter and an unusually warm March. Significant planting of corn, oats and potatoes is expected once spring temperatures moderate next week.

LOOKING AHEAD

BLACK CUTWORM: Migrants arrived in high numbers for the second consecutive week. The DATCP network of 39 pheromone traps registered 494 moths from April 21-27, for a cumulative total of 676 moths this month. Moths began appearing in the state by March 29 this season and egg deposition is now occurring on winter annual weeds such as common chickweed, peppergrass and yellow rocket in no-tillage and reduced tillage fields. Based on the first major migration event on April 17, larvae resulting from the flight could begin cutting corn seedlings as early as May 20.

BROWN MARMORATED STINK BUG: More than 20 brown marmorated stink bug (BMSB) reports have been confirmed this spring, most originating from the Madison area of Dane County. The identifications were verified by PJ Liesch of the UW-Madison Insect Diagnostic Lab. The activity observed so far indicates the stink bugs overwintered successfully and populations could surge in 2016. To date, BMSB still has not been trapped or observed in any agricultural crop in Wisconsin, but UW and DATCP entomologists expect its status may change from an urban nuisance pest to an agricultural pest this season. Apples, grapes, soybeans, sweet corn and tomatoes are a few of the crops at high risk of BMSB damage.

LILY LEAF BEETLE: An April 21 report from Marathon County confirms the winter survival of lily leaf beetle (LLB), a destructive introduced pest of cultivated lilies detected for the first time in Wisconsin June of 2014. Several overwintered beetles were observed on lily foliage at a residence in Weston. Gardeners and homeowners in Marathon County are asked to remain alert for LLB this season and take measures to prevent it from

spreading. Sightings should be reported to the DATCP Nursery Program at datcpnursery@wisconsin.gov.

Lily leaf beetles Reeser Manley

ALFALFA WEEVIL: Several adult weevils were collected from fields in Dane and Rock counties on April 25, signaling the start of spring egg deposition in alfalfa stems. Larval emergence remains 1-2 weeks away and is forecasted for May 7 at Beloit, May 11 near Madison, May 14 at Wautoma, and May 19 near Wausau.

GYPSY MOTH: Overwintered eggs began hatching on April 25 in Dane, Dunn, Rock, Trempealeau and Vernon counties. This event occurred on April 24 last year and April 30 in 2014. Aerial spraying directed against first- and second-instar larvae will likely begin during the week of May 9, depending upon weather.

TRUE ARMYWORM: The first armyworm moths were captured at Janesville in Rock County during the week of April 13-19. Another 136 moths have been reported since then in the Janesville and Sparta black light traps. Similar to the black cutworm, this long-range migrant overwinters in the south-central U.S. and arrives in Wisconsin each spring on southerly storm fronts. Outbreaks are sporadic and more likely to develop during cool, wet years.

FORAGES & GRAINS

PEA APHID: Egg hatch began by April 17 in Richland County. Alfalfa sampled this week in Columbia, Dane, Grant, Green, Iowa, Lafayette, and Rock counties had very low counts of 0-35 aphids per 100 sweeps, with an average of 14 per 100 sweeps.

DEGREE DAYS JANUARY 1 - APRIL 27

LOCATION	50°F	2015	NORM	48°F	40°F
Dubuque, IA	233	218	196	230	437
Lone Rock	208	198	—	200	400
Beloit	241	209	201	230	438
Sullivan	147	127	169	135	281
Madison	185	187	186	174	351
Juneau	141	148	—	133	276
Racine	135	102	—	127	277
Waukesha	147	127	—	135	281
Milwaukee	125	102	147	119	258
Hartford	147	127	—	135	281
Appleton	106	126	—	97	214
Green Bay	80	94	129	74	181
Big Flats	166	175	—	147	288
Hancock	166	175	173	147	288
Port Edwards	157	165	170	145	284
La Crosse	223	207	204	227	431
Eau Claire	180	170	168	178	344
Cumberland	144	142	133	131	264
Bayfield	78	94	—	68	123
Wausau	114	123	135	107	213
Medford	115	117	113	109	221
Crivitz	71	80	—	55	124
Crandon	93	91	102	78	151

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

ALFALFA WEEVIL: Surveys in alfalfa indicate overwintered adult weevils have resumed activity and spring egg deposition is under way in southern Wisconsin. The first larvae are likely to appear in sweep net collections by May 7.

TARNISHED PLANT BUG: Adults can be found in most surveyed alfalfa fields. Although the average count from April 21-27 was extremely low at four per 100 sweeps, the appearance of plant bugs in alfalfa signals that strawberry growers and other fruit producers concerned about this pest should begin inspecting plants for tarnished plant bug next week.

WHEAT DISEASES: Despite widespread reports of stripe rust across much of the country, survey observations in Dane, Green, and Jefferson County wheat fields on April 22 and April 25 found no evidence of stripe or leaf rust, no powdery mildew, and only traces of Septoria leaf blotch. The crop (most fields at Feekes 7) was remark-

ably healthy, perhaps due to dry conditions in recent weeks. These results are consistent with similar observations reported by UWEX Field Crops Pathology group on April 18. Survey efforts will continue, as weather conditions increase the chances of rust development.

Nationally, stripe rust and leaf rust are being found across a wide swath of the wheat-growing region, with early-season stripe rust detections as far north as South Dakota and Minnesota, suggesting that stripe rust may have overwintered in those states. Information on the national development of rusts of cereals, along with maps, is available at the USDA Cereal Rust Bulletin: http://www.ars.usda.gov/News/docs.htm?docid=9757.

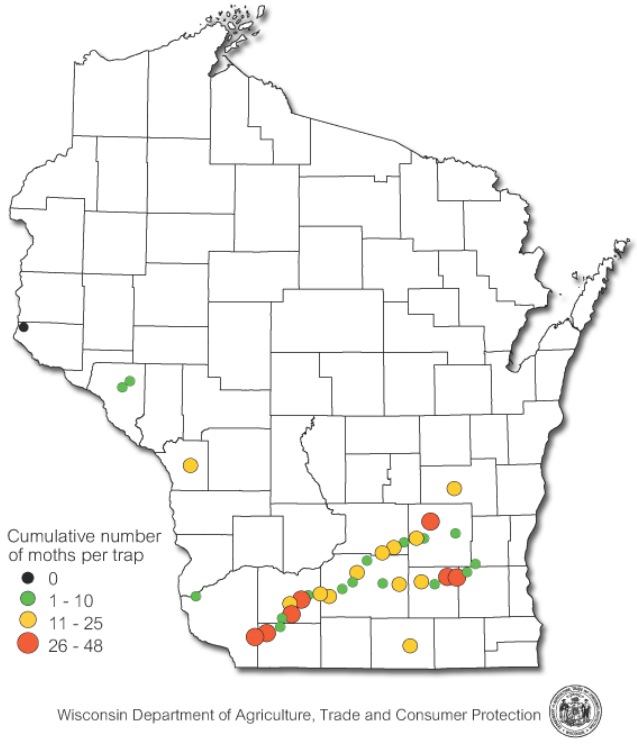
CORN

TRUE ARMYWORM: Counts in black light traps increased markedly this week. The first seven moths of the 2016 season were registered at Janesville from April 13-19, which was one week later than their arrival date last year. Another 136 moths were captured from April 21-27 near Janesville and Sparta. Cover crops, spring-killed alfalfa, and small grains will provide attractive oviposition sites for the migrant moths arriving this month. No-tillage fields previously in sod or with small grain cover crops that were not burned down with herbicides early enough in spring usually experience greater true armyworm problems than do conventional tillage fields.

True armyworm moth *freepages.misc.rootsweb.com*

BLACK CUTWORM: The annual black cutworm trapping survey has yielded 676 moths in 39 traps this month, the largest April moth count since 2012. The migrants were carried into the state on storm fronts beginning March 29, with significant flights of 133 and 494 moths occurring in the last two weeks. Large-scale, early migrations such as this one should be considered an early warning of damaging cutworm populations next month. A peak corn cutting period starting May 20 has been projected for Janesville and other far southern Wisconsin locations based on the biofix date of April 17. The primary corn cutting window is expected to open on May 23 in the Wautoma area of central Wisconsin and by May 26 for Wausau and other northern areas. The map below summarizes the cumulative moth counts for the period of March 29-April 27.

Black Cutworm Counts Spring 2016



EUROPEAN CORN BORER: According to the results of last fall's survey, the overwintered generation of larvae should produce an extremely small flight of moths next month. The 2015 European corn borer survey documented a statewide average of only 0.02 borers per plant, or two per 100 plants, the lowest fall population in the last 74 years. Pupation is likely to begin by May 3 in advanced areas of southern Wisconsin.

SOYBEANS

BROWN MARMORATED STINK BUG: Based on the high number of reports originating from the Madison area

last year, the brown marmorated stink bug (BMSB) is presumed to be established in Dane County, and possibly in parts of southeastern Wisconsin. Although BMSB poses the largest threat to orchard crops, soybeans and other agronomic crops are also at risk as this invasive pest becomes more widely established in the state. Feeding by BMSB on soybeans results in 'stay green' symptoms, or soybeans that do not produce harvestable yields. Research on BMSB in the Mid-Atlantic States has found that most economic damage occurs in the first 50 feet from the edge of a soybean field, and single well-timed field-edge-only treatment can effectively reduce populations. Crop advisors and soybeans growers should be aware of the possibility of BMSB infestation this season and report any suspects to DATCP.

Brown maramorated stink bug *Yerpo https: commons.wikimedia.org*

SOYBEAN APHID: Emergence of aphids from overwintered eggs on buckthorn began by April 4 and is likely subsiding. The combination of high multicolored Asian ladybeetle populations and low aphid populations last fall suggest aphid densities could be lower this season compared to 2015. The first aphids customarily begin colonizing emerging soybeans by the first week of June.

FRUITS

REDBANDED LEAFROLLER: Reports indicate RBLR moths began appearing in pheromone traps during the week of April 7-13. Counts since mid-April have ranged from 0-169 per trap and the first peak flight may have occurred in a few southern Wisconsin orchards. The RBLR development model forecasts this early-season event for 200 degree days (base 45°F). The accumulation at Spring Green and Madison was 222 and 183 RBLR degree days, respectively, as of April 27.

Sampling for newly hatched RBLR larvae on foliage and watersprouts should begin 10-12 days after the first moth is registered. An important distinguishing feature of the RBLR larva is its uniform coloration (both the body and head are yellowish-green).

SPOTTED TENTIFORM LEAFMINER: The first of three moth flights that occur annually in Wisconsin began by April 13. An apple orchard near Edgar in Marathon County reported a high count of 968 moths per trap from April 21-27. Elsewhere counts were much lower and ranged from 0-480 per trap. The number of moths captured during the event defined as a "peak flight" varies by orchard but is generally in the range of 800-1,200 per trap per week. Peak emergence or trap catch of spring adults is approaching and can be anticipated at advanced sites during the first or second week of May.

OBLIQUEBANDED LEAFROLLER: Larvae have resumed activity after overwintering under the bark of scaffold limbs and twigs. The ¼-inch, yellowish-green caterpillars with black head capsules are expected to feed for 2-3 weeks before pupating within leaf tubes. Scouting flowers and leaf buds with a 10X hand lens is recommended at this time.

Obliquebanded leafroller larva *Utah State University*

THRIPS: A Fond du Lac County apple grower reports that thrips are active in orchard edge trees adjacent to wooded areas. Apple growers are advised to check buds on several different varieties in multiple locations, including the perimeter, for thrips activity. A count of three or more thrips per fruit bud can cause abnormal leaf formation,

leaf tatter, flower injury and reduced fruit set, and is considered an economic population. Materials available for thrips control are spinosad (Entrust) for organic growers and spinetoram for conventional growers (Delegate for apples or Radiant for strawberries).

EASTERN TENT CATERPILLAR: Egg hatch began by March 26 in Grant, Iowa and Rock counties following the accumulation of 50 degree days (modified base 50°F). The characteristic tents are now becoming visible on wild cherry, apple, flowering crabapple and other host trees. Control is most effective from late April until early May, while the larvae and tents are still small.

Eastern tent caterpillar *minnesotaseasons.com*

GREEN FRUITWORM: Apple growers planning to apply a Bt product (i.e., Agree, Deliver, Dipel) between tight cluster and bloom for control of green fruitworm or other leaf-feeding caterpillars are reminded that most formulations persist on foliage for only a few days following application. Because Bt must be ingested by larvae to be lethal, it is imperative to confirm the presence of caterpillars through scouting terminals and blossoms and treat only if temperatures warm enough for their activity. Post-treatment scouting for larvae is recommended to determine if a second application is needed. The effectiveness of Bt diminishes at petal fall as feeding by most early-spring caterpillar pests subsides.

GRAPE FLEA BEETLE: The spring migration of overwintered beetles into vineyards has started. Scouting twice weekly from bud swell until the first leaf separates from the shoot tip is suggested through mid-May, or once shoot growth has reached three inches. Early spring feeding by adult flea beetles damages primary buds, preventing shoot expansion and ultimately reducing grape yields. Plants on the margins of vineyards are at greatest risk of injury. An economic threshold of 5% bud damage should be used to determine the need for control.

VEGETABLES

SEEDCORN MAGGOT: Degree day accumulations across much of southern and central Wisconsin have surpassed the 360 heat units (sine base 39°F) required for peak emergence (50%) of first generation flies. Untreated corn and vegetable seeds are at heightened risk of SCM damage during this period, especially if seed germination is delayed by low soil temperatures. Peak fly emergence should occur next week in areas north of Green Bay and Stevens Point.

COMMON ASPARAGUS BEETLE: The phenology model for this asparagus pest forecasts the first appearance of adults and the start of egg deposition on asparagus spears from 150-240 degree days (simple base 50°F). The lower range of this threshold will be exceeded during the first week of May near Beloit, La Crosse, Madison, Platteville, and other advanced southern and western locations.

Common asparagus beetle *DavidH-J flickr.com*

CABBAGE MAGGOT: Peak emergence of first generation flies can be anticipated in the week ahead across southern Wisconsin. This event occurs around 300 degree days (simple base 43°F), as lilacs are in full bloom. Broccoli and cauliflower plantings on light sandy soils are at highest risk of maggot infestation and should be closely monitored early next month for signs of injury. Transplanting cole crops one week before or after peak

fly emergence is recommended to avoid the primary damage period.

IMPORTED CABBAGEWORM: Adults have been active since late March. The presence of these yellowish-white butterflies around field plantings and home gardens signals eggs are being laid on early-planted broccoli, cabbage, kale and other cole crops. Btk products for ICW control must be applied while larvae are small.

Imported cabbageworm butterfly *wildwhb.com*

NURSERY & FOREST

PLANT VIRUSES: Early-season inspections indicate that plant viruses will again be a common problem in Wisconsin greenhouses and nurseries in 2016. Inspections in Kewaunee and Outagamie counties found cucumber mosaic virus (CMV) on begonia, potyvirus on iris, and tobacco rattle virus (TRV) on astilbe, coral bells and hosta. Plant viruses are highly transmissible through routine greenhouse operations and have become increasingly prevalent in the nursery trade. There are currently no controls for virus-infected plants. Once a plant is diagnosed with a virus, DATCP requires it to be removed from sale and destroyed.

LILY LEAF BEETLE: Overwintered beetles were observed on lily foliage at a residence in Marathon County on April 21, confirming the winter survival of this newly-introduced exotic invader. Detected for the first time in Wisconsin in June of 2014, lily leaf beetle (LLB) has now been reported from at least 30 separate sites, mostly in the Kronenwetter, Mosinee, Rothschild and Weston areas of Marathon County. Currently the LLB population appears to be limited to Marathon County, thus control or eradication may still be possible with diligence on the part of local communities. Gardeners, nursery growers and residents are encouraged to closely inspect lily plants for the bright red beetles and larvae and report any finds to the DATCP Nursery Program at datcpnursery@wisconsin.gov.

Lily leaf beetle *Warrener flickr.com*

Recommended controls include manually removing the adults and larvae from plants or applying an insecticide labeled for use on ornamental plants. More than one application may be required to effectively control LLB.

POWDERY MILDEW: The pathogen *Podosphaera xanthii* that causes powdery mildew was diagnosed on the Calibrichoa hybrid cultivars 'Double Apricot' and 'Double Compact Red' at a greenhouse in Outagamie County. Cases of this particular powdery mildew on Calibrichoa were once rare, but reports have been increasing in recent years. This species also infects petunias and verbena.

Early signs of infection are not readily visible and must be confirmed by microscope. Often the first symptom is dead or dying lower leaves, especially in the interior of the plant. The disease persists in plants at low levels, but spreads rapidly when conditions are favorable, with the typical white, powdery fungal growth becoming conspicuous on infected plants.

Careful scouting of the plants, especially the lower, interior leaves will help detect early infections, while cultural controls such as adequate spacing may reduce its spread. Fungicides can be applied for severe outbreaks.

GYPSY MOTH: Aerial spraying is scheduled to start in southern Wisconsin during the week of May 9. Slow the

Spread (STS) treatments will be conducted in 19 western Wisconsin counties: Barron, Bayfield, Buffalo, Chippewa, Crawford, Douglas, Dunn, Eau Claire, Grant, Green, La Crosse, Lafayette, Pepin, Richland, Rusk, Sawyer, St. Croix, Trempealeau, and Vernon. The DNR Suppression Program is also planning treatments in Rock and Sauk counties. Btk applications will cover approximately 19,075 acres and mating disruption flakes will cover approximately 221,004 acres. After a second consecutive mild winter, gypsy moth populations are expected to be at or near the same levels as 2015.

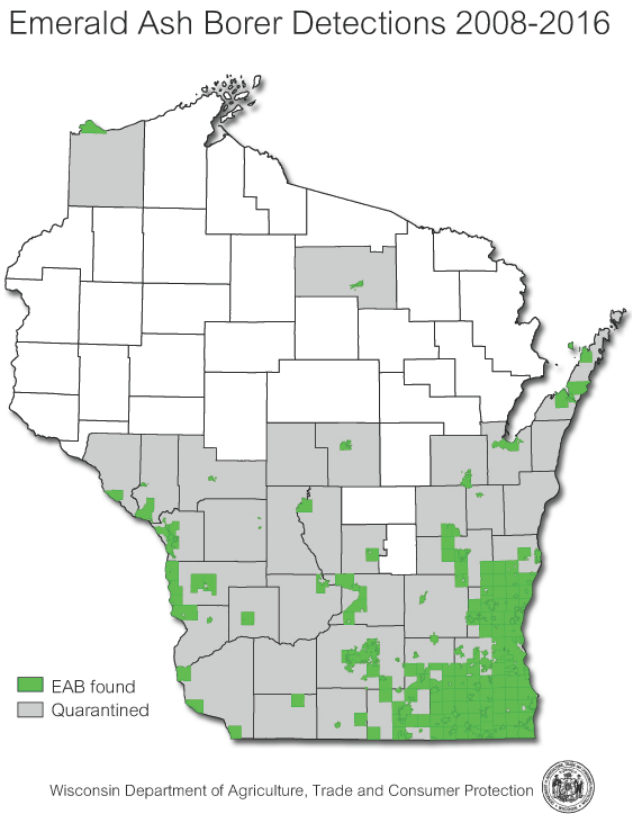
EMERALD ASH BORER: The treatment window to apply soil-drench systemic insecticide products to protect ash trees from emerald ash borer (EAB) is now through mid-May. An early spring insecticide application provides ample time for the product to be moved from roots to other tissues throughout the tree prior to the onset of larval feeding. Homeowner available products must be applied annually and are effective on healthy trees up to 20 inch diameter at breast height (DBH) with less than 30% canopy decline.

EAB trunk injection treatment *Alicia Abercrombie journaltimes.com*

Owners of trees larger than 20 inch DBH are advised to consult a certified arborist or tree care specialist to have their ash professionally treated with products suited for mature ash trees. Professionally-applied products consist of trunk injection or basal bark spray and offer 2-3 years of protection, depending on the active ingredient and local EAB pressure. However, applications of these products should not be made until after leaf expansion, but before recently laid EAB eggs have hatched. The treatment period for professionally-applied materials is generally from mid-May to mid-June.

NEW EAB FINDS: EAB insecticide treatments should only be considered for healthy, high-value ash trees within 15 miles of an infestation. The 41 Wisconsin counties currently quarantined for EAB are shown in gray in the map below; the 214 EAB-infested municipalities and townships are in green. The most recent addition to the EAB quarantine is Portage County, following an April 6 find in the City of Stevens Point. Other detections in the last two months include the following 18 municipalities, all located in counties already under quarantine:

Columbia County (Towns of Lewiston and Pacific); Dane County (City of Stoughton); Fond du Lac County (Town of Byron); Jefferson County (City of Lake Mills); Milwaukee County (Villages of Bayside and River Hills); Sheboygan County (City of Sheboygan, Town of Sheboygan Falls) ; Walworth County (Town of Troy, Village of East Troy); Washington County (Towns of Addison and Polk, Village of Richfield); Waukesha County (City of Brookfield, Town of Vernon, and Villages of Big Bend and Menomonee Falls).



Emerald ash borer infestations are now known to occur in 36 of the state's 72 counties. Five additional counties–Iowa, Juneau, Kewaunee, Manitowoc and Wood–are also included in the 41-county EAB quarantine based on their close proximity to known infestations.

APPLE INSECT & BLACK LIGHT TRAP COUNTS APRIL 21 - 27

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	APB[5]	LPTB[6]	DWB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	0	0							
Bayfield	Orienta	0	0							
Brown	Oneida	50	34							
Clark	Greenwood	—	—							
Columbia	Rio	—	—							
Crawford	Gays Mills	—	—							
Dane	DeForest	—	—							
Dane	Edgerton	209	146							
Dane	McFarland	30	42							
Dane	Mt. Horeb	73	169							
Dane	Stoughton	28	37							
Fond du Lac	Campbellsport	0	43							
Fond du Lac	Malone	0	16							
Fond du Lac	Rosendale	—	—							
Grant	Sinsinawa	—	—							
Green	Brodhead	97	7							
Iowa	Mineral Point	480	179							
Jackson	Hixton	—	—							
Kenosha	Burlington	110	125							
Marathon	Edgar	968	56							
Marinette	Niagara	—	—							
Marquette	Montello	405	106							
Ozaukee	Mequon	5	46							
Pierce	Beldenville	—	—							
Pierce	Spring Valley	—	—							
Racine	Raymond	—	—							
Racine	Rochester	800	196							
Richland	Hill Point	38	155							
Sheboygan	Plymouth	324	71							
Walworth	East Troy	—	—							
Walworth	Elkhorn	28	113							
Waukesha	New Berlin	—	—							

[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	—	—	—	—	—	—	—	—	—	—
Columbia	Pardeeville	—	—	—	—	—	—	—	—	—	—
Fond du Lac	Ripon	—	—	—	—	—	—	—	—	—	—
Grant	Prairie du Chien	0	0	0	0	0	0	0	0	0	0
Manitowoc	Manitowoc	—	—	—	—	—	—	—	—	—	—
Marathon	Wausau	—	—	—	—	—	—	—	—	—	—
Monroe	Sparta	0	0	0	0	0	0	0	103	0	0
Rock	Janesville	0	1	0	0	0	9	0	33	16	0
Walworth	East Troy	—	—	—	—	—	—	—	—	—	—
Wood	Marshfield	—	—	—	—	—	—	—	—	—	—

[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.