Volume 51 Number 01 April 21, 2006

Wisconsin Department of Agriculture, Trade & Consumer Protection

Wisconsin Pest Bulletin

PO Box 8911 • Madison, WI 53718 • Phone 1-800-462-2803 • Fax: 608-224-4656

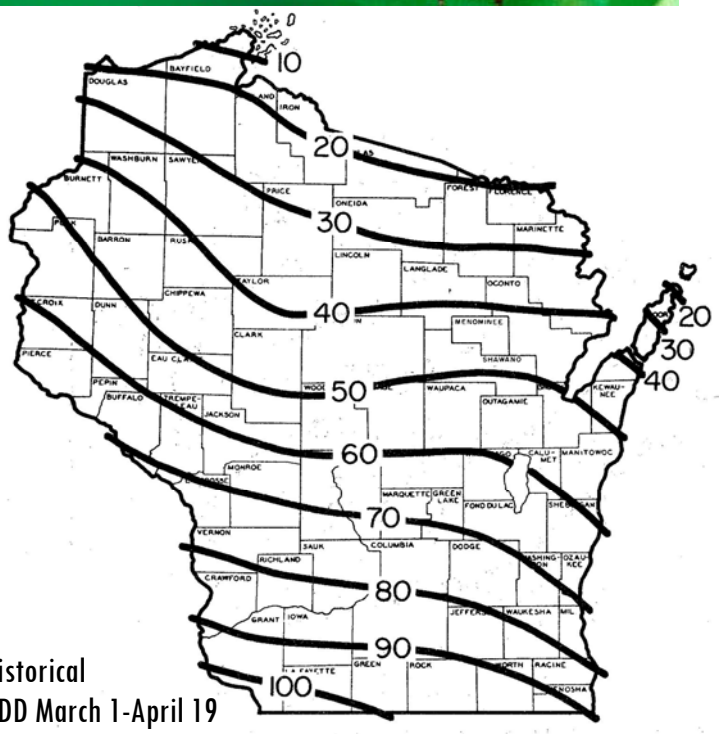
Your weekly source for crop pest news, first alerts, and growing season conditions for Wisconsin

Weather and Pests

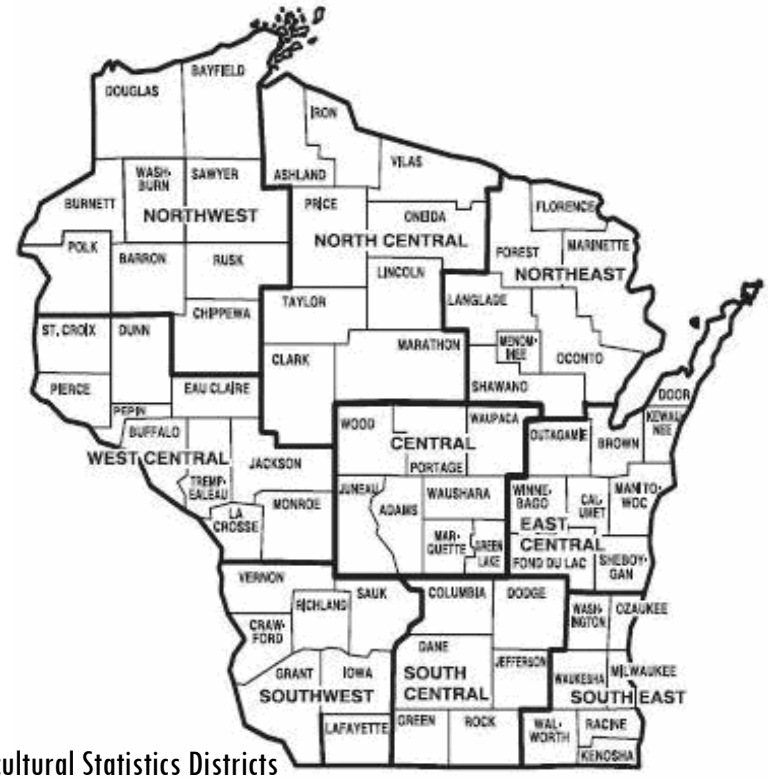
The first weeks of spring have brought visibly measurable changes to the countryside, in both the vegetation returning to the fields and pastures and the hum of the first tractors taking to the land. Predictable as it may be, the synchronicity of springtime events in Wisconsin is invariably extraordinary. The absorption of sunlight and influence of April showers set into motion a vast greening after a long period of dormancy. Already this month the warm temperatures have greatly accelerated plant development and insect activity. Southern alfalfa is exhibiting rapid growth, and some advanced fields have attained a height of 8-10 inches. Observations by survey specialists during the last week indicate that new seedings and established alfalfa fields wintered well.

Growing Degree Days through 4/20/06 were

	GDD 50F	2005	48F	40F
Dubuque, IA	148	000	142	326
Lone Rock	144	000	130	305
Beloit	160	000	152	349
Madison	130	000	121	291
Juneau	129	000	122	301
Sullivan	142	000	135	323
Waukesha	123	000	117	296
Hartford	123	000	117	294
Racine	104	000	101	267
Milwaukee	107	000	101	270
Appleton	109	000	100	262
Green Bay	084	000	078	230
Big Flats	138	000	125	298
Hancock	132	000	120	290
Port Edwards	136	000	124	296
La Crosse	162	000	161	355
Eau Claire	149	000	146	324
Cumberland	123	000	113	271
Bayfield	071	000	058	192
Wausau	113	000	098	248
Medford	115	000	103	255
Crivitz	084	000	073	218
Crandon	098	000	079	212



Historical
GDD March 1-April 19



Agricultural Statistics Districts

A relatively mild winter suggests overwintering survival of insects was likely to have been high. Farmers should be alert to early activity of spring pests, including the corn flea beetle, vector of the seedling phase of Stewart's wilt. In addition, an early influx of black cutworm moths means corn seedlings face the distinct possibility of being cut, especially fields with weed problems or where planting is delayed due to wet conditions.

In our 51st year of service, we welcome Clarissa Hammond to the Wisconsin Pest Bulletin team. Clarissa comes to DATCP from UW-Madison, where she received a Master's Degree in Agronomy. Having grown up on a farm in southwestern Michigan, Clarissa brings a strong set of skills to the department, and she is no stranger to sweep nets and field crops. Look forward to Clarissa's articles and reports throughout the season.

The authors of the Wisconsin Pest Bulletin are grateful for the opportunity to bring this weekly publication to your computer screens from April 21 to September 8, and we are excited for the growing season of possibilities ahead -- *Krista Lambrecht*.

Looking Ahead

Black cutworm – As the first migrants of the season drift into the state from overwintering grounds as far away as southern Texas and eastern Mexico, survey specialists will be watching for a concentrated pheromone trap catch of 8-9 moths in a 1-2 night period. This event is used to predict when the progeny of the migratory cutworm moths have reached the 4th instar, the developmental stage where they first become capable of cutting corn seedlings. Captures at 46 trapping sites ranged from 0-7 moths this week.

Armyworm – Arrival of migratory armyworm moths is expected in the upcoming week. Small grains are particularly vulnerable to attack by the generally small, yet sometimes damaging first generation of larvae. Like the black cutworm, the impact of annually introduced populations of armyworms is dependent on meteorological factors. The pattern of low-level, southerly jet streams will determine the numbers of migrant moths delivered into Wisconsin and neighboring states from source areas in the southern U.S..

Spotted tentiform leafminer – The first moths of 2006 took flight in southern Wisconsin orchards just over one week ago, marking the start of another season of spotted tentiform leafminer activity. Predictably, egg laying will occur around 75-127 GDD, and the first peak flight of moths can be expected at about 150 GDD. The earliest peak flight is the first major spotted tentiform event to be alert to. Scouting for sapfeeder mines on the undersides of apple leaves should begin about one week after the first peak flight has been recorded.

Codling moth – Although the first codling moths are not forecast to begin emerging until 248 GDD (base 50F) have accumulated, traps should be placed at 150 GDD, the same time first peak flight of spotted tentiform leafminer is reached. While checking spotted tentiform leafminer traps next week, be sure to deploy a codling moth trap to monitor the earliest moth activity of this pest.

Redbanded leafroller – Since moth activity was first observed in Grant Co. between March 30 and April 6, high counts ranging from 56-106 moths have been recorded at Sinsinawa (Grant Co.), Lancaster (Grant Co.), Dodgeville (Iowa Co.), Burlington (Kenosha Co.), Rochester (Racine Co.), Hill Point (Richland Co.), and Montello (Marquette Co.). The first peak flight of redbanded leafroller moths is just around the corner, and should be anticipated at 106-160 GDD (base 50F).

Alfalfa weevil – Adults were swept on south-facing slopes from 8-10" alfalfa fields in Grant, Green, and Lafayette Co. fields surveyed yesterday. Sweep nets counts averaged 2 adults per 20 sweeps. Scouting for alfalfa weevil damage should commence once 250-300 GDD (base 48°F) have accumulated.

Meadow spittlebug – With egg hatch in progress, spittlebug watchers can look for detectable numbers of nymphs to move onto alfalfa plants either next week or the following week. The annual appearance of spittle masses and feeding by the tiny nymphs inside is nearly always a non-economic event in Wisconsin. Nonetheless, the rapid early-season cycle of the spittlebug, and the coming and going of their curiously spit-like masses, is something to watch for.

Agricultural Statistics Districts – Throughout the growing season authors of the Wisconsin Pest Bulletin regularly make reference to the nine geographic areas known as Agricultural Statistics Districts. Locations of the nine districts are illustrated in the map on page 1.

Forage

Alfalfa Weevil – As alfalfa fields rapidly regenerate and fill out in the coming weeks, plan to begin scouting for alfalfa weevil. At this time, larvae have not been observed, but adult alfalfa weevils wasted no time moving back into alfalfa fields from protective overwintering sites in ditches and fencerows. In the southwestern corner of the state, adults were swept from all of the fields surveyed yesterday, at an average of 2 weevils per 20 sweeps. Scouting for alfalfa weevil larvae should begin once 300 GDD (base 48°F) have been reached. Development will occur fastest in warm, sandy areas within fields, and on south-facing slopes. Monitoring alfalfa weevil activity is most important in the first crop, as the heaviest damage typically occurs when the first cutting is ready for harvest. – Krista Lambrecht

Alfalfa weevil larvae http://info.ag.uidaho.edu

Corn

Black cutworm – Carried at a considerable height on strong, southerly winds, the first migratory black cutworm moths arrive in Wisconsin each spring from overwintering grounds in southern Texas and eastern Mexico, more than 2000 miles away. After a flight period that takes anywhere from one to three nights to reach central Iowa, and likely another night or two to reach Wisconsin, moths typically begin to appear in pheromone traps by mid-April.

The long-distance migration of black cutworm moths is thought to be primarily a passive process, whereby moths are carried on southerly jets, but may actively enter and leave air currents. Sustained southerly winds bringing warm, moist air northward favor the transport of black cutworm moths into Wisconsin and neighboring states, while northwesterly winds and colder air hampers dispersal activity.

The earliest evidence of an approaching annual migration of black cutworm moth came on April 6, 2006 when a moth was registered at the Janesville trapping site. Captures of 0 moths per trap were recorded March 29-April 5, 0-5 moths per trap April 6-12, and 0-4 moths per trap April 13-20, still well below the target capture of 8-9 moths in 1-2 nights. Relative to the preceding five years, black cutworms arrived somewhat ahead of schedule this season. First moth captures are as follows: April 6 in 2006; April 12 in 2005; April 19 in 2004; April 22 in 2003; April 17 in 2002; and April 21 in 2001.

Black cutworm moth Marlin E. Rice

A network of 41 traps is in place in the southwest corner of the state to monitor black cutworm migration through the month of May. In addition, Bill Veith of Seneca Foods has graciously agreed to report counts registered at Janesville, and Monroe Co. Agent Bill Halfman has placed four traps in and around Sparta in the west central district. Together, counts from these 46 trapping sites should provide a good picture of the early-season black cutworm migration. Remember, fields with an abundance of weeds and/or delayed planting due to wet conditions are most susceptible to attack. Complete tables of moth captures since March 29 are provided on the last page.

Corn flea beetle – The corn flea beetle (*Chaetocnema pulicaria* Melsheimer), a minute, shiny black insect, is the vector and overwintering reservoir of the bacterium that causes Stewart's wilt, *Pantoea stewartii* Smith. Stewart's wilt is a disease of regulatory concern. In fact, importation of seed from *Pantoea*-infected fields is prohibited by at least 23 countries worldwide. Corn flea beetles pick up *Pantoea stewartii* when feeding on infected plants, and transfer it from one plant to another. The bacterium accumulates and clogs the vascular system, affecting water and nutrient movement. Susceptible corn varieties plants may become infected at any point during development, but there are two distinct phases of Stewart's wilt: a seedling stage and a leaf blight phase (when plants are not infected until tasseling or later).

Stewart's wilt seedling phase http://www.apsnet.org

Stewart's wilt had been absent from Wisconsin corn fields until 1999, when an isolated case was detected in Walworth Co. for the first time in 56 years. In the years since, Stewart's wilt has been detected in a small number of inbred and sweet corn fields, but the incidence prevalence was generally low. In 2000, the disease was found in 10 counties of the state; in 2001, no disease was detected. In the years 2002-2004, only one or two infected fields were recorded each year. However, last season (2005), seed field inspections found the disease in 21 of 44 fields surveyed, or 48% of the fields visited. The disease occurred in eight counties, reaching as far north as Eau Claire Co.

Winter temperatures are likely the primary factor regulating the incidence of this disease in Wisconsin, by influencing flea beetle winter mortality. Other Stewart's wilt risk factors include: the prevalence of Stewart's wilt in the previous season, and corn flea beetle population dynamics. An assessment of winter weather conditions can help to determine the risk of Stewart's wilt.

Two models are commonly used to predict the severity of Stewart's Wilt: the Stevens-Boewe Index and the Iowa State Model. The Stevens-Boewe Index predicts separately the severity of early season wilt and late season leaf blight, whereas the Iowa State Model predicts general occurrence through the season. Both models use average monthly temperatures from December, January and February to predict the number of surviving corn flea beetles and further forecast, the amount of Stewart's Wilt those beetles will spread.

The Stevens-Boewe Index takes the sum of average temperatures for those three months (December, January and February) and risk is assigned as follows: less than 80 degrees F means a slight risk, between 80 and 90 degrees F means and moderate risk and more than 90 degrees F equates to a high risk. The Iowa State Model looks at the

individual monthly average temperatures that were greater than 24 degrees F and risk is assigned as follows: 0 months = negligible risk, 1 month = low to moderate risk, 2 months = moderate to high risk, and 3 months = high risk. Predictions were made for Wisconsin using both of the models discussed above. The resulting risk of occurrence varied slightly between the two models (see table on last page).

Soybean

Soybean Rust Update - By April, 2005, five counties in the United States had tested positive for soybean rust, all on kudzu. By early March, 2006, the presence of soybean rust was confirmed on kudzu throughout the southeastern U.S. and on soybean in Texas and Mexico, in a total of 21 counties. What, if anything, does this change for Wisconsin soybean production? One point that hasn't changed is the need to track the movement and development of soybean rust. The best sources for tracking movement is the USDA Soybean Rust Information Site: http://www.sbrusa.net/, and the toll free Wisconsin Soybean Rust Hotline: 1-866-787-8411.

Clearly, disease dynamics have changed in 2006. In addition to the 21 counties mentioned above, four other sites had confirmed presence of soybean rust, but the host plants were destroyed. The most notable example was a soybean field in Texas that was confirmed in mid February and harvested on March 3. Additional rust confirmations in the Mexican states of Tamaulipas and San Luis Potosi are also of concern. Wind patterns that affect Wisconsin are more likely to flow through Mexico and Texas and provide a more direct, if not quicker, pathway to Wisconsin as compared to weather patterns from Florida, Georgia and Alabama. Perhaps, soybean rust will follow the known pathway of other rust diseases. **The activity of soybean rust in Mexico, Texas and Louisiana will likely be of more importance to Wisconsin than its activity in Florida and other Southeastern states.**

At this point, spore viability after long migrations is unknown. Soybean rust spores are not considered to be as hardy as other rust species. Environmental conditions such as low humidity and sunlight are known to decrease spore viability. If some of the spores arriving from the southern states remain viable, they will still require the appropriate environmental conditions (temperature, relative humidity and leaf wetness) to infect soybeans.

Another issue that bears watching is the spring regrowth of kudzu. Kudzu, the over wintering host of soybean rust, is greening up from west-central Texas, through northeast Texas, all of Louisiana, southern Alabama and Georgia, and the entire state of Florida. This may soon increase the range of soybean rust and further increase the amount of inoculum available for transport.

Section 18 Concerns - Wisconsin, and other soybean producing states, had an unprecedented number of fungicides approved by EPA through the Section 18 Emergency Exemption process for the control of (only) **soybean rust on soybean**. These Section 18 Emergency Exemption registrations are an invaluable tool for production agriculture. Essentially, EPA allows for the limited use of pesticides during a crisis situation which do not have established food tolerances. Although approved for use, it must be remembered these fungicides can legally be used for only soybean rust on soybean. Not for control of other soybean diseases or for improving "plant health". As a result, each state must determine, either independently or collectively, what event will trigger an acceptable use of section 18 soybean rust fungicides. In Wisconsin, we have decided that event should be when rust is found in an adjacent state (Indiana, Illinois, Iowa and or Minnesota). This should avoid premature or unnecessary fungicide application, yet allow significant time for proper application. Remember, this is for the section 18 labeled fungicides, not for the fungicides which have a section 3 label (Bravo, Echo, Headline and Quadris)

Possible Fungicide Interactions with Soybean Aphids and Two-Spotted Spider Mites - When considering the use of foliar fungicides, attention must be given to their ability to control the disease as well as to economics. Crop advisors must also consider their effects on entomopathic fungi. Entomopathic fungi are naturally occurring and can significantly lower arthropods populations if environmental conditions are favorable. Results from a 2005 foliar fungicide efficacy test at the West Madison Agricultural Research Station indicated a possible interaction with these fungi because some fungicide treatments had a significantly lower yield with the presence of two-spotted spider mites. Similar results are known to exist with aphids in potatoes as well as other cropping systems.

Soybean Rust Sentinel Plots - Wisconsin will continue to monitor soybean rust sentinel plots through the combined efforts of county extension agents, agriculture research station staff and UW-Madison campus research staff. Goals of the sentinel plot network include identification of spore producing areas and collection of data for research. However, the primary goal is detection of soybean rust at low levels and providing an early warning system for soybean producers. Over 30 states have joined this sentinel plot network that utilizes trained observers to look for signs and symptoms of rust on soybean, dry beans and kudzu. Wisconsin has 21 sentinel plots in 19 counties. Most Wisconsin soybean growers will have a sentinel plot within their county or will border a county with a sentinel plot. Results of these sentinel plots are disseminated through the USDA website and the toll free WI Soybean Rust Hotline, both listed in the first paragraph. *-- Craig Grau, Extension Plant Pathologist and Bryan Jensen, IPM Program*

Fruit

Spotted tentiform leafminer – Pheromone traps used to monitor this pest should now be in place statewide. Trap counts of spotted tentiform leafminer indicate: 1) the relative abundance of the species in your orchard, 2) when a peak flight has occurred, and 3) may be used to time leaf sampling. Trap counts should not be used directly to decide if spraying to reduce populations is necessary. Instead, scouting and counting sapfeeder leaf mines is required to determine if treatment is warranted.

Already high trap captures have been registered at several trapping sites, including Galesville (500), Dodgeville (595 moths) and Montello (480 moths), and Rochester (454),

suggesting the peak flight in the southern half of the state is likely to occur within the next week. Once the peak is reached and moth numbers start to decline, trappers should plan to start scouting for sap feeder mines. What constitutes a peak flight will vary from orchard to orchard, but it could range up to about 1600 moths in a week's time. A GDD model used to predict development of spotted tentiform leafminer is provided below. The first larvae can be expected once 209 GDD (base 50F) have been reached, and the first mines generally appear about 329 GDD. Bayfield trappers should look for the first spotted tentiform leafminer moths to appear in traps in the next few days.

Spotted tentform leafminer adult

STLM EVENT	GDD (base 50°F)
1st moth occurs	22 - 70
1st eggs occur	75 - 127
1st peak flight	150
1st larvae	209 - 231
1st leaf mines	329 - 403
2nd flight begins	539 - 750
2nd flight peak	1150
3rd flight begins	1479 - 1523

Redbanded Leafroller – Like the spotted tentiform leafminer, redbanded leafroller overwinters as a pupa in leaf litter, and it is also one of the earliest moths to emerge in spring. Adults take flight and lay eggs in masses on the undersides of larger limbs, while the new larvae fold or roll leaves together with webbing and feed on the foliage. Because the larvae feed on foliage and only occasionally on the fruit itself, redbanded leafroller is generally considered an indirect pest of fruits.

Interestingly, the pheromone used to lure male redbanded leafroller moths to a trap is highly potent, having been showed to attract males within five minutes of exposing a cap to air currents on a warm mid-afternoon in late April. Cooperators should not be alarmed if unusually high weekly captures are registered. This insect is a general feeder and has a wide range of hosts besides apples.

Pheromone traps in place in southern orchards since early April registered a sharp rise in moth counts in the past week. Some of the more noteworthy captures were: Burlington 80; Deerfield 81; Hill Point 80; Lancaster 106; Dodgeville 56; Montello -59; Rochester 58. These numbers may represent the first peak flight of redbanded leafoller here in the south, but this cannot be confirmed until next weeks counts are in. The first peak flight of redbanded leafroller typically takes place from 106-160 GDD (base 50F). There is no action threshold based on trap counts alone. Trap counts indicate when the pest is flying and when to scout for larvae. A GDD model for redbanded development is provided below.

Redbanded leafroller Krista Lambrecht, DATCP

RBLR EVENT	GDD (base 50°F)
1st moth occurs	25 - 78
1st eggs occur	82 - 162
1st peak flight	106 - 160
1st larvae	167 - 228
2nd flight begins	780 - 937

Codling moth – At this time, codling moths are overwintering as mature larvae in cocoons in Wisconsin orchards. As temperatures continue to rise in the week or two ahead, those overwintered larvae will enter the pupal stage, and will begin emerging as adults in the end of the month or by early May. In Bayfield Co., the first signs of codling moth activity will not be noticeable until about late-May. For southern Wisconsin growers, it's not too early to place pheromone traps for codling moth. Traps should be set at eye level on the south side of the tree, avoiding outside rows of trees. The first moths should begin to emerge at 248 GDD (base 50F). Once moths appear, monitor trap catches closely to determine the starting date, or biofix, of the first sustained flight of male moths.

Welcome to Bayfield Co. Cooperators – In the season ahead, DATCP's dedicated group of about 30 apple insect trapping cooperators will be joined by a group of 15 Bayfield Co. orchardists, many that are first-time trappers. To accommodate the increase, trap counts will be arranged slightly differently than they have been in past years, in alphabetical order by county, instead of by agricultural statistics districts. We are eager to see what develops in Bayfield Co. orchards where apple trees are affected by a somewhat different complex of pest problems. Apple growers statewide will greatly benefit from the increased number of reporting sites. A special thanks to County Agent

Vijai Pandian for his help coordinating efforts among the Bayfield orchardists, and to all the cooperating orchards!

Comments needed for special cranberry pesticide registration - Wisconsin's cranberry growers will have better control over woody weeds because of a special pesticide registration proposed by DATCP.

The special registration is for Weedar 64, which will allow cranberry growers to control several weed species in the marshes, including aster, red maple, loosestrife and goldenrod. Under the special registration, growers will apply Weedar 64 as a wipe application to the weeds as they emerge. Wisconsin citizens, growers and other interested parties have until April 28 to review and comment on the proposed five-year special pesticide registration.

The special registration process allows states to register pesticide products without prior federal approval, giving states flexibility to meet local needs such as controlling a plant disease or insect outbreak.

The active ingredient in Weedar 64 is *2,4-D amine* and the US Environmental Protection Agency has already set an acceptable residue limit on cranberry for 2,4-D. Weedar 64, as any pesticide, must be applied according to full label directions, to protect human health and the environment.

Growers can combat weed resistance by alternating Weedar 64 with other weed control products. Because the product is applied directly to the weed as a wipe application there is less risk for drift or over application.

The preliminary environmental assessment indicates the proposed registration will not significantly harm humans, animals, or the environment, and a full environmental impact statement is not required.

For a copy of the environmental assessment, call the DATCP Pesticide Special Registration Program at (608)224-4500, or review the assessment at the department, Monday through Friday, 7:45 a.m.-4:30 p.m., 2811 Agriculture Drive, Madison, second floor. Comments received on or before 4:30 p.m., Friday, April 28, 2006 will become part of the preliminary environmental assessment record. Send comments to the DATCP Pesticide Registration Program at the above address, or fax them to (608) 224-4656. Wisconsin is the nation's largest producer of cranberries. *-- Jane Larson (608) 224-5005*

Potatoes

Pale Potato Cyst Nematode - On April 19, 2006, the Idaho State Department of Agriculture (ISDA) and the USDA issued a joint press release announcing that cysts of *Globodera pallida*, the pale potato cyst nematode, had been detected in Idaho. This is the first time that *G. pallida* has been reported in the United States.

According to officials of the ISDA, two cysts were found in a soil sample taken from under a processing line at a grading facility. The identity of the cysts was confirmed via PCR by the USDA. The soil sample was related to two fields, both producing table stock, totaling about 500 acres. Both fields have been placed under quarantine, and intensive soil sampling is planned. In addition, the origin of seed used in these fields is under investigation. The processing facility is also restricted from moving potatoes or soil, pending further examination.

Globodera pallida is widespread in Europe and South America. In North America, it had previously been detected only in Newfoundland, Canada. The nematode has the potential to cause significant crop losses if populations reach critical levels. Growers in Europe use a combination of resistant cultivars, nematicide treatments and long rotations (as much as seven years) to keep nematode populations below economic thresholds.

Of more immediate concern is the impact that *G. pallida* will have on trade. Canada has announced a temporary prohibition on the import of potatoes (both seed and ware) and soil from Idaho, pending further information on the distribution of the nematode. It is expected that Japan (which only recently opened its border to potatoes from the U.S.) and Mexico will follow suit soon, perhaps with restrictions on a national level.

Globodera pallida has never been detected in Wisconsin. The DATCP Pest Survey and Control Section and the Plant Industry Laboratory, working with the USDA Cooperative Agricultural Pest Survey (CAPS) program, has sampled Wisconsin potato fields for cyst nematodes periodically since 1989. Prior to Idaho's detection, the department was planning to test 115 fields in the state for the nematode (65 were sampled and analyzed from 2005 season fields); that number is expected to increase in light of Idaho's detection.

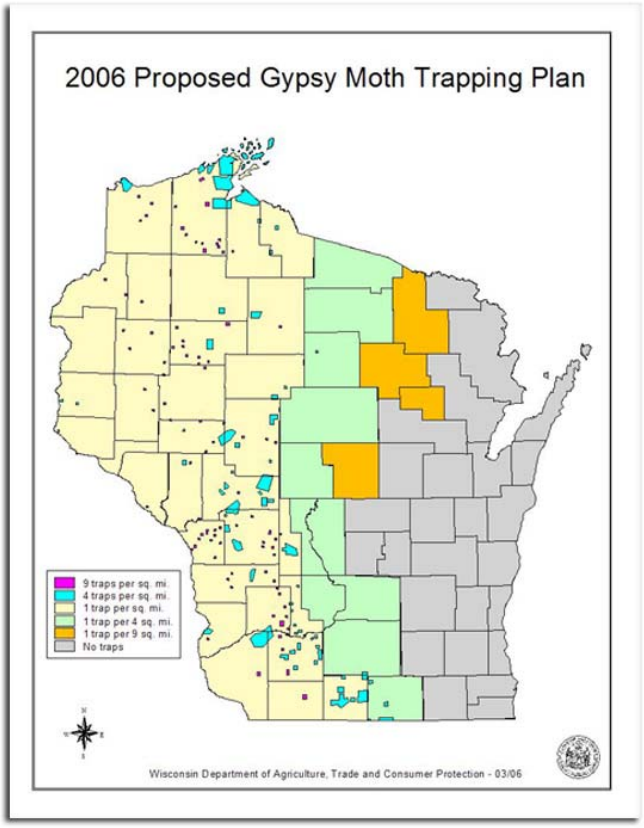
The situation in Idaho points out the value of early detection of exotic pests. If in fact the *G. pallida* infestation is limited to two fields, or a small region of the Idaho potato growing area, eradication or quarantine remain feasible options. When exotic pests go undetected until they have established themselves over a wide area, the options in the toolbox grow limited. Though it may seem paradoxical at times, vigilance and early detection of exotic pests is the best way to protect markets.

A good primer on *Globodera pallida* may be found at: http://www.eppo.org/QUARANTINE/nematodes/Globodera_pallida/HETDSP_ds.pdf. For more information on the DATCP Pest Survey and potato nematode sampling in Wisconsin, please call 1-800-462-2803 or email Adrian.barta@datcp.state.wi.us.

Gypsy Moth

Gypsy Moth Trapping Program - The 2006 trapping plan calls for setting approximately 34,000 traps in the central and western parts of the state. Trapping has been dropped in most eastern counties this year. Eastern counties are considered "generally infested" and trapping data is not very useful in those areas of the state. Basic trapping grids will include 1 trap per square mile in western counties, 1 trap per 4 square miles in most central counties and 1 trap per 9 square miles in a few north central counties. Delimitation trapping or high density trapping will occur at 4 or 9 traps per square mile. There are over 150 delimitation blocks scattered around the western half of the state. Orange and green delta traps will be used in the western counties and the larger milk carton traps will be used in the central counties.

Trap setting will begin in mid-May. 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/index.jsp



2006 Gypsy Moth Slow The Spread Treatments to Occur in 22 Wisconsin Counties - In 2006, the Wisconsin Department of Agriculture Trade and Consumer Protection (WDATCP) proposes to treat 87 sites in 22 central and western Wisconsin counties, covering 168,920 acres, through the Slow The Spread (STS) program.

Beginning in May, 43 sites will be sprayed with *Bacillus thuringiensis* sub sp. *kurstaki* or Btk. Btk, a commonly used biological pesticide, which has been successfully used in gypsy moth treatments for more than 30 years. Gypsy moth caterpillars eat the leaves that have been treated with Btk. The product causes the caterpillars to stop eating and they eventually die. Most of these 45 sites will receive two applications of Btk, about 7-10 days apart.

In June and July, 28 sites will be treated with pheromone flakes. These tiny, plastic flakes carry the scent of the female gypsy moth that confuses the male moths and disrupts the mating cycle. The remaining 16 sites will be sprayed with a naturally occurring gypsy moth virus called nucleopolyhedrosis virus (NPV or Gypchek).

The counties with proposed treatment areas are: Ashland, Bayfield, Clark, Eau Claire, Grant, Green, Iowa, Iron, Jackson, Juneau, Lafayette, Lincoln, Monroe, Oneida, Richland, Rock, Sauk, Taylor, Trempealeau, Vernon, Vilas and Wood.

Background information and maps of spray blocks can be accessed at the WDATCP web site at www.datcp.state.wi.us. Click on the Gypsy Moth header under Popular Topics. This site also links to information on Suppression spraying in the eastern half of the state, managed by the Wisconsin DNR.

Forest and Landscape

Oak Wilt - Oak Wilt is a lethal disease, prevalent in Wisconsin, caused by *Ceratocystis fagacearum*. All oaks are susceptible to Oak Wilt, but those in the red oak group are particularly vulnerable. This disease is spread a number of ways, especially through root grafts between neighboring oaks and through insects.

One way to help prevent the spread of oak wilt through insects is to stop pruning between April 15 through July 1, or on the cautious side, from April 1 through October 1, during the period when the sap-feeding beetles are active. Sap beetles are attracted to the fungal mats which develop under the bark of some trees that have died from oak wilt the year before. After feeding on the fungal mats, the beetles fly to healthy oaks to feed on sap flowing from the fresh wounds, thus infecting healthy trees. Moving firewood cut from a tree which died from oak wilt the previous year is another way the disease is spread. After the oak wilt kills the tree, the fungal mats can remain viable and capable of transmitting spores through the next year.

Symptoms of this disease include branches with wilted leaves, and leaves falling to the ground in the spring and summer. The leaves are typically dull green or bronze-green beginning along the tips and edges, often with an abrupt transition from dying to green tissue. The leaves also may droop, curl lengthwise, and wilt.

Oak Wilt leaf symptoms www.glifwc.org

Gypsy Moth Regulations - The gypsy moth quarantine remained static for 2006. For nurseries, mills, and Christmas tree growers moving stock/logs out of quarantined counties into non-quarantined counties, regulations also remain unchanged.

If you are a mill:

- Obtain a Federal Compliance Agreement if you're moving wood from a quarantined area out-of-state into a non-quarantined area in Wisconsin.
- Obtain a State Permit if you're moving wood from a quarantined area in Wisconsin to a non- quarantined area in Wisconsin.

If you are a nursery or Christmas tree grower and you ship stock from a quarantined area to a non-quarantined area outside of Wisconsin, you need the following:

- Compliance agreement with the USDA-APHIS.
- Current field inspection. *If a gypsy moth lifestage is found in or around a field, no stock can be shipped out of quarantine until you follow guidelines set by the Wisconsin Department of Agriculture, Trade and Consumer Protection and the USDA-APHIS.
- Ensure your stock is free of any and all gypsy moth lifestages.
- A Plant Health Certificate from the Wisconsin Department of Agriculture, Trade and Consumer Protection is recommended, based on individual state requirements.
- Minnesota requires a plant health certificate for all stock originating from a quarantined county. A copy of certification paperwork should stay with the stock to their point of sale.

If you ship stock outside a quarantined area to a non-quarantined area within the state of Wisconsin, you need the following:

- A Nursery Grower (or) Christmas tree grower's license from the Wisconsin Department of Agriculture, Trade and Consumer Protection.
- Ensure that your stock is free of any and all gypsy moth life stages.

Exotic grubs in rootballs - Two beetles have been recently been found at nursery dealer locations in Nebraska. They were found in the rootballs of b&b forsythia shrubs. These shrubs had been brokered by one nursery, but had been grown in New Jersey.

The following information is from **Christopher M. F. Pierce**, Ph.D. Extension Entomologist, Indiana Cooperative Agricultural Pest Survey (CAPS) State Survey Coordinator.

Oriental Beetle, *Exomala orientalis* (Waterhouse) - Introduced into Connecticut in the 1920s, oriental beetle now occurs in most of the northeastern states and has spread across the Mid-Atlantic States into the Midwest. This insect is a serious pest of ornamentals and turfgrass. The larval stages (grubs) feed on the roots of grasses and woody ornamentals, whereas the adults feed on the blooms of roses, phlox, petunias, daisies and other flowering plants. Larvae are often transported across state boundaries on nursery stock, but also may be transported in sod.

Asiatic Garden Beetle, *Maladera castanea* (Arrow) - This insect was first discovered in New Jersey in 1922, but has since spread to most of the northeastern states, west to Ohio and south to South Carolina. This insect is a serious pest of turfgrass and ornamental plants. Larvae of the Asiatic garden beetle feed on the roots of turfgrass and many other plants, whereas the adults feed on the foliage and blooms of over 100 plant species of vegetable, herb, fruit and ornamental plants such as butterfly bush, roses, dahlias, asters, chrysanthemums, cosmos, delphinium, petunia, phlox and zinnia. It is suspected that larvae are often transported across state boundaries on nursery stock and sod.

Exotic Pest of the Week

Sirex woodwasp - *Sirex noctilio* Fabricius (Hymenoptera: Siricidae) - Sirex woodwasp has been the most common species of exotic woodwasp detected at United States ports-of-entry associated with solid wood packing materials (crates, pallets, dunnage, etc.). *Sirex noctilio* has not been found in Wisconsin, but recent detections of sirex woodwasp outside of port areas in the United States have raised concerns because this insect has the potential to cause significant mortality of pines. Awareness of the symptoms and signs of a sirex woodwasp infestation increases the chance of early detection, and thus, the rapid response needed to contain and manage this exotic forest pest.

Distribution - Sirex woodwasp is native to Europe, Asia, and northern Africa, where it is generally considered to be a secondary pest. In its native range, it attacks pines almost exclusively, e.g., Scotch (*Pinus sylvestris*), Austrian (*P. nigra*), and maritime (*P. pinaster*) pines. This woodwasp was introduced inadvertently into New Zealand, Australia, Uruguay, Argentina, Brazil, Chile, and South Africa. In these Southern Hemisphere countries, sirex woodwasp attacks exotic pine plantations, and it has caused up to 80 percent tree mortality. Most of the plantations are planted with North American pine species, especially Monterey pine (*P. radiata*) and loblolly pine (*P. taeda*). Other known susceptible pines include slash (*P. elliottii*), shortleaf (*P. echinata*), ponderosa (*P. ponderosa*), lodgepole (*P. contorta*), and jack (*P. banksiana)*.

FEMALE Sirex noctilio Fabricius Dennis A. Haugen and Kent Loeffler

Identification - Woodwasps (or horntails) are large, robust insects, usually 1.0 to 1.5 inches long. Adults have a spear-shaped plate (cornus) at the tail end; in addition females have a long ovipositor under this plate. Larvae are creamy white, legless, and have a distinctive dark spine at the rear of the abdomen.

More than a dozen species of native horntails occur in North America. No keys to identify woodwasp larvae to the species level have been developed; however, adult specimens have features to distinguish sirex woodwasp from native horntails. Key characteristics of the sirex woodwasp include these:

- Body dark metallic blue or black; abdomen of males black at base and tail end, with middle segments orange
- Legs reddish-yellow; feet (tarsi) black; males with black hind legs
- Antennae entirely black
- Positive identification of *S. noctilio* needs to be confirmed by an insect taxonomist. Therefore, collect any suspect woodwasps and call 1-800-462-2803.

MALE Sirex noctilio Fabricius Dennis A. Haugen and Kent Loeffler

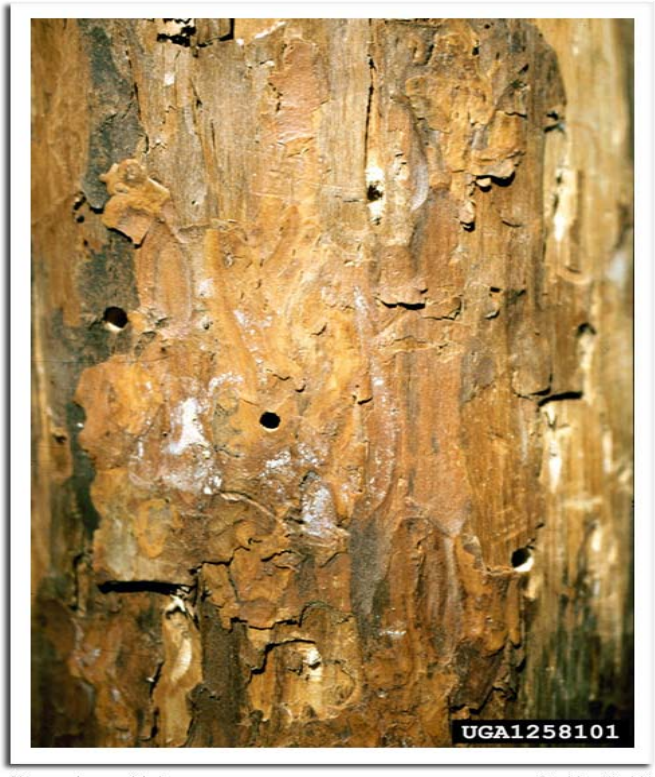
Symptoms - Sirex woodwasp can attack living pines, while native woodwasps attack only dead and dying trees. At low populations, sirex woodwasp selects suppressed, stressed, and injured trees for egg laying. Foliage of infested trees initially wilts, and then changes color from dark green to light green, to yellow, and finally to red, during the 3-6 months following attack. Infested trees may have resin beads or dribbles at the egg laying sites, which are more common at the mid-bole level. Larval galleries are tightly packed with very fine sawdust. As adults emerge, they chew round exit holes that vary from 1/8 to 3/8 inch in diameter.

http://www.na.fs.fed.us/spfo/pubs/pest_al/sirex_woodwasp/sirex_woodwasp.htm *-- Dennis A. Haugen and Richard Hoebeke*

Emerald ash borer update – The emerald ash borer continues its attack on ash trees in Michigan, Indiana and Ohio. To date, it has been found in southeast Michigan, northwest Ohio and northeast Indiana. Fortunately it has not been found in Wisconsin, yet. Last season there was a find at Brimley State Park in the Upper Peninsula of Michigan, but that infestation has been eradicated by removing all ash trees in a half mile radius of the initial find. Surveys will continue at that location using trap trees to detect any latent infestations.

A lack of federal funding has caused the three affected states to alter their approach to dealing with this insect. This year almost all efforts will be put into survey and regulatory work. No longer will EAB-infested states attempt to eradicate this insect. With the cost of eradicating small infestations approaching one million dollars, the three states with infestation have opted to stop the artificial spread of this insect through quarantines and early detection. That comes as good news for states like Wisconsin, that would like to keep this pest out of our state for as long as possible, relying on researchers to come up with management strategies that will allow us to maintain our ash resource, both in forested and urban areas.

It is useful to note that many of the outlier infestations in the western part of Michigan's Lower Peninsula have been traced back to the movement of firewood from infested areas. Firewood has become a big issue because of this insect and has prompted the Department of Natural Resources to enact a rule prohibiting bringing firewood on to state owned land from outside the state of Wisconsin for this coming camping season. Other states are considering similar actions. It should be noted that emerald ash borer is merely a wakeup call to the prospect of moving invasive species with firewood; any number of insects and diseases can be moved in firewood and people should be aware of this. http://emeraldashborer.info/files/TriState_EABpos.pdf



Sirex woodwasp exit holes Stanislaw Kinelski

Black Cutworm Trap Catches 2006

BLACK CUTWORM PHEROMONE TRAP CAPTURES - SPRING 2006

Hwy 11 SOUTHERN LINE

County	Town	3/29/2006	4/5/2006	4/12/2006	4/18/2006	4/20/2006
Grant	Fairplay	0	0	0	0	0
Grant	Prairie Corners	0	0	1	1	0
Grant	W Hazel Green	0	0	4	4	0
Grant	N Hazel Green	0	0	1	0	2
Lafayette	Lead Mine	0	0	0	2	0
Lafayette	N New Diggings	0	0	1	3	1
Lafayette	Shullsburg	0	0	1	1	0
Lafayette	E Shullsburg	0	0	5	3	3
Lafayette	W Gratiot	0	0	0	3	2
Lafayette	Gratiot	0	0	0	1	2
Lafayette	E Gratiot	0	0	0	2	1
Lafayette	E South Wayne	0	0	0	2	0
Green	Browntown	0	0	0	0	0
Green	Cadiz Springs	0	0	0	2	0
Green	E Cadiz Springs	0	0	1	1	0
Green	W Monroe	0	0	0	3	2
Green	E Monroe	0	0	2	4	1
Green	Juda	0	0	1	0	0
Green	E Juda	0	0	0	2	0
Green	Brodhead	0	0	0	0	0
AVERAGE NO. MOTHS PER TRAP PER NIGHT		**0.0**	**0.0**	**0.1**	**0.2**	**0.4**

BLACK CUTWORM PHEROMONE TRAP CAPTURES - SPRING 2006

HWY 19 SOUTH CENTRAL LINE

County	Town	3/29/2006	4/7/2006	4/11/2006	4/13/2006	4/17/2006	4/20/2006
Dane	Bluemound	~	0	0	0	0	0
Iowa	Barneveld	0	0	0	0	1	0
Iowa	East Ridgeway	0	0	0	0	0	0
Iowa	West Ridgeway	~	0	0	0	0	0
Iowa	East of Dodgeville	0	0	0	0	0	0
Iowa	East Dodgeville	0	0	0	0	0	0
Iowa	West of Dodgeville	0	1	0	2	0	0
Iowa	Edmund	~	0	0	0	1	0
Iowa	Cobb	0	0	1	1	0	2
Iowa	East Montfort	0	1	0	0	0	0
Grant	West Montfort	~	0	0	0	0	0
Grant	East Preston	0	0	0	0	0	0
Grant	West Preston	0	1	0	1	1	0
Grant	Fennimore	0	0	0	0	0	0
Grant	West of Fennimore	0	0	0	0	0	0
Grant	Mt Ida	0	0	0	1	0	1
Grant	Mt Hope	0	0	0	1	0	0
Grant	West Mt. Hope	0	0	0	2	1	0
Grant	West Patch Grove	0	0	0	0	0	0
Grant	East Bridgeport	0	1	0	0	0	0
Grant	Lancaster	0	0	0	0	0	0
AVERAGE NO. MOTHS PER TRAP PER NIGHT		**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**

BLACK CUTWORM PHEROMONE TRAP CAPTURES - SPRING 2006

COOPERATOR COUNTS

County	Town		4/5/2006	4/6/2006	4/7/2006	4/10/2006	4/13/2006	4/17/2006	4/20/2006
Rock	Janesville		0	1	1	5	9	4	7
Monroe	Sparta	4/13-4/19							0
Monroe	Tomah	4/13-4/19							1
Monroe	Cataract	4/13-4/19							1
Monroe	Wilton	4/13-4/19							1

Weekly Apple Insect Trap Counts

APPLE INSECT TRAP COUNTS THROUGH APRIL 21, 2006

County	Site	Date	STLM	RBLR	CM
Bayfield	Carlson	4/13-4/20	3	0	0
Bayfield	Erickson	4/13-4/20	1	0	0
Bayfield	Ferraro	4/13-4/20	0	0	0
Bayfield	Galzen	4/13-4/20	0	0	0
Bayfield	Kavajecz	4/13-4/20	0	0	0
Bayfield	Olsen	4/13-4/20	0	0	0
Bayfield	Lobermeier	4/13-4/20	0	0	0
Pierce	Beldenville	4/13-4/20	3	4	0
Crawford	Gays Mills W2	4/12-4/19	100	15	0
Dane	Deerfield	4/13-4/19	16	86	0
Dane	West Madison	4/14-4/21	1	39	0
Dodge	Brownsville	4/13-4/20	0	6	0
Fond du Lac	Malone	4/13-4/20	70	10	0
Fond du Lac	Rosendale	4/07-4/211	11	4	0
Grant	Lancaster	4/13-4/20	0	106	0
Grant	Sinsinawa	4/13-4/20	3	0	0
Iowa	Dodgeville	4/13-4/20	595	56	0
Jackson	Hixton	4/14-4/20	68	1	0
Kenosha	Burlington	4/14-4/21	190	80	0
Marquette	Montello	4/9-4/16	480	59	0
Ozaukee	Mequon	4/11-4/17	38	0	0
Pierce	Spring Valley	4/14-4/21	14	15	0
Racine	Rochester	4/13-4/21	454	58 (4/18-4/21)	0
Richland	Hill Point	4/12-4/18	50	80	0
Trempealeau	Galesville	4/17-4/21	700	0	0

2006 Predictive Model for Stewart's Wilt

Station	Mean Temperature			Risk[1]	3 month mean T	Risk[2]	
	December	*January*	*February*		*Dec - Jan*	*Early Season Wilt*	*Late Season Blight*
Northwest							
Gordon	17.4	23.9	13.4	negligible	18.2	absent	trace at most
Spooner	19.9	26.9	17.1	low to moderate	21.3	absent	trace at most
North Central							
Hurley	17.4	24.3	13.2	low to moderate	18.3	absent	trace at most
Wausau	18.6	26.7	17.4	low to moderate	20.9	absent	trace at most
Northeast							
Crivitz	18.8	23.8	16.2	negligible	19.6	absent	trace at most
Marinette	20.9	28.0	22.2	low to moderate	23.7	absent	trace at most
Shawano	18.1	27.5	17.1	low to moderate	20.9	absent	trace at most
West Central							
Eau Claire	19.1	28.4	19.3	low to moderate	22.3	absent	trace at most
La Crosse	19.7	31.1	21.9	low to moderate	24.2	absent	trace at most
Hatfield	16.9	28.3	16.6	low to moderate	20.6	absent	trace at most
Central							
Hancock	18.8	28.6	21.1	low to moderate	22.8	absent	trace at most
Stevens Point	17.7	27.6	17.7	low to moderate	21.0	absent	trace at most
Marshfield	16.9	25.1	17.4	low to moderate	19.8	absent	trace at most
East Central							
Appleton	18.7	29.3	18.7	low to moderate	22.2	absent	trace at most
Green Bay	19.7	30.5	19.0	low to moderate	23.1	absent	trace at most
Oshkosh	19.9	30.5	20.9	low to moderate	23.8	absent	trace at most
Southwest							
Dodgeville	13.0	30.2	24.0	moderate to high	22.4	absent	trace at most
Lancaster	16.2	29.5	21.1	low to moderate	22.3	absent	trace at most
Platteville	17.4	30.4	21.4	low to moderate	23.1	absent	trace at most
Prairie du Chien	18.4	30.8	24.8	moderate to high	24.7	absent	trace at most
South Central							
Afton	19.9	31.5	24.1	moderate to high	25.2	absent	trace at most
Brodhead	18.5	32.3	22.9	low to moderate	24.6	absent	trace at most
Madison	19.9	31.6	22.2	low to moderate	24.6	absent	trace at most
Watertown	18.6	31.1	20.6	low to moderate	23.4	absent	trace at most
Southeast							
Kenosha	23.9	34.8	30.3	moderate to high/high	29.7	light	light to moderate
Miwaukee	23.1	34.0	25.8	moderate to high	27.6	light	light to moderate
Racine	22.8	33.8	25.8	moderate to high	27.5	light	light to moderate

[1] **Based on the Iowa State Model that predicts the prevalance of Stewart's disease**

[2] **Based on the Stevens-Boewe Model**

Department of Agriculture,
Trade & Consumer Protection
Division of Agricultural Resources Management
PO Box 8911
Madison WI 53708-8911

Web Site of the Week

European Plant Protection Organization
European Plant Protection Organization data sheet on Globodera pallida, the pale potato cyst nematode. Information on biology, distribution and control from folks who've been living with the organism.

http://www.eppo.org/QUARANTINE/nematodes/Globodera_pallida/HETDSP_ds.pdf

Quote of the Week

"Something will thrive in this harsh and merciless soil. Let the agriculture begin!"

-- *Homer Simpson*

EXOTIC Pest of the Week
Sirex noctilio Fabricius, Sirex woodwasp

April 21, 2006