Wisconsin Pest Bulletin

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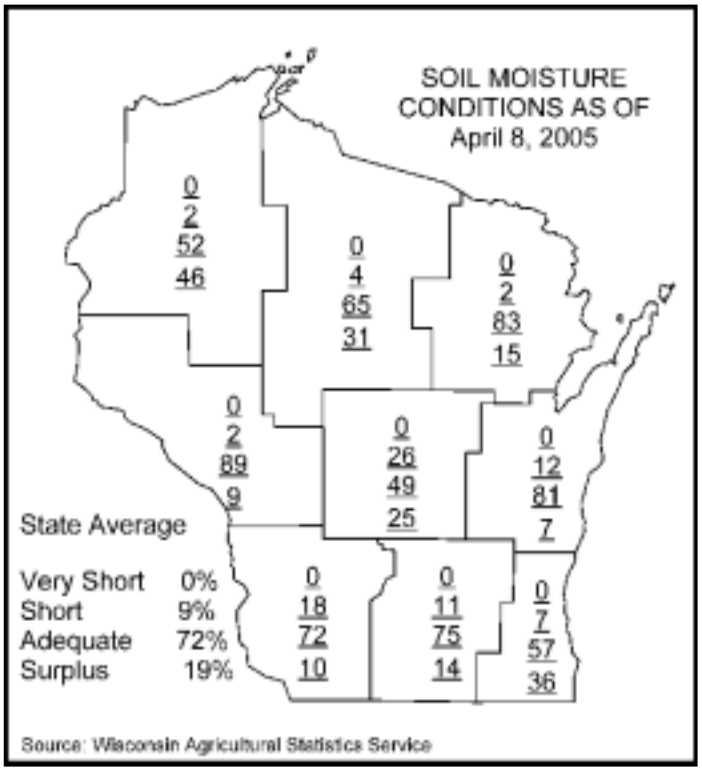
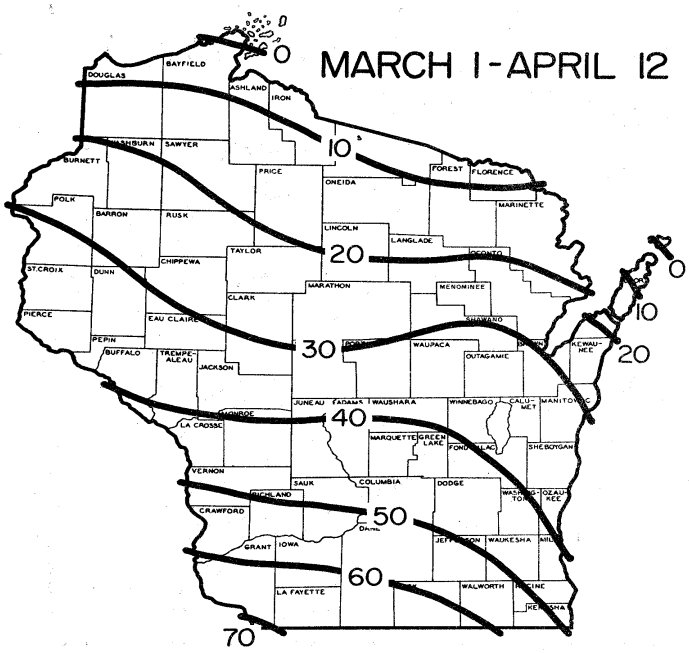




Historical Average Growing Degree-Days Accumulated Since March 1. (Wisconsin Agricultural Statistics Service)

Welcome

With this issue, the Wisconsin Pest Survey Bulletin begins its 50th year of service to Wisconsin Agriculture. Cooperators who contribute to this publication work in a wide cross-section of Wisconsin agriculture; they include county Extension Specialists, fruit growers, vegetable growers, canning companies, DNR specialists, University of Wisconsin research specialists, Agricultural Experiment Station staff, growers, crop consultants, farmers, in addition to our own staff of entomologists and plant pathologists at the Wisconsin Department of Agriculture, Trade and Consumer Protection. We look forward to another dynamic and eventful growing season and welcome your contributions and suggestion for how we might make the Wisconsin Pest Bulletin as even stronger publication this season.

Weather and Pests

Spring is in the air. Any remnants of snow drifts have long since melted away and green has swiftly returned to Wisconsin landscapes. Both plants and insects are responding to above-normal April temperatures with rapid growth and development. Alfalfa and winter wheat broke dormancy in southern Wisconsin nearly two weeks ago and many Green and Rock Co. hay fields are already 5”-6”

Growing Degree Days

Growing degree days from March 1 through April 14 :

Site	GDD*	2004 GDD	Base 48	Base 43
SOUTHWEST				
Prairie du Chien	107	53	135	215
Boscobel	92	41	126	192
SOUTH CENTRAL				
Madison	74	31	96	178
SOUTHEAST				
Milwaukee	22	25	32	88
EAST CENTRAL				
Green Bay	17	8	29	87
WEST CENTRAL				
LaCrosse	97	41	134	207
Sparta	66	24	83	155
NORTH CENTRAL				
Wausau	33	3	62	132
Medford	24	0	43	109
Rhinelander	19	0	30	82

tall. Light winds and mostly sunny, dry conditions this week dried the soil enough to enable farmers to continue early spring field work. Oats planting is progressing on schedule, while corn planting commenced this week.

In contrast to last season, the insects of April, including armyworms, cutworms, wireworms, aphids and flea beetles, are already very much active. Black cutworm arrived last weekend, and alfalfa weevil adults have been spotted in south central alfalfa fields. Our old foes, the boxelder bug, multi-colored Asian ladybeetle, and cluster flies, have also re-emerged from overwintering sites to inconvenience residents for another week or two before moving outdoors.

Alerts

Soybean Rust --Last fall's detection of soybean rust (*Phakopsora pachyrhizi*) in nine states in the U. S. has generated a storm of activity by every component of the soybean production system in this country. From the production of scouting and symptom guides for growers and consultants to EPA Section 18 exemptions for fungicides to not one but three Web-based disease monitoring and forecasting systems, tremendous industry, University and government resources have aimed at minimizing the impact of the disease introduction.

Given the potential for damage which *P. pachyrhizi* presents, these efforts are warranted. The fungus, an obligate parasite, has caused yield losses of 80% (under ideal disease conditions) in South America, and also infects snap beans, kidney beans, yellow sweet clover, white clover and a number of other legumes. Infections can go from an initial spore landing on a susceptible host to a pustule producing new spores in as little as nine days, and spore production from that pustule may continue for three weeks.

The pathogen requires living green tissue to survive, and is not likely to get through a Wisconsin winter. It is expected that soybean rust will behave much like other rusts of field crops such as stem rust of wheat or common maize rust, overwintering in the deep South and Mexico and blowing up to Wisconsin each (or most) years. Potential damage will depend upon the crop growth stage and weather when the spores arrive. Several systems are working to provide predictions of spore movement (see Resources).

As of today's date (4/15/05), overwintering soybean rust has been confirmed on kudzu in three Florida counties. Survey efforts will continue and intensify as soybean planting and emergence moves north.

In Wisconsin, UW-Extension is planting a series of sentinel plots, which will be examined regularly for soybean rust, DATCP is planning a state-wide survey of soybeans and other rust hosts, and the UW Plant Disease Diagnostics Clinic will run suspected soybean rust samples without charge. Information on submitting samples is available at the web site below.

Wisconsin has requested and been granted EPA Section 18 exemptions for a number of fungicides to control soybean rust. For more information on current Section 18 options, contact Pat Kandziora at 608.224-4547 or Patricia.kandziora@datcp.state.wi.us. The UW Soybean Plant Health site offers an online version of the NC-504 publication, *Using Foliar Fungicides to Manage Soybean Rust.*

Soybean Rust Resources on the Web:

USDA Soybean Rust Information Site
http://www.sbrusa.net/

Plant Management Network soybean rust page
http://www.plantmanagementnetwork.org/infocenter/topic/soybeanrust/

UW Soybean Plant Health page
http://www.plantpath.wisc.edu/soyhealth/

UW Plant Disease Diagnostics Clinic
http://www.plantpath.wisc.edu/pddc/pddcgraphics/index.htm

Keep an eye out for Kudzu – Kudzu (*Pueraria montana*), an aggressive Southern weed, allows soybean rust to survive all year long in warmer climates. Before adding this credit to its resume, Kudzu was known for its ability to climb power poles, conceal abandoned cars and buildings, and smother forests by blocking sunlight and breaking trees under the weight of its vines.

Although Kudzu has never been found in Wisconsin, it has been found in northern Illinois and in several northeastern states, demonstrating its ability to survive harsh winters. Most of these northern populations are believed to have been deliberately planted, and there is little evidence that these populations are unmanageable. If Kudzu does find its way into Wisconsin, the vines and leaves would be killed each fall by frost (along with any soybean rust pathogen that may have infected the

Kudzu swallowing a forest

leaves), but the deep fleshy roots would resprout each spring, creating a threat to Wisconsin's forests and natural areas.

Kudzu is a member of the legume family. The leaves are long petioled with three dark green hairy leaflets. Each leaflet grows up to 15 cm long. The roots are tuberous and rope-like, and the hairy stems can grow to 20 meters in length. Its pea-like flowers are fragrant and reddish purple. And the most notable characteristic of Kudzu - this woody vine climbs, twines and blankets anything in its path.

Looking Ahead

New format for the Pest Bulletin – Sometime in May, if all goes well, the Wisconsin Pest Bulletin will move to a new, web-friendly format and a new web address. The change, driven by responses in last year's reader survey, will abandon the two-column PDF file in favor of a link-based, database-generated document. In effect, the Pest Bulletin will recreate itself every time a reader visits. The new format should provide you with better access to specific information, while allowing for almost instant updates throughout the week.

We will consider each Friday as the "issue" date, though updates and additions may be added throughout the week. In the near future, we hope to provide a real-time notification service (called an "RSS newsfeed")—more information will be coming as we near implementation. We look forward to the new format, and hope it will better serve your needs. As always, comments are welcome at bulletin@datcp.state.wi.us or 800-462-2803.

Alfalfa Weevil and Pea aphids - Alfalfa growers are encouraged to concentrate monitoring efforts on alfalfa weevils and pea aphids as fields begin to green up this spring. Currently, alfalfa weevil eggs are being laid in southern Wisconsin fields and egg hatch is fast approaching (200 GDD_{48}). Scouting efforts should be initiated at 300 GDD_{48}, targeting sandy areas of fields and south facing slopes first. See FORAGE section for current alfalfa weevil degree days.

Plum Curculio Traps to be Deployed this Weekend - Apple insect trapping cooperators who will be monitoring plum curculio in their orchards this season should place traps this weekend. The first adult capture is expected to occur around 100 GDD_{50}, which could take place in the Madison area by April 18.

ATTENTION Apple Insect Trapping Cooperators - Pheromone traps for both the spotted tentiform leafminer and redbanded leafroller should be in place in the orchard. The first STLM eggs of the season will be laid next week, once 127 GDD50 have accumulated and the first peak flight of moths is expected once 150 GDD50 are reached. For projected dates of the first peak flight of STLM and RBLR moths, visit the FRUIT section.

Codling moth (CM) – A very early catch of four codling moths was reported at Sinsinawa this week, indicating it's time for cooperators to place CM traps. The first CM flight begins once 201 GDD50 have accumulated, which could occur as early as April 23 near Prairie du Chien, and April 28 near Madison.


Codling moth

Cutworms, Maggots and Flea Beetles are Active - Corn growers may want to direct their attention early in the season to seed corn maggots, black cutworms and wireworms, and corn flea beetles. A capture of 12 variegated cutworm moths was reported at Lancaster this week.

Maggot Degree Days, New this Season! - Early season activity of the seed corn maggot, onion maggot and cabbage maggot, three major vegetable pests in Wisconsin, is beginning to get underway. See the VEGETABLE section for more information.

Bean leaf beetle - Although soybean rust has moved to the forefront of soybean pest management, and defoliators may still be a distant thought, it not too early to be thinking about the risk of bean leaf beetles at the time of planting. Remember, early planted fields are often highly susceptible to bean leaf beetle defoliation as overwintered beetles seek them out for egg laying.

Soybean aphid - In addition to the threat of rust and bean leaf beetle, heavy soybean aphid densities are in the forecast for 2005. Soybean aphid predictions made by top field crop entomologists from WI, MN, MI, IO, IA and IL are available in the SOYBEAN portion of this issue.

Household pests - Homeowners and residents throughout the state know all too well that now's the time of year when a number of household pests, including box elder bugs, cluster flies and multicolored Asian ladybeetles, emerge from protective overwintering sites inside their homes. DATCP's Pest Survey Hotline (1-800-462-2803) has already received a number of calls concerning control of these pests. Although they may be a nuisance in spring, now is NOT the most effective time to treat for these insects. See the HOUSEHOLD PEST section for more information and control recommendations.

Imported cabbageworm – One butterfly was observed

in Dane Co. on April 10. Another was observed in Grant Co on April 12. After overwintering as pupae on plant debris, imported cabbageworms (ICW) are beginning to emerge as the yellowish-white butterflies commonly seen throughout the state on warm summer days. This cole crop pest will mate and lay eggs, giving rise to the 1st generation of larvae. ICW usually does not cause significant damage until the second generation begins to feed in July. See UW-Extension publication XHT1032 *Imported Cabbageworm* for control methods.

Corn

Black cutworm - The first migratory black cutworm moths of 2005 arrived in southwestern Wisconsin last weekend (April 9-10). In anticipation of the influx, DATCP pest survey specialists placed a series of delta wing traps baited with pheromone lures at 21 sites along the southern border of the state to catch the earliest moths. The newly-arrived migrants blew into the state on storm fronts out of the south. As the moths drop out of the storm systems they deposit their eggs in areas where they settle. While the first moth catch of the season is a noteworthy annual event, DATCP's pest survey specialists are actually looking for the first sustained flight of nine moths in a two-night period, in order to project a precise cutting date. At 310 DD_{50}, after the first concentrated flight of moths, growers should begin scouting for cutting. For now, corn planting is just beginning, but readers are encouraged to watch for future updates on the status of the black cutworm migration. The most destructive larval stage isn't likely to be reached for another four to five weeks (around 562-640 GDD_{50}). We'll keep you posted.

Corn flea beetle - Despite the insignificance of corn flea beetle and the virtual non-existence of Stewart's bacterial wilt of corn in Wisconsin fields during the last two to three summers, WI Pest Bulletin writers have provided a forecast of winter survival of this species, and the potential for Stewart's wilt in 2005. The predictive model on which this forecast is based, the Iowa State Method, has had mixed results in the past when applied to the corn flea beetle situation in Wisconsin. Nonetheless, it may prove useful as a general indicator of risk of these pests this season.

To forecast the level of survival last winter, staff reviewed the mean monthly air temperatures for December, January and February at eight sites around the state. The Iowa State Model projects the risk for Stewart's wilt based on the number of winter months where the average mean monthly air temperature is 24°F or greater (see Iowa State Predictive Model for Stewart's Wilt below).

Mean monthly temperatures listed in the table below suggest winter conditions were mild enough in southern, south central, and even parts of east and west central Wisconsin, to permit the winter survival of corn flea beetle. Assessing the risk of Stewart's wilt, however, involves looking at more factors than just monthly air temperatures. The model below indicates the risk for Stewart's wilt in parts of southern Wisconsin may be moderate to high in 2005, but this is highly unlikely considering that only one corn field, a seed production field of susceptible inbreds, was detected with Stewart's wilt last year. If Stewart's wilt had been more prevalent last summer, then more bacteria would have been available for corn flea beetles to pick up and spread. This was not the case, and any beetles that did survive the winter months are probably not carrying the Stewart's wilt bacterium. While corn flea beetles may have successfully made it through the long Wisconsin winter months, the risk for Stewart's wilt in 2005 is low.

Iowa State Predictive Model for Stewart's Wilt

0 month	>	24F =	negligible risk
1 month	>	24F =	mow to moderate risk
2 months	>	24F =	moderate to high risk
3 months	>	24F =	high risk

Seed corn maggot - Now that 200 DD_{39} have accumulated in parts of southern Wisconsin, seed corn maggot adults are beginning to surface from the soil. While it's very important to monitor the first emergence of flies beginning at 200 DD_{39}, the most serious damage to corn tends to occur in late May or June, following the second peak emergence of adults at 600 DD_{39}. Again, degree days are adding up fast and emergence and egg laying is in progress in southern Wisconsin. Current seed corn maggot degree days are as follows: Boscobel: 278; Prairie du Chien: 305; Madison: 254; Milwaukee: 165; LaCrosse: 285; Green Bay: 160; Rhinelander: 140; Wausau: 199.

	Average Mean Monthly Air Temp			No. Months with >24F	Potential for SW in 2005
	Dec	Jan	Feb		
Boscobel	25.8	18.8	29.1	2	M-H
Milwaukee	27.3	22.2	30.1	2	M-H
Madison	26.0	19.5	29.2	2	M-H
LaCrosse	23.7	17.4	28.5	1	L-M
Sparta	22.2	17.0	27.2	1	L-M
Green Bay	23.2	17.0	25.9	1	L-M
Medford	17.8	12.6	21.6	0	neg
Wausau	19.8	13.8	23.8	0	neg

European Corn Borer - Readers may recall that last fall's European corn borer survey documented one of the

lowest fall populations of corn borers in since European corn borer was first detected in Wisconsin approximately 60 years ago. The statewide average of 0.10 borer per plant (10 borer/100 plants) suggests that the state is likely to see an exceptionally light first flight of corn borer moths this May and June. At this time, overwintered 4th and 5th instar larvae are resuming activity inside of corn stubble and other hosts. Very soon those mature overwintered larvae will pupate inside corn stalks and moths will take flight by late May or early June. If weather conditions are favorable while the first flight is in progress, damaging populations of first generation corn borer larvae may develop in susceptible areas. This prospect is highly improbable in most parts of the state, and it looks as though 2005 may shape up to be another light corn borer year, at least on average. Look to future issues of the Wisconsin Pest Bulletin for updates on the status of the first corn borer flight this season.

Soybeans

Bean leaf beetle - Soon bean leaf beetles that spent the long winter months protected beneath leaf litter and an insulating layer of snow cover will emerge and hit alfalfa fields in search of food. That's precisely when pest survey staff will step in to track the status of the overwintered population of beetles. The Pest Survey team plans to survey 167 alfalfa fields this spring to determine, 1) the distribution of overwintered bean leaf beetles (the northern extent of their overwintering range in WI), and 2) whether overwintered bean leaf beetles are carrying Bean Pod Mottle Virus (BPMV).

Mixed results from surveys conducted in 2004 provide no clear clues to indicate what may happen with bean leaf beetle in 2005. No BPMV was detected in any Wisconsin soybean fields last summer; therefore, it would be surprising to find many, if any, overwintered beetles with BPMV this spring.

Soybean aphid - Most readers are probably aware by now that the forecast for 2005 included higher populations of soybean aphids. In fact, predictions made by the leading field crop entomologists throughout the Midwest suggest the potential for aphid outbreaks this summer. In an article titled, Insect Indications for 2005, from the March 1 issue of The Corn & Soybean Digest, writer Sherry Collins interviewed several Midwest entomologists and reported their predictions for soybean aphid in 2005. Rather than rewrite or summarize the contents of Sherry's article, brief quotes were taken directly from the piece and are provided below. Sherry Collins' article is available online at: (http://www.cornandsoybeandigest.com/mag/soybean_insect_indications/). With that being said, here's what field crops entomologists are predicting for 2005…

Wisconsin
"If the pattern holds, based on fall '04 suction trap captures of winged soybean aphids in Illinois, I wouldn't be surprised if 2005 is an aphid year. We're going to stress scouting. And, because of soybean rust, people should be doubly interested in watching their soybeans closely."
—- Eileen Cullen, University of Wisconsin-Madison

Illinois
"The huge capture of winged soybean aphids means we're set up for a large aphid population in 2005. But, the weather could easily throw a wrench in the works. If the weather is like it was in 2003 or 2001, then we'll have soybean aphid problems."
—- Kevin Steffey, University of Illinois

Michigan
"The regional entomologists have looked at the trapping data. As a group we have predicted that there would be more soybean aphids in 2005 than in 2004. The aphid appears to be setting up a two-year cycle, so 2005 will be the year to test that prediction."
—- Chris DiFonzo, Michigan State University

Minnesota
"It'd be a safe bet that aphids are going to be worse. If we have droughtier conditions, and we don't see a lot of heavy spring rainfall, we could see a more severe outbreak. Watch what's being found in southeast Minnesota in late June and early July. If things are going well for the aphid there, it usually means there will be abundant aphids to colonize the rest of the state."
—- Ken Ostlie, University of Minnesota

Indiana
"Though some are predicting high soybean aphid populations, summer weather will be the determining factor. Rapid aphid buildup is favored by cooler temperatures and soybean fields under stress (e.g., drought). You may have heard that the stage is set for a big soybean aphid year. But I firmly believe it will take more than heavy 2004 fall flights and low predator numbers to equal aphid outbreaks in 2005."
—- John Obermeyer, Purdue University

Iowa
"Soybean aphids have the potential of causing more damage in 2005 than they did in 2004, but I wouldn't be so bold as to claim that soybean aphids are going through known cycles. If conditions turn dry in July and August there is potential for a significant number of acres to be economically impacted by soybean aphids."
—- Marlin Rice, Iowa State University.

Forages

Alfalfa weevils – Alfalfa weevil is a pest that becomes

active very early each spring and is most harmful to first and second crop hay. This insect is well-suited for Wisconsin as it develops at lower temperatures than many other alfalfa pest insects, and completes much of its lifecycle while other pests are just beginning to emerge. In Wisconsin there is only one generation of alfalfa weevil each year, and weevils overwinter either in the adult stage or as eggs that were laid last fall. In March or April, egg laying resumes and continues through July. At daily average temperatures of 60°F, it takes 18 days for spring-laid eggs to hatch. Currently, egg laying is underway in southern Wisconsin and egg hatch is fast approaching. Scouting efforts should be initiated at 300 GDD_{48}, and should target sandy areas of fields and south facing slopes first.

Pea aphid - In some respects, pea aphids are the soybean aphids of the late 19th century. Like the soybean aphid, pea aphids are not native to the U.S., but were accidentally introduced into this country around 1870. Shortly after being introduced pea aphids spread to several states and rapidly became one of the premier pest insects of the time. The first crop injury to peas was reported in 1900, and by the 1950's pea aphid was

Alfalfa Weevil Growing Degree Days (Base 48°F)

Boscobel	126
Green Bay	29
LaCrosse	134
Madison	96
Milwaukee	32
Prairie du Chien	135
Rhinelander	30
Wausau	62

reported as the most important pest of peas in 25 states.

Pea aphid is now a pest we've become accustomed to seeing in pea and alfalfa fields each season. Alfalfa is the primary host for this species; however, pea aphids are most damaging to peas. Pea aphids overwinter as eggs in alfalfa, red clover and other perennials and biennials, and hatch in early spring.

Interestingly, all early spring pea aphids are female; male pea aphids don't appear until late summer. The early emerging female aphids do not need to mate and reproduce, nor do they have an egg stage. Rather, they produce live young, often at extraordinarily high rates when conditions are favorable. While peas are the preferred host of pea aphids, monitoring aphid activity in alfalfa is helpful to forecast when migration to pea fields is likely to occur.

Early-season pea aphid surveys should be directed at determining: 1) when the first aphids appear in alfalfa, and 2) 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 aphids per sweep.

Vegetables

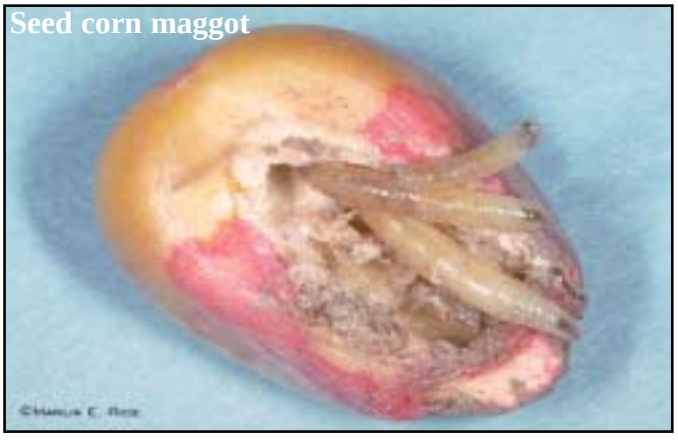
Maggot Degree Days, New this season!

MAGGOT DEGREE DAYS
As of April 14, 2005

	Seed Corn	Onion Maggot	Cabbage Maggot
	Base 39F	Base 40F	Base 43F
Boscobel	278	257	192
Prairie du Chien	305	282	215
Milwaukee	165	144	88
Madison	254	234	178
LaCrosse	285	279	207
Green Bay	160	140	87
Wausau	199	183	132
Rhinelander	140	126	82

Seed corn maggot, onion maggot and cabbage maggot are vegetable pests that become active early each season, in April or near the beginning of May. Degree days are accumulating fast, and the first key events in the development of these pests are just getting underway is southern portions of the state. Now's the time for growers to begin tracking degree days and planning a management strategy, especially those who have had past problems with maggot pests. Read on to learn when to anticipate maggot emergence and other developmental events that may be right around the corner.

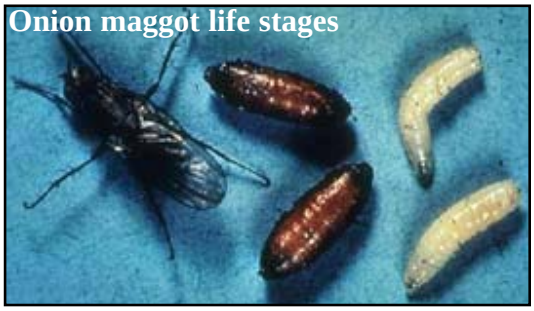
Seed corn maggot, *Delia platura* - The seed corn maggot is a pest of corn, cucurbits, snap beans and peas. The earliest to emerge of the maggots featured today, seed corn maggot larvae tunnel into germinating seeds where they feed and develop. This activity either



severely distorts a plant or prevents the plant from emerging altogether. Fields are most attractive to flies when manure is spread on the soil or when plants are killed in the spring and incorporated into the soil prior to

planting.s

Now that 200 DD_{39} have accumulated in the Madison, Boscobel, Prairie du Chien and LaCrosse areas, overwintered pupae have begun to surface from the soil as adults (flies). While it's very important to start monitoring the first emergence of flies beginning at 200 DD_{39} and continue over the next week or two, the most serious damage tends to occur in May/June, following the second peak emergence of adults at 600 DD_{39}. Again, degree days are adding up fast and emergence of flies is already in progress. As it warms up in the next few days seed corn maggot flies will be looking for suitable fields for laying eggs. Follow the cultural control recommendations below to make sure you're not making your fields more attractive to flies.



Onion maggot, *Delia antique* - The onion maggot is arguably the most important onion pest, particularly where continuous production is practiced. Onion maggots overwinter as pupae in the soil associated with onion culls in the field or in onion cull piles. Emergence of onion maggot flies begins around mid-May and mating spans over a three day period, after which eggs are laid. Flies live for two to four weeks and are capable of migrating about a mile to locate suitable host plants.

Three generations of onion maggot occur per season in Wisconsin; the first is the most damaging. It's important for onion growers to be ready to combat the maggots when they emerge. The upcoming onion maggot event, laying of first generation eggs, occurs between 230-280 DD_{40}. More than 230 DD_{40} have accumulated in the southwestern Wisconsin, suggesting egg laying is already in progress. First, second and third generations of flies occur at 680, 1950, 3230 DD_{40}, respectively. As is the case with most maggot species, cool, wet weather favors this insect while hot, dry weather is detrimental to survival. See table below for current onion maggot degree days.

Cabbage maggot, *Delia radicum* - Cabbage maggot, a significant pest of cabbage, broccoli, cauliflower, turnips, radishes and rutabagas, is another maggot of concern to vegetable growers. Cabbage maggots, both in the adult and larval stages, bear a striking similarity to seed corn maggots; however, cabbage maggots prefer the roots of cole crops rather than seeds and seedlings of beans, corn, and cucurbits.

The key to controlling or avoiding cabbage maggot damage is to time planting dates to avoid peak fly emergence, which typically coincides with lilac bloom. Like the onion maggot, the first generation of cabbage maggots is the most damaging. The base temperature for cabbage maggot development is 43°F. First, second and third generations of flies occur at 300, 1476, 2652 DD43, respectively. Be sure to check the table below for current cabbage maggot degree day accumulations.

Cultural Control of Maggots

With adult emergence and egg laying underway, consider the following cultural control practices as you prepare for planting:

Avoid planting in the same field two years in a row whenever possible. Rotate crops one-quarter to one-half of a mile away from overwintering sites.

Time planting dates to avoid the first generation of flies. (that's now!)

Consider using floating row covers to prevent flies from laying eggs on fresh plants. Use the cover immediately after sowing seeds or planting sets.

Flies are attracted to rotting organic matter and freshly plowed fields. Avoid plowing fields with fresh manure or green manure crops in spring.

If there is a winter cover crop, plow it at least 3-4 weeks before planting, or plow in fall instead of spring (too late for that!).

In the case of onion maggot, the overwintering generation can actually increase in cull onions left in the field at harvest. Getting rid of cull piles is crucial.

For more information visit the following web sites:

Veg-Edge: Seed Corm Maggot at:
http://vegedge.umn.edu/vegpest/seedmag.htm

UW-Extension Onion Maggot fact sheet at:

http://cecommerce.uwex.edu/pdfs/A3722_e.PDF

UW-Extension Cabbage Maggot fact sheet at: www.uwex.edu/ces/pubs/pdfs/A3719_e.PDF

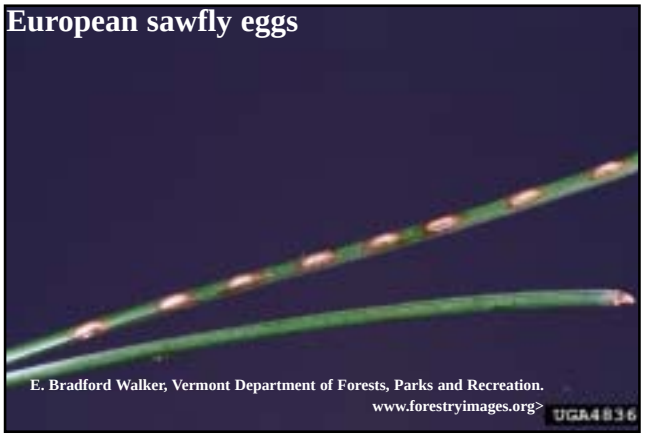
Forest and Landscape

Some insects to watch for in the coming weeks:

Ash plant bug – This insect overwinters as eggs embedded in the bark of ash shoots. The eggs hatch in early spring (100-200 DD base 50) and feed on the newly expanding leaves and leaf stems.. Scout for the nymphs on the undersides of the leaves when they have expanded and again in July. Horticultural soaps and oils are effective on all stages except eggs. One application

of imidacloprid early in the season can provide good control. Green and white ash are most commonly attacked by this insect although other ash species may also be hosts. Damage on leaves ranges from a whitish stippling on leaves to deformation of newly emerging leaves. The undersides of infested leaves often have black specks, which are the excrement of the insect. Heavy infestations may cause premature leaf drop in summer. There are two generations per year.

European pine sawfly – This insect is the bane of homeowners with mugo pines growing on their property. It's not unusual for people to observe groups of "caterpillars" devouring the plant's needles. At this point

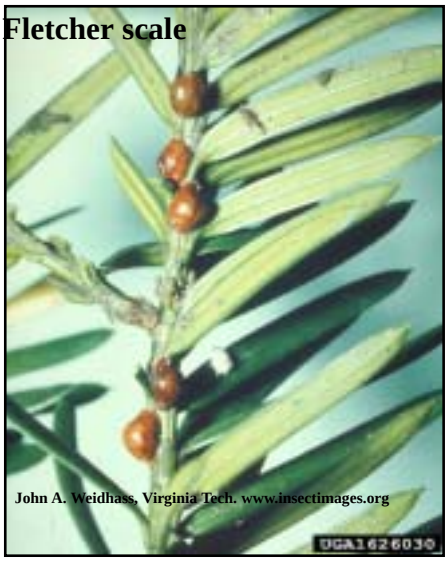


the damage has been done and controls waged at this time are more revenge than treatment.

Other pines attacked by this insect include Scotch, red, jack and Austrian. European pine sawfly, as its name

implies, is an introduced pest. This insect overwinters as eggs imbedded in the current year needles. Readers who have recurring problems with this insect can scout for the eggs in the fall, winter or early spring. Larvae, which are not true caterpillars but are the immature stage of a stingless wasp, hatch in early spring when saucer magnolia is dropping petals or when PJM rhododendrons bloom (100-200 DD_{50}). This is the time to start scouting for the tiny, just-hatched larvae. The larvae feed on last year's foliage so concentrate your scouting efforts there. If there are only one or a few groups of larvae feeding, they can be removed by hand or dislodged with a strong spray of water. Insecticidal soaps may be used for control of this insect, but remember that soaps must come into direct contact with the larva to be effective. Once the larvae have completed feeding they drop to the ground and pupate in the soil. Adults emerge from September through October and lay eggs in the current seasons growth near the ends of the branches. There is one generation a year.

Fletcher scale – This pest of yews is rarely a problem in landscape situations but can be quite bothersome in nurseries. This insect overwinters as an immature but grows quickly in the spring to the hard-shelled adult. The immature stages



in the spring can be controlled with horticultural oils and insect growth regulators. Adult scales are protected from chemical control with their hard shell. In mid to late June, eggs hatch and the young larvae begin to feed on stems and leaves. These newly hatched crawlers can be controlled at this time also. When populations are high copious amounts of honeydew are produced and coat the insides of the yew bushes. Sooty mold then develops and the entire interior of the plant is black. This is tell tale sign that you have a heavy infestation. There are many predators and parasitoids of this insect and in most landscape situations these beneficials keep Fletcher scale populations in check.

Spruce spider mite – The overwintering eggs of this mite begin hatching in early spring as saucer magnolia is in pink bud to early bloom (100-200 GDD_{50}). Unlike two-spotted spider mite, spruce spider mite does better in cooler weather. In the heat of summer activity of this mite essentially ceases but populations may build up again in the fall. The feeding by spruce spider mite destroys the chlorophyll-producing cells on the leaf surface giving the plant a dull gray to bronzed look. Its host range includes blue, Norway and white spruces but arborvitae and some other conifers may also sustain injury from this pest. Scout for these tiny pests by placing a white sheet of paper under a branch and tapping the branch to dislodge any mites. You can either use a hand lens to identify them on the paper, or simpler, just fold the paper in half to crush the mites. You will see little orangish to greenish spots on the paper where the mites were crushed. For treatment you can use summer oils or insecticidal soaps to conserve beneficials. Oils should not be used on blue spruce as it removes the bluish tint on the needles. Some of the new, long lasting miticides (clofentazine, bifenazate, hexythiazox) provide good control and are less toxic to beneficials than conventional miticides. There are several generations per year.

Gypsy Moth

GYPSY MOTH TRAPPING PROGRAM – For the ninth consecutive year, the entire state will again be trapped for gypsy moth. Trappers are expected to set nearly 38,000 traps statewide in 2005. Trapping densities are set at 1 per 9 sq. miles in the eastern quarantine counties, 1 per 4 sq. miles in the central quarantine counties and 1 per sq. mile in the western counties. Trapping densities in delimitation blocks are 4 per sq. mile and 9 per sq. mile. The eastern half of the state will be trapped using milk carton traps while delta traps will be used in the western half.

Trappers will be setting traps in nearly 200 delimitation blocks in the western half of the state. Delimitation trapping is an intense trapping grid used to define the boundaries of a possible gypsy moth infestation or to evaluate a treatment block. Milk carton or delta traps are used depending on the number of moths caught in that area last year. The trapping results of these blocks will help determine if a treatment will be done next year or if the Btk treatment worked in the current year or if the mating disruption treatment worked from the previous year.

Trapping will begin the week of May 23, 2005. If you have any questions about the GYPSY MOTH PROGRAM, please call our hotline at 1-800-642-MOTH or visit our website at: http://www.datcp.state.wi.us/arm/environment/insects/gypsy-moth/

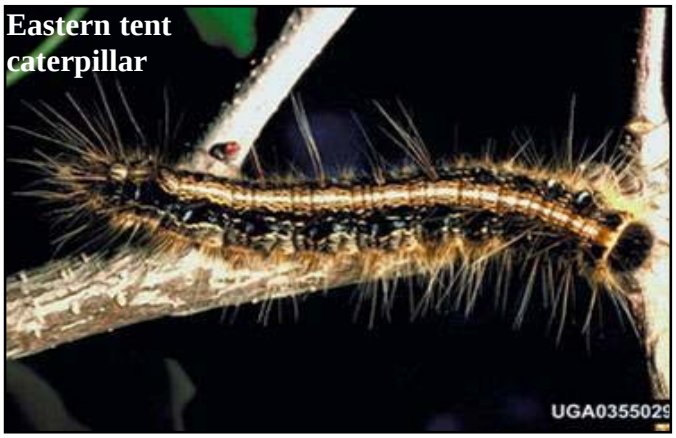
Fruit

Apple ermine moth – Last summer suspect apple ermine moths (AEM) were trapped at an orchard located near Racine in southeastern Wisconsin. AEM, a serious defoliator of apple in the Pacific Northwest, is not known to be present in Wisconsin; however, DATCP is asking all growers to monitor orchards closely for this pest this season.

Approximately thirty apple insect trapping cooperators will be placing traps baited with pheromone lures to attract AEM moths throughout the state by mid-May. In addition, Wisconsin growers are encouraged to be on the lookout for communal tents of AEM from mid-May through June. Communal webs of AEM look very much like the familiar webs made by Eastern tent caterpillars, but the larvae that feed inside are vastly different in appearance. AEM larvae vary from gray or cream colored with pronounced black spots to dark greenish (see image), while Eastern tent caterpillars are hairy and dark in color, with a prominent white stripe along the back and a row of pale blue dots on each side. If you

find an AEM web or larvae, please call the Pest Survey Hotline at 1-800-462-2803.

Spotted tentiform leafminer (STLM) - STLM events begin early in the season and occur in rapid succession. As soon as the first adults begin appearing in pheromone traps, it isn't long before egg laying is underway and the first peak flight of the season takes place. The first peak flight of STLM moths is the upcoming event growers should watch for; it indicates that growers will need to begin scouting for STLM leafmines on the undersides of leaves approximately one week later. The appearance of the first STLM moths of the season in the Madison and



Milwaukee area just over two weeks ago (around 22-70 GDD_{50}), indicates the first peak flight is right around the corner. This event, expected around 150 GDD_{50}, could occur by April 24 in the Madison area. The first larvae of the season can be anticipated around 209-231 GDD_{50}.

Projected Dates of Next Spotted Tentiform Leafminer (STLM) Event

dates are based on current rate of GDD accumulation

First STLM flight and peak trap catch occur around 150 GDD50. Expected to occur in:
Madison by April 24
Milwaukee by May 5
LaCrosse by April 20
Prairie du Chien by April 18

Begin scouting for first generation sap-feeder mines on undersides of leaves approximately one week later.

Black Cutworm Trap Catches April 8-15

Site	No. BCW
Grant Co.	
Benton	0
Hazel Green	trap down
Sinsinawa	0
Dickeyville	1
Lancaster	0
Lafayette Co.	
South Wayne	0
Gratiot	0
West Gratiot	1
Shullsburg	5
West Shullsburg	2
Green Co.	
Cadiz Springs	0
West Monroe	1
East Monroe	3
Juda	1
Brodhead	0
Rock Co.	
Avon	0
Newark	0
West Beloit	0
East Beloit	0
Clinton	0

Redbanded leafroller (RBLR) – RBLR is another moth pest which emerges in orchards early each spring. In Wisconsin, the series of RBLR seasonal events begins around 25-78 GDD50, with the first occurrence of moths. This event has been reached and RBLR moths have begun to appear in traps near Boscobel, Madison, LaCrosse and Prairie du Chien. The first eggs of the season are laid around 82-162 GDD50, overlapping with the first peak flight of moths around 106-160 GDD50.

Projected Dates of Next Redbanded Leafroller (RBLR) Events

dates are based on current rate of GDD accumulation

First RBLR flight begins around 25-78 GDD_{50}, expected to occur in:
Madison - April 5 to present
Milwaukee - Begins today, April 15
LaCrosse - April 5 to 10
Prairie du Chien - April 3 to 10

Peak catch and approximate start of egg hatch begins around 106-160 GDD_{50}, expected in:
Madison - April 18 to 23
Milwaukee - April 24 to 30
LaCrosse - April 15 to 20
Prairie du Chien - April 11 to April 17

Plum curculio - For the second season in a row, several

apple growers located throughout the state will be monitoring plum curculio activity in their orchards. Traps are scheduled to be deployed over the weekend and the first adult capture is likely to occur around 100 GDD50. Plum curculio activity escalates sometime between pink and petal fall, after a few consecutive days of rain and daytime temperatures about 70-75°F. One generation of plum curculio occurs per year in Wisconsin. Look for PC trap catches in future issues of the Wisconsin Pest Bulletin.

Projected Date of Next Plum Curculio (PC) Event
dates are based on current rate of GDD accumulation

First PC capture occurs around 100 GDD_{50}. This event expected in :
Madison - April 18
Milwaukee - May 3 = count 20 days from the 15th
LaCrosse - April 20
Prairie du Chien - April 15 or 16

Apple Scab – The apple scab spore maturity estimates which DATCP has provided since 2000 have been discontinued. The estimates, based upon temperature data collected by a network of orchard cooperators, attempted to identify the period of primary ascospore maturity in the Spring. While useful to the specific growers involved, we feel that the estimates lost value as distance increased from the mezoclimate of the cooperating orchard, and as time increased from the measurement period.

The project introduced a technology (data loggers) to a number of apple growers; results were positive in almost all cases. Most cooperators plan to continue to use data loggers, and several have used the loggers to track growing degree days and environmental conditions to model other diseases and insect development. Several cooperators credit the spore maturity modeling with a reduction in fungicide use for scab control.

Over the years of the project, we were fortunate to have the cooperation of a number of apple growers. We would like to extend our gratitude to the cooperators, for their help and efforts through five Springs.

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Web site of the week

In southern Wisconsin, Amelanchier and Magnolia are blooming, indicating that the common asparagus beetle will soon lay eggs, flea beetles have begun to emerge, and cabbageworm butterflies will be seen fluttering about shortly. Soon lilacs will bloom as well, suggesting that cabbage maggot flies will be laying eggs for the first generation. The UW Urban Horticulture website is an excellent resource of phenological events in Wisconsin. At http://www.uwex.edu/ces/wihort/Phenology.html you can find images and information for many pests and indicator plants.

Quote of the week

Every year, back comes Spring, with nasty little birds yapping their fool heads off and the ground all mucked up with plants.

Dorothy Parker (1893-1967)

We're sorry, but because of technical difficulties, the degree day map is not available this week.