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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
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WEATHER & PESTS

Relief from early July heat and humidity arrived in Wisconsin this week, along with thunderstorms and heavy rain. Several rounds of showers and storms impacted the state July 12-15, bringing widespread rain of ½ to 2 inches locally higher totals of 3-4 inches. A new daily rainfall record of 3.2 inches was set at Rhinelander on July 14, while Lone Rock reported 3.5 inches of rain on July 15. Seasonal temperatures in the 70s to mid-80s were a welcome change from the early month heat wave, and crop conditions continued to improve with the added moisture. At the start of the week, 81% of the state's corn was rated in good to excellent condition, up two points from a week before, and 27 percentage points higher than at the same time last year. Soybeans increased four points from the previous week to 83% in good to excellent condition. Summer crop development is proceeding at the most rapid rate in several years, and the precipitation from this week's storms will help to keep soil moistures adequate when temperatures return to the 90s over the weekend.

LOOKING AHEAD

WESTERN BEAN CUTWORM: Approximately 25% of this year's moth flight is complete in areas south of Highway 14. The recommended timing of field scouting to estimate egg density is around 2,577 degree days (min base 38°F/max 75°F), once approximately ¼ of the moth population has emerged. Egg masses are detectable in southern and central Wisconsin corn, and damage was reported this week from the Beaver Dam and Ripon areas.

CORN EARWORM: Moth migration flights were registered in Columbia, Dane, Dodge, Fond du Lac, Langlade and Marathon counties July 9-15. Numbers ranged from 1-10 moths per trap, with the highest capture reported in Dane County. Egg deposition is beginning on available corn silks and will increase as more migrants arrive throughout the month and in August. Routine scouting is advised for sweet corn with green silks. This pest's broad host range also includes industrial hemp, which should be monitored this month for earworm injury.

EUROPEAN CORN BORER: Summer moths are appearing in low numbers in black light traps. The second flight is forecast to peak July 22-29 in advanced areas including Beloit, Madison and La Crosse, and by August 5 throughout all the southern half of the state. The treatment window for second-generation larvae will open next week in advanced locations, following the accumulation of 1,550 degree days (modified base 50°F).

SOYBEAN APHID: Monitoring is especially critical as more fields enter the mid-reproductive stages. DATCP

surveys indicate average densities are mostly low at fewer than 39 aphids per plant, but aphid pressure usually intensifies in late July and individual fields could require treatment by August. Control is not recommended until soybean fields have been thoroughly sampled to determine if the established threshold of 250 aphids per plant on 80% of the plants has been exceeded.

JAPANESE BEETLE: Reports suggest that significant damage is occurring in many apple orchards, nurseries and vineyards. Continued weekly scouting is advised for apples, corn, grapes, soybeans, and all other susceptible crops, as long as the beetles are present.

Japanese beetles Krista Hamilton DATCP

DEGREE DAYS JANUARY 1 - JULY 15

LOCATION	50°F	2019	NORM	40°F
Dubuque, IA	1570	1484	1444	2556
Lone Rock	1412	1343	—	2355
Beloit	1481	1368	1461	2446
Sullivan	1350	1239	1370	2266
Madison	1437	1337	1391	2377
Juneau	1282	1178	—	2160
Racine	1258	1091	—	2159
Waukesha	1334	1196	—	2235
Milwaukee	1288	1126	1260	2183
Hartford	1248	1155	—	2118
Appleton	1300	1130	—	2159
Green Bay	1253	1093	1215	2089
Big Flats	1293	1154	—	2173
Hancock	1224	1100	1351	2077
Port Edwards	1245	1102	1317	2102
La Crosse	1431	1288	1525	2364
Eau Claire	1431	1222	1365	2339
Cumberland	1137	1030	1260	1943
Bayfield	1042	848	—	1798
Wausau	1078	959	1230	1875
Medford	1055	950	1120	1853
Crivitz	1166	1027	—	1955
Crandon	1049	947	966	1806

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

FORAGES & GRAINS

POTATO LEAFHOPPER: Surveys indicate leafhopper pressure on second and third-crop alfalfa is generally moderate. Of the 56 fields sampled July 1-15 across the southern half of the state, 80% had below-threshold counts of less than 2.0 leafhoppers per sweep. The 20% of fields with economic averages of 2.0-3.3 leafhoppers per sweep were in Grant, Green, Iowa, Richland, Rock, Sauk and Vernon counties.

JAPANESE BEETLE: Adults are common in alfalfa sweep net collections, with counts typically averaging 0.1-0.2 per sweep (10-20 per 100 sweeps). The prevalence of beetles signals that the annual emergence of Japanese beetles is increasing and egg laying has intensified.

PLANT BUG: Counts of alfalfa, four-lined and tarnished plant bugs averaged 0.5 per sweep, which is very low in comparison to the 5.0 plant bug per sweep threshold. The week's highest count of 1.6 per sweep was noted in Dane County.

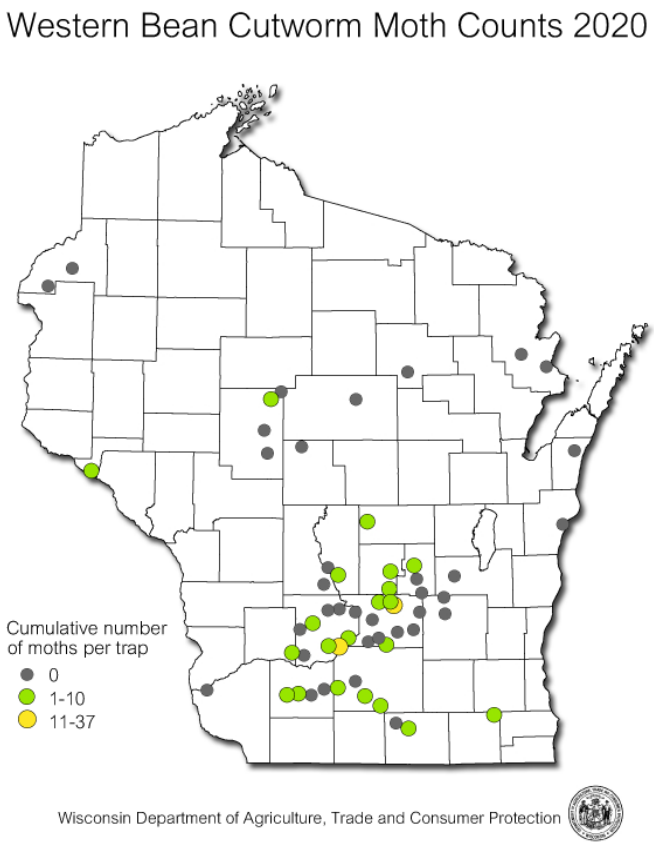
PEA APHID: Pressure has declined to low levels in most central and southern Wisconsin alfalfa fields (≤ 3 per sweep), while populations in the east-central remain very high. A regional average of 15 aphids per sweep was recorded late last week in Brown, Calumet, Fond du Lac, Kewaunee, Manitowoc, Outagamie, Sheboygan, Winnebago counties. A few individual fields had extremely high averages of 25-30 aphids per sweep. Routine scouting is recommended for eastern Wisconsin alfalfa until the second crop is harvested.

GRASSHOPPER: Mid-season grasshopper activity is escalating in alfalfa and other crops. Defoliation has become pronounced along field margins since mid-July. 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 intervention is not necessary unless populations reach 20

grasshoppers per square yard at the margins or eight per square yard within an alfalfa field.

CORN

WESTERN BEAN CUTWORM: Moth emergence accelerated this week, and 25% of the annual flight should now be complete in the counties from Grant east to Dane and north to La Crosse. The DATCP network of pheromone traps registered a total of 113 moths from July 9-15, compared to only four moths during the previous week. The current state cumulative count is 117 moths in 58 traps. Scouting to estimate egg density is recommended at this time. If 5% or more of plants are infested and control is warranted, the most effective timing for insecticide treatment is at 90-95% tassel emergence.



JAPANESE BEETLE: Beetles are prevalent in low to moderate numbers in corn. DATCP surveys indicate that counts range from 1-40 beetles per 100 plants and are still below the economic threshold of three or more beetles per ear, when silks are being clipped to ½-inch during pollination. Infestations are generally limited to the field margins. Beetles are expected to grow more numerous and damaging as silks become more widely available. Scouting several areas in the field interior, in addition to field edges where beetles are usually concentrated, is suggested for corn that has reached the silking stage.

CORN EARWORM: Migrants arrived in the state for the second week. Pheromone traps captured 33 moths July 9-15, an increase from four moths the week before. Although the total monthly count of 37 moths at 9 of 16 pheromone trap locations signals a relatively low risk of earworm problems as of mid-July, routine scouting of silking cornfields is suggested. Trapping network participants are reminded to replace lures on a weekly basis.

Corn earworm larva *Krista Hamilton DATCP*

EUROPEAN CORN BORER: Surveys of corn found no significant infestations. All 30 fields sampled had infestations affecting fewer than 10% of plants. The treatment window for the second-generation larvae will open next week near Beloit, La Crosse and Madison with the accumulation of 1,550 degree days (modified base 50°F). This window extends longer than the first-generation window and will remain open until 2,100 degree days have been reached.

SOYBEANS

SOYBEAN APHID: Colonies are increasing in R2-R4 soybeans. The highest average count in the fields sampled this week was 39 aphids per plant in Green County, although most fields (83%) still had counts below 10 per plant. As a reminder, aphid densities typically peak in Wisconsin as soybeans reach the mid reproductive stages of growth (R3-R5). Insecticide treatment is warranted only if populations reach 250 aphids per plant on 80% of the plants throughout the field.

JAPANESE BEETLE: This pest continues to cause light to moderate defoliation (5-10%) of soybeans along field margins. Infestations were noted in 13 of the 15 counties surveyed since July 1, with Portage and Waushara being the exceptions. The economic threshold for Japanese beetle and other leaf feeding soybean pests decreases to 20% defoliation between bloom and pod fill. Targeted spot treatment should be adequate to control beetles in fields where severe leaf feeding injury is confined to the perimeter areas.

Japanese beetle soybean leaf skeletonization *Krista Hamilton DATCP*

GREEN CLOVERWORM: Larvae can be found in low numbers in most soybean fields. Defoliation attributed to this caterpillar and other leaf feeding pests has not surpassed the 20% threshold for reproductive soybeans in any field surveyed this month. Green cloverworm larvae are present in Wisconsin soybeans every season, though high populations are uncommon. The last serious cloverworm outbreaks occurred in 2010.

Green cloverworm larva *Krista Hamilton DATCP*

REDHEADED FLEA BEETLE: Significant numbers of beetles were observed in Columbia, La Crosse, Sauk and Trempealeau County soybeans, where they were causing light defoliation. Although this species is not considered a major threat to field crops, the prevalence of beetles during recent surveys suggest that fruits, vegetables and nursery plants could be at risk of damage and should be monitored for flea beetle activity.

FRUITS

APPLE MAGGOT: Emergence is variable but generally increased this week in Wisconsin orchards. Captures were reported from nine of 24 monitoring sites, with a weekly high count of 12 flies on an unbaited yellow board in Marathon County. Growers should reapply sticky coating to traps and maintain apple maggot controls as long as counts exceed the established economic thresholds of one fly per trap per week on unbaited traps or five flies per trap per week on baited traps.

Apple maggot fly *Hannes Schuler news.rice.edu*

POTATO LEAFHOPPER: Pressure is reportedly high in some orchards. One- to two-year-old, non-bearing apple trees are most susceptible to leafhopper feeding and should be monitored for leaf curling and yellowing caused by the adults and nymphs. Treatment is justified at levels of one or more nymphs per leaf when symptoms are evident.

CODLING MOTH: Some apple orchards are beyond the summer biofix and treatments targeting second-generation larvae have started. Pheromone trap counts at this time can indicate the effectiveness of first-generation control or highlight deficiencies in the current codling moth man-

agement program. If using organophosphates (Imidan) for control of the summer generation, growers should replace trap liners before an application to monitor the efficacy of the material. Moth counts that do not decline to zero or near-zero following treatment suggest resistance issues have developed and the use of organophosphate material should be discontinued.

OBLIQUEBANDED LEAFROLLER: Larvae are primarily in the late instars in the southern and western counties. Beyond the first and second instars, this leafroller becomes increasingly difficult to control and much of its feeding damage has already occurred. Emergence of the summer brood of moths is anticipated by August.

Obliquebanded leafroller larva *Krista Hamilton DATCP*

SPOTTED TENTIFORM LEAFMINER: The second flight has peaked in most cooperating orchards and sapfeeder larvae are reappearing. The economic threshold for the third and final generation increases to five mines per leaf.

SPOTTED WING DROSOPHILA: Infestations of small fruits are intensifying, and damage has been reported on some fruit farms and in community gardens. Cultural management practices are particularly important for reducing SWD infestation and population buildup at this time. Netted exclusion of the plant canopy, sanitation and orchard/berry floor management, and cooling fruit to 34-38°F immediately after harvest are advised.

Chemical control of SWD is intensive and involves insecticide applications at the onset of adult activity to prevent adult egg laying, short intervals between sprays, and insecticide rotation. For organic operations, the OMRI-approved insecticides PyGanic and Entrust are available. A list of insecticide options for conventional small fruit growers can be found on the UW-Madison SWD website: http://labs.russell.wisc.edu/swd/management-2/.

SAN JOSE SCALE: First-generation crawlers have settled and the "white cap" scales are evident on fruits. Apple growers who did not tape scaffold branches earlier this season to monitor the crawlers should scout for SJS next week and mark problem areas for more intense scouting when the second generation appears in August.

STINK BUG: Surveys in field crops suggest that activity is escalating and stink bugs are likely to start invading orchards in greater numbers. Growers can begin inspecting fruits in the week ahead for dimples or dark, irregular circular depressions typical of stink bug feeding, and should flag sites with multiple depressions on the same fruit or tree. Damage is often limited to specific areas in the orchard and depending on the distribution of the population, spot treatment may be effective.

Brown marmorated stink bug nymph on raspberry *Ric Bessin UK*

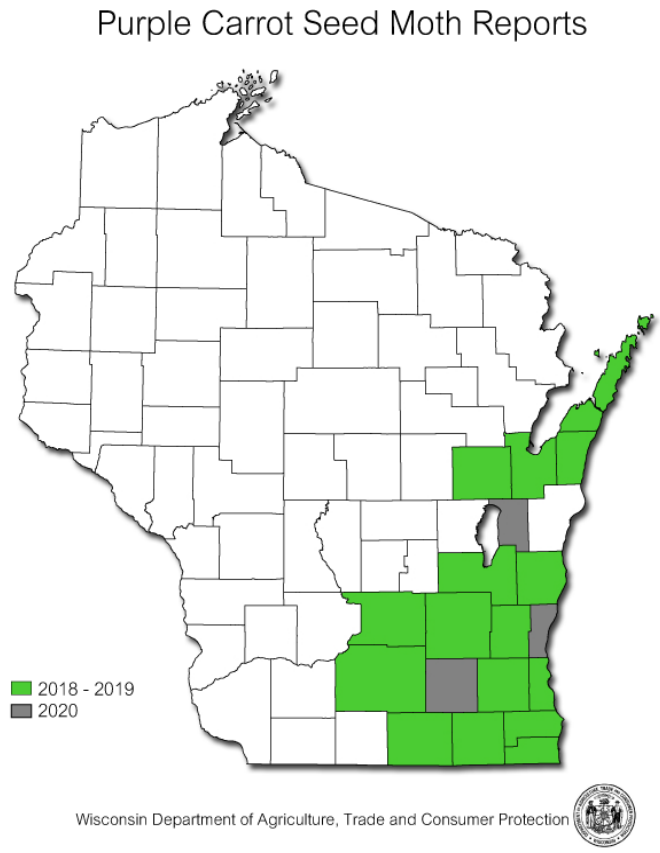
JAPANESE BEETLE: Apple orchards in southern and western Wisconsin are reporting a marked increase in beetle pressure in the last two weeks. Management options for Japanese beetle are limited and should factor in apple maggot (AM) and second-generation codling moth (CM) control.

Generic imidacloprid, Assail (acetamiprid) and neem products will work as an antifeedant and repellent when applied at first sign of beetle presence in a block. Assail (acetamiprid) controls Japanese beetle, apple maggot (AM) and codling moth (CM), but not summer leafrollers. Imidacloprid products (Admire Pro, Montana, and Wrangler) in a tank mix with a spinosad or diamide insecticide

are another option that can be applied for AM, CM and leafrollers, and should also offer Japanese beetle repellency. Organic and IPM growers have the option of using raw neem oil or neem products (azadirachtin). Neemix and Aza-direct are two formulated products (do not apply during the heat of the day). A *Bacillus thuringensis* product called BeetleGone is also available. However, this option is expensive and should be applied as a spot spray rather than a full orchard application.

VEGETABLES

PURPLE CARROT-SEED MOTH: Reports of purple carrot seed moth (PSCM) larvae have increased the last two weeks, according to UW Entomologist PJ Liesch. Confirmed for the first time in Wisconsin in 2018, this non-native European pest of carrots, dill, and related plants was initially found in Kewaunee County, with several additional cases documented in 2019 across the southeastern and east-central regions. New county-level detections in 2020 include Calumet, Jefferson and Ozaukee counties, bringing the total to 19 counties with verified reports. Feeding by the larvae on plants in the carrot family (coriander, dill and fennel) can make the umbels unusable for seed, cooking or for sale.



SQUASH BUG: Economic counts of 1-2 egg clusters per plant were found on squash in Dane and La Crosse County vegetable gardens surveyed this week, along with adults and many nymphs. Handpicking the eggs and all squash bug stages from the undersides of leaves is suggested if only a few plants are infested, or dusting diatomaceous earth over plants may help reduce numbers. Levels that become intolerable can be spot treated with an organic insecticide or a pyrethroid, but insecticides are generally only effective against the small, newly-hatched nymphs, and thorough coverage is critical. The economic threshold for this pest is one egg cluster per plant when vines are flowering.

Squash bug eggs and nymphs *Krista Hamilton DATCP*

COLORADO POTATO BEETLE: Second-generation larvae are appearing on potatoes in the southern and west-central areas. Control of this pest may be warranted if defoliation exceeds 30% during tuber formation. Treatments applied after egg hatch and before the majority of the larval population reaches the destructive fourth-instar stage are most effective. Potato growers who opt to chemically control the larvae should follow CPB resistance management guidelines by avoiding consecutive use of the same insecticide product or of products with similar modes of action.

FOUR-LINED PLANT BUG: Minor damage to the foliage of vegetables, fruits, and ornamentals, has been observed during surveys this month. In most instances, four-lined plant bug feeding only affects the appearance of plants, though moderate to large populations can be destructive, especially to herbs. The aesthetic injury should be tolerated or ignored when possible. Contact residual insecticides are effective against plant bugs, but these broad-spectrum products also kill non-target insects and natural

enemies and the preharvest interval may not be acceptable for herbs or other edible plants.

STRIPED CUCUMBER BEETLE: Growers are advised to continue monitoring cucurbit plants for beetles and signs of bacterial wilt. Symptoms vary by host species, but typically the leaves turn dull green, followed by progressive wilting of the lateral leaves. As the pathogen moves through the main stem, it plugs the vascular tissue, eventually causes wilting and death of entire plants. A diagnostic technique referred to as the "string test" can be useful in confirming the disease. The test involves cutting a wilting stem, pushing the two cut ends together, and then slowly pulling the ends apart. If bacterial wilt is present, a string of bacterial ooze should appear between the cut ends.

Striped cucumber beetle *Krista Hamilton DATCP*

NURSERY & FOREST

FLETCHER SCALE: Mobile crawlers, the life stage most susceptible to insecticidal control, are expected to begin emerging next week in southern and central Wisconsin. Infestations ranging from light to severe were recently noted on arborvitae at garden centers in Waukesha and Waushara counties. This scale pest of arborvitae, juniper and yew can cause yellowing, premature needle drop and branch dieback. For severe cases, horticultural oils or soaps, insect growth regulators, or conventional insecticides may be used as soon as the crawlers are noticed.

FALL WEBWORM: A localized population was observed on oak trees last week in eastern Oneida County. This native pest feeds in groups within distinctive webs or nests on a wide range of deciduous forest, shade, fruit, and ornamental trees. The larval feeding period extends from mid-summer until fall, and their nests are visible later in the season than those of other web or tent-making caterpillars in Wisconsin (e.g., eastern tent caterpillar). Fall webworm feeding rarely results in severe damage to the host and populations are typically regulated by parasites and predators.

Fall webworm larvae *Timothy Allen DATCP*

In nursery settings, products containing Bt are effective against young caterpillars if the material penetrates the webbing. Manual removal or disruption of the webs is the preferred form of control as pruning of infested branches can cause unnecessary stress.

Fall webworm *Liz Meils DATCP*

SOLITARY OAK LEAFMINER: Characteristic mines created by the larvae of this insect were observed this week on oaks in north-central Wisconsin. A tiny caterpillar feeding between the outer layers of oak leaves is

responsible for the irregular, blotch-like windows or "mines." The adult that eventually emerges is a small silvery moth with bronze spots on the wings. Although heavy infestations may cause browning and premature leaf drop, the injury is largely cosmetic. Leaf disposal or destruction is suggested to reduce populations since the larvae overwinter in fallen leaves. Chemical treatment is not needed.

Solitary oak leafminer *Timothy Allen DATCP*

VIBURNUM CROWN BORER: Nursery inspectors determined that significant dieback on viburnum shrubs in northeastern Wisconsin was caused by viburnum crown borer. The larvae of this clearwing moth attack the base of viburnum shrubs, tunneling in the cambium just under the bark, from below the soil line to about 18 inches above ground. Initial symptoms include sparse foliage, wilting and early fall color. Younger shrubs, recent transplants, and plants under stress are more susceptible to infestation.

Viburnum crown borer *Timothy Allen DATCP*

Maintaining healthy viburnums with proper watering, mulching, and wound prevention reduces the risk of attack. A protective insecticide spray applied to the bark (18 inches above ground) can be considered for severe cases, though treatments must be made while adult moths are active in June. The moth flight period is best determined by using pheromone traps.

MAGNOLIA SCALE: Nymphs are maturing, and their white mealy wax is appearing on the branches of infested magnolias in southeastern Wisconsin. As the wax fades in August, the elliptical, shiny brown adult females will become noticeable. Nursery managers and residents are advised to inspect magnolias now to determine if treatment will be needed in late August or early September, and again 10-14 days later. Proper timing of the application is critical as only the young crawlers are easily controlled. If warranted, horticultural oils, systemic insecticides, or insect growth regulators labeled specifically for soft scales should target the crawler stage. Dormant oil applications will kill scale on trunks and branches if applied early in spring before leaves appear. Soaps can be effective against the immatures, but usually have no effect on the adults.

Magnolia scale *Liz Meils DATCP*

APPLE INSECT & BLACK LIGHT TRAP COUNTS JULY 9 - 15

COUNTY	SITE	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	DWB[5]	LPTB[6]	BMSB[7]	AM RED[8]	YELLOW[9]
Bayfield	Keystone	13	11	0	1	14	17	0	2	4
Bayfield	Orienta	0	0	0	7	37	5	—	—	—
Brown	Oneida	415	21	2	9	5	3	0	0	0
Columbia	Rio	44	176	2	0	0	6	—	0	0
Crawford	Gays Mills	—	16	0 MD	10	—	3	—	—	—
Dane	Mt. Horeb	45	160	0	1	23	0	0	0	0
Dane	McFarland	0	5	15	—	10	25	—	—	—
Dane	Stoughton	66	194	2	0	7	4	0	0	4
Fond du Lac	Campbellsport	—	—	—	—	—	—	—	—	—
Fond du Lac	Malone	72	44	10	2	27	8	1	3**	0
Fond du Lac	Rosendale	27	39	5	2	8	7	0	2	5
Green	Brodhead	28	118	6	0	64	5	—	0	0
Iowa	Mineral Point	175	18	9 MD	0 MD	64	9	0	1**	—
Jackson	Hixton	64	12	1	3	7	4	0	0	1
Kenosha	Burlington	155	93	4	1	68	0	0	0	0
Lafayette	Belmont	5	103	0 MD	0	0	0	0	0	0
Marathon	Edgar	2194	76	7	1	77	19	0	0	12
Marinette	Niagara	90	—	0 MD	2	49	0	0	0	0
Marquette	Montello	486	51	0	0	11	9	0	0	0
Ozaukee	Mequon	20	0	2	0	19	1	0	1	0
Pierce	Beldenville	—	—	—	—	—	—	—	—	—
Pierce	Spring Valley	155	69	0 MD	0	58	15	0	0*	1
Racine	Raymond	235	93	17	0	64	6	—	0	0
Racine	Rochester	204	33	3	0	27	0	1	0*	—
Richland	Hill Point***	450	76	15	3	—	14	0	—	—
Sheboygan	Plymouth	435	0	0 MD	0	0	4	0	0	0**
Walworth	East Troy	51	22	0 MD	14	3	6	0	0	0
Walworth	Elkhorn	70	16	0 MD	17	5	3	0	0	0
Waukesha	New Berlin	80	18	5	0	70	3	—	0	0

[1]Spotted tentiform leafminer; [2]Redbanded leafroller; [3]Codling moth; [4]Obliquebanded leafroller; [5]Dogwood borer; [6]Lesser peachtree borer; [7]Brown marmorated stink bug; [8]Apple maggot red ball; *Unbaited; **Baited; [9]Apple maggot yellow board; ***Counts are from the 4-week period of June 17-July 14.

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	1	0	8	0	0
Columbia	Pardeeville	0	3	0	3	9	11	0	31	0	28
Dodge	Beaver Dam	0	1	0	5	0	0	0	6	0	0
Fond du Lac	Ripon	0	1	0	2	3	1	0	10	0	2
Grant	Prairie du Chien	0	0	0	0	0	1	0	0	0	0
Langlade	Antigo	0	0	1	0	1	3	1	0	0	0
Manitowoc	Manitowoc	0	0	0	0	0	0	0	14	0	0
Marathon	Wausau	0	0	0	1	3	5	0	7	0	0
Monroe	Sparta	0	0	0	0	0	0	0	0	0	4
Rock	Janesville	0	4	0	0	9	0	0	9	0	0
Walworth	East Troy	0	0	0	0	0	1	0	1	0	17
Waushara	Hancock	0	0	0	8	3	3	0	1	0	4
Wood	Marshfield	0	6	0	1	3	13	1	4	0	0

[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.