



Wisconsin Pest Bulletin

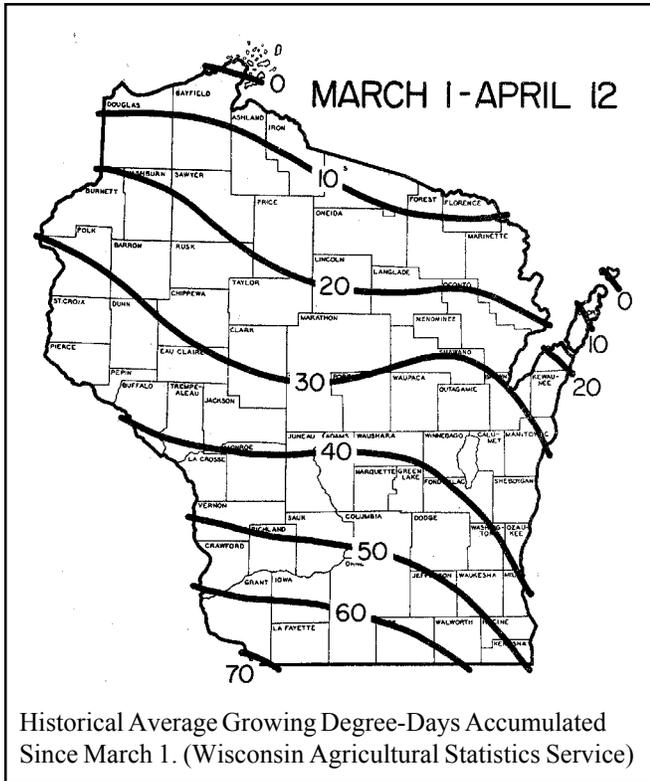
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ALERTS

Southern wilt on geraniums – As reported in the last Pest Bulletin, geranium (*Perlargonium* sp.) plants in several Wisconsin greenhouses were determined to be infected with *Ralstonia solanacearum*, race 3 biovar 2. This bacteria also causes **brown rot** of potatoes and other solanaceous crops. The bacteria is not known to be established in the United States. *Ralstonia* spreads in water and by physical means such as pruning tools.

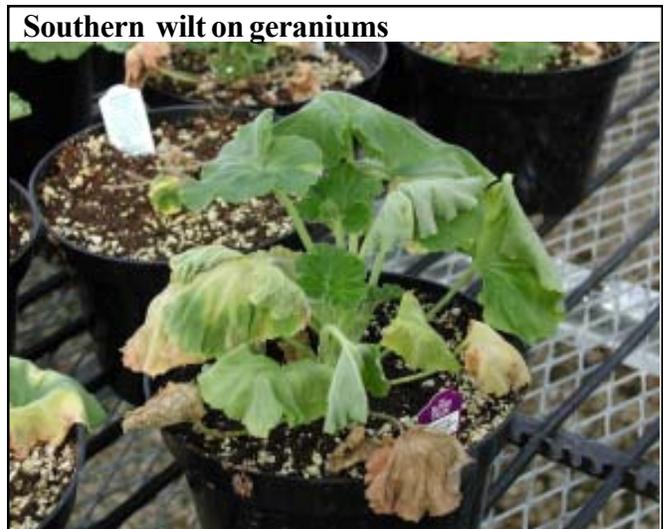
Geraniums (and other plants at risk of secondary infection from suspect geraniums) at four greenhouses in Wisconsin have been destroyed under the supervision of State and Federal plant protection personnel, and the greenhouses disinfected according to procedures established by the USDA. Another three greenhouses in the state have had plants test positive for the bacteria. These greenhouses have been placed under quarantine orders, and plans are in place to destroy suspect plant material. Over 14,000 geraniums have been destroyed in the state.

Nationally, as of 4/8/03, State and Federal inspectors have found geraniums with Southern wilt at 122 greenhouses in 26 states. More than 896 greenhouses have been inspected, many of them several times. DATCP personnel will continue to visit greenhouses in the state and sample plants for the bacteria.



WEATHER AND PESTS

Last week's late winter snowstorms spread snow throughout the state preventing early season field work in most areas. In northern counties remnants of winter linger, including frost depths of up to seven feet. Where conditions are suitable, mainly in the central and southern regions, some field activity has been reported. In the south, warmer temperatures have accelerated snowmelt to the extent that only minimal amounts can now be observed on the ground in the Madison area. Temperatures escalating into the 60's over the week-end will likely stimulate plant and insect activity, but expected rains early next week may further delay planting for many growers. An additional side-effect cool, wet spring conditions is delayed corn development, which may leave seedlings more susceptible to below-ground insect injury for an extended period of time.



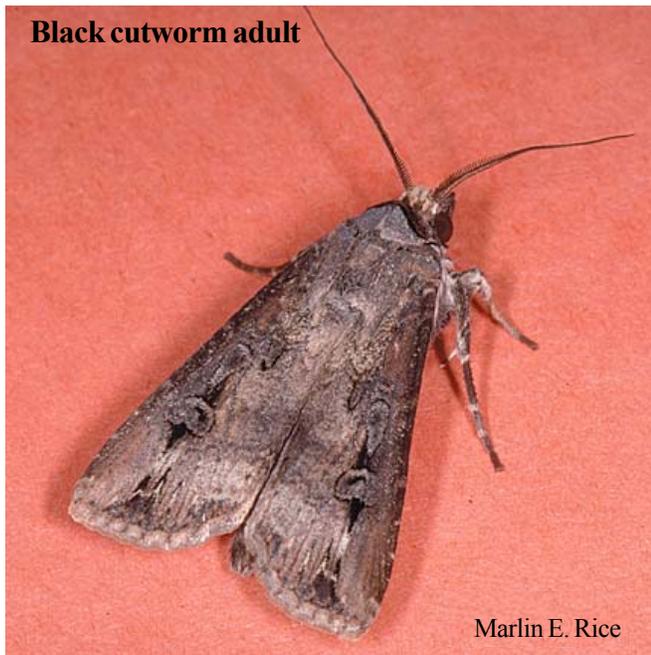
LOOKING AHEAD

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

Alfalfa weevil – Warmer temperatures in the days ahead mean alfalfa weevil adults will be leaving overwintering sites for alfalfa fields. The time to begin scouting isn't far off. Scouting efforts should be initiated at 300 degree days (base 48°F), and should target sandy areas of fields and south facing slopes first.

Pea aphid – Overwintered eggs in alfalfa and red clover should begin hatching soon. Once hatched, several generations will be passed on the primary host before winged adults migrate to pea fields around late May or early June. Pea aphids are not considered an economically important alfalfa pest, yet monitoring activity in alfalfa fields is recommended. Routine scouting will help to determine when populations begin migrating to pea fields, where heavy populations may lead to economic loss.

Black cutworm – We anticipate the earliest migrants will arrive in the next week or two, but to date, no captures have been documented at any of the southwestern trap locations. Migration is highly influenced by weather conditions, thus arrival dates fluctuate from season to season. In recent years the first pheromone trap catches occurred between April 13-15 at sites throughout the southwestern part of the state.



Spotted tentiform leafminer - Pheromone traps should be in place. Expect adults to begin appearing in traps at 22-70 DD (base 50°F), larvae at 209-231 DD, and the first leafminers at 329-402 DD. The first trap catch of the season, two moths,

was reported from an orchard in Iowa Co. on April 11th.

Redbanded leafroller - Anticipate the first redbanded leafroller adults to appear in pheromone traps between 25-78 DD (base 45°F), the first eggs around 125 DD, and peak first generation adult emergence around 200 DD.

EARLY-SEASON PEST INSECT ADVISORY

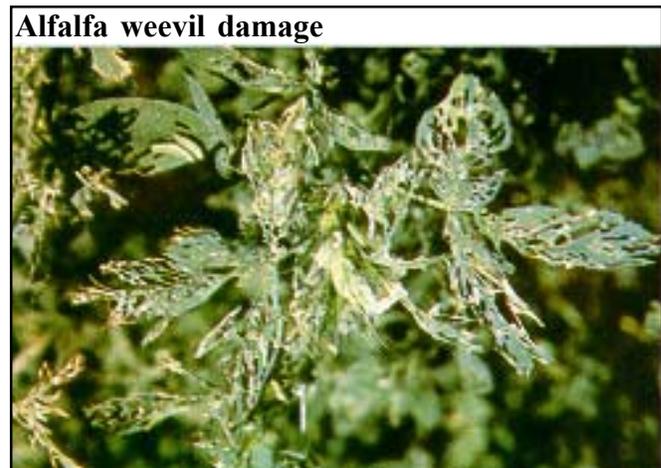
Throughout the season we provide alerts and reports on insect activity, but it can be difficult to keep track of what pests to look for and what time of the season to look for them. Following is a list of some of the economically important pest insects that will be resuming activity by the end of the month, and a brief description of the appropriate procedures to use when scouting for these pests. Where conditions are right, crop scouts are encouraged to begin monitoring activity of the alfalfa insects listed during the first week of May. Begin scouting for the corn pests listed just after emergence.

ALFALFA

Alfalfa weevil – Activity resumes on the first warm spring days as overwintered adults migrate from ditches, fence rows and grassy areas to alfalfa fields. Scouting should begin once 300 DD (48°F) have accumulated. The heaviest damage most often occurs when the first cutting is ready for harvest, so monitoring activity will be most important in the first crop. Target warm, sandy areas and south-facing slopes first. Look for pin-holes in the upper leaves, and unfold new leaves to find larvae.

The University of Wisconsin-Madison Extension recommends the following scouting procedure to make a detailed evaluation of first crop weevil damage:

Walk an M-shaped pattern and collect 50 stems at random. When finished, carefully look over each stem for signs of weevil feeding. Count all stems that show signs of feeding and divide that number by 50 (total number of stems)





initially collected) to determine percentage tip feeding. Control is suggested when 40% or more of the stems show signs of weevil feeding.

A growing degree day model for alfalfa weevil is provided below:

Life stage	GDD required to complete life stage	Accumulated degree days
Egg	300 (base 44°F)	300
1 st instar	71 (base 48°F)	371
2 nd instar	67 (base 48°F)	438
3 rd instar	66 (base 48°F)	504
4 th instar	91 (base 48°F)	595
pupa	219 (base 49°F)	814

UW-Extension Cooperative Extension Service Field Crop Scouting Manual Version 2.0 printed 12/98

Those interested in closely following alfalfa weevil development during the growing season are encouraged to visit the WI-MN Cooperative Extension Agricultural Weather Page at <http://www.soils.wisc.edu/wimnext/alfalfa/alfweevil.html>.

Pea aphid – Pea aphids are one of the most important economic pest insect of peas in the Midwest. They overwinter as eggs in alfalfa and red clover and begin hatching in early spring. After hatching, several generations are passed on the primary host before winged adults migrate to pea fields around late May or early June.

In addition to causing damage through direct feeding, pea aphids vector several viruses. Under normal circumstances yields are only occasionally affected by pea aphids, but when plants are drought stressed, aphids can be especially problematic. Monitoring aphid dynamics in alfalfa is not only important, it's also the best method for determining when pea aphid migration to peas has begun. Early-season pea aphid surveys should be directed at determining when the first aphids appear in alfalfa and when the winged forms begin appearing. Later on it will be important to detect the first aphids in peas and the rate of population build-up. The

threshold for pea aphids in alfalfa is 100 per sweep.

Meadow spittlebug – Meadow spittlebug is the insect that forms the white, frothy spittle masses that will soon be visible in grassy areas along roadsides and alfalfa fields. The spittle mass provides protection from predators and prevents desiccation. Inside each mass is a tiny orange nymph, the immature stage of the spittle bug.

Spittlebug damage to alfalfa is uncommon, but cases of stunting resulting from heavy populations are occasionally documented. The nymphs, not the adults, cause yellowing and stunting of alfalfa leaflets. If meadow spittlebug problems occur at all they typically arise in the first crop. A population in excess of one nymph per stem is considered economically significant.

Plant bugs – Surveyors can expect to begin collecting adults in sweep nets toward the end of April or in early May. There are two species of plant bugs that are commonly found in Wisconsin alfalfa fields: the **alfalfa plant bug** and the **tarnished plant bug**. The adults are relatively easy to tell apart. The tarnished is smaller and reddish brown in color, while the alfalfa is bright green in coloration and tends to be slightly larger. Identification becomes more complicated when dealing with the nymphs, but luckily it's not necessary to distinguish between the two when determining if the economic threshold for plant bugs has been exceeded. The two plant bug species can be counted together. Further, economic infestations by plant bugs are very rare and treatments specifically for these pests are seldom required. Cutting early is usually an effective way to reduce plant bug





populations. The threshold for plant bugs in alfalfa 3" or shorter is 3 per sweep, and increases to 5 per sweep in alfalfa that is taller than 3".

General alfalfa scouting reminder – To help ensure production of high quality alfalfa, scouts are encouraged to monitor fields on a weekly basis throughout the season. Sampling can be done less often when cool weather prevails, but in hot weather, when insect development and reproduction occur at an accelerated rate, the frequency of sampling should be increased. Additionally, sampling frequency should be increased as insect populations and/or damage approach economically damaging levels.

CORN

Black cutworm – Fields with grassy weed growth, namely fields subject to spring flooding and late-planted fields, are most attractive to egg laying female cutworm moths. Accordingly, sampling should be concentrated in fields exhibiting either of these qualities.

The key to managing black cutworm infestations is early detection. Begin scouting in May (by 433 DD – 50°F) and continue into June. Check 20 consecutive plants in 5 separate areas of the field. When damaged plants are observed, try to collect larvae for positive identification. To retrieve a larva, dig in the soil near the affected plant. The larva, sometimes referred to as the "greasy cutworm" varies from light gray to black in color and has a glossy sheen.

Management measures are justified when 5% of the plants show leaf feeding and larvae are 6th instar or smaller. If the percent of damaged plants is near the threshold, sample again in 5 more locations within the field to ensure accuracy.

Seedcorn maggot – Seedcorn maggots damage corn by burrowing into seeds and preventing germination. The female adults, small light-gray flies, are attracted to decaying organic matter such as manure and plant residue for egg laying. Seedcorn maggots tend to be most problematic in heavily manured fields, fields with high organic matters levels, and in years when germination is slowed by wet, cold weather conditions.

When plants are slow to emerge and poor stand establishment occurs, consider the seedcorn maggot as a

possible cause. To confirm, dig up seeds from areas of the field where slow or spotty emergence is observed, and inspect for maggot feeding.

Unfortunately, once seed corn maggot damage is detected, it's too late to control the infestation; therefore, economic thresholds are not applicable. Preventative insecticides should be applied to the seed or at planting. To forecast adult emergence and the potential for field infestation, use the following degree day model, starting when the ground thaws. Peak emergence of the first three generations will occur when totals of 200 DD, 600 DD, and 1000 DD (base 39°F) respectively, have been reached.

White grubs - In fields where randomly distributed patchy spots of wilted or stunted corn plants are observed, and plants can be easily pulled from the soil, white grubs may be the culprit. White grubs prune corn roots and can present problems in corn following sod and in fields with weed control issues, but in general, scouting specifically for this pest isn't necessary. Instead, keep white grubs in mind as a potential cause of damage when the symptoms listed above are observed. When white grub feeding is suspected, dig up plants that show signs of injury and examine the roots for pruning. Look for grubs in the soil near the root zone and record the number of damaged plants and the number of grubs found (UW-Extension Cooperative Extension Service Fields Crop Scouting Manual Version 2.0 printed 12/98). For current recommendations on control see Wisconsin-Extension Bulletin #A3646, Pest Management in Wisconsin Field Crops.

SMALL GRAINS

Aphids – The two aphids species that overwinter in Wisconsin and appear in small grains early in spring are the **English grain aphid** and the **bird-cherry oat aphid**. These aphids damage can directly damage grains by extracting sap, but more importantly, they are capable of transmitting Barley Yellow Dwarf Virus (BYDV). BYDV affects oats and wheat as well as barley, but in Wisconsin, oats seems to be most often damaged.





<http://info.ag.uidaho.edu/keys/plates/plate22.htm>

To scout for aphids in small grains examine plants in 10 areas of each fields, counting the number of aphids per plant. Economic thresholds are listed below.

Growth Stage	Bird-Cherry Oat Aphid
	English Grain Aphid
Seedling	30 aphids per stem
Boot to heading	50 aphids per stem

UW-Extension Cooperative Extension Service Fields Crop Scouting Manual Version 2.0 printed 12/98

Scouting information - Readers who'd like informational sheets on scouting for any of the crop pests included in this week's issue should contact Krista Lambrecht at krista.lambrecht@datcp.state.wi.us or call (608) 224-4594.

SOYBEANS

Bean leaf beetle – The predictive model used to calculate bean leaf beetle winter mortality rates, developed at Iowa State University, suggests that much of the overwintering population was NOT able to survive the 2002-2003 winter here in Wisconsin. Although these results are encouraging, it is still too early to know for sure what we can expect from the bean leaf beetle later this summer. Because we have not employed this particular predictive model before, we cannot be certain whether it is entirely applicable to Wisconsin. One piece of information that suggests the model may not tell the whole story comes from Champaign County, Illinois. In the April 3 edition of the University of Illinois-Extension's Pest Management and Crop Development Bulletin, Extension Entomologist Kevin Steffey reports on heavy overwintered populations observed in wooded areas and crop residue in the area. The observer, Scott Isard (University of Illinois Department of Geography), estimated that the bean leaf beetles may be more

numerous than they have been during the past two springs.

For now we cannot offer any specific predictions, but we will be beginning a survey for overwintered bean leaf beetles in the next week or two. Hopefully survey results will shed some light on the subject and allow us to develop a more accurate forecast. Despite the predictive model estimates, growers are cautioned to stay alert to the possibility of bean leaf beetle outbreaks in the months ahead.

FOREST, SHADE TREE, ORNAMENTALS AND TURF

USDA- approved regulatory treatments for gypsy moth in Christmas trees and nursery stock- Pesticides registered for control of gypsy moth in Wisconsin in 2003 are listed in a table on the following page. Some of the chemicals are contained in formulations that are a mixture of several pesticides. Refer to the environmental cautions as to toxicity to bees, fish and other wildlife. When choosing a pesticide for control of gypsy moth keep in mind that some chemicals have longer residual activity and may provide better control.

A regulatory treatment is a mandatory pesticide application required by the USDA and DATCP to assure proper control of gypsy moth in areas (field or perimeter) known to be infested. The purpose of this required treatment is to prevent the spread of gypsy moth to non-infested areas. The following insecticides are labeled for use on Christmas trees

Figure 1. Estimated winter mortality of bean leaf beetle at WI sites.

Weather Station	Accumulated daily ave. subfreezing temp from Oct 1-April 15		Est % Mortality
	Oct-March		
Antigo	-1944		90+
Beloit	-1072		70-75
Bloomer	-1845		90+
Boscobel	-1279		80-85
Brodhead	-1257		80-85
Clintonville	-1521		90+
Crivitz	-1919		90+
Fond du Lac	-1012		65-70
Gays Mills	-1194		70-75
Green Bay	-1385		70-75
Kenosha	-851		60
LaCrosse	-1306		85
Madison	-1183		75-80
Medford	-1797		90+
Milwaukee	-937		65
Prairie du Chien	-1263		80-85
Rhineland	-2177		90+
Richland Center	-1354		65-70
Sparta	-1503		90+
Waukesha	-1128		75
Wausau	-1753		90+

USDA Approved Regulatory Treatments for Nursery Stock and Christmas Trees in 2003						
Product Name (Manuf.)	Chemical	Class	Application	REI	Comments	USDA approved
Astro (FMC)	Permethrin	Synthetic Pyrethroid		24	RUP*	No
Conserve (Dow Agrosciences)	Spinosad	Actinomycete-derived fermentation product	Ground	4		Yes
Dimilin (Uniroyal)	Diflubenzuron	Insect Growth Regulator	Aerial	12	RUP	Yes
Golden Pest Spray Oil (Stoller)	Soybean Oil	Oil	For gypsy moth egg mass control. Egg mass must besaturated to suffocate the eggs.			Yes, for egg mass control
Imidan (Gowan)	Phosmet	Organophosphate		24		No
Mavrik (Wellmark)	Fluvalinate	Synthetic Pyrethroid		12	Not for broadcast use in nurseries.	No
Mimic (Dow Agrosciences)	Tebufenozide	Insect Growth Regulator	Aerial	4		Yes
Orthene (several)	Acephate	Organophosphate	Ground	24		Yes
Sevin (Aventis or Drexel)	Carbaryl	Carbamate	Aerial or ground	12	Use depends on formulation	Yes
Talstar (FMC)	Bifenthrin	Synthetic Pyrethroid		12		No

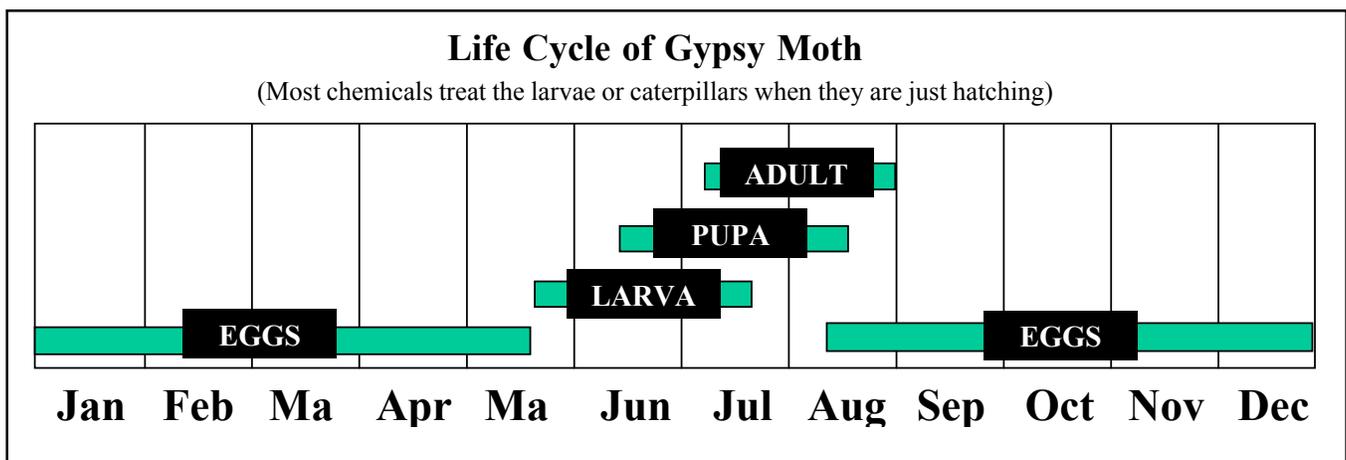
RUP = Restricted Use Pesticide. Remember to read and follow all label directions.

and nursery stock. Pesticides acceptable for regulatory treatments by the USDA are noted in the last column.

take place in Mosinee on May 7, 2003. Trapping procedures, mapping, GPS use, computer laptop use, recording and reporting data will be covered during training. Trapper training will occur May 19-20 in Madison for southern trappers and May 21-22 in Tomahawk for northern trappers. Trapper training covers biology and identification of the gypsy moth, map use, trap construction and placement, GPS use, safety, landowner contacts, data recording and report-

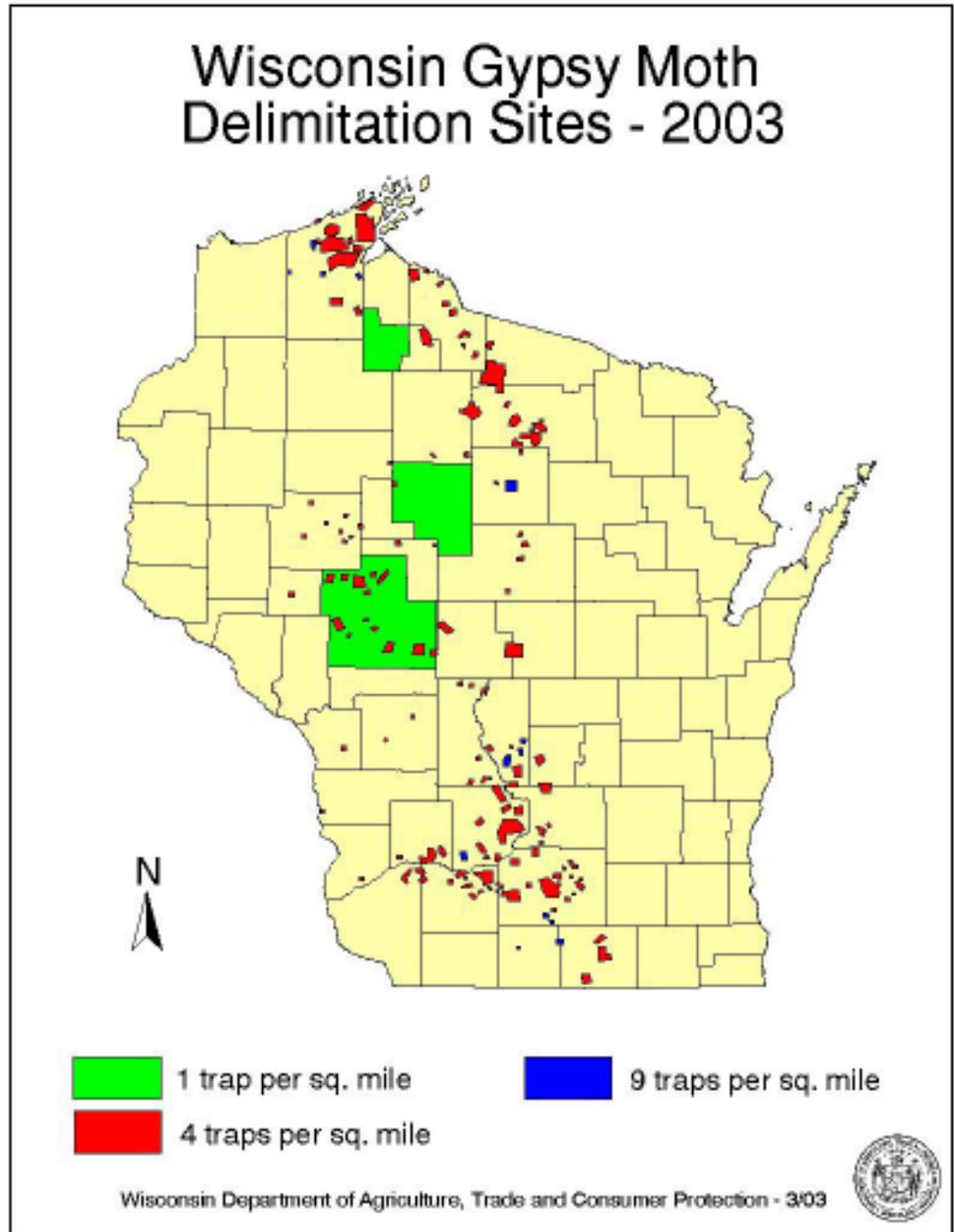
STATE/ FEDERAL PROGRAMS

Gypsy moth trapping program— Lead workers and trappers will be hired by the end of April. Training for lead workers will



ing, and filling out paperwork.

There are 143 delimitation sites scheduled for Wisconsin. A delimitation site is a place where we set extra traps, 1, 4 or 9 traps per sq. mile, to better define where a reproducing gypsy moth population may be occurring. It narrows down the survey area for our fall egg mass surveys and it helps to evaluate how well the treatment program has worked for blocks that were treated with Btk or pheromone flakes. Delta traps are used in most delimitation sites but some will have milk carton traps depending on how many moths were caught in the area last year. While most of our traps are set along roads, delimitation trapping takes place off the road and on private property. Delimitation blocks can range from about one sq. mile to several sq. miles so it is



necessary for trappers to set traps on private property to get the coverage we need to make good gypsy moth management decisions. Trappers are trained to make landowner contacts before walking onto private property and get permission to set traps. If landowners are not home, trappers leave a notice about the trap setting on the property. Questions about the trapping can be directed to our office at 1-800-642-MOTH. Landowner cooperation is appreciated and plays a big part in the success of the program.

For more information on the gypsy moth trapping program, please call our hotline at 1-800-642-MOTH or visit our website at <http://datcp.state.wi.us/arm/environment/insects/gypsy-moth/>

WEBSITE OF THE WEEK

http://botit.botany.wisc.edu/toms_fungi/

Tom Volk's Fungi

This outstanding web site, run by UW-La Crosse Professor Tom Volk, shows a sense of wonder and delight that brings mycology to life. The Fungus of the Month, searchable images of fungi, a fabulous intro to fungi, and much more. If anyone around you ever doubts the value of the Internet, show them this Web site.

QUOTE OF THE WEEK

Now 'tis the spring, and weeds are shallow-rooted;
Suffer them now, and they'll outgrow the garden,
And choke the herbs for want of husbandry.

William Shakespeare (1564–1616), Henry VI, Part 2, act 3, sc. 1, l. 31-3

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