Wisconsin Pest Bulletin

Wisconsin Department of Agriculture, Trade & Consumer Protection

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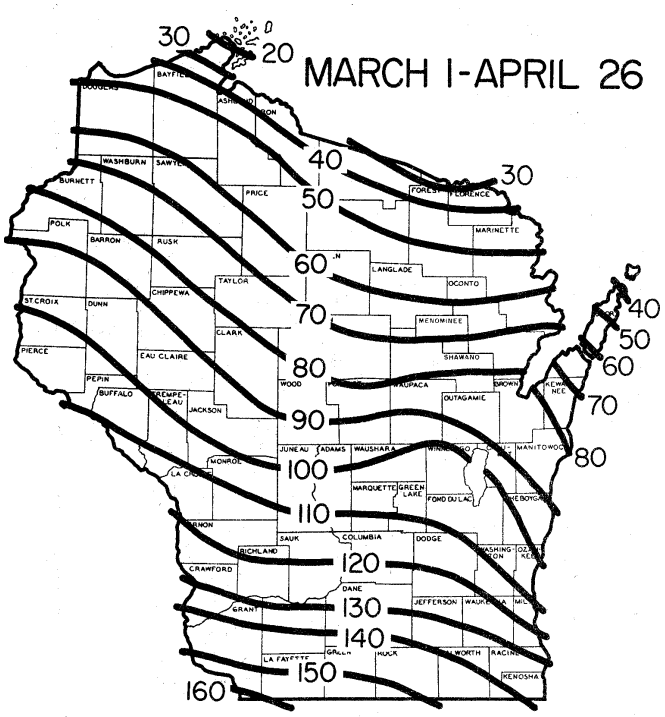
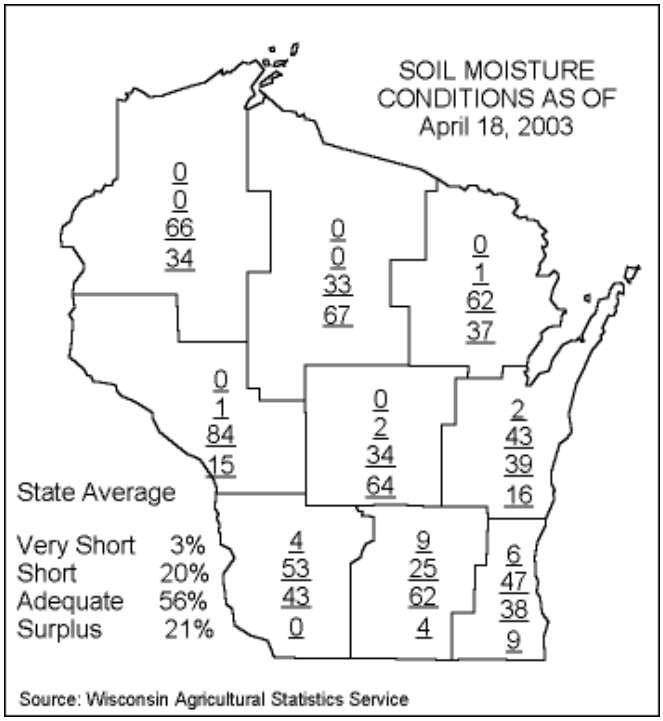




Historical Average Growing Degree-Days Accumulated Since March 1. (Wisconsin Agricultural Statistics Service)

WEATHER AND PESTS

Since the last edition of the Bulletin, temperatures across the state have been highly variable. Mid-month temperatures quickly soared into the 80°s in the south, then dropped off almost as rapidly and remained cool and wet until just recently. On average, temperatures this week have been just a bit warmer than normal. After what seemed like a long wait, conditions are becoming increasingly suitable for fieldwork, permitting anxious farmers to begin sowing oats and seeding alfalfa. Alfalfa is greening up across the state, with plant height reaching 6 inches throughout much of the south, and the first reports of corn planting in very limited areas were received this week. Insect development and activity are off

Growing degree days from March 1 through April 24 were:

Site	GDD*	2002 GDD	Norm GDD	Base 48	Base 40
SOUTHWEST					
Dubuque, IA	190	174	145	174	379
Lone Rock	176	162	117	147	350
SOUTHCENTRAL					
Beloit	184	177	136	164	364
Madison	153	156	122	140	325
Sullivan	155	171	116	138	325
Juneau	133	157	102	122	301
SOUTHEAST					
Waukesha	128	161	112	117	290
Hartford	118	152	98	108	275
Racine	107	152	114	101	253
Milwaukee	102	141	106	95	242
EAST CENTRAL					
Appleton	108	122	84	95	242
Green Bay	77	96	73	68	194
CENTRAL					
Big Flats	153	142	88	121	303
Hancock	143	138	88	122	291
Port Edwards	133	123	81	111	274
WEST CENTRAL					
LaCrosse	162	156	101	136	338
Eau Claire	147	127	78	119	312
NORTHWEST					
Cumberland	119	99	71	100	256
Bayfield	61	53	22	47	144
NORTH CENTRAL					
Wausau	109	99	67	89	236
Medford	105	87	61	86	231
NORTHEAST					
Crivitz	66	81	56	59	183
Crandon	79	77	46	65	197

GDD (Growing Degree-Days) are synonymous with degree-days above modified base 50°F, with no low temperature below 50°F or above 86°F used in calculation. See map for Historical Average Growing Degree Days.

to a slow start. Field staff have yet to detect any alfalfa weevil adults, which are typically present in fields by now, and in general, few pests have been observed in any of the fields surveyed. We anticipate insect activity to escalate in the week ahead.

ALERTS

Beware! Ticks Are Out - Spring brings us so many wonderful sights and sounds but it also brings out the ticks. A plant pest and disease specialist with the Wisconsin Department of Agriculture and Trade and Consumer Protection recently remove 27 ticks while in eastern Columbia Co. The inspector removed both deer (*Ixodes scapularis*) and wood (*Dermacentor variabilis*) ticks.

Female Deer tick Male Wood tick

Underside of Ixodes tick

Deer ticks are active from late March until early November in Wisconsin. Ticks stop being active only when there is snow on the ground. Adult deer ticks are somewhat smaller than the wood tick (American dog tick) and lack any markings on the scutellum (see photos, courtesy of UW-Extension). The underside has a u-shaped line that is seen in all *Ixodes* ticks. The tick has three life stages: larva, nymph and adult. It takes two years to complete its life cycle and during that time it feeds only three times. The immature stages feed on small rodents including white-footed mice. It is here the ticks pick up the spirochete that causes Lyme disease.

The highest numbers of deer ticks are found in brushy and wooded areas with moderate understory in West central and southwest Wisconsin. Deer ticks are far less common in eastern Wisconsin.

For personal protection when working or hiking in tick infested areas, cover the skin as much as possible by wearing long sleeve shirts and long pants with the legs tucked into socks. Sprays containing permethrin can be applied to clothing to kill any ticks that come into contact with the garment. A single spray can last for two weeks or more and is very effective. Repellents containing the active ingredient DEET can be applied to both clothing and skin. These do not kill ticks but prevent them from attaching to treated areas. Remember to take precautions when in tick infested areas. A little precaution can go a long way. **(UWEX in part)**

Free Soybean Cyst Nematode Testing Offered - The University of Wisconsin Department of Agronomy, in cooperation with the Wisconsin Soybean Marketing Board, offers free Soybean Cyst Nematode (SCN) tests for Wisconsin farmers.

The tests allow farmers to sample up to three fields to determine if SCN is present and at what levels. Farmers who send samples to the laboratory will receive a report showing the SCN egg count and a brochure to help plan rotations and other cultural practices to lower the level of infestation.

Each testing kit includes a sample bag and prepaid mailer for one soil sample, which should represent 10-15 acres. The best times to collect samples for SCN testing and for soil fertility analysis is before planting in spring and around harvest time in autumn.

In 2002, the SCN laboratory processed about 160 samples. Sixty-three percent of the samples were negative and 30 percent showed low to moderate levels of SCN infestation.

To get soil sample test kits for early spring sampling, please contact Colleen Smith by email at clsmith8@facstaff.wisc.edu or by phone at 608-262-7709.

Southern wilt on geraniums - Things apperar to be coming to an end in the Ralstonia saga. To date, seven greenhouses have had geraniums and associated plants removed and destroyed. Over 33,000 geraniums and 7,000 other plants in these greenhouses met their fate either at an incinerator or a landfill. Follow-up inspections continue at greenhouses that were outside the original USDA "window" of infection. So far no other greenhouses have shown any symptoms of the disease. Affected growers have been most cooperative in trying to stay this disease from our state and DATCP thanks them greatly.

LOOKING AHEAD

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

Codling moth – Cooperators should place pheromone traps for codling moth over the weekend. According to the degree day model, adults could begin appearing in the southern regions of the state by next week.

Alfalfa weevil – Overwintered adults will likely show up in alfalfa fields very soon. Initiate scouting efforts at 300 degree days (base 48°F), and target sandy areas of fields and south facing slopes first.

Armyworm – Arrival of migratory armyworm moths is expected in the upcoming week. Small grains are particularly vulnerable to attack by the often small but sometimes damaging first generation of larvae.

Black cutworm – Moths have arrived! A single male moth was captured in a pheromone trap near Lancaster this week. Cool spring weather conditions leading to late planting may increase susceptibility to black cutworm infestations this season. See **CORN** section for more details.

ALFALFA

Alfalfa weevil – No adults were detected in fields surveyed in Grant, Lafayette and Green Cos. this week, though it is likely that overwintered adults have already resumed activity. Eggs begin hatching once 300 DD (48°F) have accumulated, at which time regular scouting should begin.

Tarnished plant bug – Trace number of adults were swept from alfalfa fields in the southwest corner of the state. Counts of only 2 adults per 100 sweeps were recorded from the fields surveyed.

CORN

Black cutworm – The arrival of moths earlier this week signals that it won't be long before we'll need to begin monitoring corn seedlings for cutworm injury. We're looking for a concentrated capture of 8-9 moths in 2 consecutive nights, the biofix to start counting degree days. Conditions may be particularly favorable to the development of infestation this season, primarily because many growers may be getting a late start to planting. Late planting favors the development of black cutworm infestations for two reasons. First, fields are more prone to developing weed infestations, and weedy fields are attractive to cutworm females for egg laying. Also, when corn development is slowed by unfavorable weather conditions, plants are vulnerable to attack by cutworms before emerging from the soil.


Corn seedling cut off by fourth-instar black cutworm larva

Black cutworms are nocturnal feeders, so fresh injury is best observed during the morning hours. Young larvae have small mouthparts and are not equipped to cut corn plants entirely. Instead, they feed on corn leaves, leaving small, irregular-shaped holes in the foliage (see photo). Once they've grown to about a half an inch, typically by the 4th instar, black cutworms begin to cut plants. A single larvae will cut an average of 3 to 4 plants during its lifetime. Corn less than 15 inches in height is most susceptible to black cutworm damage.

(The Pest Management and Crop Development Bulletin Executive Editor: Kevin Steffey, Extension Entomologist April 12, 2002)

Armyworm – Migratory armyworm moths typically begin arriving at this time of year. Adults mate almost immediately upon arrival, females begin laying eggs in various grasses


Corn seedling injured by early-instar black cutworm larva


Armyworm larvae feedling in corn.
Marlin E. Rice

and small grains, and larvae hatch and start feeding within seven to 10 days. There are 3 generations of armyworms per growing season in Wisconsin. While the first is seldom economically important, the second generation, which occurs in July, can be large and very damaging.

STATE/ FEDERAL PROGRAMS

GYPSY MOTH PROGRAM - This is the seventh year in a row that the entire state of Wisconsin will be trapped. Most people have seen the traps around the state and are familiar with the program. However, there may be some questions about who the trappers are and when they set the traps. Our trappers are required to wear an orange vest when they are working. Each trapper has bright orange placards identifying their vehicle as working for the program. Each vehicle will be supplied with a flashing yellow light to make them more visible in high traffic areas. Trappers are required to have their picture I.D. with them at all times and present it when asking permission to set a trap on private property. Although most traps are set in the right-of way along roads, trappers are instructed to ask for permission before setting a trap on private property. If landowners are not home, a "Notice" is left at the residence explaining that a trap was set on their property. Our 800# is on the notice for landowners who have any questions or want the trap removed. Again, we appreciate landowner permission to set traps on private property.

Trappers will begin setting traps around Memorial Day. They can not start work before 6 a.m. and must be out of the field by 6 p.m. There is no trapping at night or on weekends. Trap setting will last 4-5 weeks and should be completed around the 4th of July. Lead workers generally inform local sheriff's offices of the names of our trappers and what vehicles they use. If there is any question about trap setting, please give our hotline a call at 1-800-642-MOTH.

Gypsy Moth Phenology - The Wisconsin Cooperative Gypsy Moth Program is currently gearing up to treat gypsy moth infestations throughout Wisconsin. Scientists at the Department of Agriculture, Trade and Consumer Protection use two phenology models to help predict the development of the insect as well as the trees being treated. Figures 1 and 2 illustrate BioSim model predictions as to when the gypsy moths will be hatching or in the second instar, respectively. A second model can be found at WI-MN Cooperative Extension Agricultural Weather Page: http://www.soils.wisc.edu/wimnext/tree/gypsymoth.html. For the WI-MN web-based model you select the county you are interested in and then indicate the percentage of tree types in the treatment site. It

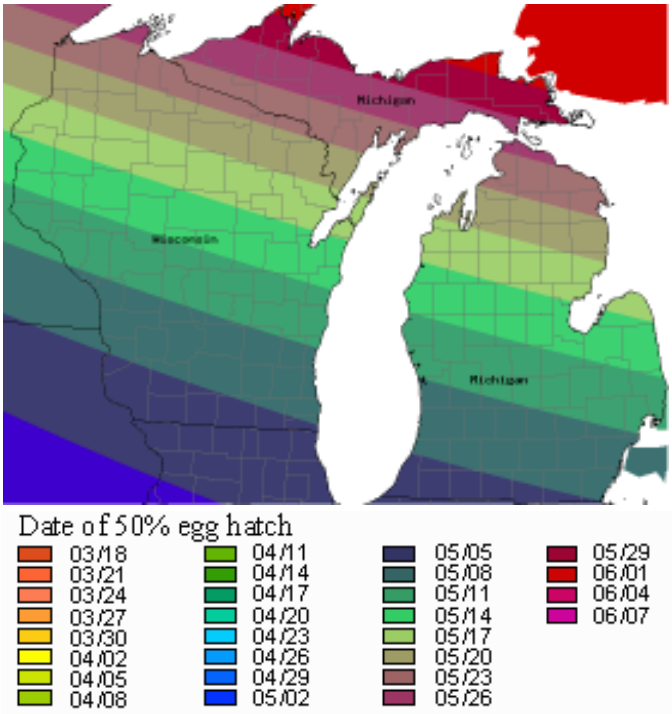


Figure 1. The STS Decision Algorithm gypsy moth phenology for egg hatch based on data generated using BioSIM software developed by Jacques Regniere, Canadian Forest Service. Input data: 30-year temperature averages. (http://da.ento.vt.edu/)

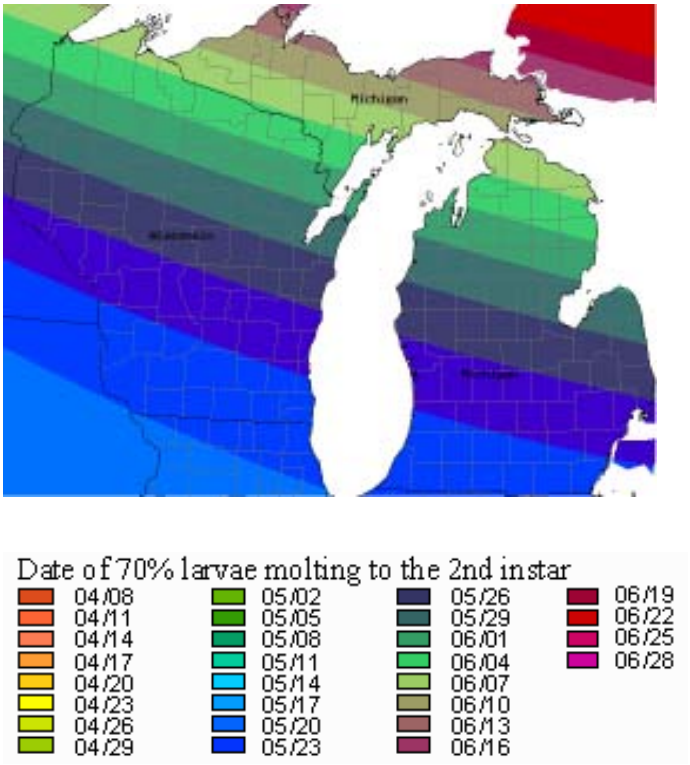


Figure 2. The STS Decision Algorithm gypsy moth phenology for the second instar based on data generated using BioSIM software developed by Jacques Regniere, Canadian Forest Service. Input data: 30-year temperature averages. (http://da.ento.vt.edu/)

will give you reports on insect and tree phenology as well as recorded and predicted temperature ranges.

These models are effective tools to aid in scheduling treatments. However, the site observations of the insect and tree development have a greater influence on application timing.

FRUIT

Apple Scab ascospore maturity modeling – Five orchards around the state are collecting temperature data in the orchard, to estimate the maturity of ascospores of *Venturia inaequalis*, the fungus that causes apple scab. The fungus overwinters in diseased leaves on the orchard floor, and requires a period of warm weather in the Spring to ripen the ascospores (usually referred to as primary inoculum). Once mature, the ascospores are forcibly ejected from the leaves, and infect current growth. This mechanism assures the fungus that young, succulent and susceptible apple leaves will be available for infection.

A number of models have been developed to predict ascospore maturity. These models attempt to define the period that growers need to be vigilant about applying control measures for the disease, to prevent secondary infection later in the growing season. The model used by DATCP is the New Hampshire model, developed by Gadoury and MacHardy. This model indicates that 5% of ascospores will be mature at 147 GDD (base32) from McIntosh green tip, and that 100% of ascospores will be mature at 910 GDD. The estimates are meant as a decision aid. Apple growers should use the information as a guide only, used in conjunction with experience, knowledge of their orchard's scab history and other sources of spray recommendations.

Orchard	Green tip	latest report	growth stage*	GDD	in primary season
Prairie du Chein	4/13	4/21	tc	166	yes
Racine	4/14	4/24	tc	163	yes
Gays Mills	4/14	4/21	tc	141	
Eau Claire	4/16	4/22	nr	63	
Pierce Co.	4/14	4/21	nr	110	

*tc=tight cluster, nr=no report

Current reports are available on the DATCP Web site beginning next Monday, April 28th. Beginning next week, the report will be updated every day that new data is received from the cooperating orchards.

The URL for the site is: http://www.datcp.state.wi.us/arm/agriculture/crops/applescab/applescab.html

Redbanded leafroller – With traps in place and peak adult emergence just around the corner, let's review how pheromone trap counts can be used in making timely management decisions. The first and most basic thing to keep in mind is that because redbanded leafrollers have such a wide rage of hosts, the number of moths in the trap is *not* a reliable indicator of the general level of infestation in your orchard. Redbanded leafroller shows a preference for apples, but feeds on plums, grapes, raspberries, strawberries, peaches, cherries, vegetables, weeds, flowers, and a number of ornamentals and shrubs as well. Trap counts should be used as indicators of the occurrence of generations, and when to begin scouting for the larvae.

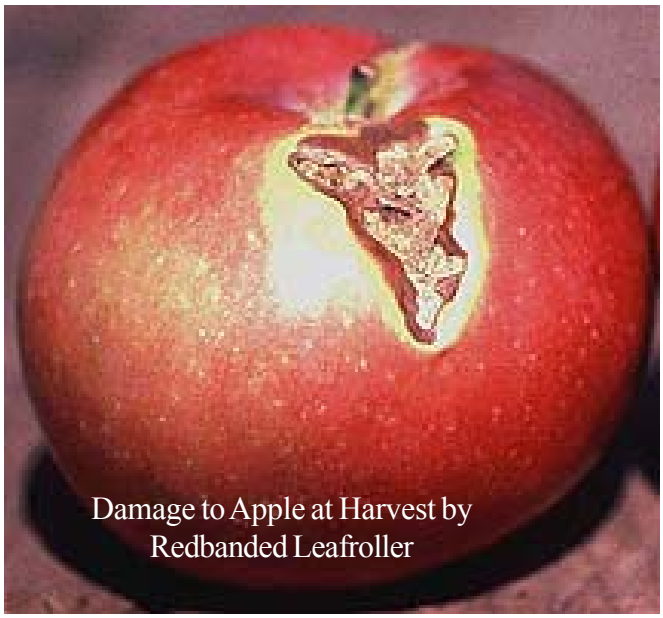
In years when redbanded leafroller is a problem, it is essential to control the first generation to prevent further problems in the second and third generations. Once adults start appearing in pheromone traps, often around green tip, the larvae may be monitored by searching for tied, folded or rolled leaves. Look for larvae by examining the number of larvae per 100 expanding leaf terminals or fruit clusters. Use an average of 4 larvae per 100 expanding leaf terminals or fruit clusters for making management decisions.
Sprays applied at the delayed dormant stage will lessen the


Redbanded Leafroller Adults in Trap

number of redbanded leafroller adults before females have the opportunity to lays eggs, while sprays applied at petal fall coincide with egg hatch and tend to provide effective control as well. Again, the timing of sprays should be based on the level of larval infestations, not trap counts. Last, treatment is recommended only when the economic threshold for redbanded leafoller has been exceeded.

Degree-days (DD) for redbanded leafroller activity are:

Degree Days (base 45°F)	Event
50	first adult emergence
125	first eggs laid
200	peak adult emergence
350	peak egg laying by first-generation adults
700	first emergence of second generation adults
850	first eggs laid by second-generation adults
1125	peak emergence of second-generation adults
1300	peak egg laying by second-generation adults
1700	first emergence of third-generation adults



Damage to Apple at Harvest by Redbanded Leafroller

1800	first eggs laid by third-generation adults

Table from "Common Tree Fruit Pests"; by: Angus H. Howitt

Spotted tentiform leafminer – Low numbers of moths are appearing in pheromone traps in the southernern part of the state. Peak flight is approaching in the southwest, south central and southeast, indicating that egg laying is underway in these regions. The first larvae should appear around 209 DD (base 50°F) and the first leaf mines around 329 DD. Scout for sapfeeder leaf mines during petal fall. Control decisions for 1st generation **spotted tentiform leafminer,** based on the number of leaf mines, should be made at that time.

Codling moth - Place pheromone traps now to catch the earliest emerging moths. According to degree day accumulations, this insect could begin appearing in southern counties within the next week or two. The first trap catches typically occur around 248 DD (base 50°F).

In contrast to other apple pests, pheromone trap catches can be used directly to make management decisions for codling moth. Counts should be used to determine the "biofix", or starting date of the first sustained flight of male moths. Control treatments are most effective when applied 250 DD (base 50°F) after the cumulative capture of 5 moths per trap. (Midwest Tree Fruit Management Handbook)

QUOTE OF THE WEEK

"Few and signally blessed are those whom Jupiter has destined to be cabbage-planters. For they've always one foot on the ground and the other not far from it. Anyone is welcome to argue about felicity and supreme happiness. But the man who plants cabbages I now positively declare to be the happiest of mortals."
François Rabelais (c. 1494–1553)

WEBSITE OF THE WEEK

UW-Madison Insect Diagnostic Lab
http://www.entomology.wisc.edu/entodiag.html

Brought to you by the Department of Entomology at UW-Madison, this site provides a presentation on tree and shrub insects, a collection of Phil Pellitteri's "Hot Topics About Insect Pests", and information on submitting unknown insects for identification. The Hot Topics collection contains a treasury of knowledge about pests and pollinators and natural enemies and caterpillars and…. Links to UW Extension X-files are provided where available.