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Wisconsin Department of Agriculture, Trade & Consumer Protection

Wisconsin Pest Bulletin

PO Box 8911 • Madison, WI 53718 • Phone 1-800-462-2803 • Fax: 608-224-4656

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

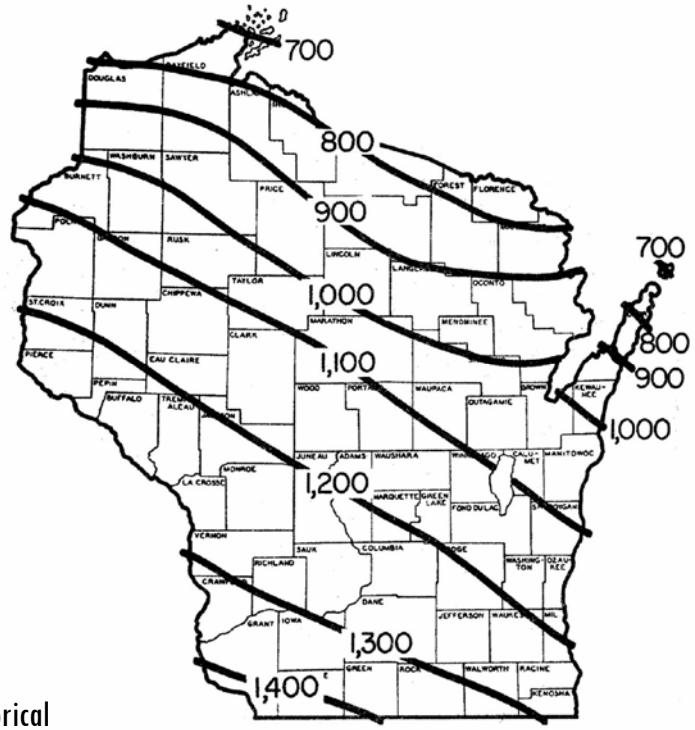
Weather and Pests

Since the last Bulletin, scattered showers helped alleviate acute moisture shortages at some localities, but persistent dry conditions in many areas are now more serious a threat to crop production than insect damage. Fields on heavier soils that were fortunate enough to receive some amount of rain were revived until more precipitation arrives, while some on lighter soils may not pull through the current short-term heat wave.

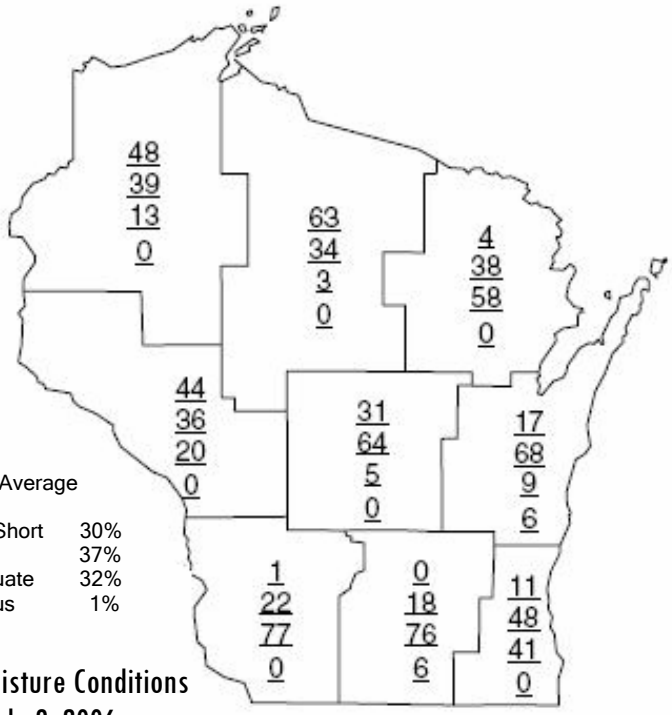
A number of emerging pest problems were accelerated by the considerable temperature increase and recent dry conditions. Forage insect activity, in particular, has escalated to reach the highest peak thus far this season. Economic numbers of potato leafhopper, plant bugs and aphid species are present in many drought-stressed central Wisconsin fields.

Growing Degree Days through 7/13/06 were

	GDD 50F	5-yr Ave	Sine 48F	40F
Dubuque, IA	1326	1362	1334	2229
Lone Rock	1266	1298	1280	2141
Beloit	1380	1351	1389	2309
Madison	1229	1273	1230	2111
Sullivan	1261	1277	1266	2171
Juneau	1175	1237	1188	2066
Waukesha	1163	1205	1168	2056
Hartford	1155	1187	1162	2048
Racine	1115	1135	1145	2005
Milwaukee	1129	1120	1143	2018
Appleton	1180	1112	1166	2067
Green Bay	1081	1009	1117	1949
Big Flats	1249	1221	1204	2125
Hancock	1223	1195	1178	2094
Port Edwards	1261	1156	1222	2144
La Crosse	1435	1358	1396	2380
Eau Claire	1397	1255	1372	2329
Cumberland	1213	1073	1216	2071
Bayfield	915	786	930	1680
Wausau	1111	1036	1081	1928
Medford	1123	1007	1124	1948
Crivitz	1046	952	1055	1885
Crandon	997	926	960	1758



Historical
GDD March 1-July 12



State Average

Very Short	30%
Short	37%
Adequate	32%
Surplus	1%

Soil Moisture Conditions
as of July 9, 2006

Dry conditions in alfalfa, reflected by reduced crop growth, became more widespread and severe in many areas in the past week.

Alert

Late blight - Late blight has been detected in a field in Southwest Michigan near the town of Three Rivers. It was found on a variety that is particularly susceptible to the disease. However, it is highly unlikely that the disease was initiated through seed-borne infection as it appeared seven days after heavy rains and thunderstorms passed through the area. The outbreak has been contained, as the infected area has been dessicated with Diquat and the surrounding fields have been sprayed with Gavel, Curzate, Supertin and Bravo.

This year has seen heavy rains in some areas of the state and this outbreak illustrates the need to be vigilant and the importance of scouting fields at least once a week. Particular attention should be paid to pivot tracks and other such lanes created by farm machinery. For further information on measures that should be taken when late blight is observed refer to the Late Blight extension bulletin. This bulletin is also available as a high quality downloadable .pdf file.

Looking Ahead

Potato leafhopper – Populations have built-up enough in the past week to caused measurable "hopperburn" in some southern and central counties. Surveys of alfalfa in the central districts found populations either just above or just below action thesholds. Averages ranging from 0.9-3.1 of per sweep were obtained in Marquette, Adams and Juneau Cos., and two 12" fields in Waushara Co. averaged 2.7 per sweep. Sampling in one severely infested Juneau Co. field yielded 27 adults and nymphs per sweep. Heavy leafhopper populations combined with soil moisture shortages means sensitive regrowth is at increased risk for injury. Scout fields one or twice in the week ahead to determine if control measures are needed.

Corn rootworm – A marked increase in corn rootworm beetle activity was observed in corn silks and tassels in Adams and Juneau Cos. Look for adult emergence to peak in southern and central Wisconsin fields around the first or second week of August. In the meantime, continue to scout for silk clipping, lodging, and evidence of larval injury to corn roots.

European corn borer - Pupation is in progress at localities where 1,272 GDD have accumulated since March 1. Expect the second flight of moths to begin near La Crosse and Eau Claire over the weekend, and near Beloit in a matter of days.

Apple maggot - Apple maggot emergence continued at a few trapping sites this week. A Dane Co. cooperator reported above-threshold catches of four apple maggot flies on a red ball and six flies on a yellow sticky board following rain showers earlier in the week. Counts were not registered at most other trapping sites due to dry soil conditions. The action threshold for unbaited red ball traps and yellow boards is one fly per trap per week.

Soybean aphid – No economic populations of soybeans aphids were detected in southern and central fields in the past week, though densities are on the rise. Aphid counts in the fields checked ranged as high as 156 per plant, still far below the action threshold of 250 aphids per plant. Expect densities to peak in the next two to three weeks as plants reach the R2-R4 growth stages. Under normal summer conditions these stages of growth are projected to last 19 days. Check fields weekly or bi-weekly to monitor population growth.

Soybean aphids Krista Hamilton DATCP

Armyworm – Limited observations of corn and small grain revealed no armyworm infestations in small grains. In corn there was evidence of older armyworm feeding, principally in low, weedy fields. Continued inspection of late small grain and corn fields is advised.

Western bean cutworm – The low pheromone and black light trap counts ranging from 0-17 moths this week reflect the beginning of a flight that is expected to continue through mid-August. Follow weekly trap catches as moth activity intensifies on the **Western Bean Cutworm Monitoring Network** Web site.
http://www.ent.iastate.edu/trap/westernbeancutworm/

Insect Migration into Midwest Forecast

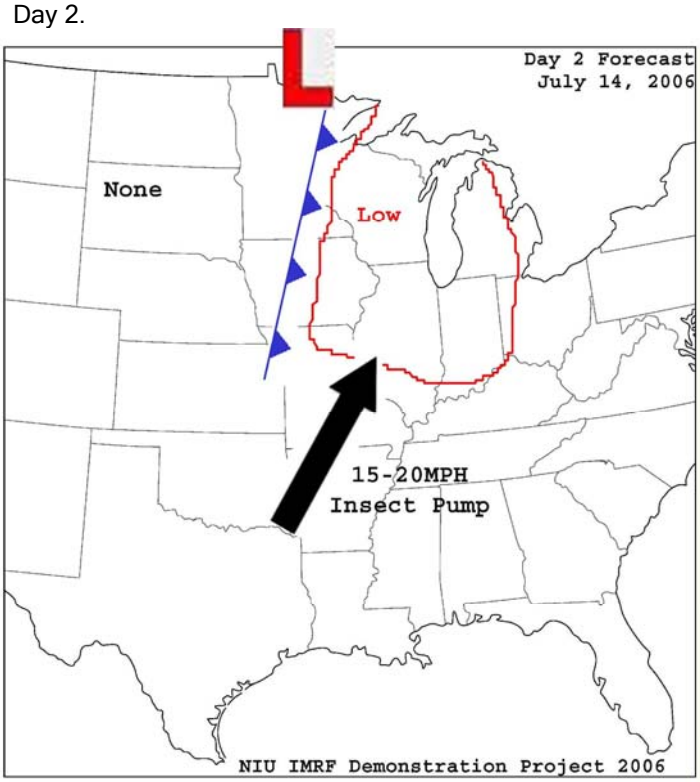
The following insect migration forecast was developed and provided by Mike Sandstrom and Dave Changnon, Department of Geography, Northern Illinois University DeKalb, IL 60115

SHORT-TERM DAY 2 (FRIDAY, JULY 14 NOON TO SATURDAY, JULY 15 NOON):

Relative Risk of Insect migration into the Midwest: LOW (5-10%) – greatest risk area is mainly along and east of I-35 and west of I-75 north of the Ohio River, covering Wisconsin, far eastern Minnesota, eastern Iowa, eastern Missouri, Illinois, Indiana, and Michigan.

The frontal boundary currently located over the southern Midwest is expected to slowly sink to the south and become more diffuse in response to the system over the western

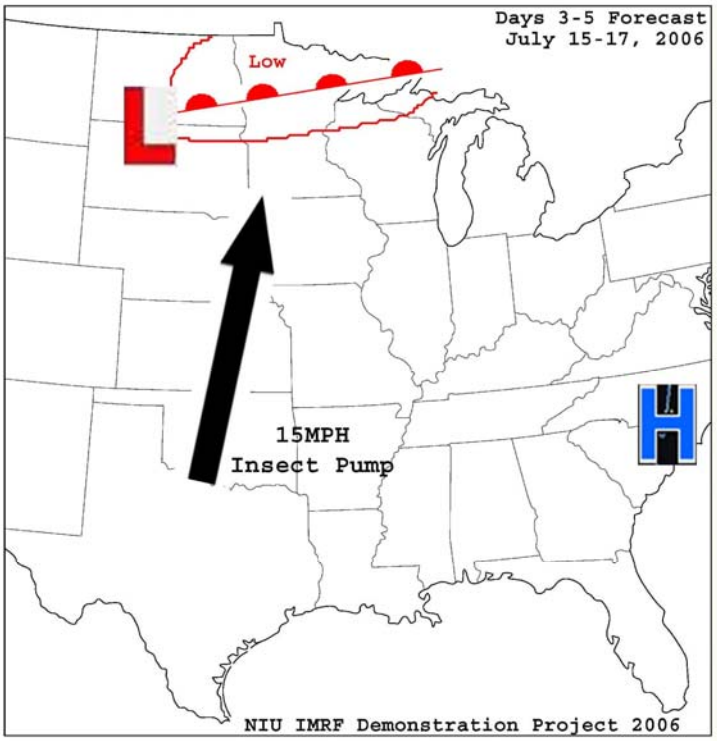
Midwest moving to the east. Showers and thunderstorms (potential insect drop zones) are possible in the Mississippi River valley eastward into Michigan and Indiana as the system continues to move to the east. Forecasting the coverage and location of this precipitation is somewhat difficult given the multitude of systems currently located in the Midwest and difficulty in assessing their strength/movement, but the best chance as it appears now looks to be over Wisconsin into northern Illinois and Indiana, but additional activity is also possible further south. Tomorrow's forecast will have a better handle on the greatest risk area as the system moves into the Mississippi River valley. Elsewhere, little to no precipitation is expected across the western Midwest so no insect migration risk is forecast in this area for Day 2.



LONG-TERM DAYS 3-5 (SATURDAY JULY 15 NOON TO MONDAY JULY 17 NOON):

Relative Risk of Insect migration into the Midwest: LOW (5-15%) – greatest risk area is along and north of I-94 and west of US 51/I-39 in the Dakotas, northern Minnesota, and northwestern Wisconsin.

The long-term forecast will continue to advertise very warm/hot and also potentially very humid conditions across much of the Midwest through this entire forecasting period, as a low pressure system develops over the Dakotas and high pressure moves off to the southeastern United States. In between the high and the low, south to southeast winds will be found. A frontal boundary is expected to develop to the east of the low through the Dakotas into northern Minnesota and potentially far northwestern Wisconsin by the end of the forecasting period, and along and especially north of this front, showers/storms will be possible for especially Days 4 and 5 so a Low risk of insect migration is forecast in these areas. Further south, little to no precipitation is expected so no insect migration risk is forecast.



Forage

Potato leafhopper – Economic numbers of potato leafhoppers are present in many central Wisconsin fields. Sampling in a 6" Fond du Lac Co. field yielded 0.6 leafhoppers per sweep, while 8", 12" and 14" Marquette Co. fields had populations of 0.9, 1.2 and 3.1 leafhoppers per sweep, respectively. One southeastern Juneau Co. field that showed classic potato leafhopper yellowing was found in to have approximately 27 adults and nymphs per sweep (27x the action threshold!). Hopperburn was extremely severe, estimated at 95%, and nymphs were so numerous it was difficult to obtain an accurate count.

The combination of serious moisture shortages and increasing populations of potato leafhoppers during the past two weeks means that sensitive regrowth is at increased risk for damage. In addition, with populations as high as they are at the present time, be aware that carryover of high numbers of leafhoppers following harvest is a distinct possibility. Problems may also arise when dense populations are forced into nearby susceptible hosts as hay fields are cut. The economic threshold for potato leafhopper on 3" alfalfa is 0.2 per sweep, 0.50 per sweep on 6" alfalfa, 1.0 per sweep on 8-11" alfalfa, and 2.0 per sweep on alfalfa taller than 12".

Cowpea aphid (*Aphis craccivora*) – This relatively new species to Wisconsin was detected for the first time this season in a Marquette Co. alfalfa field at the rate of 2.1 per sweep. The shiny black aphids are distinctive and easy to differentiate from other aphids found in alfalfa. No other black aphids colonize Wisconsin alfalfa fields.

The detection of high densities of cowpea aphids on alfalfa is a recent occurrence, first observed in California. Although typically cowpea aphids have fed primarily on cowpeas,

during winter of 1999 scientists discovered that cowpea aphid began appearing at damaging levels on alfalfa in both the high and low deserts of California. Reports of hundreds of aphids per alfalfa stem began to circulate and some alfalfa fields were so heavily infested that plants were severely stunted or even killed.

Cowpea aphid first appeared in the Midwest in 2002 and since that time it has maintained a sporadic, low-level presence in Wisconsin alfalfa fields. The last time the Wisconsin Pest Bulletin reported detections was in 2003. Cowpea aphids were not found by DATCP specialist or reported by Ag agents in 2004 or 2005.

Cowpea aphids Krista Hamilton DATCP

No guidelines or economic threshold levels have been established for cowpea aphid in alfalfa. For the present consider taking control measures if alfalfa is not growing properly and cowpea aphids are present.

Corn

European corn borer – Pupation is in progress throughout the south and in parts of central Wisconsin where 1,272 GDD (base 50F) have been reached. In the central district, 3rd-5th instar larvae of the first generation are present in corn stalks, midribs, and pre-emerged tassels. The treatment period has closed statewide. The first moths of the second flight are likely to begin emerging in the west central district today, July 14. Southern Wisconsin black light traps can expect to register moths catches by early next week, although peak activity is not likely for two or three more weeks (1,733 GDD base 50F). In the north central district, flight is not expected to get underway until August 1.

Examinations of field corn in Adams, Green Lake, Juneau, Marquette and Waushara Cos. show that European corn borer infestations are variable, but moderate to high in many instances. The heaviest populations noted during the week ranged from 49-77% in V9-V10 Marquette Co. fields. Most of the borers were in the 3rd and 4th instars. Survey specialists also noted corn leaves had broken off along the midrib at the point where a larva tunneled into the leaf and had fallen to the ground. Leaf drop attributed to corn borer tunneling was observed in several fields on light, sandy soils in Marquette and Waushara Cos. where plants were extremely stressed due to moisture deficiency.

European corn borer injury to corn midrib Krista Hamilton DATCP

Corn rootworm - As adult corn rootworm beetles emerge in increasing numbers, growers are urged to begin scouting fields for silk clipping, lodging, and other symptoms consistent with larval feeding on corn roots. Indicators of larval injury are likely to become apparent in heavily infested fields in the near future. Scouting for clipped silks should begin when 70% of the plants in a field are in the process of silking. Use an action threshold of five beetles per plant when silk clipping is observed during pollination to decide if treatment is justified.

Adult Northern corn rootworms feeding on corn silks Marlin E. Rice

Corn earworm – Continue to monitor susceptible fields for corn earworm eggs and newly hatched larvae in the week ahead. Pheromone trap counts registered low, but consistent moth captures again this week. Moth counts for the period of July 7-13 were: Chippewa Falls 12, Janesville 0, Lancaster 20, Marshfield 19, Manitowoc 1, Mazomanie 2, Reedsburg 3, Sparta 5, Wausau 20, and West Arlington 0.

Corn leaf aphid – Populations are building in corn tassels in the southern tier of counties, but in no fields surveyed were there more 5% of the tassels infested. Treatment for corn leaf aphid is warranted when 50% of the plants have more than 100 aphids per plant and plants are under drought stress. Control is warranted if 3% or more of the plants have tassels and upper leaves heavily infested, plants are under moisture stress, and the population is increasing. When scouting, be sure to note the occurrence of predators and parasites. The presence of beneficial insects generally suggests that natural controls may be reducing the number of aphids. Control for corn leaf aphids is rarely necessary in Wisconsin corn fields.

Western bean cutworm – Moths were captured at more trapping sites this week, but still no significant counts have been registered. Pheromone trap catches ranged from 0-8 moths, with the highest capture near Mt. Sterling in Crawford Co. Expect numbers to increase in the next two to three weeks and then peak by early or mid-August. Even the very minimal emergence of western bean cutworm moths in recent days suggests crop scouts and advisors should be on the lookout for eggs on corn leaves or small larvae in corn ears when scouting fields in the week ahead.

Corn Earworm Pheromone Trap Counts

	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
Southwest							
Lancaster				17			3
Reedsburg			3				
South central							
Mazomanie						2	
Arlington							
West Arlington				0			
Southeast						0	
Sturtevant							2
Janesville				0			0
West central							
Sparta				0		5	
Coon Valley							3
Chippewa Falls							12
Central							
Wausau	2	3	2		5	0	8
Marshfield				12		7	
East Central							
Manitowoc			1			0	

Soybeans

Soybean aphid – Infestations of soybeans aphids are gradually worsening as plants approach the early reproductive stages of growth. Aphids now colonize nearly 100% of the plants within individual fields, whereas a week or two ago they could be found on 25-50% of the plants. Densities of aphids per plant remained generally low, averaging fewer than 20 aphids per plant, but fields with densities advancing toward the action threshold of 250 aphids per plant have grown more common. No above-threshold fields were encountered during surveys this week, though some had individual plants with as many as 350 aphids.

The steamy weather ahead may temporarily slow soybean aphid reproduction, but populations are likely to build once temperatures return to the 70s and 80s. Survey specialists noted that the aphids have expanded out from the youngest trifoliate to the stems and the undersides of older leaves in recent days, indicating entire plants should be checked closely to obtain accurate counts in the week ahead, not just newest growth. In addition, take aphid counts at several sites within a field as uneven patterns of distribution are typical, with higher densities in border row plants in some fields. Results of this week's surveys are as follows:

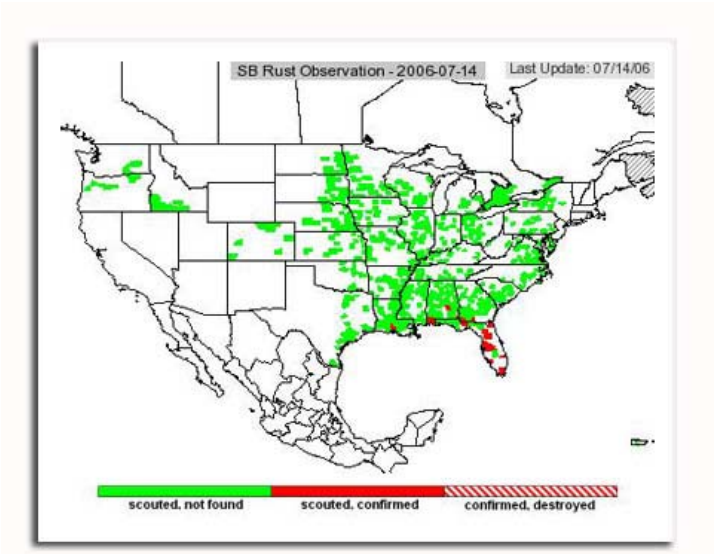
- Adams Co: 90% of plants infested with aphids and an average of 11 aphids per plant (one field surveyed).
- Columbia Co: 100% of the plants infested with aphids and averages ranging from 63-81 aphids per plant (two fields surveyed).
- Dane Co: 40-90% of the plants infested with aphids and averages ranging from 3-14 aphids per plant (two fields surveyed).
- Fond du Lac Co: 75-95% of the plants infested with aphid and averages ranging from 6-16 aphids per plant (five fields surveyed).
- Green Co: 55% of the plants infested with an average of1 aphid per plant (one field surveyed).
- Juneau Co: 100% of the plants infested with an average of 156 aphids per plant (one field surveyed).
- Kenosha Co: 10-30% of the plants infested with aphids and averages ranging from of 0.2-3 aphids per plant (two fields surveyed).
- Marquette Co: 95% of the plants infested with aphids and an average of 14 aphids per plant (one field surveyed).
- Racine Co: 10-55% of the plants infested with aphids and averages ranging from 0.2-4 aphids per plant (three fields surveyed).
- Sauk Co: 15-100% of the plants infested with aphids and averages ranging from 1-44 aphids per plant (three fields surveyed).
- Waushara Co: 85% of plants infested with an average of 8 aphids per plant (one field surveyed).
- Walworth Co: 30-85% of the plants infested with aphids and averages ranging from 1-26 aphids per plant (three fields surveyed).

Japanese beetle – Light Japanese beetle feeding has been noticed in southern and some central Wisconsin soybeans. Examinations of Dane and Juneau Co. fields found no more than 15% of plants were 5-20% skeletonized. High populations of this insect are apparently active this season and problems are not limited to soybeans and corn according

to IPM Specialist John Aue, who has observed feeding in southwest apple orchards. Also, reports of "swarms" of beetles at Devils Lake State Park in Sauk Co. were received earlier in the week.

While Japanese beetles have seldom caused economic damage to Wisconsin soybeans, their contribution to defoliation levels, in addition to other defoliators like grasshoppers and both bean leaf beetles, could push some fields over the threshold of 30%. To assess Japanese beetle defoliation in soybeans, examine 20 plants in five separate areas of the field and estimate the amount of defoliation, bearing in mind that it is easy to overestimate. (For reference and practice, visit Soybean Insect Defoliation Assessment at <A HREF "http://ohioline.osu.edu/icm-fact/fc-22.html" /A http://ohioline.osu.edu/icm-fact/fc-22.html >. Once the estimations are made, average the figures to obtain a single average for the whole field. No more than 30% defoliation should be tolerated during the vegetative stages of growth, 20% defoliation for flowering soybeans, and 25% after pod fill.

Soybean rust update (from sbrusa.net) - National Soybean Rust Commentary (updated: 07/13/06)
Soybean rust was found again on kudzu in Iberia Parish, Louisiana, on July 12th. The first find in that Parish occurred on July 7th. This is the third find in Louisiana in 2006. Please consult the appropriate state commentary for more information.



Intensive scouting continues in soybean sentinel plots especially in the south as soybeans reach reproductive growth stages. Scouting also continues on kudzu patches. Rust has been reported from 25 counties; five in Alabama, 12 in Florida, five in Georgia, one in Texas, and two in Louisiana. Only three of all the finds have been on this year's soybeans. Spore trapping continues throughout the U.S. using both active and passive traps. Any positive spore trap information does not imply infection has taken place and plant samples are used exclusively for indicating positive rust occurrence as indicated on the soybean rust observation map.

Fruit

Apple maggot - Although fewer orchards reported captures of apple maggot flies in the past week, this insect is active in southern and west central orchards and treatments for control may be warranted where the action threshold of one fly per unbaited trap is exceeded. The cooperator near Stoughton sprayed earlier this week following the capture of four apple maggot flies on an unbaited red ball trap. Similar measures should be taken whenever counts exceed one fly per trap per week on unbaited red ball traps or yellow sticky boards, or five flies per trap per week when traps are baited.

Obliquebanded leafroller - Orchards that have not sprayed an insecticide recently may experience high populations of obliquebanded leafroller larvae in terminals and in fruits. While making his weekly rounds, Orchard IPM Specialist John Aue observed high populations of 2nd-5th instar larvae in southern Wisconsin, though he noted that above-threshold levels were not observed in all orchards. Apple growers are encouraged to follow John's lead and scout for obliquebanded leafroller feeding in the week ahead.

Codling moth – The second flight of moths is in progress and expected to peak at advanced southern and west central sites where 1,577 GDD (base 50F) are reached in the week ahead. Damage from first generation larvae has become evident in the south. Orchardists are advised to assess levels of first generation injury before second flight activity begins in full. Above-threshold numbers of second generation codling moths were registered at 10 of 34 trapping sites in the past week.

Spotted tentiform leafminer – Trap counts declined at most trapping sites in the past week, indicating peak second flight has passed in most areas, except for Bayfield Co. where peak flight activity appears to have occurred during this reporting period. Sapfeeder larvae are now detectable on the undersides of apple leaves in most southern and central Wisconsin orchards. Scout trees in the week ahead and use an action threshold of 1.0 per leaf to decide if treatment of second generation leafminers is warranted.

Apple rust mite – A natural decrease in populations has occurred in southern orchards where high densities were noted earlier this month. Evidently, their decline corresponds with the aging of the foliage, which explains why populations are down on older leaves.

Japanese beetle – Aggregations of this destructive beetle are responsible for significant feeding injury on non-bearing trees in southwestern Wisconsin orchards, according to John Aue. Apples are one of about 300 different species attacked by Japanese beetles.

Potato leafhopper – Exponential potato leafhopper population growth in past weeks is affecting non-bearing trees in some southern Wisconsin orchards. Problems are developing in young, non-bearing fruit trees after substantial influxes of migrants are forced into orchards from mowed forages nearby.

Potato leafhoppers are most often found in tree nurseries and non-bearing orchard blocks, partly because they prefer young, vigorously growing leaves. The more important reason though, is that non-bearing plantings usually have a lighter insecticide spray program than the rest of the orchard, and the leafhoppers are better able to survive.

Given the current high rate of nymphs production, growers are advised to look for curled leaves and shoots that are not

growing as vigorously as they should. Check the undersides of affected leaves for nymphs and adults. No spray thresholds are established for potato leafhopper in apples, but it has been shown that one or two nymphs per leaf can cause leaf curling if they are allowed to feed for 4-7 days. Insecticides, particularly on nursery trees and in non-bearing blocks, may be justified at the first sign of injury.

Vegetables

Root-knot nematode – A Waushara Co. carrot field surveyed earlier in the week exhibited wilted, stunted and chlorotic plants in several pockets throughout the field. Careful examination of the roots revealed small beadlike swellings on feeder roots and forking of the taproot. These symptoms were attributed to female root-knot nematodes (*Meloidogyne hapla*) that had parasitized the root tissues. Females have the capacity to self-fertilize, males are not required for completing the life cycle. One female can produce more than a thousand eggs. Root knot nematodes occur worldwide and parasitize thousands of hosts plants. Rotation to non-host crops or long fallow periods effectively reduces nematode populations. Resistant cultivates are available in alfalfa, common bean cowpea, pepper and tomato. A soil survey is underway to test for the presence of exotic root knot nematodes in potato fields. Samples collected in 2005 tested negative.

Root knot nematode Anette Phibbs DATCP

Idaho Pale potato cyst nematode update - As a result of intensive sampling in the area (5,210 samples from 81 fields and facilities), PCN has been detected in a second field. This new field belongs to the same farm operation as the first positive, and is 0.5 miles from the original field. Sampling and tracebacks and traceforwards are continuing, while the Idaho State Department of Agriculture and APHIS are in the process of developing a PCN Regulatory Plan for long-term regulation.

Weeds

In 2004, extension agents Jerry Doll, Peggy Compton and Rhonda Gildersleeve developed a quick ID guide called *The Dirty Dozen and Beyond - 25 Pasture Weeds of Wisconsin*.

The weeds listed in this guide are divided up according to plant life cycles (biennials, perennials, and annuals). Over the next few weeks, each of these types of pasture weeds will be highlighted in the WEEDS section of the Pest Bulletin.

Biennial Pasture Weeds - Biennial plants need two years to grow before they mature sufficiently to produce seed. During the first year, these plants grow vegetatively as a rosette. After a period of cold winter weather, the plants return, but shift to the reproductive or flowering stage of growth and eventually produce seed. Biennial pasture weeds in Wisconsin include, but are not limited to:

- Bull thistle (*Cirsium vulgare*)
- Plumeless thistle (*Carduus acanthoides*)
- Musk thistle (*Carduus nutans*)
- Burdock (*Arctium minus*)
- Wild parsnip (*Pastinaca sativa*)
- Wild carrot or Queen Anne's Lace (*Daucus carota*)

Plumeless thistle www.agf.gov.cb.ca

These plants are some of the most problematic of biennial weeds found in pasture areas. All of the plants listed above have non-spreading taproots, or only will reproduce by seed. This makes management somewhat simpler than when dealing with species that spread by creeping roots or buds on the root crown. Effective management measures include repetitive mowing to prevent seed shed and an herbicide application on first year rosettes.

Bull thistle, musk thistle, wild carrot and wild parsnip have all been observed flowering by survey specialists this season, although plumeless thistle and burdock are well within range of flowering time right now. The most prevalent of the species listed is wild carrot, whose flowers abundantly filled many roadside ditches in southern Wisconsin during past weeks. See previous issues of the 2006 Pest bulletin for more information on bull thistle, musk thistle and burdock.

Gypsy Moth

Gypsy moth Slow the Spread Program - The 2006 gypsy moth Slow The Spread treatment program will conduct the final sprayings of the year with pheromone flakes on July 19 and 20 in Ashland, Bayfield and Iron Cos.. In all, 28 sites, totaling 123,602 treatment acres, will be treated with pheromone flakes in this final phase of spraying.

The flakes use a synthetic hormone to mimic the scent of the female moth, which confuses male gypsy moths once they take flight and are in search of females. This treatment will not affect the current year's population, but should reduce the number of eggs laid next year. The Wisconsin DNR also completed gypsy moth suppression spraying in the eastern half of the state for 2006 at the end of May.

The Gypsy Moth Hotline at 1-800-642-6684 has more information on daily operations. Spray maps and updates, as well as pictures, information and links to other Web sites regarding the gypsy moth are available at www.datcp.state.wi.us. Click on the Gypsy Moth link under Popular Topics.

Apiary

Requeening the Apiary Program – After 13 years as lead of the Apiary Program at the Department of Agriculture, Trade and Consumer Protection, Anette Phibbs is phasing out of the bee business. She will continue to work for the department running the Plant Industry Laboratory and serving in her current roles as State Plant Pathologist and State Nematologist. Apiary inspectors Craig Petros and Gordon Waller will also continue to provide bee inspections services, and we expect a seamless transition as the State Apiarist position is transferred to (Elizabeth) Liz Meils. Liz began working for DATCP in 2004 as part of the gypsy moth Slow The Spread program. Her time will be shared between the Nursery and the Apiary Programs. Liz can be reached at (608) 224-4572. Anette will keep in touch with the bee world by offering laboratory testing services to the apiary survey. Once a beekeeper always a beekeeper!

Forest and Landscape

Rhizosphaera needlecast (*Rhizosphaera kalkhoffii*) – Found on blue spruce in Columbia Co. This fungal disease is a common cause of needle cast or needle blight of spruces, white pine, Douglas fir and western hemlock.

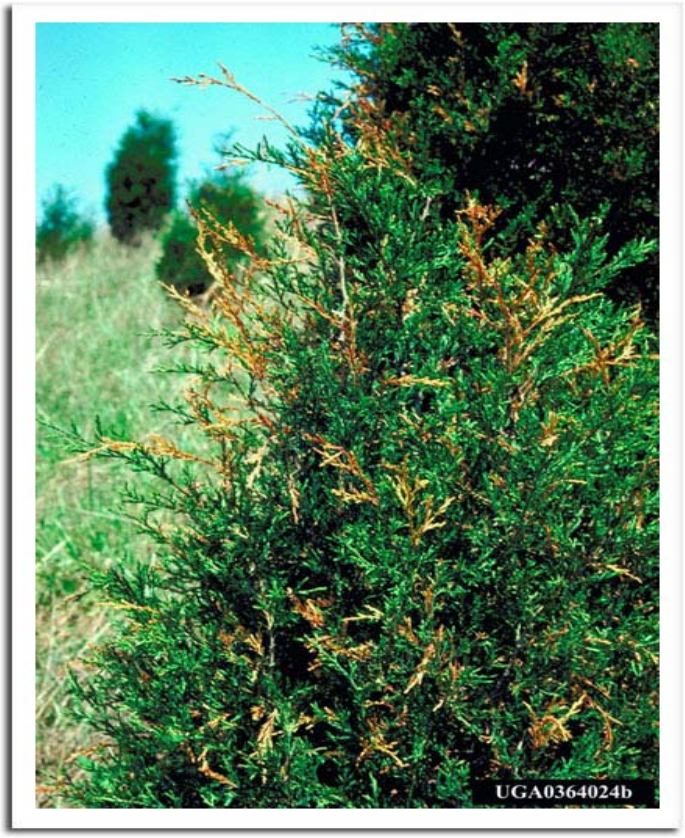
Symptoms first appear in mid to late summer as yellow mottling of first year needles. The needles later turn brown or purplish brown and fall off the branch. This occurs mostly on the innermost needles on the lower branches. In the years to follow, the disease typically spreads upward and around the tree, being infected each year from the spores on the cast needles, and from living needles as well.

To treat infected trees a fungicide may be applied during periods of wet weather. Christmas trees are especially susceptible to this disease because the spores are easily splashed or mechanically transferred among closely spaced trees. To reduce rhizosphaera infection, remove and destroy any diseased branches, maintain adequate spacing between trees, and plant fields of mixed tree species.

Phomopsis blight (*Phomopsis juniperovora*) – Found on red cedar in Racine Co.. This fungal disease causes shoot blight, twig cankers and dieback on junipers, arborvitae, firs, larch, false-cypress, pines and yews.

The most typical sign of this disease is tip blight. The infection begins in the spring on an immature leaf or needle. They first turn yellow, then fade to light green, then reddish brown, ending up gray as the disease girdles and kills the branch tips. A grayish band, marking the site of infection, appears at the base of the dead shoot. The spores overwinter in the shoots or twigs killed the previous year.

When found, prune out and destroy diseased branches, cutting 4 to 6 inches below the diseased area. Be sure to disinfect pruning shears between each cut. If necessary a fungicide may be applied at set intervals during the rapid plant growth in the spring. To reduce the chance of infection, maintain adequate space between plantings to promote increased airflow and water at the base of the plants.



Phomopsis blight on red cedar www.forestryimages.org

Other nursery inspection finds this week include:

Southeastern region: Phyllosticta on viburnum, chlorosis in alpine currant, leafhopper burn on sugar maple, leafminer on cathedral elm and arborvitae, septoria on phlox, powdery mildew on columbine, anthracnose on white ash, whitespire birch and river birch, linden borer on little leaf linden, and nectria canker on Norway maple in Jefferson Co.

West central region: powdery mildew on purple coneflower and rose, eastern spruce gall adelgid on spruce, black spot on rose, and botrytis on hosta and brunera in Sauk Co. Shoot tip sawfly on vibrunum in La Crosse Co.

East central region: potato leaf hoppers and rust on hollyhock, powdery mildew on phlox and serviceberry in Manitowoc co. Anthracnose and ash plant bug on autumn purple ash, septoria on ivory halo dogwood, and apple scab on royalty crabapple in Winnebago Co. bladder galls on clump birch, cedar hawthorn and cedar quince rust on hawthorn, dothistroma on Austrian pine, and spruce needle drop on Colorado blue spruce in Fond du Lac Co.

Northwestern region: bronze birch borer on crimson frost and royal frost birch, verticillium wilt and leaf-curling aphids on green ash, cedar quince rust and cedar hawthorn rust on thornless hawthorn in St. Croix Co. Thrip feeding on hostas and tobacco rattle virus on bleeding heart in Pierce Co. White pine weevil on Colorado blue spruce in Dunn Co.

Exotic Pest of the Week

European apple sawfly *Hoplocampa testudinea* (Klug) - The European apple sawfly is a small, wasplike insect that was accidentally introduced into New York from Europe in the late 1930's and has since spread into Connecticut, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont, where it is especially damaging in local apple growing regions. While European apple sawfly has not been detected in Wisconsin or the Midwest, and poses no threat to state apple production at this time, apple growers are encouraged to be alert for this exotic pest.

European apple sawfly res2.agr.ca

The adults of this species are about 6-8 mm long, with a broad attachment of the thorax and abdomen; the female is slightly larger than the male. Sawfly larvae resemble caterpillars, but have prolegs on each abdominal segment. Sawflies overwinter as larvae in the soil and have only one generation per year. Adults emerge during late pink and early bloom. Eggs are laid on the calyx end of developing fruit. Young larvae feed along the surface of the fruit and leave a winding feeding scar on the surface. These apples usually remain on the tree, and the presence of the scars can reduce fruit value. Older larvae bore deeply into one or more fruit, usually causing mid-season fruit abortion.

European apple sawfly causes two types of injury:

- PRIMARY injury is caused by first instar larva through feeding just under the skin of the developing fruit resulting in a winding, ribbon-like scar that spirals out from the calyx end.
- SECONDARY injury occurs when the larva molts and matures, and moves towards the seed cavity or adjacent fruit. As the larva feeds internally, it enlarges its exit hole with moist, reddish-brown frass on the side of the fruit. Injury from secondary feeding will cause the fruit to drop.

Characteristic European apple sawfly injury to fruit orchard.uvm.edu

While secondary injury by European apple sawfly could be confused with codling moth damage, damage by European apple sawfly usually appears before codling moth damage occurs, the smell of the frass of European apple sawfly is strong, whereas codling moth frass is odorless, and European apple sawfly larvae are yellowish white in color and have seven pairs of prolegs. Codling moth larvae are pinkish-white in color and have five pairs of prolegs.

European apple sawfly is best monitored by placing white, sticky rectangle traps at one per 3-5 acres along the orchard periphery, at pink, on the south sides of trees about 5-6 feet above the ground. If you catch a suspect European apple sawfly, please call the DATCP Pest Survey Hotline at 1-800-462-2803.

European apple sawfly on sticky trap www.vaes.vt.edu

Weekly Apple Insect Trap Counts (June 7 – July 14, 2006)

County	Site	Date	STLM[1]	RBLR[2]	CM[3]	OBLR[4]	AM red[5]	AM yellow[6]
Bayfield	Atkins	7/4-7/10	0	0	8	0		
Bayfield	Carlson 1	7/7-7/13	2025	0	24	26		
Bayfield	Carlson 2	7/7-7/13			21			
Bayfield	Gellerman	7/2-7/10	40	0	0	23		
Bayfield	Olsen 1	7/7-7/13	1044	1				
Bayfield	Olsen 2	7/7-7/13	430	5				
Bayfield	Lobermeier	7/7-7/13	104	66	0	44	0	0
Brown	Oneida	7/3-7/10	1380	90	19	10	0	0
Crawford	Gays Mills W2	6/27-7/5	150	85	2	0	0	0
Crawford	Gays Mills	7/7-7/13	695	26	2	2	0	0
Dane	Deerfield	7/6-7/13	315	205	0	0	0	0
Dane	Stoughton	7/7-7/14	165	212	2	2	4	6
Dane	W Madison	7/7-7/13	43	0	2	0	1?	0
Dodge	Brownsville	7/7-7/13	84	16	2	1	0	0
Fond du Lac	Campbellsport	6/30-7/5	300	70	2	13	0	0
Fond du Lac	Campbellsport	6/30-7/5	350	112	3	25	0	0
Fond du Lac	Malone	7/7-7/13	110	12	5	3	0	0
Grant	Sinsinawa	7/7-7/14	8	14	0	0	0	0
Green	Brodhead	7/7-7/13	16	29	0	0	0	0
Iowa	Dodgeville	7/7-7/13	64	66	25	1	0	0
Jackson	Hixton	7/7-7/13	40	0	0	3		
Marquette	Montello	7/3-7/11	5	0	0	0		
Marinette	Wauzaukee	7/7-7/13	82	10	0	0	0	0
Pierce	Beldenville	7/7-7/13	330	29	7	12	0	0
Pierce	Spring Valley	7/7-7/14	264	97	0	1	0	0
Racine	Rochester	7/7-7/13	420	27	6.25	0	0.4 (4 per 10 traps)	0.4 (2 per 5 traps
Racine	Raymond	7/7-7/13	327	109	20	6	0	0
Richland	Hill Point	7/6-7/11	630	95	1	7	0	0
Richland	Richland Center E	7/7-7/13	90	12	4	10	0	0
Richland	Richland Center W	7/7-7/13	450	42	0	0	0	0
Sauk	Baraboo	7/7-7/13	56	33	1	7	0	0
Trempealeau	Galesville	7/7-7/14	48	12	8	10	0	0
Waukesha	New Berlin	7/7-7/13	132	16	0	3	0	0

[1] Spotted tentiform leafminer; [2] Redbanded leafroller; [3] Codling moth; [4] Obliquebanded leafroller; [5] Apple maggot red ball trap;
[6] Apple maggot yellow sticky board

Weekly Black Light Trap Counts

The black light insect traps at 12 locations registered low numbers of target pests during the last reporting period, indicating that some nocturnal moth species may be in between flights or that populations are generally low. European corn borer moth numbers were minimal, which is to be expected since the present period is between the first and second brood flights at most trapping sites. Counts of moths near Reedsburg, Sparta and West Arlington suggest the second, summer flight is beginning in advanced southern and west central areas. European corn borer captures at north central trapping sites including Chippewa Falls, Marshfield and Wausau, reflect continued first brood flight activity.

Additionally, western bean cutworm moths appeared in low to moderate numbers at Janesville, Lancaster, Marshfield, Mazomanie and Wausau where counts ranged from 1-17, and true armyworm numbers increased from 19-27 near Janesville in the past week.

	Date	BCW[1]	CabL[2]	CelL[3]	CE[4]	DCW[5]	ECB[6]	FA[7]	TA[8]	ForL[9]	SCW[10]	VCW[11]	AlfL[12]	WBCW[13]
Southwest														
Reedsburg	7-6 to 7-13	-	-	-	-	-	14	-	-	-	-	-	-	-
Lancaster	7-6 to 7-12	3	0	14	0	0	0	0	7	0	2	0	0	17
South central														
Mazomanie	7-6 to 7-12	0	0	0	0	5	0	0	2	0	0	0	0	4
W. Arlington	7-7 to 7-12	6	1	3	0	0	2	0	2	0	0	0	0	4
Southeast														
Janesville	7-7 to 7-13	1	0	14	0	0	0	0	27	8	0	0	0	2
East Troy	7-7 to 7-13	0	0	0	0	15	0	0	0	2	0	0	0	0
West central														
Sparta	7-6 to 7-12	0	0	1	1	0	7	0	0	0	1	0	0	0
Chippewa Falls	7-7 to 7-13	0	0	1	4	10	18	0	0	0	0	0	3	0
Central														
Marshfield	7-6 to 7-12	1	0	3	2	1	41	0	3	0	5	2	0	1
Hancock	7-7 to 7-13	0	0	0	1	0	0	0	0	0	0	0	0	0
Wausau	7-7 to 7-13	1	0	6	12	0	12	0	4	0	19	0	0	1
East Central														
Manitowoc	7-6 to 7-12	4	0	1	0	0	3	0	5	0	1	1	0	0

[1] Black Cutworm; [2] Cabbage Looper; [3] Celery Looper; [4] Corn Earworm; [5] Dingy Cutworm; [6] European Corn Borer; [7] Fall Armyworm; [8] True Armyworm; [9] Forage Looper; [10] Spotted Cutworm; [11] Variegated Cutworm; [12] Alfalfa Looper, [13]Western Bean Cutworm

*** Indicates trap malfunction during the week**

Black light trap CATCH of the WEEK

Tiger moth, *Apantensis spp.*

Celery looper, *Anagrapha falcifera* (Kirby)

Department of Agriculture,
Trade & Consumer Protection
Division of Agricultural Resources Management
PO Box 8911
Madison WI 53708-8911

Web Site of the Week

Forestry Inventory and Analysis

Extensive data on 82 million acres of Midwest forests, from the USDA Forest Service North Central Research Station, tied to an interactive mapping program. How much forest, where is it, who owns it and how it's changing. See where ash will soon once have been.

http://ncrs.fs.fed.us/4801/

Quote of the Week

No lily-muffled hum of a summer-bee,
But finds some coupling with the spinning stars....

-- Elizabeth Barret Browning (1806-1861),
Aurora Leigh, Bk. VII, l. 812-826

EXOTIC Pest of the Week

European apple sawfly, *Hoplocampa testudinea* (Klug)

July 14, 2006