Vegetable Crop Update

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

No. 5 – May 13, 2018

In This Issue

Calendar of Events

July 10-12, 2018 – Farm Technology Days, Sternweis & Weber's Farms, Marshfield, WI
July 19, 2018 – UW-Hancock Agricultural Research Station Field Day, Hancock, WI
July 26, 2018 – UWEX Langlade County Field Day & Potato Virus Y Detection Training Workshop, Antigo, WI
August 2, 2018 – UW-Rhinelander Field Day, Rhinelander Agricultural Research Station, WI
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/

National Late Blight Updates: http://usablight.org is again up and running for 2018. **No new cases detected in the past 19 days.** In all cases reported to the usablight website, the pathogen genotype was US-23. This 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 and metalaxyl (ie: Ridomil). However, a potato sample from northeastern FL was sent to my lab 2 weeks ago and the genotype was US-8. This information does pose some additional concern for management as US-8 cannot be managed with phenylamide fungicides as isolates are resistant to the fungicide.

Prepare for late blight management: with the recent presence of the late blight pathogen in Wisconsin, and the likely disease-favorable weather conditions in 2018, it is critical that all growers of tomatoes and potatoes be on alert and prepared for late blight control. Key components of late blight control in potato are:

1) Destroy all potato cull piles (May 20 deadline by DATCP)

2) Manage potato volunteers in all fields -*volunteers pose great risk for late blight introduction*

3) Acquire disease free seed from a reputable certified source –*infected seed poses great risk for introduction*

4) If there is a risk of disease associated with seed, use seed treatment or in-furrow application of effective late blight controlling fungicides (seed treatment is best)

5) Apply **only proven effective fungicides** for control of late blight when disease forecast tool indicates environmental risk and stay on a fungicide spray program (DSVs reach 18)

    a. For conventional systems, a current list of registered late blight-specific materials can be found in the Commercial Vegetable Production in Wisconsin A3422 publication (below)

b. For organic systems, copper-containing fungicides have been long-standing effective materials for preventing late blight in susceptible crops. Some newer organic fungicides are also available with promising late blight control such as EF-400

6) Scout regularly and thoroughly for disease in all potato fields

7) Re-apply effective fungicides for disease control on a 7 day schedule (recommendation adjusts to a 5 day schedule when late blight is in the area and weather favors disease; recommendation adjusts to a 10 day schedule when late blight is not found in area and weather is hot and very dry)

8) If late blight is identified in a field, have a mitigation plan in place for specific site. Depending on days to vine kill, environmental conditions, and extent of infection – plan may vary from complete crop destruction to early vine kill with continued maintenance fungicide sprays. Mitigation plan should limit disease spread within field and from field-to-field.

More hop downy mildew confirmed on hops in WI this week. My graduate student, Michelle Marks, saw downy mildew sporulating on basal 'spikes' in both Dodge and Pepin Counties this past week. The disease is likely widespread in the state with optimum conditions prevailing over the past several days. As a reminder, common symptoms of downy mildew infected spikes include stunted, brittle shoots, often showing yellow-green/chlorotic coloration. Leaves are typically seen to be curling downward, particularly leaves closer to the ground. The black/gray fuzz of sporulation (pathogen reproduction) may be visible on the undersides of leaves. A complete list of fungicides registered in Wisconsin for hop downy mildew control can be found under the "Hops" tab of the UW Vegetable Pathology website. If you're uncertain if you have downy mildew in hops, please contact us at the Vegetable Pathology Lab or at the UWEX Plant Disease Diagnostic Clinic. For more information please visit the clinic website at http://labs.russell.wisc.edu/pddc/ or contact Dr. Brian Hudelson at 608-262-286.

The 2018 A3422 Commercial Vegetable Production in Wisconsin Guide is now available for 2017. As in past years, the guide can be downloaded for free (link below) or a hard copy can be purchased from UWEX Learning Store for $10. http://learningstore.uwex.edu/assets/pdfs/A3422.PDF

Yi Wang, Assistant Professor & Extension Potato and Vegetable Production Specialist, UW-Madison, Dept. of Horticulture, 608-335-0933, Email: wang52@wisc.edu.

Across the state, potato planting has been about 80% done. It is expected that planting can be wrapped up by the end of next week. With the warm soil temperature, fast emergence will be commonly observed in the next two to three weeks.

In the Central Sands region, with the combination of warmth and rainfall, soils should be in good condition for the seeds to sprout. With more rain forecasted, no irrigation is needed between planting and emergence. Too much moisture during this period will lower soil aeration that favors the infection of soft rot, black leg, stem and stolon canker, put the seed piece under metabolic stress (reduced tuber respiration), and increase the incidence of early dying. However on the flip side, too dry soils will decrease the cut surface healing of the seed pieces, inhibit root growth, and increase plant susceptibility to Fusarium and Rhizoctonia. Overall, the current soil moisture status and water in the seed pieces should be more than enough to carry the sprouting tubers.

As most of the seeds have been in the ground so far, here I am providing a short summary about volumetric soil water contents for common agricultural soils (Table 1), potato growth stages (Figure 1), and irrigation amounts at different growth stages.

	Soil Water Content on Volumetric Basis (%)							
	Field Capacity		Permanent Wilting Point		Available Water		Water Holding Capacity (in/ft)	
Texture Class	Average	Range	Average	Range	Average	Range	Average	Range
Sand	12	7-17	4	2-7	8	5-11	0.96	0.60-1.32
Loamy Sand	14	11-19	6	3-10	8	6-12	0.96	0.72-1.44
Sandy Loam	23	18-28	10	6-16	13	11-15	1.56	1.32-1.80
Loam	26	20-30	12	7-16	15	11-18	1.80	1.32-2.16
Silt Loam	30	22-36	15	9-21	15	11-19	1.80	1.32-2.28
Silt	32	29-35	15	12-18	17	12-20	2.04	1.44-2.40
Silty Clay Loam	34	30-37	19	17-24	15	12-18	1.80	1.44-2.16
Silty Clay	36	29-42	21	14-29	15	11-19	1.80	1.32-2.28
Clay	36	32-39	21	19-24	15	10-20	1.80	1.20-2.40

Table 1. Volumetric soil water contents for common agricultural soils. (Source: Jensen et al., 1990)

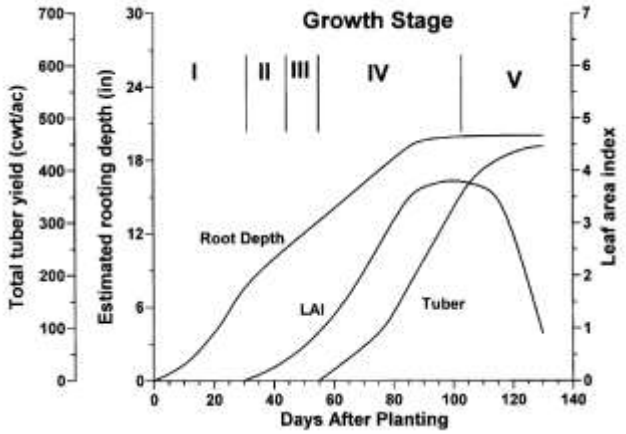

Figure 1. Five growth stages of potato root depth, leaf area index (LAI) and total tuber yield. (Source: King and Stark)

Stage I: planting to emergence, soil moisture in the top foot should be 65 to 80% field capacity (FC), no irrigation is recommended;

Stage II: emergence to tuber initiation, a soil moisture of 70% to 80% FC is preferred, with rapid developing canopy every week, irrigation starts low, ~ 0.5 inch per week, and gradually increase every week by about 0.5 inches, at tuber initiation, about 1.5 inches per week will be a good number;

Stage III: tuber initiation to full bloom, optimal soil moisture is 80% to 90% FC, and irrigation could be increased to about 2.5 inches per week on sandy soils. In areas and with varieties susceptible to common scab, maintaining soil moisture at 90 to 95% FC is suggested if possible;

Stage IV: full bloom to plant senescence (tuber bulking), soil moisture should be at 80 to 90% FC. This is the period when plants have the highest water demand and are the most sensitive to water stress. Irrigation plus rainfall should be 2 to 2.5 inches per week or about 15 inches over the period;

Stage V: plant senescence to harvest, soil moisture should decline to 60 to 65% FC.
Please note that these are rough numbers since irrigation management always depends on variety, soil health, weather, and on-farm cultural practices.