



Vegetable Crop Update

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

No. 15 – June 24, 2016

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Potato disease forecasting updates (P-Days/DSVs)
Late blight and cucurbit downy mildew national updates
Accessing ET values and other Ag Weather tools
Goss's wilt update for sweet corn

Calendar of Events

July 14, 2016 – UW-Rhineland Agricultural Research Station Field Day
July 21, 2016 – UWEX Langlade County – Antigo Research Station Field Day
July 28, 2016 – UW-Hancock Agricultural Research Station Field Day
February 7-9, 2017 – UWEX/WPVG Grower Ed. Conf., Stevens Point, WI

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Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations (R.V. James, UW-Plant Pathology/R.V. James Designs): A P-Day value of ≥ 300 indicates the threshold for early blight risk and triggers preventative fungicide application. A DSV of ≥ 18 indicates the threshold for late blight risk and triggers preventative fungicide application. **Red** text in table below indicates threshold has been met/surpassed. “-” indicates that information is not available. Blitecast and P-Day values for actual potato field weather from Grand Marsh, Hancock, Plover, and Antigo are now posted at the UW Veg Path website at the tab “P-Days and Severity Values.” http://www.plantpath.wisc.edu/wivegdis/contents_pages/pday_sevval_2016.html

Location	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation	Increase in DSV from 6/17
<i>Antigo</i>	Early 5/1	6/2	168	25	6/24	0
	Mid 5/18	6/7	134	15	6/24	0
	Late 6/3	6/21	31	0	6/24	0
<i>Grand Marsh</i>	Early 4/15	5/22	268	35	6/24	4
	Mid 5/1	5/27	231	29	6/24	4
	Late 5/15	6/3	172	18	6/24	4
<i>Hancock</i>	Early 4/18	5/24	250	35	6/24	4
	Mid 5/3	5/29	209	22	6/24	4
	Late 5/20	6/5	152	13	6/24	4
<i>Plover</i>	Early 4/20	5/25	241	34	6/24	2
	Mid 5/5	5/30	198	19	6/24	2
	Late 5/20	6/6	142	10	6/24	2

Summary: Disease Severity Values (DSVs) and Late Blight Blitecast: We now have all potatoes in WI at 50% emergence or greater and are generating forecast values for all potatoes. Generally, conditions were not promotive for late blight in this past week with 7 day accumulations of just 0-4 Disease Severity Values. Recall the maximum number of DSVs that one day can accumulate is 4.

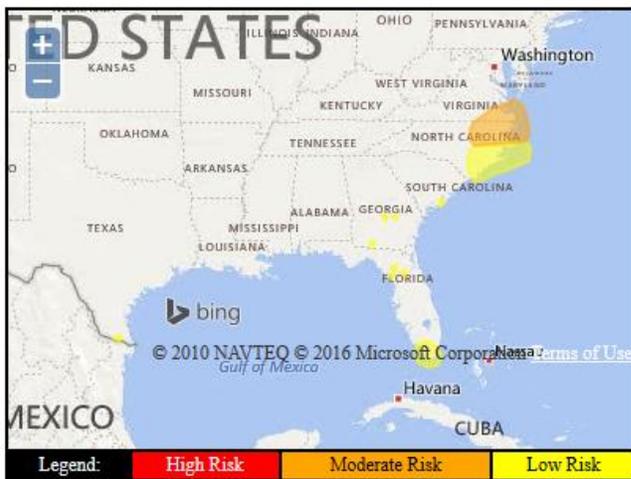
Wisconsin commercial conventional fungicides for late blight control can be found at:
<http://www.plantpath.wisc.edu/wivegdis/pdf/2016/Potato%20Late%20Blight%20Fungicides%202016.pdf>

P-Days indicating early blight risk are still below threshold for the locations monitored, but it won't be long until the 300 value is met. Lesions are being observed in the lower canopies of potato crops in central and southern WI.

National Late Blight Updates (www.usablight.org). There were no new late blight confirmations in this past week (6/17-24). The early June Washington (Walla Walla Co.) report of late blight on potato was confirmed to be of the US-8 strain/genotype. Also from early June, there was a confirmation from VA (potato, US-23). Earlier reports have come from MD (tomato US-23), CA (potato, types US-8 and US-11), and FL (potato and tomato US-23). **US-11** can infect both tomato and potato, is of the A1 mating type, and is resistant to Ridomil. **US-8** can infect both potato and tomato, but favors potato, is of the A2 mating type and is also resistant to Ridomil. **US-23** is a genotype that can be controlled with mefenoxam/metalaxyl fungicides (ie: Ridomil Gold SL) and can infect both tomato and potato. It should be noted, however, that some US-23 isolates can be intermediately or fully resistant to mefenoxam. As such, ongoing tests/screens should be conducted to best prescribe appropriate treatment responses.

Cucurbit Downy Mildew Updates (<http://cdm.ipmPIPE.org/>). In the past week there were 3 counties reporting new confirmations of cucurbit downy mildew in 2 states: NC and SC. Previous confirmations were made in FL, GA, NC, SC, and TX. No risk of movement of the pathogen to the Midwestern U.S. production region at this time (figure below from <http://cdm.ipmPIPE.org/current-forecast>).

Risk prediction map for Day 2: Thursday, June 23



Moderate Risk for northeast NC and far southeast VA. Low risk for cucurbits in southeast NC and far southern FL. Minimal Risk to cucurbits elsewhere.

Forecaster: TK at NCSU for the Cucurbit ipmPIPE - 2016

Irrigation / Evapotranspiration (ET) Software Tools Update

By John Panuska (Natural Resources Extension Specialist, UWEX, Biological Systems Engineering Dept, Phone: 608-262-0605, Email: jcpanuska@wisc.edu), and Amanda Gevens (UW-Plant Pathology).

For growers using ET tools to schedule irrigation you have likely experienced issues with the ET data service. The reason for the service interruption is the unexpected failure of the system software following a campus power outage in mid-June. After several failed attempts to restart the 30+ year old system it appears to have found the end of its useful life. Luckily, anticipating this date was near, development work began on a new replacement system about a year ago and the good news is that the new service is now operational. So what was initially planned as a testing season has now become a replacement season for the new Ag. Weather Data Service.

In addition to the software failure, staff changes in the Department of Soil Science, where the system has been historically housed and maintained, have resulted in the loss of an in-house programmer to maintain the system. We have therefore been working with a private sector software developer to develop the new Ag. Weather System and will likely rely on this vendor for future upgrades and maintenance. So to sum it up it's been a challenging year for ET tools at UW. The user interface for the new Ag. Weather tool is identical to old system interface. The new system can accessed at:

http://agweather.cals.wisc.edu/sun_water/

Select the Wisconsin and Minnesota link. To retrieve ET values, you simply enter the latitude and longitude for your pivot and date range for which you want ET data, press the Get Data Series button and the values will appear on the screen. We intend to continue working to restore more functionality to the site over the next several months and retire the old system this fall.

For those growers using the WISP irrigation scheduler you may interested to know that there is a new version of WISP (Version 2.0) being tested this summer with plans to upgrade the existing WISP 1.1.0 this winter. The look and feel of version 2.0 has not changed, however the multiple field grouping functionality has been restored and the authentication process has been simplified and no longer uses Google. You simply enter your email address and a password. The password is independent of the old version so you can reuse that password if wish. If you forget your password the system will email you a link to reset it and the WISP 2.0 also appears to be running faster than its predecessor. The software upgrade was also needed for better security. Look for the WISP 2.0 next spring.

Goss's Wilt Updates for Sweet Corn (Amanda Gevens, UW-Plant Pathology): Goss's wilt is typically discussed in the context of field corn management, however, I recently received questions on this disease with respect to sweet corn and wanted to address the topic. The disease is relatively new on the radar of crop concerns, and there seem to be some misconceptions in the growing community as to when/where/why symptoms arise and how to best manage the problem.

Sweet corn, in comparison to field corn, is generally more resistant to Goss's wilt. Conditions favoring disease typically arise later on in the summer (first detection last year in field corn by Dr. Damon Smith was early August 2015). Northern corn leaf blight symptoms can be confused for Goss's wilt symptoms (read more about this below).

Goss's wilt was identified in field corn in previous seasons here in Wisconsin (2014 and 2015). Below, I offer information excerpted from an online newsletter offered by **Dr. Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison.**

Symptoms and Signs: Goss's wilt is caused by the bacterium *Clavibacter michiganensis* subsp. *nebraskensis*. First visual symptoms usually appear as gray or yellow stripes on leaves that tend to follow the leaf veins (Fig. 1, below). Often "freckles", or brown or green irregular spots, can be observed within the leaf lesions (Fig. 2, below). Freckles are an excellent diagnostic symptom to confirm Goss's wilt. Vascular tissue (Fig. 3, below), husks, and kernels can sometimes take on an orange hue. Occasionally, bacterial ooze or dried ooze can be observed on symptomatic leaves. This disease is often confused with northern corn leaf blight (NCLB), which is a fungal disease. In 2015, Damon wrote an article on differentiating between NCLB and Goss's wilt: <http://fyi.uwex.edu/fieldcroppathology/2015/06/17/time-to-start-looking-for-corn-diseases-in-wisconsin/>

Factors that Cause Disease Development

The Goss's wilt bacterium overwinters in old corn residue. The bacterium enters the plant through wounds or natural openings. Yield losses will depend on the susceptibility of the hybrid being grown. Factors that put corn fields at higher risk include:

1. Reduced Tillage
2. Continuous corn rotation
3. Planting a susceptible hybrid
4. Poor grassy weed control
5. Hail, wind, or severe weather events causing injury on corn plants

Storms with hail and wind were prominent this past weekend in areas of Wisconsin. Fields with wind and hail damage should also be monitored closely for Goss's wilt. This type of damage creates excellent entry points for the Goss's wilt pathogen.

Management: There is currently no research-based method of in-season management of Goss's wilt. There are some foliar products being marketed for the control of Goss's wilt, but university-based research has indicated that these products have little efficacy on Goss's wilt in the field. Because this disease is caused by a bacterium, the **application of fungicide WILL NOT control Goss's wilt**. Planting resistant hybrids in fields with a history of Goss' wilt is recommended. Residue management and crop rotations should also be implemented in at-risk fields. Some grassy weed hosts can be alternative hosts for the Goss's wilt pathogen. Therefore, a sound weed management program in and around corn fields can be useful in managing Goss's wilt. Colleagues at Purdue University have developed an excellent fact sheet covering alternative

grassy weed hosts of Goss's wilt. They also include some recommendations for controlling these weedy hosts (link below).

https://ag.purdue.edu/btny/Documents/Goss%20Wilt%20research%20update_final%20for%20publication.pdf

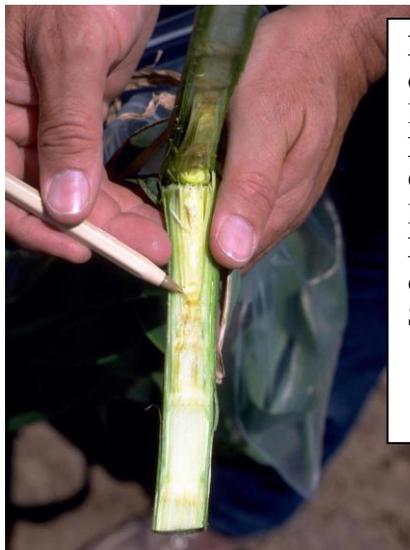
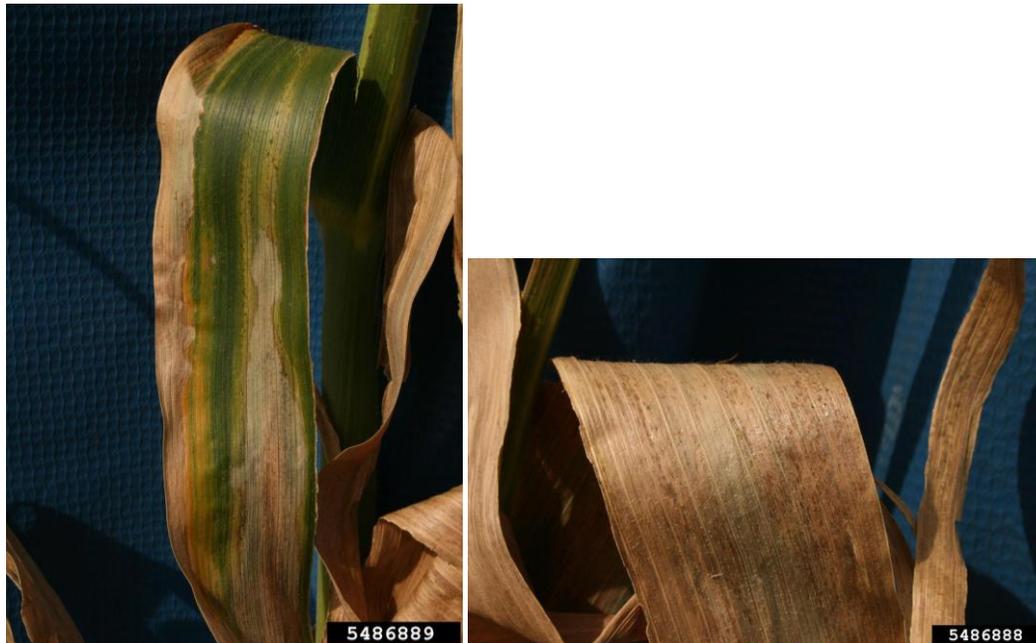


Figure 1 (above left). Foliar symptoms of Goss's wilt on a corn leaf. Photo Credit: Larry Osborne, Bugwood.org.

Figure 2 (above right). "Freckles" on a corn leaf with Goss's wilt. Photo credit: Larry Osborne, Bugwood.org.

Figure 3 (below left). Orange vascular tissue of a corn plant with Goss's wilt. Photo credit: Howard F. Schwartz, Colorado State University, Bugwood.org.

For further information on common diseases, insect and weed pest information, please consider the 2016 A3422 Commercial Vegetable Production in Wisconsin guide is available for purchase (\$10) through the University of Wisconsin Extension Learning Store website: <http://learningstore.uwex.edu/Commercial-Vegetable-Production-in-Wisconsin2016-P540.aspx>

A pdf of the document can be downloaded for free at the following direct link: <http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>