



Vegetable Crop Update

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

No. 17 – July 28, 2018

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Calendar of Events

November 27-29, 2018 – Processing Crops Conference & MWFPA Annual Convention, Wisconsin Dells, WI

January 15-17, 2019 – Wisconsin Agribusiness Classic, Alliant Energy Center, Madison, WI

January 27-29, 2019 – Wisconsin Fresh Fruit & Vegetable Conference, Kalahari Conference Center, Wisconsin Dells, WI

February 5-7, 2019 – UWEX & WPVGA Grower Education Conference, Stevens Point, WI

Amanda J. Gevens, Associate Professor & Extension Vegetable Plant Pathologist, Interim Co-Director of Wisconsin Seed Potato Certification Program, UW-Madison, Dept. of Plant Pathology, 608-890-3072 (office), Email: gevens@wisc.edu. Webpage: www.plantpath.wisc.edu/wivegdis/

The UW-Rhineland Agricultural Research Station Field Day previously scheduled for August 2, 2018 has been **canceled**. Further information regarding the cancellation will be forthcoming.

Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations (R.V. James, UW-Plant Pathology/R.V. James Designs, S.A. Jordan, & J. Hammel, UW-Plant Pathology): 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 yet 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.” www.plantpath.wisc.edu/wivegdis/contents_pages/pday_sevval_2018.html

Asterisks indicate values generated from weather data sourced from NOAA (link below to interactive tool for accessing site specific DSVs). <https://agweather.cals.wisc.edu/vdifn/maps>

| Location | Planting Date | 50% Emergence | Disease Severity Value | P-Day | Date of DSV/P-Day Generation |
|--------------------|---------------|---------------|------------------------|-------|------------------------------|
| Antigo | Early 5/12 | 5/28 | 52* | >231 | 7/27 |
| | Mid 5/25 | 6/7 | 44* | >231 | 7/27 |
| | Late 6/9 | 6/22 | 31* | 231 | 7/27 |
| Grand Marsh | Early 5/1 | 5/15 | 236 | 560 | 7/27 |
| | Mid 5/15 | 5/28 | 229 | 482 | 7/27 |
| | Late 6/1 | 6/12 | 209 | 373 | 7/27 |
| Hancock | Early 5/2 | 5/16 | 57* | 527 | 7/27 |
| | Mid 5/17 | 5/30 | 52* | 439 | 7/27 |
| | Late 6/1 | 6/14 | 43* | 324 | 7/27 |
| Plover | Early 5/7 | 5/18 | 65 | 533 | 7/27 |
| | Mid 5/20 | 6/1 | 54 | 442 | 7/27 |
| | Late 6/2 | 6/15 | 50 | 330 | 7/27 |

WI Potato Disease Risk Updates: All commercial potato plantings have surpassed 18 DSVs and I recommend that they should be routinely receiving preventative fungicide applications to limit initial late blight infection. **Still, no reports of late blight in Wisconsin at this time.**

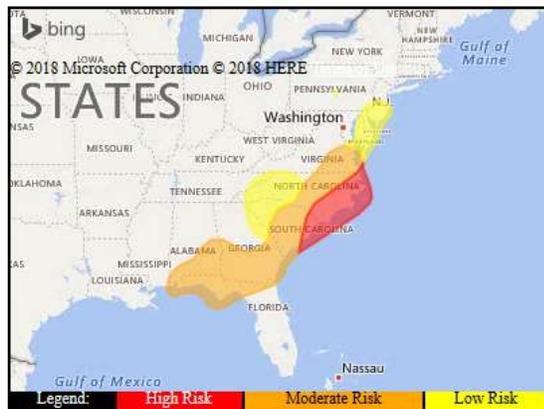
PDay values have surpassed the 300 threshold for Grand Marsh, Hancock, and Plover for all plantings; Antigo PDays have been accumulated only since June 27 and are at 231. Early blight typically ramps up as we enter the month of August. Increase in disease comes results from increase in inoculum, but also increased age of the plant, increased moisture and limited airflow in lower canopy, and at times, nitrogen deficiency.

National Late Blight Updates: <http://usablight.org> **Ottertail MN had a tomato late blight confirmation earlier this past week. No additional reports.** Prior to that time, reports had come from PA on tomato & potato, NY on tomato, and FL on tomato and potato. The clonal lineages/strain types are not yet known for the PA reports. Prior to this, and the previously reported NY tomato late blight case, most cases reported to the usablight website in 2018 have been the US-23 pathogen genotype. US-23 has been the predominant genotype in Wisconsin, and across the U.S., in recent years. US-23 can still generally be managed well with use of phenylamide fungicides such as mefenoxam. However, a potato sample from northeastern FL was sent to my lab earlier this spring and was the US-8 genotype.

A list of registered fungicides for late blight in potato for Wisconsin can be found in past Vegetable Crop Updates Newsletter #6 (May 20, 2018) and at link below: <http://www.plantpath.wisc.edu/wivegdis/pdf/2018/2018%20Potato%20Late%20Blight%20Fungicides.pdf> Further **information on fungicides** and other vegetable crop management inputs in the 2018 Commercial Vegetable Production in Wisconsin guide (A3422): <http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>

No downy mildew on cucurbits in our UW Hancock Agricultural Research Station sentinel plots this past week. Michigan did make a first report of cucumber downy mildew this past week in Berrien County. The cucurbit downy mildew reporting and forecasting site <http://cdm.ipmPIPE.org/> indicated new confirmations of downy mildew in AL, KY, NC, NJ, and PA on various cucurbit crops during the past week. In 2018 so far, the site has documented confirmations of downy mildew in AL, DE, FL, GA, MD, NC, NJ, PA, SC, and VA on primarily cucumber, acorn squash, and cantaloupe. A map showing forecasted movement of the downy mildew pathogen from active sources of inoculum is provided, below, from 7/28/18. No risk of movement to WI at this time, but this map doesn't appear to include the relatively new MI reports. **I have also been watching several basil downy mildew sentinel plots this summer and I have seen none of this disease so far this year.**

Risk prediction map for Day 2: Saturday, July 28



HIGH Risk for eastern NC and northeast SC. Moderate Risk to cucurbits southern AL, the FL panhandle, southern GA, central SC, east-central NC, and southeast VA. Low Risk to cucurbits in northeast GA, western SC, western NC, eastern MD, DE, and southern NJ. Minimal Risk to cucurbits otherwise.

Forecaster: TK at NCSU for the Cucurbit ipmPIPE - 2018

Yi Wang, Assistant Professor & Extension Potato and Vegetable Production Specialist, UW-Madison, Dept. of Horticulture, office: 608-265-4781, email: wang52@wisc.edu.

I just came back from the 2018 Potato Association of America Annual Meeting and got many opportunities to talk with potato researchers from across North America. It seems that the Midwest states have the most challenging potato growing season so far this year. Crops in Wisconsin, Minnesota, and North Dakota got a later-than-normal planting season, and suffered from heat wave during the Memorial Day weekend as well as the long dry spell between late June and mid July. Heat stress issues have been widely noticed, such as short stolons and clustered tuber bulking near mother tuber (as I reported in my last week's newsletter) (Figure 1), and second growth of tubers (Figure 2). Based on my observations around our Central Wisconsin production area, Russet varieties are particularly susceptible to these heat-induced problems, round whites and reds tend to show less symptoms at this point.

For those heat stress related issues:

- Short stolons and clustered tuber bulking are caused by the fact that heat stress can increase foliar sucrose accumulation. Too much sucrose is “toxic” for canopy development, and therefore the plant initiates a responsive strategy that transports the sucrose to the underground, where sucrose enhances tuber initiation and bulking instead of stolon elongation;
- Second growth of tubers is a physiological potato problem induced by soil temperatures of 75°F or above, with or without soil moisture deficit:
 - there are three main types of second growth
 - Tuber Chaining: A series of small tubers are produced on a single stolon (Figure 2).
 - Heat Sprouts: Sprouts develop from stolons or daughter tubers. The sprouts may emerge from the hills developing into leafy stems.
 - Secondary Tuber: Small tubers form on daughter tubers. The secondary tubers are formed on short sprouts or directly on the tuber surface. This disorder is usually associated with physiologically old potatoes. High temperatures and water stress during the growing season are major factors contributing to the physiological aging of potatoes.

The other concern of heat stress is the sugar end problem in the fry processing russet varieties like Russet Burbank. If high temperatures (typically higher than 82°F) occurred during early tuber bulking stage, starch and sugar metabolism within the tuber will be disrupted, and abnormally dark color will show on one end of the tuber at harvest due to high sugar content (Figure 3). When the sugar end issue gets severe, it is not possible to burn the extra sugar during wound healing, and dark color will persist throughout the storage season. Therefore tubers with bad sugar end problems need to be marketed as soon as possible.

There is not much to do at this point to mitigate these issues. Keep the soil moisture uniform and sufficient, routine checking on tuber bulking, tuber shape, internal defects like hollow heart, specific gravity and sugar levels (for processing potatoes) are recommended.



Figure 1. short stolons and clustered tuber bulking



Figure 2. second growth of tubers

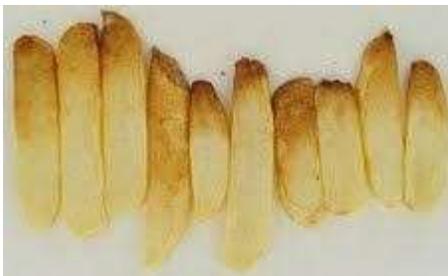


Figure 3. sugar end problems on fry processing varieties