Vegetable Crop Update

A newsletter for commercial potato and vegetable growers prepared by the University of Wisconsin-Madison vegetable research and extension specialists

UW Extension

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In This Issue	Calendar of Events
Late Blight DSVs and Early Blight P-Day Values Update on Aster leafhoppers, onion maggots Neonicotinoids and honeybees Sporadic potato growth issue	July 24 – UW-Hancock Ag Research Station, Field Day, 12:30-4:00PM August 2 – UW-Langlade County Ag Res Station Field Day Antigo, 1:00PM

Vegetable Disease Update – Amanda J. Gevens, Vegetable Plant Pathologist, UW-Madison, Dept. of Plant Pathology, 608-890-3072 (office), Email: gevens@wisc.edu.

Vegetable Pathology Webpage: http://www.plantpath.wisc.edu/wivegdis/

Disease Forecasting: *What are DSVs and P-days?:* As we are gearing up to soon post disease forecasting information in this newsletter, and have added new subscribers, it is necessary to provide some explanation of the 18 disease severity value and 300 P-Day concepts used in disease forecasting and IPM programming. Locations of weather stations/disease forecasts will include: Antigo, Plover, Hancock, and Grand Marsh. Computation of 18 disease severity values (DSVs) relies on maximum and minimum temperatures each day, the duration of relative humidity periods above 90% and the maximum/minimum temperatures during the relative humidity periods above 90%. For a given day, up to 4 DSVs can accumulate. We start the severity value calculations at approximately 50% crop emergence. When we reach a total of 18 severity values, we issue a warning which indicates that environmental conditions have been met which favor late blight. At 18 DSVs, the recommendation for preventive applications of effective late blight fungicides is made. An additional alert is issued when the first symptoms of late blight appear anywhere in the state. The determination of late blight management recommendations is made by taking into consideration DSVs, projected weather forecast, and presence/risk of inoculum. This information is published in our newsletter and will be disseminated in various other outlets as the season progresses.

Following the 2009-2011 seasons in which late blight was present, we had a relatively mild winter and a very early spring, conditions which provide some risk for the re-occurrence of late blight in susceptible crops in 2012. Growers have been very careful to plant disease-free seed, to destroy cull potatoes prior to new crop emergence, and to control volunteers. Other potential sources of late blight in WI come from overwintered infected tomato plants. No reports of late blight infected potato volunteers or tomato transplants have emerged from WI at the time of this report.

To aid in the reporting of late blight in the U.S., a reporting platform (website) and working group has been established through a federally-funded coordinated agricultural project led by Dr. Howard Judelson at the University of California-Riverside. The website: http://www.usablight.org/ indicates location of positive reports of late blight in the U.S. and provides further information on disease characteristics and management. My UW-Plant Pathology program is collaborating on this project along with 15 other institutions. At this time, potato late blight has been reported in Camden County, North Carolina (May 2) and was reported over a week ago on potato in several Florida counties.

The Potato P-Day accumulator is used to generate early blight recommendations. Once we reach 300 P-Days, calculated from emergence on, our spray recommendations take both the P-Day and severity value totals into account to generate 5 day, 7 day or 10 day spray interval recommendations. The interval is variable depending on prevailing weather conditions and the presence of disease in the area.

Further details on registered fungicides for WI vegetables can be found in the Wisconsin Commercial Vegetable Production Guide A3422, http://learningstore.uwex.edu/assets/pdfs/A3422.PDF.

Vegetable Insect Update – Russell L. Groves, Assistant Professor and Applied Insect Ecologist, UW-Madison, Department of Entomology, 608-262-3229 (office), (608) 698-2434 (cell), or e-mail: groves@entomology.wisc.edu.

Aster Leafhoppers – Populations of the Aster leafhopper (ALH) have become numerous throughout much of southern and central Wisconsin, especially in rapidly growing cereal grains (spring wheat, oats, and rye). Recent surveys in Wisconsin have revealed sizable populations ranging between 10-50 adult ALH/100 sweeps. Moreover, infectivity levels of the Aster Yellows phytoplasma (AYp) within these insects have ranged from 8-12%. These infectivity levels do pose significant risk for newly emerged and highly susceptible crops such as lettuce, celery, susceptible carrot varieties, and newly emerged onions. Recall, the AYp is vectored by the aster leafhopper in a persistent, propagative manner. The leafhopper acquires the phytoplasma by feeding on infected plants and may carry and transmit the bacterium over great distances. Once the phytoplasma is acquired, leafhoppers remain infected and may transmit AY for the remainder of their adult life. Migrant leafhoppers have become established in Wisconsin over the last several weeks as weather systems moved the insects northward. Local leafhopper populations in Wisconsin will also overwinter in unmanaged areas outside of fields and will colonize small grains and perennial weeds. The first Wisconsin native adults typically enter carrot fields in early to mid-June, however degree-day accumulations for this insect suggest that local adult populations could emerge in the coming week.

Onion Maggot - The emergence and flights of the first generation of onion maggot flies is now underway at several locations in southern and central Wisconsin. As we discussed in an earlier edition of the Vegetable Newsletter, the beginning and peak of each fly generation can be forecasted using degree day accumulations. Most growing degree day information for both plants and insects is based on a base temperature of 50^{o} F, but onion maggot flies are active at a lower base temperature of 40^{o} F. Adult flies will lay eggs at the base of plants, where larvae tunnel into underground portions of plants. Subsequent generations in early July and August-September can also damage onions. Remember that cultural control of onion maggot centers on removing and destroying cull onions and rotating this year's plantings as far as possible from last year's. As onions mature, they are less susceptible to onion maggot infestation unless they are damaged by cultivation equipment. Soil applications of Lorsban can be used to control onion maggot in dry bulb onions, and the new Farmore DI 400 and 500 seed treatment formulations are available to minimize damage. The preventative soil insecticide applications are recommended for the control of the first generation larvae if you have previously documented damage from the previous year's crop which exceeds 5 to 10%. Foliar insecticide applications should be avoided since they are generally ineffective on adult populations as they irregularly move in and out of fields. Resistance has been documented in onion maggots and therefore, pesticides must be selected which do not exacerbate insecticide resistance.

Neonicotinoids and Honey bees - Recent news releases have emerged over the past few weeks discussing the implications of recent research implicating the neonicotinoids and their impacts upon populations of honeybees (http://www.aces.uiuc.edu/news/stories/news6226.html). One of these releases provides a link to a webinar by Greg Hunt and Christian Krupke at Purdue University on their recent work with this important class of insecticides (http://www.youtube.com/watch?v=25i6hwmHCRQ). We certainly encourage fruit and vegetable growers to watch / listen to the webinar and look over the two articles that were cited in this news release. As a result of this work, there may well be regulatory action on at least some uses of some neonicotinoid insecticides in the future and the results from the Purdue work are very compelling in indicating that these insecticides are contributing significantly to honey bee deaths. Recall that the neonicotinoid insecticides are used for insect management in fruits and vegetables, but pest management in our industry would not be totally disrupted by the loss of the most hazardous uses of neonicotinoids. Urban use of soil applications of neonicotinoids for insect control in trunks and on the foliage of woody ornamentals is also likely to be a focus of regulatory concern, so this issue spans more than commercial agriculture. This is an important topic for your attention in the coming months. Last month, two other papers were published on this topic in *Science Express.* Researchers from the U.K. published *Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production,* which can be found at: http://www.sciencemag.org/content/early/2012/03/28/science.1215025.full, and a group of French scientists published *A Common Pesticide Decreases Foraging Success and Survival in Honey Bees,* available at: http://www.sciencemag.org/content/early/2012/03/28/science.1215039.full.

Vegetable Entomology Webpage: http://www.entomology.wisc.edu/vegento/index.html

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Your assistance is needed in diagnosing potato growth issue

A few growers reported sporadic poor potato emergence and growth in the 2011 season, and we would like to investigate this situation further should it happen again in 2012. This unusual growth pattern, as characterized in the photos below, was reported on red, white, yellow, purple and Russet type potatoes over a geographic range of at least 100 miles. There were few common denominators among affected fields in terms of nutrient management, herbicide program (symptoms were observed even in large sprayer skips and organic production), other pesticide use, past field history, or seed source.

Symptoms started right at the seed piece, which often remained firm, but with abnormal initial stem growth in a twisted or even circular pattern. Stems were very brittle and thickened, and often cracked about 1 inch below the soil surface. Some stems appeared "burned off" just below the soil surface, with new stems initiated at this point that appeared healthy. In some cases, few stolons existed and those that did were short and deformed, with irregular hooks and tubers.

Irregular patterns in the field were observed, where a healthy plant was growing within a foot of a dramatically affected plant. Some rows seemed much worse than others, but there was no regular pattern of affected rows (for example, it wasn't always the seventh row of an eight row planter).

Given the complexity of this situation, we would like to sample soil and conduct a bioassay from a broad range of locations and production scenarios should this happen again in 2012. Therefore, we would like to collect a bucket of soil from areas with the symptomology described above. **If you observe such symptoms this spring and are willing to allow us to collect a soil sample, please contact Rich Rittmeyer with the weed science program at rarittme@wisc.edu or 608-635-2026.** Your cooperation will be greatly appreciated.