

WISCONSIN PEST BULLETIN

Timely crop pest news, forecasts, and growing
season conditions for Wisconsin



Wisconsin Department of Agriculture, Trade and Consumer Protection

Division of Agricultural Resource Management | Bureau of Plant Industry

2811 Agriculture Dr., Madison, WI 53718 • <http://pestbulletin.wisconsin.gov>

WEATHER & PESTS

Calm, dry weather dominated the state for much of the week. Daytime temperatures in upper 70s and lower 80s were seasonal for mid-August, while overnight lows were crisp and ranged from the 40s to the lower 60s. A few isolated showers and thunderstorms impacted the far northern part of the state on Wednesday evening, but conditions were otherwise dry and suitable for harvesting alfalfa, potatoes, small grains and processing vegetables. This season's early planting window, along with consistently warm weather, has favored rapid plant development. In Madison, high temperatures have reached or exceeded 80°F on approximately $\frac{3}{4}$ (76%) of the days this summer. Crops are maturing 2-4 weeks ahead of last year and about a week ahead of the 5-year average. The state's apples are ripening early and harvesting has started in many orchards.

LOOKING AHEAD

CORN ROOTWORM: Preliminary results of the annual adult rootworm survey now in progress show a substantial increase in counts as compared to 2019, and the highest beetle pressure in at least five years. Population increases have been recorded in all six of the crop districts completed as of August 19. The current 2020 state average of 0.7 per plant represents a more than

two-fold increase from last season's low average of 0.3 per plant, although this average will likely change as the remaining 41 fields are sampled. This year's higher beetle pressure indicates a heightened potential for root damage to continuous corn in 2021, particularly in south-central Wisconsin. The annual survey will be finalized next week.

CORN EARWORM: Migrants continued to appear in low to moderate numbers in pheromone traps. Counts at DATCP's 15 monitoring sites ranged from 1-97 per trap during the past week, with the highest capture reported from Ripon in Fond du Lac County. The total count for the period of August 13-19 was 209 moths. The latest activity indicates that routine scouting and control regimens in sweet corn should be maintained until harvest.

EUROPEAN CORN BORER: Summer moths are still active and egg deposition in later planted corn is expected to continue into September. Black light traps registered low weekly counts of 1-9 moths. The treatment window for second-generation larvae has closed across southern Wisconsin, and remains open only a few more days in the central and eastern areas. Final inspections of sweet corn for egg masses and small larvae are advised before 2,100 degree days (modified base 50°F) are reached.

WESTERN BEAN CUTWORM: Counts have declined to very low levels as the annual moth flight period ends.

Only 12 of DATCP's 55 traps captured moths in the past week, with totals at or below eight moths per trap reported from all locations. The cumulative state count as of August 19 is 3,780 moths, the second highest count in 16 years. Infestations generated by the flight have been found in scattered cornfields in the west-central and central counties this month. Most of the larvae recently observed were in the intermediate growth stages (about 1-1 ¼ inches long).



Western bean cutworm larva

Krista Hamilton DATCP

LATE BLIGHT: The season's first case of late blight on potato was confirmed by UW in Adams County on August 10. Dry weather in the intervening 10 days has limited disease progression and no new cases have been reported. UW Vegetable Plant Pathologist Dr. Amanda Gevens recommends maintaining protective treatments with a late blight-specific fungicide on an approximately five-day schedule for locations near Adams County. This advisory is also important for tomato growers in central Wisconsin since late blight spores are present in the area.

SOYBEAN APHID: Surveys conducted in 176 soybean fields from July 20-August 19 found 85% of fields had averages below 25 aphids per plant, 10% of sites had counts of 26-100 per plant, and 5% of fields had average counts of 101-163 aphids per plant. The 2020 statewide average is 15 aphids per plant. Although this average is very low overall, it suggests populations have generally been higher this summer than in 2019 when the survey found a record-low average of 5 aphids per plant. Many of this year's advanced soybean fields have reached R5.5-R6, the growth stages at which no yield benefit is gained by insecticide treatment. Late-season aphid control is probably uneconomical for most soybeans at this

DEGREE DAYS JANUARY 1 - AUG 19

LOCATION	50°F	2019	NORM	40°F
Dubuque, IA	2237	2200	2051	3503
Lone Rock	1999	1995	—	3222
Beloit	2090	2036	2083	3334
Sullivan	1933	1886	1969	3128
Madison	2045	2013	1985	3264
Juneau	1849	1815	—	3006
Racine	1876	1735	—	3057
Waukesha	1946	1860	—	3127
Milwaukee	1917	1809	1880	3093
Hartford	1812	1783	—	2961
Appleton	1906	1797	—	3045
Green Bay	1861	1747	1776	2977
Big Flats	1858	1777	—	3015
Hancock	1773	1706	1926	2902
Port Edwards	1776	1703	1891	2910
La Crosse	2028	1963	2171	3242
Eau Claire	2022	1867	1957	3209
Cumberland	1607	1576	1832	2692
Bayfield	1516	1367	—	2543
Wausau	1556	1499	1792	2626
Medford	1501	1465	1641	2568
Crivitz	1701	1627	—	2765
Crandon	1518	1482	13998	2545

Method: Modified B50; Modified B40 as of January 1, 2020.
NORMALS based on 30-year average daily temps, 1981-2010.

point, with the possible exception of fields in the east-central and far northern counties.

FORAGES & GRAINS

POTATO LEAFHOPPER: Populations in alfalfa are variable, with the highest pressure noted in the abnormally dry west-central counties where rain deficits are currently 2-4 inches below normal. Recent surveys found counts ranging from 0.6-3.1 leafhoppers per sweep. Above-threshold averages exceeding 2.0 leafhoppers per sweep were recorded in Buffalo, La Crosse, Trempealeau, and Vernon counties. Nymphs are still common in sweep net collections, although adult leafhoppers are the predominant development stage.

PEA APHID: Counts have escalated in individual fields. A few alfalfa sites surveyed in the west-central counties contained 5-6 aphids per sweep, the highest populations documented in several weeks. Other fields had less than

1.5 aphids per sweep. The mostly dry weather of August may be contributing to the late summer aphid increase.

BLISTER BEETLE: Alfalfa producers should be aware that blister beetle infestations may become more prevalent late in the season or during periods of grasshopper abundance. The immature blister beetle grubs feed on the egg pods of grasshoppers, including many crop-damaging *Melanoplus* spp. Blister beetle infestations often coincide with grasshopper outbreaks. Horses are particularly susceptible to the chemical in blister beetles, so fields with hay intended for horse feed should be scouted carefully.



Black blister beetle

urtica flickr.com

GRASSHOPPER: This pest remains common in the grassy areas bordering alfalfa, corn and soybeans, although minimal feeding injury is evident beyond the field margins. Insecticide use for grasshopper control is justified only if populations reach 20 grasshoppers per square yard at the edges or eight per square yard within an alfalfa field.

CORN

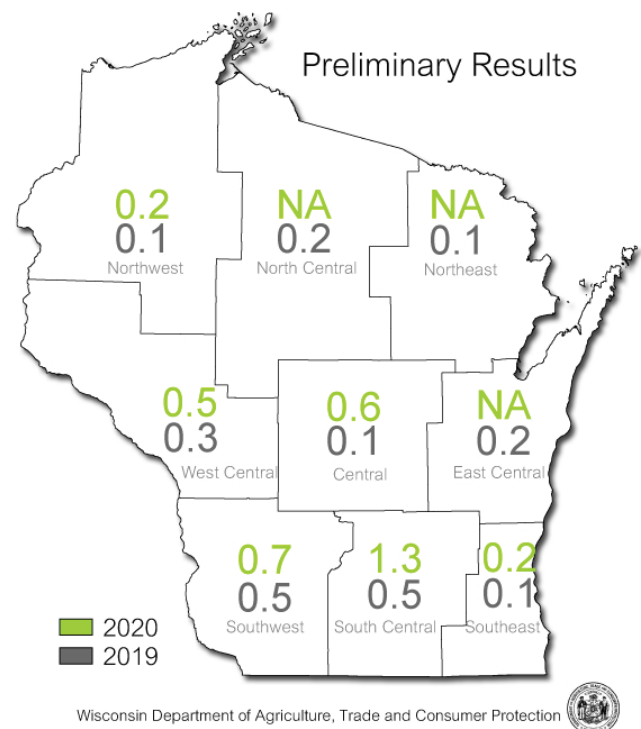
CORN ROOTWORM: The map below summarizes the preliminary findings of the 2020 corn rootworm beetle survey, completed in 188 of the expected 229 fields. Early results show beetle counts in the southern and central areas have escalated markedly from the historically low levels of 2017-2019. Population increases were found in all six crop reporting districts completed as of August 19, with the largest increases recorded in the south-central (0.5 to 1.3) and central (0.1 to 0.6) areas. The 1.3 beetles-per-plant average recorded in the south-

central district is the highest average documented for that area since 2011, when the survey found 1.4 beetles per plant.

Another indicator of this year's higher beetle pressure is the percentage of surveyed fields containing economic counts at or above the 0.75 beetle per plant threshold. Counts exceeding this threshold have been documented in 60 (32%) of the 188 sites—which is nearly double the 5-year average of 18% of fields. The preliminary state average of 0.7 beetle per plant compares to only 0.3 per plant last season.

The abundance of rootworm beetles in some parts of the state this year suggests a higher risk for larval root damage to fields replanted to corn in 2021. At the very least, continuous corn in the southern and central areas should be scouted before the end of the month to evaluate both adult rootworm pressure and the performance of Bt trait packages.

District Average Number of
Corn Rootworm Beetles per Plant



EUROPEAN CORN BORER: Second-generation larvae range from first- to fourth-instar in the southern and western counties. Light larval infestations have been observed in only a few corn fields surveyed this month, with most sites having low populations involving less than

12% of plants. The treatment window for summer corn borers is expected to close statewide next week. Final management decisions for sweet corn must be made before the caterpillars have started boring into corn stalks and ears.

CORN EARWORM: The early-August moth migration has generated scattered minor infestations. Larvae ranging from $\frac{3}{4}$ - $1\frac{1}{2}$ inches were found during surveys in Dane, Jefferson, Kenosha and La Crosse counties, and egg laying is expected to continue into September. Sweet corn producers are advised to maintain pheromone traps and take necessary treatment steps if warranted in the week ahead. Counts during the period of August 13-19 were: Arlington 15, Arlington North 25, Beaver Dam 10, Bristol 20, Coon Valley 12, Cottage Grove 1, Madison airport 5, Manitowoc 3, Mayville 16, Ripon 97, Sun Prairie 15, Sun Prairie North 1, and Watertown 1. A total of 221 moths were reported from 12 of 15 sites during the past week.



Corn earworm larva

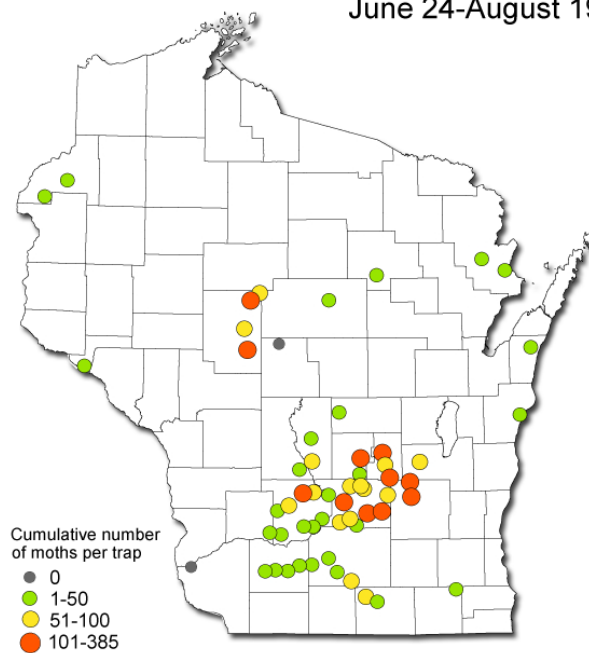
Krista Hamilton DATCP

WESTERN BEAN CUTWORM: This season's comparatively large moth flight has produced localized damaging larval populations in the central and western areas. Cutworm infestations were observed in the past week in Buffalo, Portage, Trempealeau, and Waupaca counties, where an estimated 5-15% of ear tips were infested with one or two larvae. The caterpillars noted were in the intermediate stages and should drop to the soil to enter the pre-pupal stage by the end of the month.

The 2020 trapping survey captured a state total of 3,780 moths in 58 traps (65 moths per trap average). This count is slightly more than the 3,600 moths trapped last year and ranks second highest in the 16-year history of western bean cutworm monitoring in Wisconsin. The sur-

vey record was 10,807 moths in 2010 (79 per trap) and the low was 521 moths in 2014 (5 per trap). A few late moths are still appearing in survey traps, but the flight has effectively ended.

Western Bean Cutworm Moth Counts 2020 June 24-August 19



Wisconsin Department of Agriculture, Trade and Consumer Protection



SOYBEANS

SOYBEAN APHID: Densities have reached moderate levels of 100-200 per plant in a few scattered fields this season, but counts in the vast majority of sites surveyed by DATCP have been low. The statewide average aphid count in 176 fields sampled from July 20-August 19 was 15 per plant, with no surveyed fields containing an above-threshold population of 250 aphids per plant on 80% of the plants. Aphid populations are expected to decline by late August due to biological controls, reduced nutritional content at R5 and later, and other environmental factors. Management decisions must be made in the week ahead for eastern and northern Wisconsin soybean fields that have not yet reached the R5-R5.5 (beginning to mid-seed) stages.

TWO-SPOTTED SPIDER MITE: Leaf stippling and bronzing symptoms have become apparent in some western Wisconsin fields due to this month's dry weather pattern. With no rain in the forecast for until August 28 or later, mite infestations are likely to intensify. Scouting for mites

every 4-5 days is suggested through the end of August. As is the case with the soybean aphid, treatment of this pest is not beneficial after the R5 to R5.5 or full pod growth stages.

JAPANESE BEETLE: Adult beetles are still feeding in soybeans over much of the state. Defoliation has been observed in 80% of the 176 soybean fields sampled by DATCP since late July. Counts recorded during the annual aphid survey ranged from 1-138 beetles per 100 sweeps, with a state average of 17 per 100 sweeps (14 per sweep in 2019). The highest counts of 100 or more beetles per 100 sweeps were observed in Clark, Crawford, and Lafayette counties.

Although Japanese beetle perimeter defoliation is prevalent in soybeans again this season, the degree of injury in most fields is not severe enough to justify treatment.



Japanese beetles

Krista Hamilton DATCP

FRUITS

SPOTTED TENTIFORM LEAFMINER: The third and last flight of the season has peaked in most apple orchards. Moths have been very abundant at some locations during this flight, with a weekly high count of 1,134 moths registered at Montello in Marquette County. Another larval generation should be anticipated in September based on the trap counts registered in the last two weeks. Apple growers experiencing large numbers of third brood moths can assess infestations by monitoring orchard perimeters for leaf mines.

APPLE MAGGOT: Counts were generally low in the past week and ranged from 1-7 per trap, with the exceptionally

high capture of 24 flies on a baited red sphere in Fond du Lac County. Several apple growers have reported a very light and/or delayed AM emergence this season. Apple growers should continue to monitor AM traps through the first week of September since the late summer flies may cause damage to late cultivars.



Apple maggot fly

Hannes Schuler news.rice.edu

SPOTTED WING DROSOPHILA: This insect continues to pose a serious risk to ripening fruit, making it imperative for berry growers with SWD infestations to maintain exclusion netting and/or treatments through harvest. A list of insecticide options is available at the UW-Madison SWD website: <http://labs.russell.wisc.edu/swd/management-2/>. For organic operations, the OMFI-approved insecticides PyGanic and Entrust are available for SWD control.



Spotted wing drosophila maggot in raspberry

umaine.edu

CODLING MOTH: Counts have generally decreased, although significant moth flights are still occurring in a few

southeastern and east-central orchard locations. 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 at the end of the month. Assessing larval damage is recommended at this time to forecast first-generation CM pressure next season.



Codling moth larva and damage

www.agric.wa.gov.au

VEGETABLES

TOBACCO RINGSPOT VIRUS: The nepovirus Tobacco Ringspot Virus (TRSV) was diagnosed by the DATCP Plant Industry Lab earlier this month on tomato from a La Crosse County hoophouse. The symptoms observed included oval-shaped blisters on the fruits of at least three heirloom varieties. The blistering symptoms were similar to those caused by tomato brown rugose fruit virus (ToBRFV), a newly identified virus of tomato and pepper that was detected and eradicated from Arizona and California greenhouses in 2018 and 2019.

TRSV occurs in a wide range of plant hosts (cucumbers, soybeans, tobacco, many weeds) and is transmitted mechanically (contaminated tools, hands, plant-to-plant), by seed transmission, and by nematodes. Seed transmission has been reported as the main form of TRSV transmission in cucumber and soybeans. Unlike the emerging ToBRFV, TRSV reportedly causes only minor damage and does not spread rapidly.

As with other plant viruses, good sanitation is imperative for preventing transmission. Seed and transplant production are the most critical entry points for contaminating hundreds, or potentially thousands, of plants. Using only

certified seed, washing and sterilizing hands and tools often, wearing single-use gloves that are discarded between greenhouses, and disposing of symptomatic plants are all key control measures. Plants, trays and media should be disposed of through incineration—**DO NOT** spread it out on your fields.

Tomato growers should be alert for virus symptoms as harvest continues and send suspected plant material to the UW-Plant Disease Diagnostic Clinic for testing: <https://pddc.wisc.edu/sample-collection-and-submission/>



Tobacco ringspot virus on tomato

Krista Hamilton DATCP

LATE BLIGHT: UW Vegetable Pathologist Dr. Amanda Gevens reported the state's first late blight case of the season on August 10. The disease was confirmed in in an Adams County potato field. Although dry weather has limited disease development in the last 10 days, late blight can progress rapidly under favorable cool, wet weather conditions, and entire plants may decline and die in as few as 7-10 days.



Late blight lesions on tomato

Krista Hamilton DATCP

Gardeners in central Wisconsin are advised to increase scouting through September for disease symptoms, including leaf, stem, and fruit lesions that have a water-soaked appearance. Removal and destruction of infected plants is required if lesions are noticed. Composting will not kill the pathogen and is not recommended.

TWO-SPOTTED SPIDER MITE: Localized outbreaks in vegetables and other crops have been favored by this month's predominantly dry weather pattern. Inspections found mite damage on beans and tomatoes and at a La Crosse County community garden, and problems are expected to increase through the end of August as where dry conditions persist. Two-spotted spider mites can damage tomatoes, beans, muskmelons, watermelons, and sweet corn, causing plants to turn yellow, drop leaves, and potentially die when infestations are severe. Fruits from severely infested plants are often small, poor-quality and unmarketable.



Spider mite stippling on tomato leaves

Ric Bessin UKY Entomology

Vegetable growers are encouraged to watch for developing mite problems such as leaf stippling and fine webbing that may cover the entire plant. Infestation can be confirmed by shaking symptomatic leaves onto a sheet of white paper or by observing infected leaf areas with a hand lens. At this late point in the season, watering or irrigation is perhaps the best option for short-term control of mite infestations.

NURSERY & FOREST

NR 40 INVASIVE SPECIES: Amur cork tree, classified as a prohibited plant under the DNR Invasive Species Rule, was being sold at a nursery in Brown County. The "pro-

hibited" category includes plants not yet found in the state, but if introduced, "are likely to survive and spread, potentially causing significant environmental or economic harm or harm to human health."

Amur cork tree has distinct thick corky bark, and opposite and pinnately compound leaves that smell of faint citrus when crushed. The tree tolerates a wide range of sun exposure and soil types (clays to sands) and has the potential to invade Wisconsin forests. In addition to its fast growth displacing native species, amur cork tree is also allelopathic, which is an ability of the tree to exude chemicals from its roots that negatively impact the soil microbial community and surrounding vegetation. Amur cork tree is a prolific reproducer utilizing both seed (sexual) and root suckering (asexual) as means of dispersal.

Additional information about the Department of Natural Resources NR 40 rule is available at: <https://dnr.wi.gov/topic/Invasives/classification.html>.

OAK LACE BUG: Bur oak trees at a nursery in Grant County were heavily infested with this insect. Signs of infestation included dark, varnish-like excrement and cast skins on the undersides of leaves. Damage progresses to bronzing and early leaf drop under heavy lace bug pressure and is often most noticeable from mid- to late summer. The lace bug family consists of at least 27 species that feed on deciduous trees and shrubs. Most exhibit specific host preferences. Heavy feeding can reduce aesthetic quality, but normally does not harm the tree.



Oak lace bug on bur oak

Shanon Hankin DATCP

JAPANESE BEETLE: Adults are still feeding on birch, elm, linden and many other varieties of nursery trees. DATCP surveys and inspections, as well as reports from the in-

dustry, suggest that the beetles have been a nuisance again this season, but populations are not as high as in the previous two years.

FALL WEBWORM: Nests have become more common on nursery stock since July. The larvae inside are pale yellow with blackish lateral spots. Mature caterpillars develop tufts of silky hairs and are about one inch long. The fall webworm is a native species that feeds on over 120 different species of deciduous forest, shade, fruit, and ornamental trees, but avoids conifers. Manual removal of the webs is the preferred form of control.

HOSTA FOLIAR NEMATODE: Long, brown leaf streaks caused by foliar nematodes were observed on multiple hosta varieties in Juneau and Walworth counties. These nematodes are readily transmitted by water splash and through vegetative propagation, and have become increasingly common in the nursery trade. Although infestation is rarely lethal to host plants, the nematodes reduce overall vigor and can make hostas 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.



Foliar nematode symptoms on hosta

Konnie Jerabek DATCP

JUMPING WORMS: Nursery inspectors recently found invasive jumping worms in Walworth County nursery stock. The term 'jumping worms' refers to multiple species, all in the genus *Amyntas*. This damaging Asian pest, named for its unusual thrashing behavior when disturbed, was first detected in the state in 2013. The 1.5 to

8-inch long worms can be identified by the smooth, whitish non-segmented band around the body (clitellum). Other common worm species have a raised band.



Jumping worms

Liz Meils DATCP

Jumping worms reproduce asexually and infest soil in high densities, altering soil texture and composition. Their feeding strips nutrients, kills plants, and increases erosion. A single worm can start a new population. Human-assisted dispersal by moving potted plants, soil, compost, mulch and fishing bait is a leading contributor to the spread of jumping worms. Actions recommended to reduce their spread include cleaning soil and debris from vehicles, equipment, gardening tools, and shoes before moving to and from a work site or recreational area. Gardeners and landowners who suspect they have jumping worms should keep any potentially infested plant, soil and mulch on site. These materials should not be sold, transplanted, or shared.

More information can be found on the DNR website at: <https://dnr.wisconsin.gov/topic/Invasives/fact/jumpingWorm.html>. Sightings of jumping worms can be reported to the Wisconsin DNR by emailing invasive.species@wi.gov.

APPLE INSECT & BLACK LIGHT TRAP COUNTS AUGUST 13 - 19

COUNTY	SITE	STLM ¹	RBLR ²	CM ³	OBLR ⁴	DWB ⁵	LPTB ⁶	BMSB ⁷	AM RED ⁸	YELLOW ⁹
Bayfield	Keystone	9	4	3	0	5	6	0	4	7
Bayfield	Orienta	17	0	0	0	4	0	0	0	0
Brown	Oneida	—	—	—	—	—	—	—	—	—
Columbia	Rio	—	43	3	0	0	6	0	0	0
Crawford	Gays Mills	74	21	1 MD	10	3	3	—	1*	0
Dane	Mt. Horeb	36	94	3	1	0	0	0	0	0
Dane	McFarland	30	45	0	—	12	0	—	0	0
Dane	Stoughton	122	164	—	0	0	0	2	0	0
Fond du Lac	Campbellsport	—	49	0	0	0	0	0	—	—
Fond du Lac	Malone	130	12	9	8	0	2	1	24**	1**
Fond du Lac	Rosendale	78	21	4	2	1	1	0	0	0
Green	Brodhead	96	65	3	3	71	0	—	0	0
Iowa	Mineral Point	480	2	3 MD	0 MD	0	—	—	1**	—
Jackson	Hixton	92	7	2	0	1	1	0	0	2
Kenosha	Burlington	241	56	6	1	9	0	0	1**	—
Lafayette	Belmont	12	25	0 MD	0	0	0	0	0	0
Marathon	Edgar	732	2	4	0	6	0	0	0	1
Marinette	Niagara	175	0	0 MD	1	0	0	0	2	0
Marquette	Montello	1134	93	1	0	0	2	0	0*	0*
Ozaukee	Mequon	20	0	1	0	2	0	0	1	—
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	142	7	0 MD	0	9	3	0	1*	0
Racine	Raymond	237	58	7	0	3	0	—	0	0
Racine	Rochester	42	32	9	0	1	—	1	4*	0
Richland	Hill Point	40	8	4	0	1	0	0	0**	0**
Sheboygan	Plymouth	—	—	—	—	—	—	—	—	—
Walworth	East Troy	—	—	—	—	—	—	—	—	—
Walworth	Elkhorn	—	—	—	—	—	—	—	—	—
Waukesha	New Berlin	50	25	5	1	8	2	—	0	0

¹Spotted tentiform leafminer; ²Redbanded leafroller; ³Codling moth; ⁴Obligatebanded leafroller; ⁵Dogwood borer; ⁶Lesser peachtree borer; ⁷Brown marmorated stink bug; ⁸Apple maggot red ball; *Unbaited; **Baited; ⁹Apple 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	0	0	0	0	3	0	4	0	0
Columbia	Pardeeville	0	0	0	27	5	7	12	7	0	0
Dodge	Beaver Dam	0	0	0	22	4	2	4	2	0	1
Fond du Lac	Ripon	0	0	0	40	8	1	43	3	0	0
Grant	Prairie du Chien	0	0	0	7	0	2	0	0	0	0
Langlade	Antigo	0	2	0	13	0	23	0	0	0	1
Manitowoc	Manitowoc	0	0	0	0	1	0	0	1	8	0
Marathon	Wausau	0	0	0	28	1	1	44	4	0	0
Monroe	Sparta	0	0	0	3	9	0	0	0	0	0
Rock	Janesville	0	0	0	5	0	0	0	0	0	0
Walworth	East Troy	0	1	0	29	0	2	0	2	0	4
Waukesha	Hancock	—	—	—	—	—	—	—	—	—	—
Wood	Marshfield	1	1	1	15	0	1	29	0	1	1

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