

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

Mild temperatures punctuated by showers and thunderstorms characterized the weather this week. Unsettled conditions prevailed as several storm systems passed through the region, bringing varying amounts of rain to Wisconsin. Daytime high temperatures were near or slightly below seasonal normals and ranged from the upper 50s to mid-70s. Low temperatures were in the 40s and 50s. Although the warmer weather allowed for limited soybean planting progress and harvesting of spring alfalfa, only 22% of the first alfalfa crop has been cut so far and many stands are too wet to support machinery. Soybean planting advanced 16 percentage points to 45% complete, but is still well behind last year's 82% and a five-year average of 66%. At the start of June, planting and emergence of all crops remain significantly delayed. More heat and less rain will be needed this month to spur crop development after an excessively wet May.

LOOKING AHEAD

BLACK CUTWORM: The remarkably large annual migration underway since late March has to date yielded a cumulative total of 3,231 moths at 45 monitoring sites. Repeated significant flights throughout May suggest that damaging infestations could continue to develop well into June. Many corn fields are under a high threat of larval

infestation this month and should be scouted for evidence of cutting or below-ground tunneling injury from VE until V5.

EUROPEAN CORN BORER: Moths began emerging by May 25. Based on the European corn borer degree day model, the spring flight should peak during the week of June 4-10 in the southern areas, from June 11-17 in the central and eastern areas, and by the third week of June in the northern counties. Egg deposition is expected to intensify in the week ahead.

ALFALFA WEEVIL: Larval populations have increased markedly since the last report. Surveys indicate that leaf feeding damage is still below the 40% threshold in most first-crop alfalfa, but this will change if intermittent wet weather causes further harvest delays. Any remaining first-crop alfalfa should be cut as soon as possible to disrupt leaf feeding by the larger and more destructive late-instar weevil larvae.

TRUE ARMYWORM: Moderate flights have been documented as far north as Wood County throughout May, signaling a potential for larval infestations in small grains and corn this month. Moths are common in grassy vegetation and small larvae have been collected in alfalfa sweep net samples in the last two weeks. Crop advisors and growers should anticipate armyworm caterpillars migrating into the margins of cornfields by mid-June.

JUNE BEETLE: Emergence of adult June beetles has begun and populations could be heavy this year. Reports from Fond du Lac, La Crosse, Marathon and Outagamie counties suggest that full-grown larvae are common in lawns and gardens. Black light trappers can also expect an increase in captures of these insects as local flights escalate this month.



June beetle adult and white grub

Krista Hamilton DATCP

FORAGES & GRAINS

ALFALFA WEEVIL: Larval populations have continued to increase under the wet weather pattern of late May. Leaf tip damage is generally less than 20%, although failure to harvest the first crop on time has resulted in economic defoliation levels of 40% in a few fields. Larvae in the second and third instars are the predominant development stages. Damage will only intensify as more larvae transition into the larger third and fourth-instar stages. Harvesting first crop fields as soon as possible and monitoring regrowth for carryover of weevil larvae is strongly advised.

POTATO LEAFHOPPER: Migrants are widely distributed over the southern two-thirds of the state, though populations remain very low. The highest number found in the last reporting period was only 3 per 100 sweeps near Plover in Portage County. The economic threshold for this pest is one per sweep in 6-12 inch alfalfa and two per sweep in alfalfa 12 inches or taller.

PEA APHID: Populations in Chippewa, Clark, Marathon, Portage and Wood counties varied from 1-9 per sweep and averaged 1.5 per sweep, which is nearly equivalent

DEGREE DAYS JANUARY 1 - MAY 31

| LOCATION | 50°F | 2016 | NORM | 40°F |
|--------------|------|------|------|------|
| Dubuque, IA | 629 | 598 | 564 | 1246 |
| Lone Rock | 556 | 573 | — | 1101 |
| Beloit | 578 | 621 | 573 | 1162 |
| Sullivan | 500 | 460 | 516 | 1037 |
| Madison | 527 | 541 | 542 | 1070 |
| Juneau | 487 | 468 | — | 1006 |
| Racine | 448 | 436 | — | 968 |
| Waukesha | 469 | 460 | — | 992 |
| Milwaukee | 444 | 423 | 436 | 959 |
| Hartford | 463 | 460 | — | 977 |
| Appleton | 404 | 424 | — | 880 |
| Green Bay | 396 | 370 | 440 | 860 |
| Big Flats | 474 | 509 | — | 961 |
| Hancock | 420 | 509 | 531 | 874 |
| Port Edwards | 412 | 492 | 517 | 867 |
| La Crosse | 535 | 599 | 603 | 1084 |
| Eau Claire | 458 | 543 | 530 | 953 |
| Cumberland | 304 | 476 | 464 | 726 |
| Bayfield | 170 | 299 | — | 523 |
| Wausau | 336 | 413 | 457 | 764 |
| Medford | 311 | 413 | 407 | 734 |
| Crivitz | 363 | 346 | — | 784 |
| Crandon | 270 | 368 | 369 | 662 |

Method: Modified B50; Modified B40 as of January 1, 2017. NORMALS based on 30-year average daily temps, 1981-2010.

to last week's average of 1.6 per sweep. The weekly high count of nine per sweep was noted in Clark County.

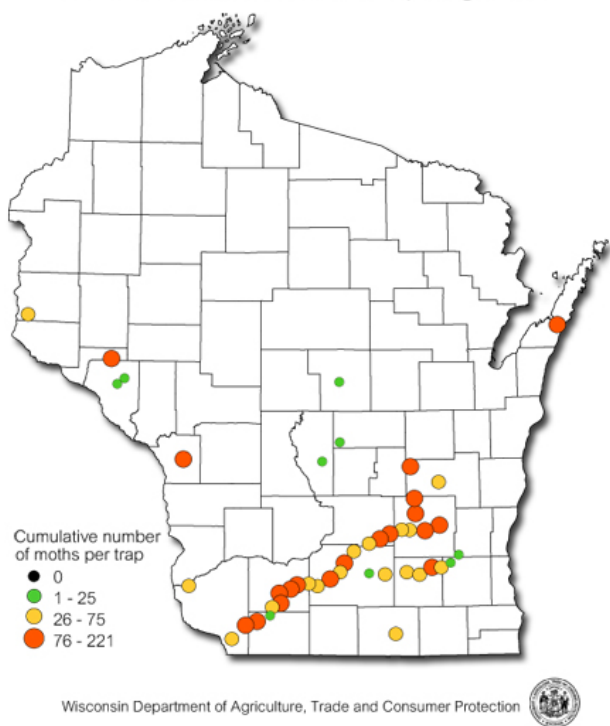
CORN

EUROPEAN CORN BORER: Emergence of spring moths is underway, with a low number of adults appearing in the Beaver Dam black light trap. The majority of moths are expected to emerge by June 10 in advanced southern and western areas of the state and about 1-2 weeks later in the central and northern areas. The first egg masses should be detectable next week. Since the state's corn acreage is less than 18 inches tall and cannot support larval development, oviposition is likely occurring on peas, peppers, potatoes, snap beans and various weed hosts.

BLACK CUTWORM: Crop advisors and growers should continue to inspect emerging corn for signs of cutworm infestation, particularly fields with soybean residue or earlier broadleaf weed problems. Reports of minor feed-

ing damage have been received from Dane, Grant and La Crosse counties in the past week, though economic injury (>3% of plants damaged) has not been observed by DATCP surveyors as of June 1.

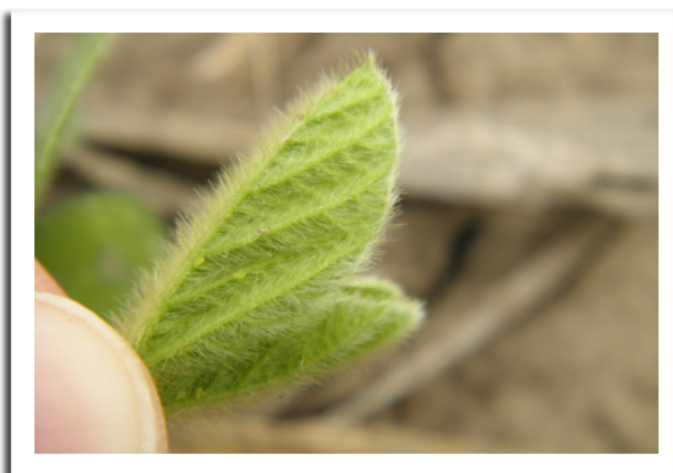
Black Cutworm Counts Spring 2017



SOYBEANS

SOYBEAN APHID: Results of a two-year study published in the April 2017 issue of *Pest Management Science* support previous research demonstrating that neonicotinoid insecticide seed treatments for soybean aphid control provide no yield advantage. Data from field studies in 12 Midwestern states showed that the window of aphid suppression offered by seed treatment is relatively short (about three weeks or until V2), and that tissue concentrations of the neonicotinoid thiamethoxam in soybean foliage are too low to effectively control aphids by the time populations peak in late July and August. The study concludes that neonicotinoid seed treatments do not provide a consistent return on investment and that an IPM approach utilizing scouting and foliar-applied insecticide at the established 250 aphid-per-plant economic threshold remains the best option for soybean aphid management. Further, neonicotinoid seed treatments pose added risks to non-target organisms in terms of off-target movement (i.e., planter dust) and environmental persistence: <http://ento.psu.edu/extension/field-crops/fact-sheet-Effectiveness-of-Neonicotinoid-Seed-Treatments-in-Soybean>

SLUGS: Damage consisting of narrow, irregular longitudinal streaks on the lower leaves is evident in damp fields. These mollusks thrive during periods of wet weather and have become prevalent in no-till or reduced-till systems and very weedy corn where surface residue and high moisture favor their development. Corn in the V4 stage or younger is most susceptible to slug feeding.



Soybean aphids on newest soybean growth

Krista Hamilton DATCP



Slug leaf feeding

Krista Hamilton DATCP

SLUGS: Delayed planting and persistent moist soils this spring are extremely conducive for slug activity. Spot-checking soybeans for feeding scars on the hypocotyls and cotyledons, as well as distorted or tattered unifoliate leaves, is advised. Stand losses from slugs usually occur when soils are wet and seed furrows do not close fully during planting, creating a “highway” for the slugs to feed on and destroy the growing point of consecutive seedlings. A sample size of 20 plants in each of five areas of

the field is suggested. Spot application of a molluscicide bait to problem areas should only be considered as a last resort for severe infestations. No specific thresholds have been developed for slugs in soybeans. Growers must follow labeled use rates and distribute the product evenly over the infested area.

FRUITS

CODLING MOTH: Emergence has been underway since May 14. Counts for the period of May 25-31 were low and varied from 0-13 moths per trap at the monitoring sites that captured moths. The optimal treatment period for first-generation larvae is approaching in southern and central Wisconsin orchards. A larvicide application made 250 degree days (modified base 50°F) after biofix is the standard control for orchards that have documented significant early flights of 15-20 moths in the last two weeks. By contrast, in locations where the spring flight has been inconsistent, it is recommended that growers delay applications until 350 degree days post-biofix, when a greater percentage of the larval population has emerged. Setting additional pheromone traps would also be beneficial in identifying localized areas of moth activity within the orchard if counts remain low and a precise biofix cannot be established. A density of one trap per 2.5 acres (or one per five acres where blocks are uniform in size, shape and topography) is suggested.



Codling moth eggs and newly-hatched larva

ucanr.edu/blogs

OBLIQUEBANDED LEAFROLLER: The spring flight continued for the second week, with low numbers of moths registered in southern and central Wisconsin orchards. Late-instar larvae and rolled leaves are still evident at some sites, signaling that moths should continue to

emerge over the course of several weeks. The recommended scouting procedure for OBLR is to begin checking terminals for small larvae 7-10 days after the first moths are captured. Although there is no direct correlation between trap counts and larval populations, scouting is important since orchards that register even low counts (< five moths per trap) can develop significant larval problems a few weeks after a flight has occurred. Control is warranted for populations averaging three or more larvae per tree.



Obliquebanded leafroller moth

llona.l.bugguide.net

WOOLLY APPLE APHID: Apple growers are advised to begin scouting areas infested with this aphid last season to confirm the first appearance of aerial colonies, expected to become noticeable by mid-June. According to Orchard IPM Specialist John Aue, the systemic insecticide Movento offers excellent efficacy compared to neonicotinoid treatments, but the product must be applied shortly after petal fall and before second or third cover.



Woolly apple aphid

www.aphotofauna.com

GRAPE PLUME MOTH: Reports from vineyards in Dane and Vernon counties indicate that larvae are feeding on grape foliage and webbing together the terminal leaves of shoots. The green caterpillars with whitish hairs commonly appear in late spring in perimeter rows near wooded areas. Their feeding on interveinal areas of leaves and characteristic webbing on young terminals is generally low-impact and control is usually not required. However, in exceptional cases when 20% of shoots show webbing or damage, spot treatment of infested rows with *Bacillus thuringiensis* var. *kurstaki* (Btk) may be considered. Since Bt must be ingested by larvae to be lethal, it is imperative to confirm the presence of caterpillars and treat only if the larvae are small enough that continued feeding is expected. Grape growers who notice shoots with young leaves webbed together are advised to unroll the leaf to verify that the larvae inside is grape plume moth.



Grape plume moth larva

Mike Cesarz

SPOTTED WING DROSOPHILA: Flies were detected in Michigan on organic blueberries during the first week of May this year, marking the earliest recorded first emergence date in the upper Midwest. The previous earliest report was on June 6, 2016 in Door County. Berry growers planning to monitor SWD this season should set their traps as soon as possible to document the first capture date and early population growth trends.

VEGETABLES

STRIPED CUCUMBER BEETLE: Adults are expected to become increasingly abundant by mid-June. Growers of cucurbits should begin inspecting plants for these yellow and black striped beetles, of greatest concern for their role as bacterial wilt vectors. Striped cucumber beetles

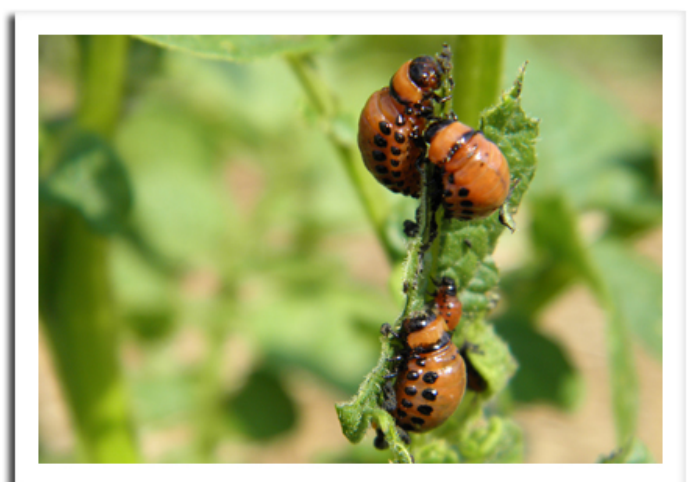
introduce the bacterial disease into cucumbers, melons and squash through feces or contaminated mouthparts. The first symptom of bacterial wilt on cucumber and melon is a distinct flagging of lateral and individual leaves. Early beetle control may be justified for populations of one beetle per plant in melons, cucumbers and young pumpkins, and five beetles per plant for less susceptible cucurbits such as watermelon and squash.



Striped cucumber beetle

Krista Hamilton DATCP

COLORADO POTATO BEETLE: Oviposition has started across southern and central Wisconsin. The bright orange-yellow eggs deposited by the females should now be apparent on the undersides of potato leaves. At normal June temperatures, the eggs hatch in 4-8 days and larvae mature to the third instar stage in another 5-9 days. These early individuals are usually less destructive than the summer generation. Treatment is justifiable for pre-flowering, 6- to 8-inch potato plants when defoliation exceeds 20-30%.



Colorado potato beetle larvae

Krista Hamilton DATCP

BLACK CUTWORM: Home vegetable gardens and larger plantings should be monitored for signs of black cutworm feeding now that first-generation larvae are in the damaging late-instar stages. Beans, cabbage and other crucifers, carrots, celery, corn, lettuce, peas, peppers, potatoes and tomatoes are all susceptible to black cutworm injury during the transplant establishment period. Most cutworm damage occurs at night as the larvae feed on the stems of young plants at or slightly above or below the soil line. During periods of wet weather, the larvae usually cut plants at the soil surface.

NURSERY & FOREST

SAWFLY LARVAE: Evidence of sawfly larval feeding was noted on cilantro, celery, carrot and parsley at plant retailers in La Crosse County. These tiny larvae skeletonize foliage or cause very characteristic windowpane feeding damage before developing into small wasps that resemble flying ants. The adult stage is a beneficial pollinator of flowering plants, but the larvae are capable of causing serious damage to vegetables and herbs. The optimal time to control sawflies is early in the larval stages, using insecticides such as Spinosad and Malathion if warranted. *Bacillus thuringiensis* (Bt) products are not effective against sawfly larvae.



Sawfly feeding damage on cilantro

Tim Boyle DATCP

FLEA BEETLES: This common pest of many vegetables and nursery plants was observed at several retail garden centers this week, feeding on leafy seedlings and ninebark shrubs. Defoliation caused by flea beetles varies by leaf type and the flea beetle species involved, appearing as shot-holes, skeletonizing or lacy shredding on thinner leaves and a linear, leafminer-like pattern on the thicker,

fleshy leaves of sedum and similar plants. Row covers, sticky traps, and insecticides may be used for prevention and treatment. Insecticides directed against the adults are the most effective control, but repeat applications are often required.



Flea beetle feeding on ninebark

Tim Boyle DATCP

ROSE MOSAIC VIRUS: The rose mosaic virus complex was again documented among several rose cultivars during recent inspections at Wisconsin retailers. Yellow leaf mottling, spots and discoloration resembling "lightning bolts" along and between leaf veins are distinctive virus symptoms. Infected plants should be removed and destroyed. Closely inspecting plants before purchase, sterilizing pruning tools between each cutting, and careful breeding of virus-free stock are foremost in preventing spread of this and other common nursery plant viruses.



Rose mosaic virus on 'Sunnsprite' rose

Tim Boyle DATCP

MAYAPPLE RUST: Bright orange pustules were evident on the undersides of mayapples in Marathon County.

This annually occurring rust is very common in natural settings where it sporadically causes premature leaf drop. Removing infected plants may aid in control by reducing the source of inoculum.



Mayapple rust

Timothy Allen DATCP

WHITE SMUT: This fungal disease has been reported among plants for sale in southeastern Wisconsin over the past few weeks. Found most commonly on Gaillardia or blanket flower, white smut can be recognized by the faint whitish leaf spots that enlarge and turn brown in the center, with a white border or halo. Close spacing and overhead irrigation can increase the occurrence of white smut and should be avoided. Removal and disposal of diseased foliage and infected plants is also recommended. Plants in greenhouses may benefit from fungicide applications, whereas affected landscape plantings require complete removal at the end of the season to prevent future infection.



Gaillardia with white smut

Tim Allen DATCP

NON-VIABLE NURSERY STOCK: Nursery plants that have not leafed out by now are considered non-viable and cannot be offered for sale. Dry bulbs and trees and shrubs with plastic-wrapped roots are especially prone to moisture deficiency problems after being distributed to retail stores and should be sold within three weeks of arrival. Non-viable stock may be set aside and observed for late growth, but otherwise must be destroyed or returned to the supplier.

VIBURNUM LEAF BEETLE: Eggs and early-instar larvae of this invasive European beetle are appearing on viburnums in Milwaukee County, one of two southeastern Wisconsin counties (along with Ozaukee County) in which viburnum leaf beetle (VLB) is known to be established. This newly-introduced exotic species is particularly damaging because both the adult and immature forms rapidly defoliate viburnums. Successive feeding by larvae and adults prevents shrubs from re-foliating and can kill otherwise healthy plants after 2-3 years of heavy infestation. Southeastern Wisconsin gardeners, landscapers, nursery stock growers and retailers should be alert to the characteristic, unique skeletonization of viburnum leaves caused by this insect and implement an aggressive treatment program to prevent this pest from spreading.



Viburnum leaf beetle larvae

DATCP Nursery Program

APPLE INSECT & BLACK LIGHT TRAP COUNTS MAY 25 - 31

| COUNTY | SITE | STLM ¹ | RBLR ² | CM ³ | OBLR ⁴ | OFM ⁵ | LPTB ⁶ | DWB ⁷ | AM RED ⁸ | YELLOW ⁹ |
|-------------|---------------|-------------------|-------------------|-----------------|-------------------|------------------|-------------------|------------------|---------------------|---------------------|
| Bayfield | Keystone | 57 | 8 | 0 | — | — | — | | | |
| Bayfield | Orienta | 0 | 0 | — | — | 0 | 0 | 0 | | |
| Brown | Oneida | — | — | — | — | — | — | | | |
| Columbia | Rio | 2 | 0 | 0 | 0 | 0 | 5 | | | |
| Crawford | Gays Mills | 46 | 19 | 2 | 0 | | 23 | 1 | | |
| Dane | DeForest | — | — | — | — | — | — | | | |
| Dane | Mt. Horeb | 0 | 4 | 0 | 0 | 0 | 18 | | | |
| Dane | Stoughton | 18 | 21 | 3 | 0 | 0 | 4 | | | |
| Fond du Lac | Campbellsport | 53 | 13 | 0 | 0 | 5 | — | 0 | | |
| Fond du Lac | Malone | 12 | 2 | 3 | 0 | 0 | 0 | | | |
| Fond du Lac | Rosendale | 26 | 12 | 4 | 1 | 0 | 0 | | | |
| Grant | Sinsinawa | 0 | 0 | 7 | 2 | 0 | 0 | | | |
| Green | Brodhead | 8 | 0 | 0 | 0 | — | 3 | | | |
| Iowa | Mineral Point | 7 | 2 | 3 | 0 | 4 | 15 | | | |
| Jackson | Hixton | 23 | 4 | 0 | 0 | 0 | 0 | | | |
| Kenosha | Burlington | 50 | 0 | 3 | 0 | 3 | | | | |
| Marathon | Edgar | 8 | 4 | 0 | | 0 | 0 | | | |
| Marinette | Niagara | 115 | 2 | 0 | 0 | 0 | 0 | | | |
| Marquette | Montello | 22 | 6 | 0 | 0 | — | 0 | | | |
| Ozaukee | Mequon | 10 | 1 | 4 | — | 0 | 0 | | | |
| Pierce | Beldenville | 12 | 5 | 13 | 1 | 0 | 1 | | | |
| Pierce | Spring Valley | 11 | 16 | 1 | 0 | 0 | 1 | | | |
| Racine | Raymond | — | — | — | — | — | — | | | |
| Racine | Rochester | 2 | 1 | 11 | 0 | 3 | 2 | | | |
| Richland | Hill Point | 21 | 3 | 2 | 0 | 0 | 5 | | | |
| Sheboygan | Plymouth | — | — | — | — | — | — | | | |
| Walworth | East Troy | — | — | — | — | — | — | | | |
| Walworth | Elkhorn | — | — | — | — | — | — | | | |
| Waukesha | New Berlin | — | — | — | — | — | — | | | |

¹Spotted tentiform leafminer; ²Redbanded leafroller; ³Codling moth; ⁴Obliquebanded leafroller; ⁵Oriental fruit moth; ⁶Lesser peachtree borer; ⁷Dogwood borer; ⁸Apple maggot red ball; ⁹Unbaited; ¹⁰Baited; ¹¹Apple 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 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| Columbia | Pardeeville | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 |
| Dodge | Beaver Dam | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 |
| Fond du Lac | Ripon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 |
| Grant | Prairie du Chien | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Manitowoc | Manitowoc | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 26 | 0 | 0 |
| Marathon | Wausau | 1 | 2 | 0 | 1 | 0 | 3 | 0 | 14 | 0 | 0 |
| Monroe | Sparta | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 |
| Rock | Janesville | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 0 |
| Walworth | East Troy | — | — | — | — | — | — | — | — | — | — |
| Wood | Marshfield | 1 | 5 | 0 | 0 | 0 | 1 | 3 | 5 | 0 | 0 |

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