



Vegetable Crop Update

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

No. 16 – August 2, 2014

In This Issue

Late blight updates
Blitecast and P-Days for late blight and early blight management
Cucurbit downy mildew update
Onion downy mildew
Plant Disease Diagnostic Clinic updates

Calendar of Events

August 5 – Crops Diagnostic Workshop, Arlington Ag Research Station, Arlington, WI
August 12-14 – Farm Technology Days, Stevens Point, WI
August 21 – 1:00PM Antigo Field Day, Antigo, WI
October 29-30 – Hancock Ag Research Station Fresh Market Potato Variety Trial Open House (Jeff Endelman), Hancock, WI

Vegetable Disease Update – Amanda J. Gevens, Assistant Professor & Extension Vegetable Plant Pathologist, UW-Madison, Dept. of Plant Pathology, 608-890-3072 (office), Email: gevens@wisc.edu. Veg Pathology Webpage: <http://www.plantpath.wisc.edu/wivegdis/>



Late blight updates: In the past week, (30 Jul) late blight was detected on tomato in Milwaukee County. The strain/genotype of the pathogen has not yet been determined. Late blight from Portage County (18, 25 Jul) has been determined to be of the US-8 and US-23 types, from separate fields. US-8 is an A2 mating type strain with resistance to mfenoxam/metalaxyl fungicides. US-23 is an A1 type with sensitivity to mfenoxam/metalaxyl fungicides. Nationally, in the past week, there have been several new late blight reports from NH (potato) and PA (tomato). Recent reports are indicated on map to the left in red, from usablight.org. All *P. infestans* isolates that have been genotyped from field samples in 2014, thus far, have been of the US-23 genotype/strain, with the exception of the Portage Co. WI US-8. Reports from >one week ago are colored blue on the map, and include FL, IN, MA,

Details can be found at <http://www.usablight.org/>. The website provides location (by county) of positive reports of late blight in the U.S. and further information on the disease.

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. NA indicates that information is not yet available as emergence has yet to occur. 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_2014.html

<i>Location</i>	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation	Increase in DSV from last week (7/26)
<i>Antigo</i>	Early 5/20	6/9	408	55*	8/1	9
	Mid 5/27	6/16	361	55*	8/1	9
	Late 6/6	7/2	225	24*	8/1	9
<i>Grand Marsh</i>	Early 4/20	5/19	582	87*	8/1	11
	Mid 5/4	6/1	494	81*	8/1	8
	Late 6/3	6/23	318	46*	8/1	11
<i>Hancock</i>	Early 4/24	5/20	610	47*	8/1	7
	Mid 5/8	6/2	512	43*	8/1	6
	Late 6/3	6/24	322	25	8/1	6
<i>Plover</i>	Early 4/21	5/20	550	92*	8/1	13
	Mid 5/5	6/1	466	89*	8/1	13
	Late 6/5	6/24	289	60*	8/1	13

Please note that we have surpassed the threshold for late blight DSVs (18) in all monitored areas for all plantings of potatoes. Please note: asterisks on the DSVs indicate that I have revised the value as displayed in the SureHarvest Blitecast daily output that is found at the UW-Vegetable Pathology website. In some cases, the number of hours of relative humidity above 90% was being issued as a value greater than 24 - giving unusually high DSVs for the individual day. I assigned a maximum DSV of 4 to such dates. We have overcome some of the Grand Marsh weather station problems, but did need to replace some missing data with information from the Hancock station during late July. With the generally cooler nights, DSVs accumulated moderately in most locations. There were several areas of the state that received intense rain, and in some cases hail, this past week. Increased local moisture can further promote late blight and other diseases. There is some evidence that the application of a copper-containing fungicide tank-mixed with Tanos (conventional fungicide containing famoxadone and cymoxanil) can provide additional protection against bacterial diseases when applied post-hail.

Overall, potato crops looks quite good statewide. In some cases, I have made the comment that the field looks ‘too healthy’ for what is now early August. What I mean by this is that some canopies are very dense, lush, and upright, making management with protectant fungicides an additional challenge. The fungicides available for late blight control can work very well, but it is critical that the fungicide coverage is as good as possible to avoid risk of lower canopy infection.

Preventive fungicide application for late blight control may include base protectants such as chlorothalonil or mancozeb, or include a base protectant tank-mixed with one of the reduced risk fungicides with specific activity in controlling late blight. Be mindful of the season-long limitations for use of chlorothalonil and mancozeb fungicides. Bravo and Echo products do have the WI special registrations for long season potato use of up to 16 lb active ingredient per acre.

Other chlorothalonils do not have this special allowance and their use must be limited to 11.25 lb active ingredient per acre. Mancozeb use is limited to 11.2 lb active ingredient per acre. For further information on specific fungicide rates and activities, please find the 2014 updated list of potato fungicides for WI at the link below.

<http://www.plantpath.wisc.edu/wivegdis/pdf/2014/June%206%202014.pdf>

Further details on registered fungicides for WI vegetables can be found in the Univ. of WI Commercial Vegetable Production in WI Guide A3422,

<http://learningstore.uwex.edu/assets/pdfs/A3422.PDF>.

P-Days and early blight management: P-Days are over the 300 threshold for potatoes of early and mid-planting dates at all locations. Late planted potatoes are still below threshold in all monitored locations, but for Grand Marsh and Hancock. Recall, the P-Day 300 threshold is an indicator for timing the initial fungicide application for management of early blight. Early blight lesions are active now in lower canopies of earliest and some mid-planted potatoes in southern and central Wisconsin. We plan to offer our Potato Early Blight foliar fungicide trial up for visitors on Aug 18 (Mon) and Aug 19 (Tues) at the Hancock Agricultural Research Station. Please contact me if you're interested in visiting to view efficacy of new programs (gevens@wisc.edu).

Cucurbit downy mildew updates: No downy mildew has been identified on cucurbit crops in Wisconsin, to date. In the past week, NC and TN reported cucurbit downy mildew, as depicted in red on the map below. In summary this year, AL, FL, GA, KY, LA, MD, MI, NJ, NC, SC, and TX have reported cucurbit downy mildew across multiple cucurbit hosts. I will be keeping tabs on disease reports in the region and will provide updates in this newsletter. Based on the disease forecast system, there is no likelihood of spore movement from current sites of confirmation to WI. The website: <http://cdm.ipmpipe.org/> offers up to date reports of cucurbit downy mildew and disease forecasting information.



Locations of recent (red) and older (green) reports of cucurbit downy mildew in the U.S. in 2014. Map sourced from <http://cdm.ipmpipe.org/> from 11:04AM August 2, 2014.

Further information on cucurbit downy mildew: <http://learningstore.uwex.edu/Assets/pdfs/A3978.pdf>

Management information for cucurbit downy mildew can be found in UW Vegetable Crop Updates – Disease Supplemental #8 from 2013:

<http://www.plantpath.wisc.edu/wivegdis/pdf/2013/Disease%20Supplement%208%20Aug%2013%202013.pdf>

Onion downy mildew detected in Wisconsin: We confirmed downy mildew in onions in Wisconsin this week from Jefferson County. Further information on this detection and management information from Michigan State University can be found at the website below.

http://msue.anr.msu.edu/news/downy_mildew_and_purple_blotch_are_here_in_michigan_onion_fields?utm_source=Vegetable+-+MSU+Extension+News+-+7-23-14&utm_campaign=Vegetables+7-23-14&utm_medium=email

Given the aggressiveness of this disease once present in a field, it is recommended that all onion fields be carefully scouted for early symptoms of downy mildew at this time and that preventative fungicide applications be applied to protect onions from downy mildew in southern and central Wisconsin.

Onion downy mildew can be very problematic in onion fields. This foliar disease is caused by a fungus-like pathogen called *Peronospora destructor*. Infection is favored by temperatures less than 72°F and high humidity and leaf wetness. The pathogen can overwinter in volunteer onion, culls, and wild Allium weed species if the pathogen was present in your location in previous years. Symptoms include pale or white elongated patches on leaves that start off small and can elongate and produce a purple-gray sporulation which appears “downy.” Leaves can bend over and eventually die due to severe downy mildew infection. Please refer to pictures below. This disease can impact bulb size, quality, and storability. Management recommendations include practicing a 3+ year rotation to non-hosts such as small grains and corn, eliminating culls and volunteers, avoiding dense planting, avoiding excess N and overhead irrigation, and orienting rows parallel to prevailing wind to avoid prolonged leaf wetness. Additionally, there are fungicides that can be effective for the management of onion downy mildew. Effective fungicides for Downy mildew control include azoxystrobin (Quadris, Amistar), pyraclostrobin (Cabrio), pyraclostrobin & boscalid (Pristine), cymoxanil + famoxadone (Tanos), dimethomorph (Forum), fluopicolide (Presidio), mandipropamid (Revus), fenamidone (Reason), azoxystrobin + propiconazole (Quilt Excel), fluazinam (Omega), mefenoxam (Ridomil Gold), phosetyl-aluminum (Aliette), fenamidone (Reason), mancozeb (Dithane, Manzate) and copper hydroxide (Kocide, Champ). Although labeled for onion downy mildew, coppers and chlorothalonil are not very effective for disease control, and coppers can be phytotoxic to onions. Please see the 2014 Wisconsin Vegetable Production Guide A3422 for further details on application rates and specifications. If you suspect you have Downy mildew in your onions, please get a sample and contact your county agent, our disease diagnostic clinic, or myself for confirmation.



For further information on any fungicides that may be mentioned in this newsletter, please see the 2014 Commercial Vegetable Production in Wisconsin Guide A3422. An online pdf can be found at the link below or a hard copy can be ordered through the UWEX Learning Store.

<http://learningstore.uwex.edu/assets/pdfs/A3422.PDF>

UW-Extension/Madison Plant Disease Diagnostic Clinic (PDDC) Update: *Brian Hudelson, Ann Joy, Joyce Wu, Tom Hinsenkamp, and Catherine Wendt, Plant Disease Diagnostics Clinic*

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from July 26, 2014 through August 1, 2014.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
VEGETABLES			
Celery	Aster Yellows	<i>Aster yellows phytoplasma</i>	Richland
	Blackheart	None	Richland
Collards	Black Rot	<i>Xanthomonas campestris</i>	Crawford
Horseradish	Root Rot	<i>Rhizoctonia solani</i>	Eau Claire
	Verticillium Wilt	<i>Verticillium</i> sp.	Eau Claire
Kale	Black Rot	<i>Xanthomonas campestris</i>	Crawford
Pepper	Bacterial Spot	<i>Xanthomonas campestris</i>	Walworth
Potato	Edema	None	Crawford
Pumpkin	Powdery Mildew	<i>Oidium</i> sp.	Dane
Snap Bean	Ashy Stem Blight	<i>Macrophomina phaseolina</i>	Waushara
	Fusarium Root Rot	<i>Fusarium</i> spp.	Waushara
	Fusarium Yellows	<i>Fusarium oxysporum</i>	Waushara
	Pythium Root Rot	<i>Pythium</i> spp	Waushara
	Rhizoctonia Root Rot	<i>Rhizoctonia solani</i>	Waushara
Tomato	Bacterial Canker	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	Dane
	Bacterial Spot	<i>Xanthomonas</i> sp.	Dane
	Septoria Leaf Spot	<i>Septoria lycopersici</i>	Dane, Waukesha
	Walnut Toxicity	None	Dane, Waukesha

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.