Vegetable Crop Update

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

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July 23– UW-Hancock Ag Research Station Field Day, Hancock, WI (tentative agenda begins at noon)
Aug 22 – UWEX-Langlade County Airport Research Station Field Day, Antigo, 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. Vegetable Path Webpage: http://www.plantpath.wisc.edu/wivegdis/

I hope the impact of the heavy rains of Friday morning were not too severe across the state. With a continued forecast of thunderstorms and warm-hot temperatures, it's important to keep a careful eye on crops for resulting water and disease damage.

Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations

P-Day of ≥ 300 indicates threshold for early blight risk and triggers preventative application of fungicide. DSV of ≥ 18 indicates threshold for late blight risk and triggers preventative application of fungicide. Red text in table below indicates threshold has been met. NA indicates that information is not yet available as emergence has yet to occur. **http://www.plantpath.wisc.edu/wivegdis/contents_pages/pday_sevval_2013.html**

Location	Planted	50% Emergence	P-Day Cumulative	DSV Cumulative	Calculation Date
Antigo Area	Early 5/13	6/4	97	8	6/20/13
	Mid 5/22	6/17	20	0	6/20/13
	Late NA	NA	NA	NA	NA
Grand Marsh Area	Early 4/15	5/10	234	58	6/20/13
	Mid 5/1	5/21	200	58	6/20/13
	Late 5/15	6/5	109	31	6/20/13
Hancock Area	Early 4/20	5/15	264	43	6/20/13
	Mid 5/5	5/23	203	41	6/20/13
	Late 5/15	6/5	120	19	6/20/13
Plover Area	Early 4/22	5/17	244	54	6/20/13
	Mid 5/7	5/30	164	30	6/20/13
	Late 5/24	6/5	121	21	6/20/13

DSVs and Late Blight: From in-potato-field weather stations here in Wisconsin, we have far exceeded initial threshold for Blitecast in all monitored locations with the exception of Antigo. Across all locations, accumulations were low this past week (2-4). As such, a 7 to 10-day fungicide program is appropriate at this time. PDays are getting near the threshold of 300 in

early plantings. Over the next week or so early blight-targeted fungicide programs should begin. Consider management options that control against both early and late blights.

The UW Vegetable Pathology site offers the Blitecast and Tomcast accumulations for foliar disease control from remotely sensed and forecasted weather data. Information is provided to help growers interpret the information offered for potato and carrot disease control. The link is entitled: "NEW: Blitecast & Tomcast estimates (from remotely sensed weather data), 2013" right in the center of the home page of: www.plantpath.wisc.edu/wivegdis/

Late blight status in the U.S. No reports of late blight in Wisconsin at this time. There was a report of late blight in tomato in Maryland this past week. To date this production year, late blight has been reported in in FL on tomato and potato (primarily of the US-23 clonal lineage), in TN on tomato (US-23), in WV (tomato, US-23), and in LA (tomato). 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.

PDays and Early blight: PDays are over 200 for early and mid-planted potatoes in the Central Sands of WI. Recall that the threshold for indicating time when the early blight pathogen (*Alternaria solani*) may be active in the crop and require a preventative fungicide is at 300 PDays. My group has not yet seen first symptoms of early blight in our potato research trial areas at the Hancock Ag Research station.

Potato blackleg: is caused by *Pectobacterium carotovorum*, formerly *Erwinia carotovora*. Symptoms of blackleg were observed on several potato varieties throughout the state this past week. Infection of seed with blackleg can result in various symptoms including poor emergence, chlorosis, wilting, tuber and stem rot, and darkened or black slimy stems, and death. Blackleg inoculum can come from infected seed, infested soil, infested irrigation water, and by insects.

Blackleg is promoted by cool, wet conditions at planting and high temperatures after emergence. The blackleg pathogen is in the soil wherever potatoes are grown. Levels of infection are dependent upon seed-handling/cutting techniques, soil moisture and temperature at planting and emergence, cultivar susceptibility, severity of infection of seed, and potentially, amount of bacteria in irrigation water, cull piles, or other external sources. Sanitation and disinfesting of potato cutting equipment and proper handling reduces spread and aids in control of the pathogen. Treating seed to prevent seed piece decay by fungi can also contribute to blackleg control. Since the pathogen does well in cool, wet soils, avoid planting in overly wet soil. Crop rotation away from potato for 2-3 years will help control this disease as the bacterium causing blackleg does not survive well outside of the potato. While seedborne or vascular black leg cannot be reversed with applications of fungicides, spread of the bacterial pathogen from infected to healthy plants and aerial stem rot may be managed in the field with fungicide tank-mixes which contain copper. Most often, conditions which favor plant to plant spread include high winds and driving rains. While we have not had such rainy conditions, we have had wind and overhead irrigation which may promote this condition.

This past week, I addressed a few cases of blackleg from several different farms across southern Wisconsin. What I have seen appears to have come from the seed, as blackening of the vascular system is evident in the lowest of stem sections just below the soil line. In some cases, no blackening is evident externally, but wilted, necrotic plants exhibited blackened, slimy vascular systems when stems were cut open.

Field control of aerial stem rot is challenging. Copper containing fungicides such as Kocide can provide some control of aerial stem rot, and can aid in managing bacterial infection after the crop has suffered hail damage. However, note that results of these approaches have had varied success throughout the U.S. In recent work by Dr. Dennis Johnson of Washington State University, the famoxadone+cymoxanil (Tanos) plus mancozeb tank-mix alternated with mancozeb+copper hydroxide (ie: Kocide) was an effective chemical tool in reducing aerial stem rot in potato. Irrigation management to reduce excess water also greatly enhanced control of aerial stem rot. Copper hydroxide applications alone did not have as effective of control as Tanos+copper hydroxide. As Tanos is also an excellent late blight control material, its use as we approach DSVs of 18 at this time offers an appropriate and effective program for control of both diseases.

***Cucurbit Downy Mildew*:** has not been identified in Wisconsin at this time in commercial fields, home gardens, or our sentinel monitoring plots. MD, SC, FL, GA, and NC have reported cucurbit downy mildew this season across multiple cucurbit hosts. I will be keeping tabs on disease reports in the region and will provide updates in this newsletter. No forecasted risk of movement of spores from states reporting detects to Wisconsin at this time. The website: http://cdm.ipmpipe.org/ offers up to date reports of cucurbit downy mildew and disease forecasting information. We planted our cucurbit sentinel plots at the Hancock Ag Research Station 2 weeks ago. This plot is scouted multiple times every week – in search of first symptoms or signs of downy mildew. Once disease is identified and confirmed, we remove plants so as not to create a pathogen source for area producers.

The 2013 A3422 Commercial Vegetable Production in Wisconsin guide is available for purchase through the UW Extension Learning Store website: http://learningstore.uwex.edu/Commercial-Vegetable-Production-in-Wisconsin2013-P540.aspx

A pdf of the document can be downloaded or is available at the following direct link: http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf