



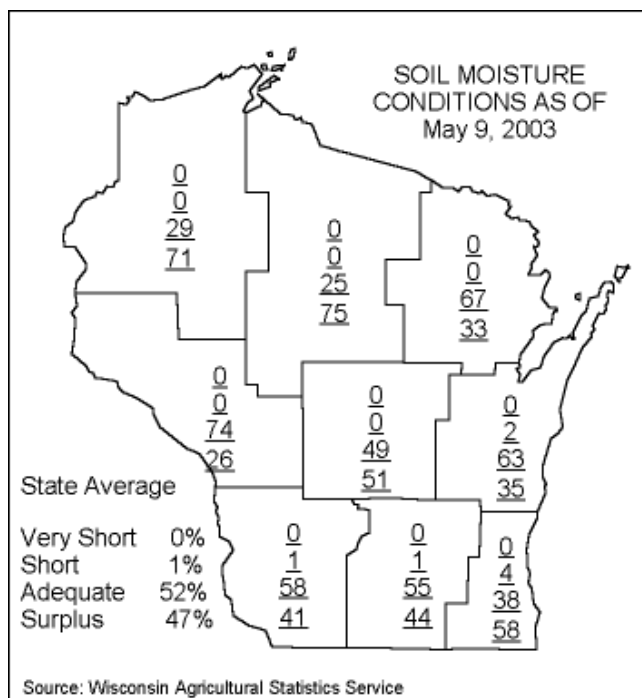
Wisconsin Pest Bulletin

Wisconsin Department of Agriculture, Trade & Consumer Protection

PO Box 8911, Madison, WI 53708-8911 Phone: 1-800-462-2803 Fax: 608-224-4656

Website: www.datcp.state.wi.us

E-mail: bulletin@datcp.state.wi.us

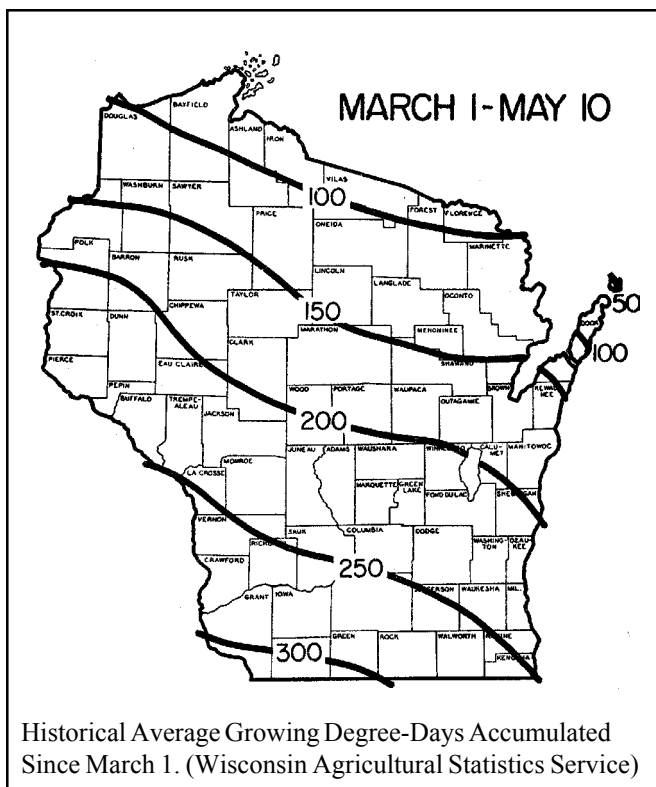


WEATHER AND PESTS

Warm, sunny weather this weekend should dry things out a bit and allow corn planting to continue. Rainfall amounts are currently above normal for most of the state. Despite the recent rainy weather, early-planted fields are emerging and corn planting is nearly 53% complete throughout the south. Oat emergence was reported at 40%, but wet fields and cold ground temperatures have apparently slowed development somewhat. Alfalfa is advancing well, and nearing harvest in many parts of the south. Insect activity has picked up substantially since last week. Two noteworthy events this week were the arrival of **migrant potato leafhoppers** and the emergence of overwintered **bean leaf beetles**.

Growing degree days from March 1 through May 15 were:

Site	GDD*	2002 GDD	Normal GDD	Base 48	Base 40
SOUTHWEST					
Dubuque, IA	332	301	295	319	673
Lone Rock	325	274	251	303	664
SOUTHCENTRAL					
Beloit	321	297	268	312	669
Madison	290	261	254	288	632
Sullivan	285	275	237	272	614
Juneau	262	255	215	256	591
SOUTHEAST					
Waukesha	244	250	235	235	494
Hartford	236	237	212	236	548
Racine	208	231	229	208	498
Milwaukee	204	215	220	199	491
EAST CENTRAL					
Appleton	227	186	191	215	510
Green Bay	172	145	162	161	428
CENTRAL					
Big Flats	299	235	202	270	610
Hancock	286	225	201	274	601
Port Edwards	265	199	193	238	553
WEST CENTRAL					
LaCrosse	316	266	234	290	643
Eau Claire	298	203	190	265	607
NORTHWEST					
Cumberland	261	149	171	226	524
Bayfield	147	78	68	117	339
NORTH CENTRAL					
Wausau	231	156	164	202	494
Medford	223	134	153	194	481
NORTHEAST					
Crivitz	167	120	128	151	410
Crandon	194	115	117	163	436



ALERTS

Potato Late Blight — A reminder that ATCP 21.15 Wis. Administrative Code requires that potato cull piles must be field-spread and disked in, fed to livestock, or otherwise destroyed before May 20, and potato growers must control volunteer potatoes in their fields. The purpose of the rule (and the effort) is to reduce the likelihood of infected potato plants sprouting from overwintering tubers and providing early inoculum of *Phytophthora infestans*, the causal agent of late blight. Reducing the amount of initial inoculum is “a critical management strategy”, according to the new edition of the Compendium of Potato Diseases, edited by Dr. Walt Stevenson. Eliminating cull piles and controlling volunteers requires a community-wide effort. For more information on this effort to reduce initial late blight inoculum, please call 800-462-2803.

LOOKING AHEAD

A brief forecast of pest-related events growers can anticipate in the upcoming week

Potato leafhopper – Migrant adults were detected for the first time this week and more are certain to follow in the week ahead. Expect the arrival of potato leafhoppers in the central counties next week.

European corn borer – Pupation is underway throughout much of the state now. The first moths may appear by next week at advanced southern sites where 347 DD (base 50°F) have accumulated.

Bean leaf beetle – After several weeks of anticipation, the first overwintered adults of the season were detected in southern alfalfa fields this week. Expect adults to show up in forages throughout the south and west central regions next week.

Alfalfa weevil - Eggs laid by the overwintered generation of weevils are hatching. Egg laying is expected to increase greatly in the next few weeks. Adults are abundant in most fields. Scouting efforts should be intensified now.

Black cutworm – Damage is beginning in southern fields. Fields with grassy weed problems are likely candidates for cutworm injury.

Cabbage maggot – Cool wet springs promote conditions that contribute to heavy infestations of cabbage maggot. Fields of cruciferous vegetables should be scouted closely for signs of cabbage maggot activity after adults begin emerging, which could occur by next week. Egg laying will begin about a week after the adults emerge.

ALFALFA

Beneficial insects – Ladybeetles, damselfly bugs and parasitic



wasps were abundant in alfalfa fields surveyed this week, which is an encouraging sign. Collectively these insects will help to reduce levels of **aphids** and **alfalfa weevil larvae**.

Alfalfa weevil – Adult populations in the south central and southeast were at moderate levels, varying from 1-8 per 100 sweeps in 10-12” alfalfa. Eggs were common as well. The higher counts of adults were observed in Walworth, Waukesha and Jefferson Co. fields.

Pea aphid – Counts in alfalfa are on the rise, but no substantial populations were observed in fields surveyed this week. In 10-14” alfalfa in the south central and southeast, sweep net counts averaged 20 per 100 sweeps. Winged adults will likely appear in another week or so.

Tarnished plant bug – This is perhaps the most common insect pest swept from alfalfa fields this week. Adults numbers 9 -22 per 100 sweeps in the southeast, and tiny, bright green first instar nymphs are just beginning to appear.

Grasshopper – First and second instar nymphs were observed feeding in alfalfa tips in the southern districts this week. Small nymphs may be cute now, but in no time at all they’ll develop into ravenous adults!

Green cloverworm – Very low numbers of larvae were detected for the first time this season. They were found at the rate of 1-2 per 100 sweeps in the southeast. To date no moths have been observed.





Wireworms – Click beetles, the adult stage of the wireworm, were not numerous in the alfalfa fields surveyed this week, but they were consistently observed from field to field. Frequent observations of adults in forages indicate that wireworms are common, and could become problematic in emerging corn.

CORN

European corn borer – Pupation continued in the south and west central districts this week, and began in some parts of central and northwest Wisconsin. Pupation begins at about 246 DD (base 50°F), so the corn borer seems to be right on schedule this spring. Depending on temperatures, the first moths of the season could begin appearing in black light traps by next week. The first moths occur at 374 DD and the first eggs at 450 DD. Peak moth activity occurs around 631 DD and the first generation treatment is most effective at 800-1000 DD.

Black cutworm – Fields on wet soils with heavy weed growth should be watched closely for cutworm injury. No injury was observed in the few southeastern fields surveyed this week, but conditions are right for damage to begin.

Seed corn maggot – Damage to snap beans in Monroe Co. was reported this week. This isn't surprising considering most of the state has been subject to cool, wet spring weather conditions that tend to favor seed corn maggot development. Unfortunately once damage is detected it is too late to take control during the current season.

Use degree day accumulations starting when the ground thaws in the spring to forecast adult emergence and the potential for an infestation. Peak emergence of the first three generations will occur when totals of 200, 600 and 100° DD (base 39°F) have been reached. When control is needed, insecticides applied to seed or at planting are effective. (Processing and Snap Bean Production. (K.A. Delehaut, S.E. Mahr & J. A. Wyman. University of Wisconsin-Madison).

Armyworm – Numerous 1st-3rd instar larvae were swept from the weedy alfalfa fields in the southeast corner of the state, indicating egg hatch is well underway. Armyworm larvae can present problems in corn and small grains. In small grains young larvae feed on the foliage or on the stalk, just below the head, often cutting off the seed heads. In seedling corn, late-instar larvae sometimes eat the entire leaf. Typically it is the larvae from the 2nd moth flight in late June-early July that cause the most severe damage.



FORAGES

Potato leafhopper (PLH) – The first migrants of 2003 were observed in 10-12" alfalfa in Walworth and Waukesha Cos. Sweep net counts varied from 1-16 per 100 sweeps. These leafhoppers likely arrived on the latest weather from the southwest.

Because potato leafhopper is a migratory insect pest, damage potential is based on weather patterns and isn't easy to predict from year to year. It is important to follow potato leafhopper trends and monitor activity closely to diagnose problems early in the season. Damage is often first visible along field margins and problems are most severe when conditions are dry. At present we don't have to worry about lack of precipitation and soil moisture conditions are adequate to surplus throughout much of the state.



Sampling is critical following the first cutting. Using a 15" sweep net, take 20 sweeps in 5 separate areas of the field. Calculate the *average number of leafhoppers per sweep*. Use the table below to decide whether treatment is warranted. When sampling, be sure to get a representative sample, and avoid wet fields and field edges. In most cases, populations can be reduced by cutting early, and treatment is not necessary for growers within 7 days of their normal cutting schedule.

Height of Alfalfa (inches)	Ave. # PLH per sweep
<3	0.2 adults
3-6	0.5 adults
6-12	1.0 adults or nymphs
12-14	2.0 adults or nymphs

VEGETABLES

Cabbage maggot – Adults could begin emerging next week. At present it's not clear how heavy the emergence will be. Adults begin laying eggs on the soil close to transplants about a week after emergence. Eggs hatch in 3-7 days and larvae feed on plant roots for 3-4 weeks before pupating in the soil. A total of 1180 DD are required to complete the first generation. The second generation appears in mid-summer, and it is the second generation adults that lay third generation eggs that develop into the overwintering pupae in the fall.

The cabbage maggot adult is similar in appearance to the common fly, but only about half as long, dark ashy gray, with black stripes on the thorax and many black bristles over the body. The larvae are legless, white maggots, about 1/4" long, truncate at the rear, and pointed at the front. Cabbage maggot larvae damage plants by feeding on the root system and tunneling into stems. Larvae tunnel in the roots of radish, cabbage, broccoli, turnip, onion, and other vegetables. Early season transplants and late season seedlings are typically the most severely damaged.



Cabbage maggot control is best achieved by either soil drenches at planting or foliar sprays during adult emergences. For more information, see University of Wisconsin-Extension Publication A3684, Growing Broccoli, Cauliflower, Cabbage and Cole Crops in Wisconsin.

SOYBEANS

Bean leaf beetle – Overwintered adults were swept from alfalfa fields in Rock and Walworth Cos. earlier this week. We are still well in advance of planting, but it is not too early to begin thinking about this pest. Once soybeans emerge, the overwintered adults will move from forages to soybean fields where they'll lay eggs and feed on soybean seedlings. The earliest emerging soybean fields will be most at-risk for heavy defoliation. Based on observations from last winter and reports from Illinois, there is a strong possibility for high bean leaf beetle populations this season. The threshold recommended for bean leaf beetles feeding on seedling soybeans are 16 beetles per foot of row during the early seedling stage and 39 beetles per foot of row when soybeans are at stage V2+.

FOREST, SHADE TREE, ORNAMENTALS AND TURF

Using Plant Hardiness Zone Information- Cold hardiness zone rating is a guide for a plant's ability to survive the coldest expected temperatures in an area. It is a valuable tool when choosing landscape plants. Every year DATCP Nursery inspectors find many plants and trees for sale that will not survive winters in the area they are being sold. Many container landscape plants are also being sold without the cold hardiness zone number printed on their nametags.

Nursery dealers, please keep in mind Wisconsin Nursery Law 94.10 subsection 7b-2, 3, under PROHIBITIONS, No nursery grower or dealer may: 2. Sell, offer to sell or distribute any nursery stock that the nursery grower or dealer knows, or has reason to know, will not survive or grow. 3. Misrepresent the name, origin, grade, variety, quality or hardiness of any nursery stock offered for sale or make any other false or misleading representation in advertising or sale of nursery stock.

Cold injuries can produce a variety of plant growth problems; winter kill of dormant shoots, flower buds, and all above ground plant parts, sunscald, late frost kill of flower buds and shoots, early freeze of unripened fruit, frost heaving of plant crowns, poor growth, reduced flowers and twig die-back.

The USDA has produced a map of the United States defining ten cold hardiness zones. Each zone is based on a range of average annual minimum temperatures. This zone number represents the temperature of the most northern zone in which a plant can grow productively. Wisconsin has three zones: 3, 4, and 5, and these zones have been subdivided

into a and b, for a total of 6 hardiness zones.

The University of Wisconsin Extension website (<http://www.uwex.edu/ces/wihort/landscape/>) and publications about cold hardiness zone ratings for landscape plants are great tools. Two good UW-EX publications are "A Guide to Selecting Landscape Plants for Wisconsin" and "Northern and Southern Wisconsin Fruit Cultivars". County horticulture extension agents can also offer advice and information about hardy plants for each area of our state. Manual of Woody Plants by Michael A. Dirr and Manual of Herbaceous Ornamental Plants by Steven Still are industry standards used to reference plants' cold hardiness ratings.

Quince rust – Quince rust (*Gymnosporangium clavipes*) is one of the most damaging of the Gymnosporangium rusts to woody, rosaceous plants. Unlike **hawthorn rust** or **cedar-apple rust**, quince rust attacks the fruit, green stems and petioles of, especially, hawthorn. Stems of hawthorn attacked by quince rust become swollen, girdling the stem and eventually killing the stem towards the tip. These galls, when abundant, stunt the tree and cause disfigurement, making the tree unmarketable. Old galls may remain on the tree for a number of years. Fruit attack by quince rust supports numerous fruiting structures which give the tree an orange

cast. Attacked fruits eventually shrivel and fall from the tree. There are no known resistant commercial species of hawthorn but susceptibility does vary. Particularly susceptible is the hawthorn *Crataegus crusgalli* var. *inermis*.

Like the other rusts mentioned above, quince rust's alternate host is juniper. On juniper it persists as perennial, spindle-shaped galls. Damage to juniper from the galls can cause a general lack of vigor and apparently diminishes winter hardiness. On juniper, telia are produced in the spring of the year. Teliospores germinate in place and form basiospores, which is the stage that infects the rosaceous host, in this case hawthorn. Telia formation generally coincides with the blooming of hawthorn and can be used to time fungicide applications. Infection may continue into early June if conditions are favorable.

Elimination of the alternate host, juniper, is often listed as a management tactic, but in practical terms is unfeasible. In nursery settings it would be wise to plant junipers and hawthorns in different fields. In nurseries where quince rust is an annual problem, protective fungicide applications are recommended. Timing is similar for cedar-apple rust. Watching when the gelatinous, telial horns form on cedar can help time fungicide applications. Horns can form and swell several times in the spring so it is important to monitor the galls until early June. Once the galls no longer swell after a rain, fungicide treatments can be stopped.

Aphids — This common insect pest is being found on hollyhocks, campanula, cranesbill, lupines, and vegetable plants at Fond du Lac, Polk, and Vernon Co. nursery dealers in trace to heavy amounts.

Bronze birch borer — This serious pest was found on birch trees at nursery dealers in Barron and Wood Cos. This small insect, a native relative of the notorious emerald ash borer, kill several types of birch over time. Bronze birch borer may become a problem when the tree is stressed from

Cedar quince rust on Washington hawthorn

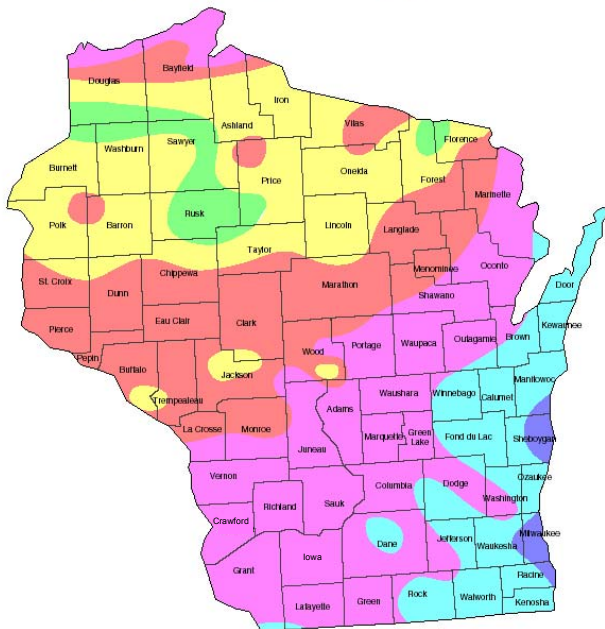


<http://www.oznet.ksu.edu/path-ext/factSheets/Trees/Hawthorn%20and%20Quince%20Rust.asp>

Cold Hardiness Zone Map of Wisconsin

Key

2a -45 to -50°F	4a -25 to -30°F	6a -5 to -10	8a 10 to 15°F	10a 30 to 35°F
2b -40 to -45°F	4b -20 to -25°F	6b 0 to -5°F	8b 15 to 20°F	10b 35 to 40°F
3a -35 to -40°F	5a -15 to -20°F	7a 0 to 5°F	9a 20 to 25°F	11 40°F & up
3b -30 to -35°F	5b -10 to -15°F	7b 5 to 10°F	9b 25 to 30°F	





root damage, water stress, or poor site selection. Flagging, death of limbs near the top of the tree, and raised ridges just under the bark that encircle the trunk are common characteristics of bronze birch borer damage. The exit holes of the borer are a "D" shape and usually within the lower 4 feet of the trunk.

Eastern tent caterpillar -Tents were observed in roadside cherries in Monroe and Jackson counties, and also on trees in Portage and Waushara Cos. At this time they are approximately baseball-sized. (DNR)

Pine needle scale – These insects were found on white pine in Marathon Co. They occur on the needles of pine and are usually white. Heavy scale infestations cover the tree making it look like the tree is flocked. Lighter infestation will usually just cover an area of the tree or a single branch. Scales are most susceptible to treatment when they are in the "crawler" stage, when the adult protective covering opens up and the young scales begin to move out on the host. At this point they don't have a hard shell to protect them.

Spruce spider mite- Moderate amounts of spruce spider mite damage on spruce and arborvitae was noted on samples received from Dane, Waukesha and Lacrosse Cos. Most damage was the result of last season's dry weather. However, active mites were noted on samples from areas that received heavy rains. (UW-EX)

Spider mites — Usually found during hot dry weather, these small pests were found on sweet potato vine in Wood Co. in moderate amounts. The hot, dry conditions of a greenhouse sometimes make ideal sites for populations to grow.

Thrips — Another common greenhouse pest, thrips were found on verbena and other annuals in Manitowoc and Sauk Cos. in light to moderate levels. The best way to monitor for thrips is to place colored sticky cards out or to take a white piece of paper and tap the flowers onto the paper and look for very tiny narrow insects crawling on the paper. They vary in color from a grayish color to orange. Thrips prefer to feed in the flowers and can cause stippling damage to the flowers and foliage.

Southern pine engraver (*Ips grandicollis*) - Scattered pockets of mortality to mature red pine plantations in Dane and Dodge Cos. are being blamed on this pest. Most of the damage was initiated the previous two seasons. Recent rains should help in reducing isolated outbreaks this summer. (DNR)

White pine blister rust- Aecial spores of white pine blister rust are being produced on the white pine throughout the state at this time. (DNR)

Black spot — This common fungus appeared on roses at nursery dealers in Barron, Dane, Douglas, Dunn and Washington Cos. in light to moderate amounts. Cool, wet weather promotes the development of this disease. Spacing roses to increase air circulation and to reduce water on the foliage can reduce development of this disease. Watering during the morning rather than in the late afternoon will also reduce the spread of black spot.

Botrytis — The current weather is starting to increase this pathogen in many different types of bedding plants, such as New Guinea impatiens, geraniums and phlox. Levels of the disease are still at light to moderate amounts in Dane, Manitowoc, Richland, Washington, Wood and Vernon Cos. Some signs to look for are necrotic areas on the foliage with grey fuzzy mold. Hoop houses that have little air circulation and tightly packed conditions are particularly susceptible. Increasing air flow and plant spacing, as well as removing dead flowers and foliage are excellent ways to reduce the spread of the disease.

Edema— This disorder was noted on ivy geraniums and sweet potato vine at Milwaukee and Sauk Co. nursery dealers, but levels are still light. Tan bumps on the upper surface of the leaves, caused in part by too much water. Reducing water will not get rid of the bumps, but the plant will grow out of it.

Lophodermium needlecast — This disease was found in Portage and Wood Cos. in light amounts on Austrian pine,. This fungal disease affects the second- and third-year

needles, turning needles yellow. Black football-shaped spore structures called apothecia release spores to reinfect other pines.

Powdery mildew — Light to moderate amounts of powdery mildew were found on roses at Barron, Columbia, Dunn, Eau Claire, Richland and Wood Co. nursery dealers. Powdery mildew is characterized by white, powdery mold forming on the leaf surface that can be wiped away with a finger. Increasing air circulation will decrease incidence.

Pseudomonas leaf spot — This leaf spot has a large host range and can have many different symptoms depending on the host. Light amounts were found on impatiens in Sauk and Vernon Cos. and on magnolia and mockorange in Washington Co. The foliar symptoms on impatiens are circular tan lesions with a purple margin, while black irregular spots occur on the magnolia and mockorange.

Rose mosaic virus — Roses in Dane, Dunn, Douglas, Columbia, Marathon, Portage, Richland, and Wood Cos. were observed with this virus. This virus is not treatable. It can be vectored by insects which feed on the infected plants, or transmitted by pruners. It is important to destroy plants infected to prevent damage to other plants.

Meadow vole or mice— damage was observed on white ash planted in 1997 and 1998 in Dane Co. (DNR)

Gypsy moth— Larvae have begun to hatch in many parts of Wisconsin. Peak hatch has occurred or is close to occurring in Columbia and Dodge Counties. Many of the caterpillars are moving from egg masses to foliage. Many of the larvae have been ballooning (dropping on silk threads) out of trees and can be stopped from re-entering the tree by placing barrier bands around the base of the tree. Burlap collection bands can also be used on these trees to facilitate collecting older larvae later this spring. Contact the gypsy moth hotline for

more information on using these mechanical controls 1-800-642-MOTH. (DNR)

STATE/ FEDERAL PROGRAMS

Gypsy moth spray program— The Cooperative Gypsy Moth Program will begin aerial spraying with *Btk* (*Bacillus thuringiensis*) this week in southern Wisconsin. Overall, 48 sites in 12 counties are scheduled to be sprayed between now and mid-summer.

Gypsy moth trapping program — Trapper training takes place May 19-22 in two locations. Southern trappers will train in Madison on May 19-20 while northern trappers will train in Tomahawk on May 21-22. Training consists of getting the trappers ready to be able to set 600 traps each in their assigned area. Topics covered include: Re-visiting last year's work and results, going over what is new for 2003, trapping manual highlights, trapper safety, a step-by-step guide to being a great trapper, landowner contacts, gypsy moth biology, trap making, trap setting procedures, GPS use, map reading skills, using plat books, and, of course, how to fill out their paperwork.

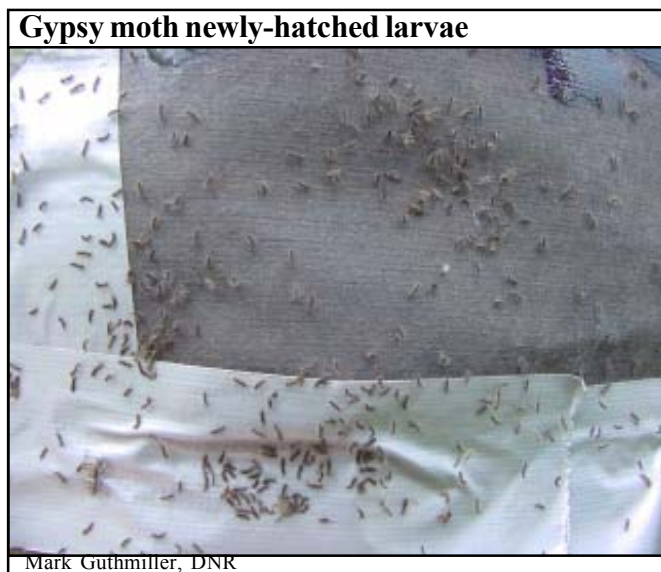
This classroom training is only part of their overall training. Each trapper will have field training with their lead worker and other crew members. Trappers will get their trapping supplies, make traps, set some traps, use their GPS units, and go over expectations that the lead worker has for the season. In addition to this, each trapper will receive individualized training on a one-to-one basis from their lead worker. The lead worker will ride along with the trapper to show them the finer points of setting gypsy moth traps. All this is done to get the trapper comfortable with the job. After training, trappers are pretty much on their own. Lead workers schedule regular visits to check data and download the GPS units to make sure traps are placed correctly and that all trapping protocols are followed.

Trappers will start placing traps after Memorial Day. Most traps should be up by July 4th or shortly after. Landowner cooperation in allowing us to set traps on private property is greatly appreciated. For more information on the gypsy moth trapping program, please call our hotline at 1-800-642-MOTH.

ODDS-N-ENDS

Black flies - We received no reports of mosquitoes but plenty of blackflies near streams from a turkey hunter in northern Juneau Co. yesterday. He also noted a couple of deer ticks on his clothing, but added that a guy who smells like DEET should not attract many!

Clover mite - Phil Pellitteri (UW-EX) reported that he has been received several calls concerning clover mites in Sauk, Waukesha, and Dane Co. homes. Clover mites sometimes invade homes in large numbers in early spring and late



autumn. If crushed they leave a reddish stain on curtains, walls and woodwork. They are a nuisance, but do not bite humans or animals, transmit disease, or feed on household furnishings.

CALENDAR OF EVENTS

Rhineland Potato Grower Field Day

July 12, UW Rhineland Research Station
Contact: (715) 369-0619

Central Wisconsin Potato Field Day

July 16, WU Hancock Research Station
Contact: (715) 249-5961

Northeast Wisconsin Potato Field Day

July 17- Langlade County Airport
Contact: Ken Williams, UWEX, (715) 627-6236

Sixth International Christmas Tree Research and Extension Conference- September 14-19, 2003. Henderson and Boone, North Carolina. More information can be found at www.ncsu.edu/feop/ctre.

Wisconsin Apple Growers Association IPM Field Day,

Thurs. June 5, North Freedom, WI
Info at <http://www.waga.org/hot.html> or (920) 478-4277

Wisconsin Christmas Tree Producers Association Summer Convention

August 15-16, 2003
Menominee Casino-Bingo-Hotel, Keshena, WI
Tour Hanauer's Tree Farms, Shawano, WI

Have an event you'd like listed in our calendar? Send information (including contact info) to bulletin@datcp.state.wi.us

QUOTE OF THE WEEK

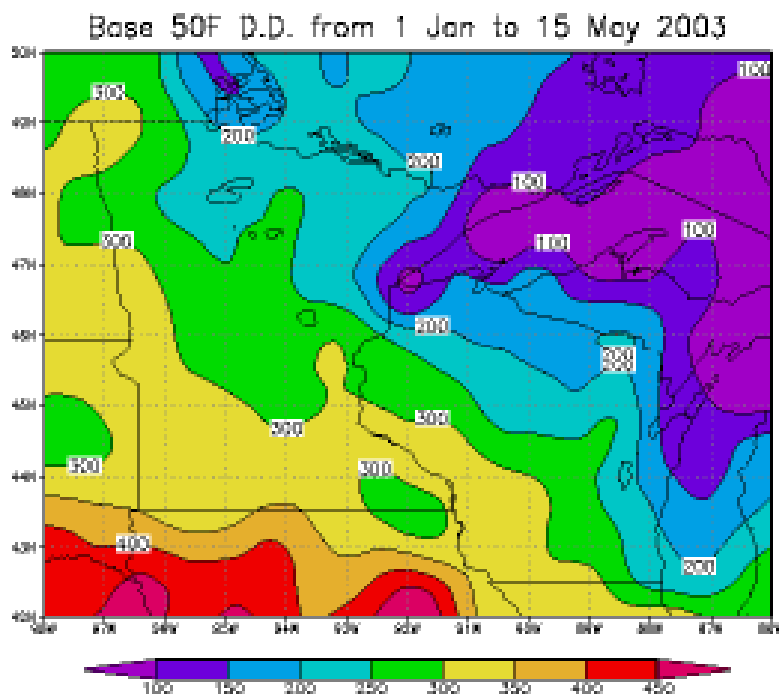
When the bee comes to your house, let her have beer; you may want to visit the bee's house some day.
-Proverb from the Congo

WEBSITE OF THE WEEK

Wisconsin Cooperative Gypsy Moth Control Program

<http://www.datcp.state.wi.us/arm/environment/insects/gypsy-moth/>

Aerial spraying for gypsy moth control will begin May 20th in the southern part of the state. This web site provides background information, updates, and maps of this year's spray plans, as well as links to other resources.



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

Apple Insect Trapping Results						
County						
City	Date	STLM	RBLR	CM	OBLR	
Crawford Co.						
Gays Mills-W2	7/5-7/12	12	9	0		
Iowa Co.						
Dodgeville	5/8-5/15	900	33			
Spring Green	5/9-5/15	15	6	3	5	
Dane Co.						
Deerfield	5/6-5/12	483	19	2	0	Apple trees full bloom
Madison	5/9-5/15	32	19	2	1	
Green Co.						
Brodhead	5/7-5/14	8	5		3	
Pierce Co.						
Spring Valley	5/8-5/15	67	22	0	0	Full bloom by Saturday
Beldenville	5/7-5/14	6	3	1	0	Macs in full bloom
Trempealeau Co.						
Galesville	5/7-5/12	9	3	0	0	
	4/29-5/5	18	2	0	0	10% king blossoms open
Jackson Co.						
Hixton	5/1-5/9	160	21			
Fond du Lac Co.						
Rosendale	5/1-5/12	2	0	2		
Malone	5/8-5/15	15	10	0		Macs in full bloom as of 14th
Marquette Co.						
Montello	5/4-5/11	903	0	0	0	
Ozaukee Co.						
Mequon		900	28.5	0.4		King bloom on early varieties: Macs, Idas, Gingergold, Paulas Others at full pink
Waukesha Co.						
Waukesha	5/3-5/9			0		
Sheboygan Co.						
Plymouth	5/9-5/16	658	48	0	0	McIntosh at full bloom
Door Co.						
Sturgeon Bay	5/6-5/13	150	19	4		green fruit worm
Brown Co.						
Oneida	5/5-5/12	250	24	1	0	
Racine Co.						
	5/9-5/16	1204	0	0	1	Full bloom most varieties