

Wisconsin Department of Agriculture, Trade & Consumer Protection

# Wisconsin Pest Bulletin

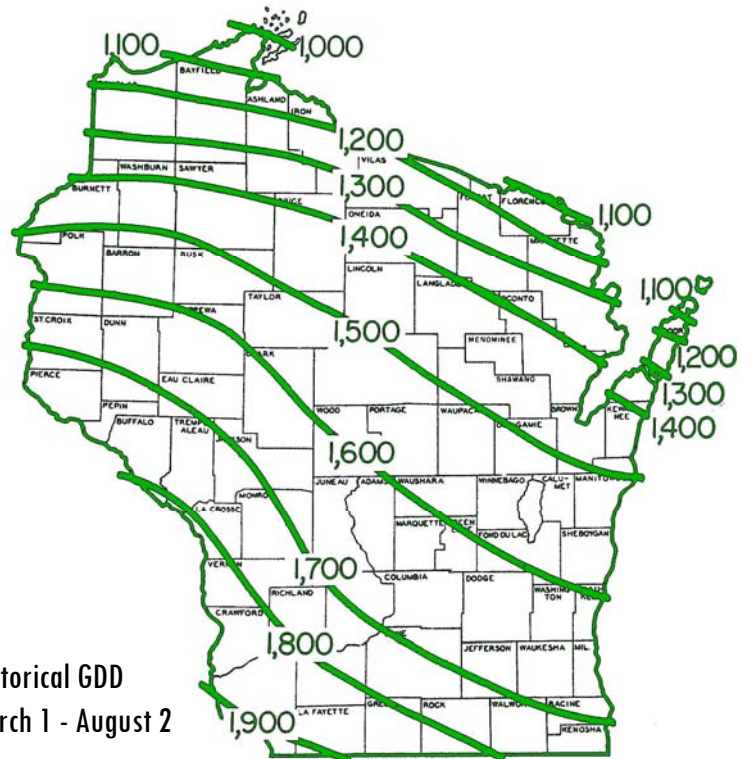
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Your weekly source for crop pest news, first alerts, and growing season conditions for Wisconsin



## Weather and Pests

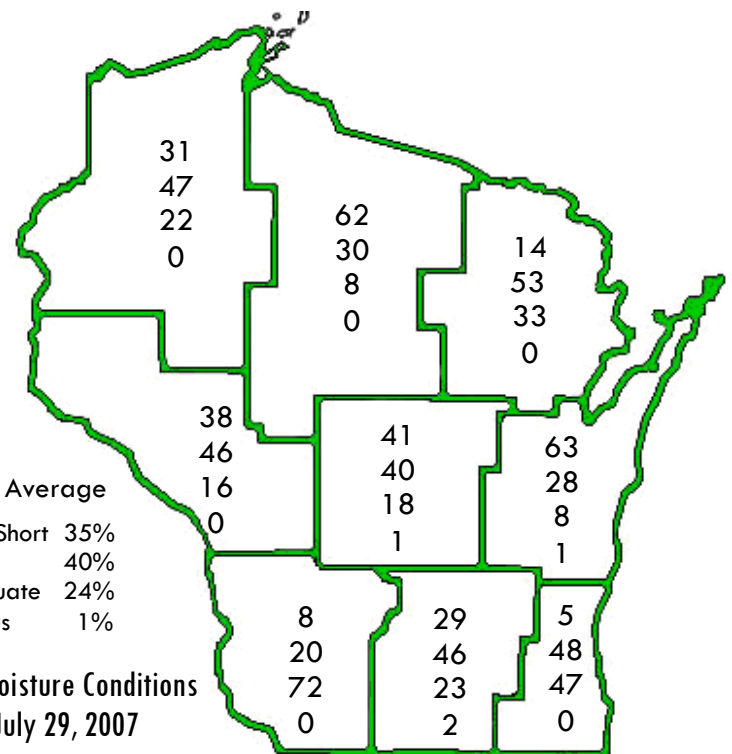
Summer heat and humidity persisted throughout the week, with highs in the 80s to low 90s. The response of crops to 0.05 to 2.42 of inches of rainfall last week was immediate, but soil moisture conditions remain short or very short for 75% of the state. Moderate drought conditions have developed across the west central, central and northern counties, and abnormally dry conditions prevail across the south central, southeast and east central counties. Despite continued dryness, 77% of corn has silked statewide, compared to 71% last year and 52% for the five year average, according to the Wisconsin Field Office of the National Agricultural Statistics Service. Many insects continue to thrive in the heat, and weeds are showing exceptional vigor and drought hardiness.



Historical GDD  
March 1 - August 2

## Growing Degree Days through 08/02/07 were

	GDD 50F	2006	5-Yr	48F	40F
Dubuque, IA	1947	1835	1831	2013	3142
Lone Rock	1880	1777	1767	1887	3050
Beloit	1921	1909	1821	1937	3108
Madison	1843	1734	1741	1862	3004
Sullivan	1765	1763	1716	1763	2900
Juneau	1762	1662	1685	1793	2897
Waukesha	1723	1659	1641	1769	2850
Hartford	1750	1645	1637	1787	2880
Racine	1713	1625	1582	1748	2834
Milwaukee	1710	1636	1571	1744	2833
Appleton	1719	1672	1567	1750	2823
Green Bay	1599	1563	1450	1643	2692
Big Flats	1738	1747	1671	1704	2840
Hancock	1724	1715	1869	1691	2804
Port Edwards	1719	1755	1606	1721	2814
La Crosse	2020	1974	1862	1925	3232
Eau Claire	1854	1925	1736	1893	3005
Cumberland	1697	1694	1518	1682	2779
Bayfield	1347	1356	1181	1340	2312
Wausau	1602	1562	1452	1609	2649
Medford	1554	1579	1424	1571	2597
Crivitz	1541	1504	1378	1567	2583
Crandon	1457	1408	1315	1424	2433



State Average  
Very Short 35%  
Short 40%  
Adequate 24%  
Surplus 1%

Soil Moisture Conditions  
as of July 29, 2007

## Looking Ahead

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**European corn borer** - The summer flight of moths has produced higher numbers at the Arlington, Lancaster, Mazomanie, Sparta, and Chippewa Falls black light trap sites during the last reporting period. Egg laying is underway in sweet corn and snap beans, and only a few days remain for corn fields in the southwest, west central, and south central districts to be assessed for damage by the second generation of European corn borer larvae. The treatment window is expected to close in these areas following the accumulation of 2,100 GDD (base 50°F) in the week ahead.

**Japanese beetle** - DATCP surveys and numerous reports from County Agents, consultants and gardeners indicate that Japanese beetles are a serious nuisance this season in orchards, nurseries and backyards. Residents in Dane County have been particularly inconvenienced by high populations of this insect, judging from the volume of reports received. In Brown County, intensive trapping at 18 sites resulted in a total capture of 55,410 specimens between July 3 and 31. A trap located on the west side of Green Bay registered 29,300 beetles during the month of July (information from Vijai Pandian, Brown County UWEX). Refer to UW-Extension Publication No. A3737- E at <http://learningstore.uwex.edu/pdf/A3737.PDF> for Japanese beetle control recommendations.



Japanese beetle

[thefuntimesguide.com](http://thefuntimesguide.com)

**Soybean aphid** - Soybean aphid densities have continued to increase over the past week and economic infestations are prevalent in the southern districts. A report from Columbia County indicated that densities within fields there are erratic. Some plants are saturated with soybean aphids on new growth and along stems, while other plants have relatively few individuals. Inconsistent infestations such as these can complicate management decisions. To decide if a foliar spray is warranted, examine a minimum of 20 to 30 plants distributed throughout the field, and treat only if 16 to 24 plants (80%) or more have 250 soybean aphids per plant. Treatment decisions should be made by

next week before fields surpass the R4 (full pod) and R5 (beginning seed) growth stages. No yield benefit is gained by treating fields at R6 (full seed) and beyond.

**Two-spotted spider mite** - Extremely dry conditions have caused two-spotted spider mite pressure to intensify in the past week. According to reports from cooperators, many fields in the east central and west central counties have been treated to reduce economic populations and minimize leaf drop. Some soybean fields in the northwest are also experiencing heavy mite populations. Growers statewide should continue to be alert to the possibility of mite outbreaks in soybeans. Treatment is suggested if several leaves have active colonies and damage prior to the R6 to R7 stages.

## Forages

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**Potato leafhopper** - Surveys in the south central, southeast and east central districts indicated that potato leafhopper counts in alfalfa are not uniformly above treatment thresholds. Counts in the south central district varied from 0.1 to 2.4 leafhoppers per sweep with an average of 0.8 per sweep. Two of twelve fields (17%) surveyed in Dane, Green and Rock counties had economic populations of leafhoppers. Averages in 18-22 inch Dane County alfalfa were very low and ranged from 0 to 0.7 per sweep, suggesting these fields had been treated recently.

Counts in the southeast and east central districts ranged from 0.1 to 3.0 per sweep with an average of 1.2 per sweep. Five of 11 fields (45%) surveyed in Dodge, Fond du Lac and Washington counties had economic numbers of potato leafhoppers. The highest counts were noted in Washington County where surveys yielded 2.3 to 3.0 leafhoppers per sweep in 10-12 inch fields and 0.7 per sweep in one 12-14 inch field. Counts of 2 or more leafhoppers per sweep are at or above the treatment threshold.

Despite generally lower sweep net counts, adults have been very numerous at lights and make up a high percentage of the insects caught in some black light traps. Reproduction, as indicated by a strong representation of nymphs in virtually all of the fields sampled, has not slowed noticeably in the past week. Hopperburn is particularly severe in those fields under drought stress.

## Corn

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**Corn rootworm beetle** - Western and northern corn rootworm beetles were very active in the past week and present in field corn in moderate to high numbers. Surveys in Columbia County revealed counts of 1.1 to 24 beetles per plant, with the western species, *Diabrotica virgifera*, predominating. Individuals of the northern species, *Diabrotica barberi*, were most numerous in the tips of corn ears. An exceptional Columbia County field had as many as 11 northern corn rootworm beetles in a single ear tip.

Surveys in the east central district yielded lower counts of 0.7 to 2.7 beetles per plant. An average of 1.0 beetle per plant indicates the potential for larval injury to continuous corn next season. Corn rootworm beetle populations in fields with brown silks are expected to decrease as the adults move to preferred feeding sites with fresh silks. The annual survey of corn rootworm beetle populations commenced in southern and east central Wisconsin on August 1 and should be completed by August 17.



Western corn rootworm beetle

Krista Hamilton DATCP

**European corn borer** - Emergence of the second flight of moths accelerated in the past week, with counts increasing at all but one of the black light trap locations. The highest count registered was 206 moths at Arlington. According to the degree day model for European corn borer, peak emergence of the second flight of moths should have occurred in the southern and west central regions of state where 1,733 GDD (base 50°F) have been surpassed. The treatment window for second generation corn borers remains open until 2,100 GDD are reached.

**Corn leaf aphid** - Colonies of this aphid species have become more evident on corn in the east central and southern areas of the state. High populations of 50 to 110 aphids per plant on 30% of the plants were noted in Sheboygan and Washington counties, and populations of 10 to 85 aphids per plant on 15-20% of the plants were observed in scattered Columbia, Dodge and Sauk County corn fields. The aphids were concentrated on the tassels and ear leaves in the fields surveyed. In most instances, the fields with higher populations are already pollinated and should not be greatly affected.

**Northern corn leaf blight** - A low incidence of this disease was found in corn fields near Prairie du Sac in Sauk County. The tan, cigar-shaped lesions symptomatic of this disease were noted on approximately 42% of the plants in a seed corn field and 25% of the plants in a sweet corn field. This disease does not overwinter in Wisconsin and spores are usually blown in from southern locations to infect corn leaves as the plants approach maturity. The impact of northern corn leaf blight disease is expected to be insignificant this season.

## Soybeans

**Soybean aphid** - Results of an annual survey of 227 soybean fields carried out from July 12 to 31 indicate **high** soybean aphid populations for the west central district and portions of the southwest, south central, and central districts, **moderate** populations for much of the central and north central districts, and **low** populations for the southeast (with the exception of Walworth County), east central, northwest, and northeast districts.

An overwhelming majority of the survey sites (82%) contained non-economic levels of soybean aphids below 250 per plant. A total of 73% of the fields sampled averaged fewer than 100 aphids per plant, 10% averaged 101 to 250 aphids per plant, 9% averaged 251 to 500 aphids per plant, and 8% averaged greater than 501 aphids per plant. The highest average number of aphids per plant recorded was 3,250 in a Columbia County field. Approximately 35% of the soybean fields examined were at full bloom (R2), 51% were at beginning pod (R3), and 14% had reached full pod (R4).

Despite generalized regional trends, scattered fields with economic populations of soybean aphid were detected in most of the nine agricultural districts. For example, the average number of soybean aphids per plant was 56 for the entire southeast district, but two of the five fields examined in Walworth County had economic densities of 293 and 346 aphids per plant. Similarly, the average number of soybean aphids per plant was 109 for the north central district, but Price County fields contained an average of 407 aphids per plant.

The survey revealed a large geographic area north and west of the Wisconsin River, and south of State Highway 29, in which economic densities of soybean aphids developed in most fields. This area included Crawford (899 aphids per plant), Richland (1,071 aphids per plant), Vernon (253 aphids per plant), La Crosse (744 aphids per plant), Monroe (808 aphids per plant), Juneau (295 aphids per plant), Jackson (618 aphids per plant), and Wood (332 aphids per plant) counties. Columbia and Marquette counties also had high county average soybean aphid densities of 810 and 292 aphids per plant, respectively.

The statewide average number of soybean aphids per plant was 164, which compares to 69 per plant in 2006, 108 per plant in 2005, 11 per plant in 2004 and 618 per plant in 2003. The DATCP annual soybean aphid survey is conducted during the R2 to R4 stages of soybean growth to detect peak seasonal soybean aphid densities and to assess fields while treatment may still be beneficial. Many fields statewide continue to be sprayed for this pest. A report from Columbia County indicated several R4 stage fields were treated from July 31 to August 2, and sprayer tracks were noted in some Dane and Sauk County fields surveyed in the past week. Final survey results are summarized by agricultural statistics districts in the table on page 159.

**Soybean rust** - The USDA's public soybean rust website [www.sbrusa.net](http://www.sbrusa.net) reported the first detection of Asian soybean rust in Oklahoma on July 26. The rust was found in a sentinel field and a nearby commercial plot in Bryan County, and a commercial field in Choctaw County. All fields were between the R4 and R5 growth stages. Both counties border Texas and are directly west of Little River County, Arkansas, where a field was confirmed as positive for rust on July 23. The Oklahoma finds represents the most northern occurrence of soybean rust in 2007.

As of August 1, Asian soybean rust has been reported in five counties in Alabama (one soybean), two counties in Arkansas (soybean), 10 counties in Florida (on soybean), five counties in Georgia (all kudzu), six parishes in Louisiana (five soybean), one county in Mississippi (kudzu), two counties in Oklahoma, and 22 counties in Texas (21 soybean). There also has been one account of soybean rust earlier this year in Mexico in the state of Veracruz on yam bean (*Pachyrhizus erosus*). Weather conditions have been favorable for rust development in many parts of the south and to the states just north of the Gulf States. Soybean rust monitoring continues throughout the affected soybean growing areas. – *United States Soybean Rust Commentary updated 08-01-07*

**Japanese beetle** - This insect continues to be common in southern and central soybean fields. Localized, light defoliation was noted in Sheboygan and Washington County fields, while localized, moderate defoliation was observed in some Columbia, Dodge and Sauk County fields. On average, less than 12% of the total plants were mildly defoliated in the fields examined, although occasional leaves were severely skeletonized. Feeding injury in excess of the threshold of 20% defoliation was not detected in any of the east central or south central fields surveyed.



Japanese beetles on soybean

Krista Hamilton DATCP

**Bean leaf beetle** - Nearly all of the soybean fields surveyed in the southern and east central areas had low or moderate levels of feeding injury attributed to this insect. Defoliation was observed on roughly 70% of the plants in an exceptional Sheboygan County field, with severity ranging from 5-10%. Dry conditions in these areas could worsen

pod feeding and clipping by the second generation of adults.

## Weeds

**Velvetleaf** - *Abutilon theophrasti* is a common annual weed species found in cultivated fields and gardens, along fencerows, and in disturbed areas. Due to its size, velvetleaf is one of the more prominent weeds found in row crops at this time of year. Unmanaged plants may tower above some of the tallest corn plants, attaining heights of over seven feet. Velvetleaf flowers are yellow or orangish-yellow and the leaves are alternate and simple. The broad, heart shaped leaves (up to 5 inches wide) shade the plants below and deprive them of sunlight. Velvetleaf seeds are extremely hardy, surviving fifty years or more in the soil. Velvetleaf plants in Wisconsin fields have not yet fully matured, but seed pods are quickly developing. The rounded, semi heart-shaped seeds inside the pods are a favorite of mourning doves and quail.



Velvetleaf, *Abutilon theophrasti*

Clarissa Hammond DATCP

**Roadside weeds** - Wild carrot and dried wild parsnip plants are among the most prevalent weed species along roadsides in most southern areas of the state. Although wild parsnip plants have dried quickly in the recent hot, dry weather, some plants still may contain toxic sap. Care should be taken when working in areas where dried wild parsnip is present. For an informative article on wild parsnip by Dr. Jerry Doll, emeritus professor with the UW-Madison Weed Science Department, visit [http://128.104.239.6/uw\\_weeds/extension/articles/wildparsnip.htm](http://128.104.239.6/uw_weeds/extension/articles/wildparsnip.htm).

## Fruit

**Codling moth** - High numbers of codling moths continue to be registered in orchards statewide. Apple growers are advised to apply alternate chemistries to those used to control the first generation moths to prevent further resistance to organophosphates. The economic threshold remains at 5 moths per trap per week for the second generation of codling moths. Counts this week ranged as

high as 61 moths per trap, with 19 of 22 (86%) orchards reporting above-threshold captures. If high temperatures persist through early August, a partial third generation of codling moths could develop in portions of southern Wisconsin. The peak of the second flight is rapidly approaching in the northern counties where accumulations of 1,577 GDD (base 50°F) are expected in the week ahead.

## Nursery, Forest and Landscape

**Fall webworm** - Webs constructed by fall webworm larvae were noticed in Jefferson County on mountain ash, weigela, and swamp white oak. Fall webworm is a native species that feeds on a wide assortment of deciduous forest, shade, fruit, and ornamental trees. Preferred hosts include butternut (*Juglans*), hickory (*Carya*), birch (*Betula*), cherry (*Prunus*), and crabapple (*Malus*). The recognizable webs begin to appear at this time of year, comparatively later than nests made by other web- or tent-making species in Wisconsin, and become fully expanded by August or September. Fall webworm is an example of an endemic American pest insect that has been exported to Europe and Asia.



Fall webworm nest

[www.fairfaxcounty.gov](http://www.fairfaxcounty.gov)

Fall webworm larvae pupate and emerge as moths in early spring. The moths are white and sometimes have dark brown or black spots on the wings. Two races of the fall webworm have been described: a blackheaded race and a redheaded race. The former differs from the latter in that it usually appears earlier in spring and deposits a single layer of eggs on the undersides of leaves. The redheaded emerges later and deposits a double layer of eggs. The egg masses are covered with hairs from the female's abdomen and may contain 200 to 500 eggs.

Upon hatching, fall webworm larvae immediately begin to construct a web. Within the web, the larvae live gregariously and feed on foliage of the host tree, enlarging the structure as more foliage is consumed. Blackheaded fall webworm larvae are yellowish-green to pale yellow with two rows of black dorsal tubercles. Redheaded fall

webworm larvae are yellowish tan with two rows of orange or red dorsal tubercles. Both races are covered with long, fine setae (hairs).



Late instar black-headed fall webworm larva

Eric Vorodi

This late-season pest rarely causes significant damage because affected trees have enough time to build food and energy reserves for the winter months. Instead, fall webworm is primarily a cosmetic problem that can be controlled by cutting out and destroying the web and the surrounding branches. Insecticides may be applied to small webs and *Bacillus thuringiensis* (Bt) products are also effective against the larvae. Fall webworm populations are naturally regulated by more than 50 different species of parasites and 36 species of predators.

### Other nursery inspection finds this week include:

**Southwest region:** Aphids on river birch, cedar quince and apple rust on hawthorn, shothole disease on Newport plum, leafhopper burn on amur maple, chlorosis and fall webworm on swamp white oak, septoria and shoot tip borer on viburnum and sawfly and plantbug white ash in Dane County.

**Southeast region:** Powdery mildew and black spot on roses, apple scab on crabapple, eriophyid mites and leafminer on burr oak, leaf streak on daylily, chlorosis, tarspot and leafhopper on maple, plant bug on ash, hawthorn rust on hawthorn, leafminer on birch and filbert, galls on little leaf linden, septoria on serviceberry, Hosta Virus X (HVX) on 'Sum and Substance' hosta, phyllosticta on hydrangea and guignardia on horsechestnut in Kenosha County.

Island chlorosis, nipple gall, and leafminers on hackberry, elm leaf weevil on elm, shothole disease on cherry, septoria, rust and powdery mildew on serviceberry, powdery mildew on purple leaf sand cherry, venturia tip blight on aspen, leafminer on birch, leafhopper burn on silver, Norway and amur maple, plant bug on ash, guignardia on horsechestnut, Fletcher's scale and root rot on arborvitae, shoot tip borer on white pine, pseudomonas on lilac, plant bug on locust, aphids on hydrangea,

anthracnose on green ash, leaf roller and leaf bug on viburnum, ash rust on ash, fall webworm on mountain ash, weigela, and swamp white oak, Zimmerman pine moth and pine gall rust on scotch pine, spruce needle drop on Colorado blue spruce, apple scab on crabapple, septoria and golden twig canker on dogwood, Japanese beetle feeding on linden and hackberry and phomopsis blight on juniper in Jefferson County.

**East central region:** Aphids on astilbe, goldmound spirea and shiribana spirea, virus symptoms on 'Immaculee' peony, shothole disease on prunus, root rot on Engelmann spruce, spruce needle drop and needleminer on blue spruce, powdery mildew and phyllosticta on serviceberry, black spot on assorted roses and septoria on spirea in Door County.

**Northwest region:** Thrips on 'Carlotta' daylily and spider mites on 'Aunt Dee' wisteria in Chippewa County.

Spider mites on 'Mystic Fairy' easy elegance rose, thrips on 'Purple Story' daylily, leafhopper burn on assorted apples and crabapples, cedar apple rust on brandywine crabapple, virus on 'President Grevy' lilac, black spot on 'Winnipeg Parks' rose, bristly rose slug on assorted roses, shothole disease on purpleleaf sandcherry and spruce sawfly on blue spruce in Clark County.

Leafhopper burn on red maple, plant bug and leafcurl aphids on green ash, apple scab on crabapple, golden canker on pagoda dogwood, anthracnose on swamp white oak, leaf miner on whitespire and royal frost birch, linden borer on little leaf linden, mites on honey locust, cedar quince and cedar hawthorn rust on thornless hawthorn, trunk cankers on autumn blaze maple, bronze birch borer on royal frost birch, oak leaf galls on swamp white oak, cedar quince and apple rust on serviceberry, apple borers on 'Prairie Fire' crabapple, and viburnum shoot tip borer on nannyberry viburnum in St. Croix County.

## Black Light Trap Counts through August 2

**European corn borer** - Increased captures at 9 of the 10 black light trap locations may reflect peak emergence of the second flight of European corn borer moths. The degree day model for European corn borer predicts peak flight activity, or 50% emergence of the summer generation of moths, around 1,733 GDD (base 50°F). This point was surpassed in the southwest, south central and west central districts by July 26, and in the southeast and central districts as of August 1. High black light trap counts for the week were 206 moths at Arlington, 88 moths at Chippewa Falls, 83 moths at Sparta, and 41 moths at Lancaster.

**Western bean cutworm** - Counts in black light traps decreased more noticeably compared to the previous week (July 19 to 26). High counts for the week were 15 moths at Lancaster, 14 moths at Mazomanie, and 12 moths at Sparta. The high pheromone trap catch was 93 moths at Princeton in Green Lake County. Lower black

light trap and pheromone trap counts indicate that the peak emergence period has passed in most areas of the state.

**Forage looper** - Six of the nine black light trap sites reported counts ranging from 12 to 61 moths for the period of July 27 to August 3, with the highest count documented at Manitowoc. The forage looper counts registered this season are markedly higher than those reported in recent years.

**Dingy cutworm** - Some central Wisconsin black light traps registered increased numbers of dingy cutworm moth in the past week. High captures for the last reporting period were: Wausau (59), Marshfield (54), and Manitowoc (31). At this time last year, counts exceeding 200 and 350 moths were reported in Wausau and Marshfield, respectively.

	ECB <sup>1</sup>	TA <sup>2</sup>	BCW <sup>3</sup>	SCW <sup>4</sup>	DCW <sup>5</sup>	WBCW <sup>6</sup>
<b>Southwest</b>						
Lancaster	41	6	0	0	0	15
Reedsburg	4	—	—	—	—	—
<b>South central</b>						
Mazomanie	63	0	0	0	7	14
Arlington	206	0	9	0	0	12
<b>Southeast</b>						
Janesville	17	0	1	0	0	0
<b>West central</b>						
Sparta	83	0	1	0	0	12
Chippewa Falls	88	0	0	0	8	0
<b>Central</b>						
Wausau	5	5	3	4	59	2
Marshfield	29	2	0	0	54	8
<b>East Central</b>						
Manitowoc	2	4	2	0	31	0

<sup>1</sup>European Corn Borer; <sup>2</sup>True Armyworm; <sup>3</sup>Black Cutworm; <sup>4</sup>Spotted Cutworm; <sup>5</sup>Dingy Cutworm; <sup>6</sup>Western Bean Cutworm; <sup>7</sup>Corn Earworm.

	CabL <sup>8</sup>	CeIL <sup>9</sup>	AlfL <sup>10</sup>	ForL <sup>11</sup>	FA <sup>12</sup>	VCW <sup>13</sup>
<b>Southwest</b>						
Lancaster	0	23	0	28	0	0
<b>South central</b>						
Mazomanie	0	0	0	12	0	0
Arlington	0	7	0	5	0	2
<b>Southeast</b>						
Janesville	0	16	0	36	0	0
<b>West central</b>						
Sparta	0	2	0	0	0	0
Chippewa Falls	2	1	0	0	0	0
<b>Central</b>						
Wausau	0	3	0	19	0	0
Marshfield	0	5	0	15	0	5
<b>East Central</b>						
Manitowoc	0	3	1	61	4	4

<sup>8</sup>Cabbage Looper; <sup>9</sup>Celery Looper; <sup>10</sup>Alfalfa Looper; <sup>11</sup>Forage Looper;

<sup>12</sup>Fall Armyworm; <sup>13</sup>Variegated Cutworm.

**Corn earworm** - Weather systems across the Midwest last week did not direct high numbers of corn earworm moths into the state, as indicated by low pheromone trap counts. However, increased captures were registered at Lancaster and Reedsburg. Averages per day for the week were as follows: Lancaster (1.75), Reedsburg (1.67), Mazomanie (0), Arlington (0), Janesville (0), Coles Valley (0.57), Chippewa Falls (0.86), Coon Valley (1.0), Marshfield (2) and Manitowoc (0). The Insect Migration Risk Forecast (IMRF) has predicted a MODERATE risk of insect migration into Wisconsin, Minnesota, Michigan and southwest Ontario for the next 3 to 5 days (through August 7). The potential exists for a sizeable flight of corn earworm moths to arrive during this period. To view the complete forecast, visit <http://agweather.niu.edu/IMRFForecast.html>.



Corn earworm moth

[www.ksda.gov](http://www.ksda.gov)

## Exotic Pest of the Week

**Khapra beetle** - The Khapra beetle, *Trogoderma granarium*, is an exotic insect species considered to be one of the most destructive pests of grain, cereal products and seeds in the world. It has long been a pest of federal quarantine significance. The khapra beetle is thought to be endemic to India, but has since spread to other areas including northern and eastern Africa, southern Europe, the Mediterranean region, the Middle East, and parts of Asia.

Although the khapra beetle has not become established in the United States, it has been detected in various states in the past. It was first discovered in California in 1953. However, it was later determined to have been introduced as early as 1946 in a warehouse in Fresno, California, and possibly to have been in the San Joaquin Valley since 1939. Before its discovery in 1953, it had spread to parts of Arizona, New Mexico, Texas, California, and Mexico. After eradication efforts in these areas, the khapra beetle was found in a New Jersey warehouse in 1968 and again in isolated infestations from 1980 to 1983 in California, Maryland, Michigan, New Jersey, New York,

Pennsylvania and Texas. All known infestations in the U.S. have been eradicated.

The khapra beetle thrives in warm, dry climates. The USDA-APHIS estimates that 67% of the continental United States would be suitable for *T. granarium*. Populations build rapidly in a short time under hot, dry conditions, but can survive in colder climates in heated buildings such as warehouses, food plants and grain storage facilities. The beetle cannot fly, and is therefore spread mainly by commerce and trade. The problem of preventing this beetle from spreading is compounded by its ability to survive for several years with little food, and its habit of hiding in cracks, crevices and even behind paint scales or rust flakes. If left uncontrolled, the insect can make the surface of grain storage areas appear alive with crawling larvae.

The classic sign of khapra beetle infestation is the presence of cast skins and larvae. The larvae are yellowish to golden brown (see pictures below). They are clothed with fine setae (hairs), and there are tufts of barbed setae on each side of the terminal abdominal segments. Adults are oval shaped, brown to blackish, and with indistinct lighter brown patterns on the elytra



Khapra beetle, *Trogoderma granarium*

[creatures.ifas.ufl.edu](http://creatures.ifas.ufl.edu)



Khapra beetle larvae

CDFA insect trapping guide

## Apple Insect Trap Counts from July 27 to August 03, 2007

County	Site	Date	STLM <sup>1</sup>	RBLR <sup>2</sup>	CM <sup>3</sup>	OBLR <sup>4</sup>	AM red <sup>5</sup>	AM yellow <sup>6</sup>
Bayfield	Gellerman	07/23-07/30	17	0	0	1	0.3	0
Bayfield	Lobermeier	07/27-08/02	12	119	0	0	0	0
Bayfield	Bayfield Apple	07/27-08/02	106	3	11	2	2	0
Bayfield	Bayfield Apple	07/27-08/02	218	1	9	1	0	0
Brown	Oneida	07/27-08/02	485	67	10	6	0	0
Dane	Deerfield	07/27-08/02	717	6	18	6	2	0
Dane	Stoughton	07/27-08/02	969	97	8.5	7	0	2
Dane	West Madison	07/27-08/02	396	30	2	11	0	0
Dodge	Brownsville	07/27-08/02	180	14	3.5	0	0	0
Fond du Lac	Campbellsport 1	07/27-08/02	150	70	9	73	0	0
Fond du Lac	Campbellsport 2	07/27-08/02	200	28	14	0	0	0
Fond du Lac	Malone	07/27-08/02	73	9	6	6.5	0	0
Green	Brodhead	07/27-08/02	16	0	6	0	0	0
Iowa	Dodgeville	07/27-08/02	455	45	61	8	2	14
Iowa	Mineral Point	07/27-08/02	306	50	12	2	0	1.3
Kenosha	Burlington	07/27-08/02	650	57	18	3	1	1
Marquette	Montello	07/22-07/29	24	0	7	0	0	0
Marinette	Wausaukee	07/27-08/02	231	14	17	0	0	0
Pierce	Spring Valley	07/27-08/02	154	2	6	0	*2 **11	0
Racine	Rochester	07/27-08/02	40	0	6.75	0	1.08	0
Racine	Raymond	07/27-08/02	600	14	14	0	0	0
Richland	Hill Point	07/19-08/01	640	17	23	8	5	0
Sheboygan	Plymouth	07/27-08/02	1125	55	4	16	**9	0
Waukesha	New Berlin	07/27-08/02	500	7	10	9	0	0

<sup>1</sup> Spotted tentiform leafminer; <sup>2</sup> Redbanded leafroller; <sup>3</sup> Codling moth; <sup>4</sup> Obliquebanded leafroller; <sup>5</sup> Apple maggot red ball trap; <sup>6</sup> Apple maggot yellow sticky trap; \*unbaited red ball trap; \*\*baited red ball trap.

## Annual Soybean Aphid Survey Results 2003 to 2007 (R2 to R4 growth stages)

District	Ave no. aphids per plant 2007 <sup>1</sup>	No. fields surveyed 2007	Ave no. aphids per plant 2006 <sup>1</sup>	Ave no. aphids per plant 2005 <sup>1</sup>	Ave no. aphids per plant 2004 <sup>1</sup>	Ave no. aphids per plant 2003 <sup>1</sup>
Southwest	302	35	55	43	2	149
South central	188	45	30	75	12	1006
Southeast	54	23	30	89	6	1268
West central	354	29	100	198	9	633
Central	170	26	44	207	37	680
East central	10	30	159	124	5	994
Northwest	13	14	56	305	2	566
North central	109	14	22	113	7	93
Northeast	13	11	58	42	20	170
Total/State Ave.	164	227	69	108	11	618

<sup>1</sup> Average based on number of soybean aphids per plant on 20 plants examined per field.





**EXOTIC PEST OF THE WEEK**

**Khapra beetle, *Trogoderma granarium***

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