



Vegetable Crop Update

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

No. 31– October 9, 2015

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Calendar of Events

November 4-5 – UW Fall Potato Variety Expo, UW-Hancock Ag Research Station, Hancock, WI
December 1-3 – Midwest Food Processors Assoc. Convention & Processing Crops Conference, Green Bay, WI
January 12-14, 2016 – WI Crop Management Conference, Madison, WI
January 25-26, 2016 – WI Fresh Fruit & Vegetable Growers Conference, WI Dells, WI
February 2-4, 2016 – WPVGA & UWEX Potato Grower Education Conference, Stevens Point, WI

Amanda J. Gevens, Associate 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/>.

Thank you to our potato grower cooperators, Okray Family Farms and Mortenson Brothers Farms, for hosting our in-field weather stations in 2015 in support of the disease forecasting efforts. I would also like to acknowledge R. Vaughan James and Stephen Jordan for continuing to support the maintenance of the stations, data collection, and analyses.

Late Blight Updates: Roughly 90% of the potato crop has been harvested in WI at this time, leaving the tomato crop as the primary concern for new and progressing late blight infections. Potato tubers remaining in fields post-harvest should be brought up to the soil surface to promote breakdown so that the late blight is not harbored in fields which had detections during the 2015 production season. In tomato, foliar infection may precede fruit infections. As such, I recommend clean harvesting heavily infected plants so as to capture some return on the crop before fruit lesions develop. Fruit that are entirely or dark green will not likely ripen, but can be sold green. Fruit with subtle yellow or blush color can ripen off the vine. Continue to monitor the fruit post-harvest as there may be a latent infection – infected but not yet symptomatic. Fruit that are not showing symptoms but that were harvested from plants with lesions are safe to consume. Please see link regarding food safety precautions for processing/canning tomatoes with late blight (below). In sum, late blight lesions aren't a health risk, but lesions are damaged tissue and bacteria can enter which may pose a risk for illness.

<http://fyi.uwex.edu/news/2009/08/26/tomatoes-and-potatoes-infected-with-late-blight-are-they-safe-for-eating-or-preserving/>

In Wisconsin: Twenty four counties in Wisconsin have submitted samples which were confirmed for late blight in potato and/or tomato. In 2015. While I don't maintain a comprehensive list of how many fields were infected by county, the disease has been detected in several fields within most of the counties I have listed below. In all cases in which we have tested, the *Phytophthora infestans* is of the US-23 genotype. Reports are listed below.

Date of Confirmation	County (general location)	Host	Late blight pathogen genotype
23 June	Adams (northern)	Potato	US-23
8 July; 24 July; 29 July	Waushara (western)	Potato; Tomato	US-23
8 July; 28 July; 18 August	Wood (southern, central)	Potato; Tomato	US-23
14 July	Marquette (central)	Potato	US-23
15 July; 28 July; 18 August	Portage (central)	Potato; Tomato	US-23
23 July	Columbia (north central)	Tomato	US-23
23 July	Fond du Lac (north central)	Tomato	US-23
4 August	Polk (southeastern)	Tomato	US-23
12 August	St. Croix	Tomato	US-23
17 August	La Crosse	Potato; Tomato	US-23
17 August	Marathon (central)	Tomato	US-23
17 August	Walworth	Tomato	US-23
28 August	Kenosha	Tomato	Not determined
28 August	Brown	Tomato	US-23
1 September	Dodge	Tomato	US-23
4 September	Waupaca	Tomato	US-23
17 September	Marinette	Tomato	US-23
21 September	Eau Claire	Tomato	Not yet determined
21 September	Winnebago	Potato; Tomato	Not yet determined
23 September	Jefferson	Tomato	Not determined
25 September	Sheboygan	Tomato	Not yet determined
25 September	Washington	Tomato	Not yet determined
25 September	Waukesha	Tomato	Not yet determined
8 October	Dane	Tomato	Not determined

Across the nation: There was a new detection of late blight in Oregon this past week on tomato (US-11) as posted to www.usablight.org. To date, nationally, there have been confirmations of late blight in FL (US-23), CA (US-11), CT (US-23), ID (US-23), IN (US-23), NC (US-23), TX, WA (US-8), MA, MD (US-23), ME (US-23), MI (US-23), NC, NE, NH, NJ (US-23), NM (US-23), NY (US-23), ON and QC Canada, PA (US-23), TX, VT, WA, WI (US-23), and WV. See map below (blue counties are greater than 7 days old; red county indicates detection made in just the past 7 days). Screen shot grabbed at 10:36PM on 9 October, 2015.



Please see UWEX Veg Crop Updates article on fungicide selections from June 5 at link below. Fungicides for organic systems and home garden fungicides can also be found at my website.

<http://www.plantpath.wisc.edu/wivegdis/pdf/2015/June%205,%202015.pdf> or a listing of 2015

WI potato late blight fungicides:

<http://www.plantpath.wisc.edu/wivegdis/pdf/2015/Potato%20Late%20Blight%20Fungicides%202015.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>.

Pink eye of potato (content summarized from online document of Thomas A. Zitter, now retired, Department of Plant Pathology and PMB, Cornell University, Ithaca, NY 14853)

Pinkeye or PE of potato is a tuber disorder or condition formerly associated with the bacterial pathogens *Pseudomonas marginalis* or *Pseudomonas fluorescens*. In my discussions with growers around the state this past week, some have identified this year as below average in incidence of PE. However, other growers have seen more PE than average, especially in areas of the state which received more precipitation. I've seen a fair bit of this condition on tubers in several of my potato disease research trials in Hancock and Antigo. PE is currently known to be an abiotic periderm disorder caused by multiple environmental factors. The condition is not seedborne and is due to current season growing conditions of excessive moisture and high soil temperatures leading to cell damage and death of both the natural tuber periderm and the underlying cortical parenchyma cells. The resulting abiotic damage or PE condition renders the periderm more susceptible to diseases such as bacterial soft rot, Pythium leak or Fusarium dry rot. Tubers with PE typically do not store well and are at risk for post-harvest losses.

Symptoms of PE include somewhat raised and pink areas around and between the eyes on the surface of the periderm, especially at the bud/apical end of the tuber (Figs. 1 & 2). A subtle pink coloration may be seen internally when cut through the affected eyes and corky area (Fig. 2). PE symptoms appear at or just before harvesting and often disappear gradually in storage as tubers dry out. The corky patch (Fig. 3) is associated with more extensive suberin polyphenolic accumulation in the cortical parenchyma internal to the now damaged native periderm. Internally, browning of cortical cells beneath the native periderm develops into intensely fluorescent tissue which appears fluorescent blue when exposed to black light. If severe environmental and physiological conditions occur in the field prior to harvest/storage, PE can be manifested as intensive corky areas of the periderm known as elephant hide (Fig. 3) which can make the tubers unmarketable for either fresh market or processing. The occurrence of growth cracks as seen on two tubers occasionally occurs. The "elephant hide" symptoms occur late in the growing season. Another problem associated with tubers manifesting such damage is that they cannot be used for seed as eyes may not be viable.



Figure 1. Pinkeye on 'Yukon Gold.' A.J. Gevens, UW-Madison/UWEX.



Figure 2. Pinkeye on A) 'Pike' and B) 'Snowden.' Photos courtesy of T. Zitter, Cornell University



Figure 3. Corky, 'elephant hide' symptom of pinkeye on 'Snowden.' Photos courtesy of T. Zitter, Cornell University

More information on PE directly from Dr. Zitter can be found at link below.

<http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Pinkeye%20of%20Potato%20in%202011.pdf>