

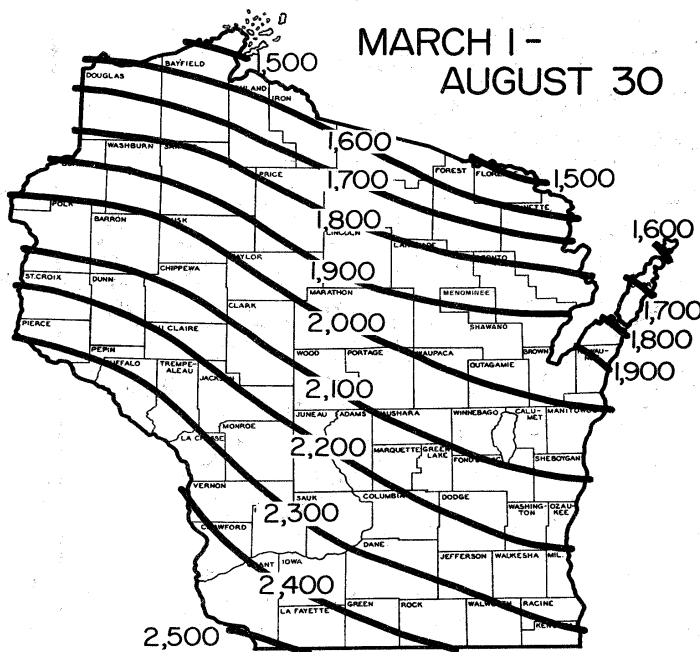
## Weather and Pests

Precipitation that ranged from light drizzle to heavy showers gave a wide variation of rainfall to the state this week. Wet fields and high humidity favored the development of several plant diseases, such as white mold and common maize rust. Some insects, such as the corn earworm and dingy cutworm, have been very active despite some fairly cool nights. Spray schedules for pest control are difficult to maintain under these conditions. Fortunately, pest levels in general have not been

### Growing degree days from March 1 through August 26:

Site	GDD*	2003 GDD	Normal GDD	Base 48	Base 40
<b>SOUTHWEST</b>					
Dubuque, IA	2085	2250	2422	2237	3481
Lone Rock	1957	2227	2277	2108	3321
<b>SOUTHCENTRAL</b>					
Beloit	2024	2185	2306	2173	3407
Madison	1945	2163	2229	2104	3308
Sullivan	1923	2081	2171	2044	3285
Juneau	1911	2078	2063	2057	3269
<b>SOUTHEAST</b>					
Waukesha	1880	1994	2161	2006	3237
Hartford	1848	2006	2063	1994	3192
Racine	1826	1911	2176	1954	3162
Milwaukee	1778	1904	2134	1909	3092
<b>EAST CENTRAL</b>					
Appleton	1620	1976	1934	1779	2883
Green Bay	1539	1775	1854	1702	2790
<b>CENTRAL</b>					
Big Flats	1774	2115	2081	1907	3063
Hancock	1725	2090	1968	1856	2998
Port Edwards	1630	1992	2044	1745	2866
<b>WEST CENTRAL</b>					
LaCrosse	2021	2262	2262	2124	3385
Eau Claire	1780	2192	2065	1895	3050
<b>NORTHWEST</b>					
Cumberland	1379	1976	1928	1423	2495
Bayfield	1137	1516	1425	1167	2139
<b>NORTH CENTRAL</b>					
Wausau	1431	1805	1910	1524	2579
Medford	1373	1768	1854	1456	2490
<b>NORTHEAST</b>					
Crivitz	1381	1735	1775	1496	2543
Crandon	1310	1651	1712	1337	2386

\*GDD above base 50 deg. with 86 deg. upper limit



Historical Average Growing Degree-Days Accumulated Since March 1. (Wisconsin Agricultural Statistics Service)

alarming high this season.

## Alerts

**Powdery scab of potato**--A production field in Adams Co. has been found to be infected with powdery scab. See "Potato" section for more information.

**Daylily rust** -- This exotic rust has been found at a nursery in Milwaukee. See "Forest and Landscape" section for more information.

## Looking Ahead

**Corn earworm** – Moths have arrived! The black light traps located near Bancroft, Sturtevant, Lancaster and West Madison registered the start of the "significant flight" of corn earworm moths this week, with trap catches of 45, 68, 25 and 32 moths, respectively. Sweet corn producers should pay attention to moth catches in the next week, and continue to be alert to the potential for late-season corn earworm problems, as late sweet corn in the silk stage is highly vulnerable to infestation.

**European corn borer** – Egg laying is in full swing across the south, where the second flight of moths peaked just over a week ago. Second flight activity is expected to peak in the east central and central districts in the next few days. At this time the most effective treatment window for second generation corn borers remains open throughout the state (through 2100 DD50).

**Dingy cutworm** – Unusually high counts of moths were registered at black light trapping sites this week despite relatively cool nightly temperatures. While populations seldom reach economically important levels in corn, they do on occasion grow large enough to warrant treatment in summer seeded alfalfa. Trap captures were as follows: Arlington-6; Lancaster-50; W. Madison-98; Marshfield-52, Mazomanie-41; Sparta-137.

## Corn

**European corn borer** – Moth activity as recorded in black light trap catches has been relatively low throughout much of the state this season. Counts were up slightly at the Lancaster, Madison, Plover and Plainfield trapping sites this week; however, if recent moth catches are an indicator of the potential magnitude of subsequent larval infestations, then growers may be in for a particularly light second generation of corn borers this season. Egg laying is in full swing throughout the southern and central districts. Scouts are encouraged to look for second generation masses over the weekend and in the week ahead. Once egg masses begin to hatch, canners should make frequent plant examinations for eggs on all sweet corn that is more than 12 days from harvest. An insecticide application should be made as

soon as the first blackhead or hatched egg mass is detected, provided an egg mass occurs on 10% of the plants. When densities fall below 10%, hold off treating until this level is reached. Once application starts on a given field, treatments may need to be repeated every 5-6 days until unhatched egg masses drop below 1 per 10 plants or corn matures to within 12 days of harvest. It is not uncommon for three or four treatments to be applied on processing or fresh market sweet corn for second generation corn borer suppression. With that being said, it should be reiterated that the evidence suggests the impact of second generation corn borers could be light; therefore, scouting is strongly encouraged to accurately assess levels of infestation and to avoid any unnecessary insecticide applications.

**Corn earworm** – A considerable increase in moth captures in southern Wisconsin this week indicates the much-anticipated late summer buildup has started. "Significant flights" (five or more moths caught on three consecutive nights) were registered at the Bancroft, Sturtevant, Lancaster, and West Madison trapping sites, and nearly all trapping sites have yielded some moths this season. Catches at the pheromone trap located near Chippewa Falls and Coon Valley in Vernon Co. rose to 11 moths this week. University of Wisconsin research has shown that the first summer moths appear at about 1200 DD55, while the "significant flight" occurs around 1300 DD55. With the significant flight getting underway in southern and parts of the central Wisconsin, egg laying is also likely to pick up in the week ahead. Look for small larvae to grow evident in corn ears next week.



**Fall armyworm** – A few moths were registered at black light trapping sites in recent weeks, and whorl feeding by larvae should soon grow apparent in late-planted sweet corn fields. At certain times and in particular locales, fall armyworm can do a lot of damage to late sweet corn. Scout now.

**Corn rootworm** – Beetle counts in August and early September are widely recommended as a means of assessing the potential for rootworm problems in the next spring in fields that are replanted to corn. An average of

0.75 beetle per plant, based on counts at several sites within an individual field, is the most commonly used indicator that sufficient numbers of eggs have been laid this summer to cause problems next spring. In the meantime, low to moderate numbers of beetles are currently present in corn fields across the state, and late sweet corn will prove to be an attractive feeding place for corn rootworm beetles.

**Dingy cutworm** – While counts of this moth species were surprisingly high at a number of black light trapping sites, corn growers need not worry. Unlike similar cutworm species, dingy cutworm larvae primarily feed above the ground on foliage and damage is not usually serious because it normally is above the plant's growing point. Further, the monitoring of dingy cutworms is generally only necessary early in the season, when corn plants are still very young and susceptible to



cutting. Alfalfa growers, however, should pay close attention to trap counts. See FORAGE section for more information.

## Forages

**Forage pest complex** – There has been very little change in the insect pest populations that make up this complex, and much of the threat that existed a week or two ago has been outgrown due to recent rains and cool nightly temperatures. Populations continue to be mostly low for this time of year, especially in northeastern and central Wisconsin fields. Counts of potato leafhoppers this week varied from 1-4 adults per sweep in Marinette and Oconto Cos., and 1-2 per sweep in Portage and Wood Cos. In one Portage Co. field; however, very heavy hopperburn was observed (100%), but this appeared to be an isolated occurrence. Elsewhere, hopperburn levels were less than 10%. Potato leafhopper reproduction has apparently slowed considerably, as very few nymphs were observed in the fields surveyed this week. A combination of tarnished and alfalfa plant bugs are still readily encountered in alfalfa fields across the state, but

counts are mostly inconsequential, falling below 3.9 per sweep. Alfalfa caterpillars in all fields surveyed numbered fewer than 2 per sweep. While populations of forage pests in the northeast are not economically important, some pockets of heavy populations may still exist in the central sands or in southern Wisconsin. Numbers of these pests should weaken noticeably very soon in areas where a decline is not already underway.

**Dingy cutworm** – With the exceptionally high numbers of moths registered at black light trapping sites this week, alfalfa growers in susceptible areas, especially east central and central districts, are encouraged to sweep for larvae in the week or two ahead. DATCP's black light trapping cooperator near Manitowoc advises that dingy cutworms are certainly something to watch for in hay fields. He reports occasionally needing to treat summer seeded alfalfa for dingy cutworm larvae and commented that in 2001 there were several summer seedings that needed to be treated in the 6" stage.

## Soybeans

**Soybean aphid** – The 2004 soybean aphid survey, completed earlier this week, found unusually low populations of aphids in all soybean growing areas of the state this season. While we are still waiting for the data to be tabulated, it looks as though the statewide average peak population will fall far below last year's statewide average of 770 aphids per infested plant. We anticipate this year's statewide average will be in the range of 20-25 aphids per infested plant, or perhaps even lower. While populations were low this season, growers are cautioned to continue to monitor aphid levels over the next few weeks; a small number of problem areas with 100% infestations and averages of 300 aphids per plant were recently detected in south central and east central soybean fields. The 2004 soybean aphid survey included nearly 300 sites across the state. More detailed information and a summary map will be available in the November 5th edition of the Wisconsin Pest Bulletin.

**Grasshoppers** – Heavy populations continue to distress soybean fields throughout the state. In Marinette Co. economic levels of defoliation (>35%) were observed in the margins of several of the soybean fields surveyed, and in the central sands, moderate levels of edge defoliation were also quite common. Because defoliation wasn't observed in a consistent pattern throughout these fields, spot treatments in problem areas might be an acceptable solution to reducing grasshopper numbers. Soybean growers can expect grasshopper activity to gradually slow in the near future, but to persist into fall. In the interim, scout fields for defoliation and to prevent pod injury.



## Vegetables

**Powdery scab of potato** -- A sample from a potato field in Adams Co. has been found to be positive for *Spongospora subterranea subterranea*, the causal organism of powdery scab. Several shipments of infected seed from western states were intercepted in the



spring of 2003 and were destroyed prior to planting, in an effort to exclude the previously-undetected disease. Powdery scab was first confirmed in two Wisconsin production fields (Waushara and Adams Cos.) in August of 2003. Additional survey work in eight Wisconsin counties (65 fields) found one additional field in Adams Co. positive for *S. subterranea*.

Powdery scab symptoms on tubers resemble those of common scab. Infected eyes or lenticels may show purplish-brown lesions, followed by tan, pimple-like swellings. The periderm eventually ruptures, and the fungus produces "spore balls" (cystosori). Cystosori are the propagative and survival stage, which may survive six years or longer, and are easily disseminated in contaminated soil or infected tubers. The spores will survive passage through ruminants. Infection of roots and stolons may lead to the formation of milky white galls, ranging up to 1 cm in size.

Cultivars vary in resistance to the disease, though high levels of resistance are rare. Russet potatoes generally show fewer tuber symptoms, though root gall formation may occur on these varieties. Other hosts include tomatoes, peppers and several other Solanaceous species.

Samples with suspected powdery scab infection may be sent to the UW Plant Disease Diagnostics Clinic. See <http://www.plantpath.wisc.edu/pddc/pddcgraphics/index.htm> for fees and sample submission procedures.

Management of the disease includes planting symptomless seed produced in disease-free areas to avoid introducing the organism; avoiding the use of manure from animals that have been fed infected tubers,

and cleaning machinery before moving from infested fields. For more information on management of powdery scab, contact Walt Stevenson at UW-Madison at [wrs@plantpath.wisc.edu](mailto:wrs@plantpath.wisc.edu) or 608-262-6291.

**Cabbage looper** – Moth activity began to decline two weeks ago, according to trapping results. Larvae, if present, will begin to pupate in the next two weeks. As described in the Featured Creatures website at <http://creatures.ifas.ufl.edu> "pupation begins as a white, thin, fragile cocoon, formed on the underside of foliage, in plant debris, or among clods of soil. The pupa contained within is initially green, but soon turns dark brown or black. The pupa measures about 2 cm in length. Duration of the pupal stage is about four, six, and 13 days at 32, 27, and 20° C (or 89, 80, and 68° F) respectively." The adults that emerge from this pupation will give rise to the second generation of larvae, commonly the most damaging generation.

**Imported cabbageworm** – Continue to scout fields for damage. In the south, larvae are probably nearing pupation. In the east central region, larvae may only be in the 1st or 2nd instar, meaning the treatment window is still open. Refer to the July 30 Pest Bulletin for scouting and treatment threshold information.

**Squash bug** – Right on schedule, squash bugs have begun to appear this season to feed on pumpkins, cucumbers, squash, and watermelons. Squash bug damage plants by removing sap and eventually causing leaves to wilt and collapse. Seedlings, new transplants, and flowering plants are the most critical growth stages to monitor, as these assure the stages when the most



damage can occur. Squash bug control can be difficult to achieve, and whenever possible, control by means other than chemical insecticides is strongly advocated. Because the adults are tough to kill, early detection of nymphs and egg masses is important. For the home gardener, if only a few plants are affected, it is most effective to hand pick and destroy squash bugs and eggs. Be sure to examine the undersides of plant leaves for the yellow-red squash bug egg clusters, then cut off and

destroy the part of the leaf where clusters are found. Growers may also scout for and destroy the gray nymphs that are often hiding under curled leaf edges or in dead or dying leaves. Another option is to place boards or shingles on the ground next to the plants. At night the squash bugs will gather under the boards and can then be destroyed in the morning. Finally, be sure to remove debris in and around the garden area that could possibly be used as shelter by the bugs. By tidying up your garden and removing excess debris, overwintering sites for the adult squash bugs can be reduced.

## Forest and Landscape

**Daylily rust** Daylily rust (*Puccinia hemerocallidis*) was found at a nursery dealer in Milwaukee Co. Daylily rust can spread rapidly and can kill some varieties of daylilies if left untreated. It is an exotic rust, not currently found in Wisconsin. The alternate host for daylily rust is *Patrinia*, which is a perennial hardy to USDA zone 5. Little *Patrinia* is found in Wisconsin. The alternate host is important because it allows the rust to complete its life cycle and reshuffle the genetics, perhaps to more aggressive biotypes. Identification of daylily rust in the field can be done this time of year by looking at the undersides of the leaves and looking for orange pustules



of rust coming out of the leaf tissue. If you rub your hand along the underside of an infected leaf, the orange spores will come off on your hand. On the top of the infected leaf, you will see white to orange areas. There are a few other diseases which look very similar to this rust, like anthracnose, which is very common this year.

In 2001, two sites in Wisconsin were identified with the disease. Control measures were applied, and no further infections have been detected at either site. Early detection is important to help prevent establishment, though there is some question about the rust's ability to overwinter in Wisconsin. Sanitation and destruction of all above-ground parts of infected daylilies is required for control. Careful inspection of the re-growth is very important, to assure removal of all diseased host tissue.

Fungicide treatments may also help in controlling this disease. The DATCP Plant Industry Laboratory will identify suspect daylily rust samples. Please contact Thad Kohlenberg (608) 224-4572, email thad.kohlenberg@datcp.state.wi.us or Robert Dahl (608) 224-4573, robert.dahl@datcp.state.wi.us at DATCP if you suspect rust on daylilies. Your local county extension agent can also help with identification of the rust.



Some links to additional information concerning daylily rust:

<http://www.aphis.usda.gov/npb/daylily.html#Overview%20of%20Pest%20Situation%20in%20U.S>

<http://www.doacs.state.fl.us/pi/enpp/pathology/daylily-rust.html>

**Chrysanthemum white rust** -- As we draw near to fall, mums will start to show up for sale in Wisconsin. Along with mums comes the potential for new threats. An exotic rust to watch for is chrysanthemum white rust (CWR) (*Puccinia horiana*). We have not found it in Wisconsin, but it is detected in the United States from time to time. Early detection is the key to preventing spread and minimizing negative impacts. Symptoms of CWR include white to yellow circles on the upper leaf surface, and white pustules of rust on the undersides. If you suspect that you have this rust contact the Wisconsin Department of Agriculture at (608) 224-4572 or your county extension agent for inspection.

Additional information about Chrysanthemum White Rust is available at

<http://www.ceris.purdue.edu/napis/pests/cwr/index.html>

<http://entweb.clemson.edu/caps/pestalrt/cwr/cwr.htm>

**Helmet Beetle** – This beetle was found on sweet potato vine in Adams County. This pest makes clean circular holes in the leaves. The beetle is gold and has a protective covering which covers the body. The beetle looks like a scale, though it moves quickly and is most



often found on the underside of leaves. Most of the feeding is done during the night and early morning. They have also been known to feed on morning glory vines. Sometimes the feeding damage is confused with slug damage.

**Quince Rust** – Light to heavy amounts of quince rust



have been found at nurseries in Columbia, Kenosha, Ozaukee, Racine, and Washington Cos. on hawthorn. This rust is found on the fruit and on the branch tips of hawthorn. In heavy amounts it can cause the tips of the hawthorn to swell and die when the spores are released. This is a very common problem and the weather this season has been favorable for this rust. Orange aeciaspores are being produced in great quantities on infected hawthorns. Spores from diseased hawthorns will infect cedars, where the infections are perennial.

**Leaf hoppers** – With the recent cool weather the populations are down and leafhoppers are much less active than they were earlier in the season. We are still finding them in nymph to adult stages in Kenosha, Ozaukee, Portage and St. Croix Cos. If the current weather holds they will cause little damage by the end of the season, though inspections reports indicate that damage is widespread on maples and honeylocust in nurseries.

## Gypsy Moth

**Gypsy moth trapping program** - Trappers are starting to take traps down in the southern part of the state while trappers in the northern part of the state are finishing up trap check. As of August 25, trappers have caught 74,565 male gypsy moths. Counties with the highest totals so far include Adams (2,765), Calumet (2,132), Columbia (2,726), Dodge (2,581), Juneau (2,291), Kenosha (2,587), Marinette (8,463), Marquette (2,089), Ozaukee (2,274), Racine (2,081), Sauk (2,854), Shawano (2,609), Walworth (3,458), Washington (7,019), Waupaca (5,379), Waushara (6,529), and Winnebago (3,963). These totals do not include cooperator data. That data will be added in at the end of the season. Trap takedown will continue for approximately 4-5 weeks.

If you have any questions about the GYPSY MOTH PROGRAM, please call our hotline at 1-800-642-MOTH or visit the Department's gypsy moth web site at <http://www.datcp.state.wi.us>, keyword "gypsy moth".

## Fruit

**Apple maggot** – This has been an exceptional year for the apple maggot and emergence shows no sign of slowing. Flies continued to emerge this week in extraordinarily high numbers. One trap at an orchard near Mequon caught 50 AM flies! Recent rainfall across the state means that the potential exists for an increased emergence of flies to continue in the next week or two, and if moisture levels continue to be adequate, this trend could persist into September. Growers should monitor closely for apple maggot until harvest.

**Flyspeck** – Blemishes associated with this disease, characterized by clusters of black shiny specks on the fruit surface, commonly begin to appear at this time of year. The individual specks or blemishes are actually



fruiting structures, in which spores are formed. While flyspeck symptoms are unattractive, they do not cause decay. In some cases the flyspeck blemish may cause a slight

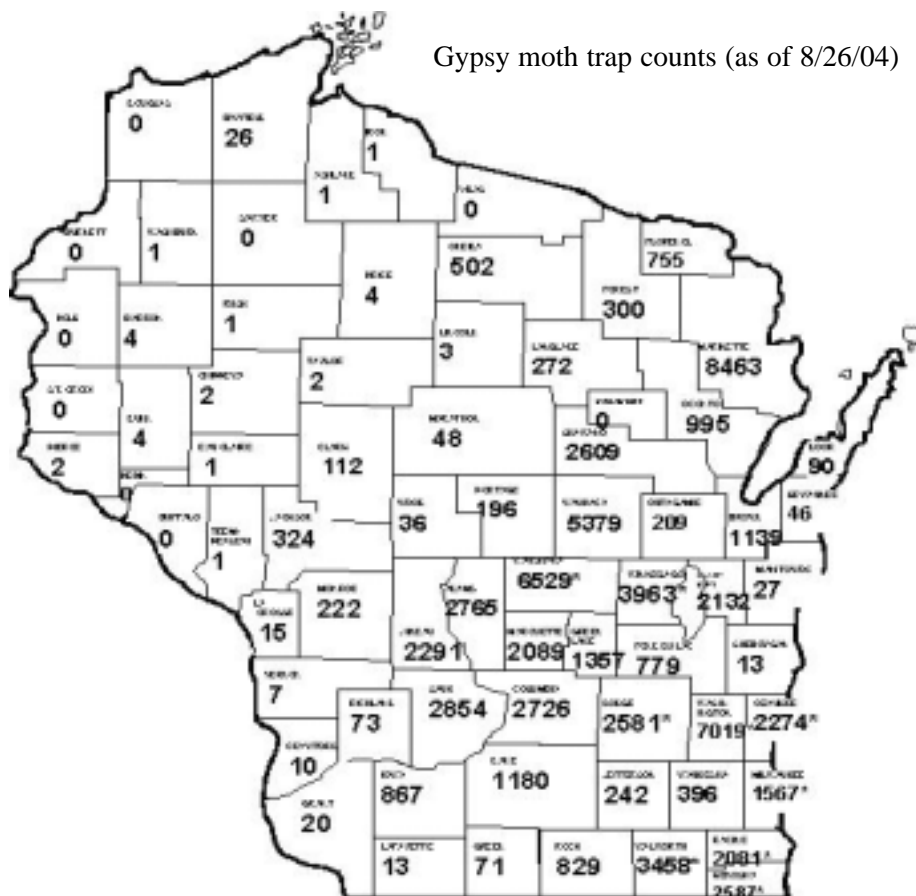
increase in water loss leading to a somewhat shortened storage life, but the primary concern with this disease is aesthetic. Growers should be alert to the fact that flyspeck tends to be worse during wet growing seasons.

## Calendar

**September 1 Agronomy/Soils Field Day** at the Arlington Research Station. Tours and exhibits of current crops and soils research. Lunch and refreshments will be available. For more information contact the UW Dept. of Agronomy at (608) 262-1390.

**September 30 - October 4 World Dairy Expo** Madison, Wisconsin. For more information please visit the WDE web site at <http://www.world-dairy-expo.com/gen.main.cfm>

Gypsy moth trap counts (as of 8/26/04)



Black Light Trapping Results													
Trap Site	Date	ECB	AW	BC	VC	SC	DC	CelL	FL	CabL	CEW	WBCW	
<b>Southwest</b>													
Lancaster	8/19-8/26	57	11	0	2	7	50	5	17	3	25	0	
<b>South Central</b>													
W Arlington	8/13-8/19	281 (Fall AW)						6				2	4
W Madison	8/19-8/26	34	4	0	5	6	98	2	17	0	32	0	
Mazomanie	8/19-8/26	13	8	1		3	41				9	5	
<b>Southeast</b>													
Sturtevant	8/19-8/26											68	
<b>East Central</b>													
Manitowoc	8/19-8/26	2	4	1			23	5					
<b>West Central</b>													
Sparta	8/19-8/25				2	39	137	1				2	
Coon Valley	8/19-8/26											11*	
<b>Central</b>													
Marshfield	8/18-8/25	3	5	2	7	0	52		1			0	
Plover	8/19-8/26	55											
Plainfield	8/19-8/26	10											
Bancroft	8/19-8/26											45	
<b>Northwest</b>													
Chippewa Falls	8/20-8/26											11*	

ECB--European corn borer; AW --armyworm; BC--black cutworm; VC--variegated cutworm; SC--spotted cutworm; DC--dingy cutworm; CelL--celery looper; FL--forage looper; CabL--cabbage looper, CEW--corn earworm, WBCW --western bean cutworm, \* corn earworm pheromone trap

## Apple Insect Trapping Results through August 27, 2004

	Date	STLM	RBLR	CM	OBLR	AM - Red baited	AM- Red baited-range	AM-Red unbaited	AM yellow	AM yellow-range
<b>Grant Co.</b>										
Cuba City	8/19-8/26	13	8	1	0					
<b>Crawford Co.</b>										
Gays Mills-E2	8/19-8/26	760	12	12	2	6	1-19	0	0	
<b>Iowa Co.</b>										
Dodgeville	8/19-8/26	110	10	39	5			0		
<b>Richland Co.</b>										
Hill Point	8/18-8/25	50	2	1	0			1	0.25	
Richland Center -W	8/19-8/26	220	9	2	1	6	0-13	0	0	
Richland Center-E	8/19-8/26	105	14	7	2	22	4-32	0	0	
<b>Sauk Co.</b>										
Baraboo	8/19-8/26	135	3	3	1	20.5	13-28	0.4 (0-1)	0	
<b>Dane Co.</b>										
Deerfield	8/18-8/25	0	0	9	2			8	0	
W Madison	8/18-8/25	110	7	3	2			4		
<b>Ozaukee Co.</b>										
Mequon	8/19-8/26	0	0	0.1	0	21.1	0-50	1.9 (0-15)		
<b>Racine Co.</b>										
Burlington	8/20-8/27	>1000	6	1		2	(0-11)		0	
Raymond	8/19-8/26	480	9	2	3			0	0	
Rochester	8/19-8/27	~85	4.3	6.4	5.5	4.7	0-5	2.46 (0-10)	0.4	(8/19 traps)
<b>Waukesha Co.</b>										
New Berlin	8/19-8/26	680	3	5	1			0	0	
<b>Pierce Co.</b>										
Spring Valley	8/20-8/27	243	1	0	1		1-4		1	
Beldenville	8/19-8/27	200+	1	1	0			0	0	
<b>Marquette Co</b>										
Montello	8/15-8/22	48	5	3	9			0	0	
<b>Fond du Lac Co.</b>										
Campbellsport	8/13-8/20	200	29	10	1					
Rosendale	8/19-8/24	112	16	2	1			3	1	
<b>Brown Co.</b>										
Oneida	8/16-8/23	50	0	1	0			0	0	
<b>Marinette Co.</b>										
Wausaukee	8/20-8/27	11	4	1	0			0	0	

**STLM**--Spotted tentiform leaf miner; **RBLR**--Redbanded leaf roller; **CM**--Codling moth; **OBLR**--Oblique banded leaf roller; **AM**--Apple maggot





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## Web Site of the Week

### The Chemistry of Autumn Colors

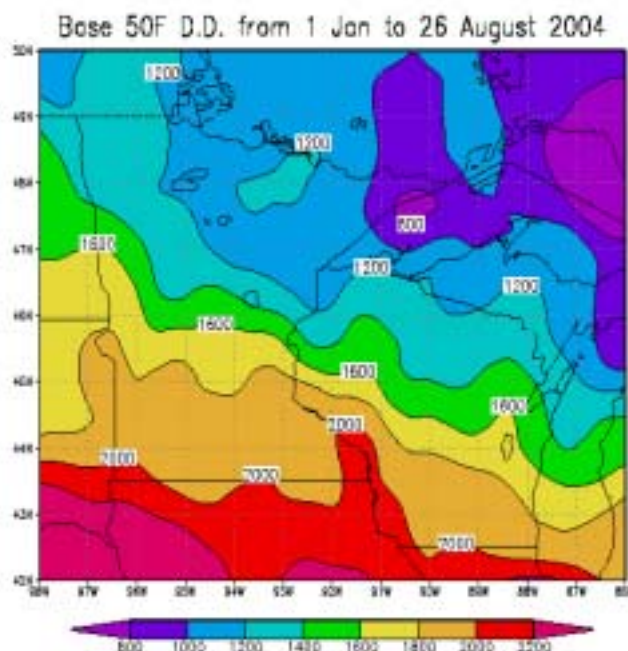
A page from the highly regarded “Why Science Is Fun” site of UW’s Professor Bassam Z. Shakhashiri, **The Chemistry of Autumn Colors** explains the chemistry behind the reds and yellows we see in Fall—now, if someone would just explain why we’re seeing them in August this year....

<http://scifun.chem.wisc.edu/chemweek/fallcolr/fallcolr.html>

## Quote of the Week

The butterfly, a cabbage-white,  
(His honest idiocy of flight)  
Will never now, it is too late,  
Master the art of flying straight

Robert Graves (1895–1985), British poet, novelist, critic.



<http://www.soils.wisc.edu/wimnext/tree/arbor.html>