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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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

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Potato dieback and resulting uneven crop status: During May 26-29, potatoes in several locations across central and southern Wisconsin experienced extreme heat and likely moisture stress, especially on sandy knolls or higher ground, within fields. Symptoms have included stunted growth compared to plants in lower areas of fields, and a general die-back at the growth points. The necrotic areas are water-soaked, brown, and in some cases a bit constricted or pinched – as sometimes seen with Rhizoctonia. No pathogens have been detected in these necrotic areas and evidence seems to point to temperature conditions and dry areas of fields which may have been more susceptible to heat/moisture stress.

In cases that I have observed, the plants are still viable and will regrow – however – they are likely behind the rest of the crop in the field in maturity by 10-14 days. This uneven maturity poses a challenge for management.

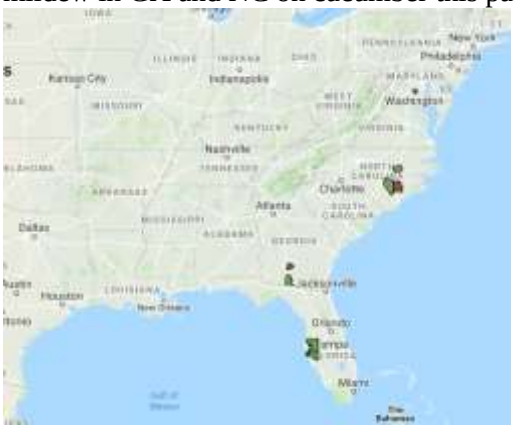
National Late Blight Updates: http://usablight.org is again up and running for 2018. **No new cases detected in over one month.** In all cases reported to the usablight website, the pathogen genotype was US-23. This has been the predominant genotype in Wisconsin, and across the U.S., in recent years. 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 earlier this

spring and was the US-8 genotype. 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.

Current Wisconsin Late Blight Risk (Severity Value Accumulations) from https://agweather.cals.wisc.edu/vdifn/maps. **We have not yet reached thresholds for late blight management response triggers.** 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. Our in-field weather stations are in place and we will be providing data for P-Days and DSVs from the field stations in upcoming newsletters and at the UW-Potato and Vegetable Pathology Website. Values below are generated from weather data sourced from NOAA. We have previously introduced this tool and more information is available here: Veg Crop Updates 2015 VDIFN introduction

Location	Planting Date	50% Emergence	Disease Severity Value	Date of DSV Generation
Antigo	Early 5/12	5/28	7	6/9
	Mid 5/25	6/7	0	6/9
	Late 6/9	-	-	-
Grand Marsh	Early 5/1	5/15	13	6/9
	Mid 5/15	5/28	8	6/9
	Late 6/1	-	-	-
Hancock	Early 5/2	5/16	9	6/9
	Mid 5/17	5/30	7	6/9
	Late 6/1	-	-	-
Plover	Early 5/7	5/18	8	6/9
	Mid 5/20	6/1	2	-
	Late 6/2	-	-	-

Cucurbit downy mildew reporting and forecasting site http://cdm.ipmpipe.org/ is again providing useful information to growers interested in tracking this potentially crop-devastating disease. In recent years, we have seen few cucumber fields with downy mildew, but when the pathogen comes to the state, the disease can reduce yield and quality substantially. The site documented confirmations of downy mildew in GA and NC on cucumber this past week (map below from 6/9).



The 2018 A3422 Commercial Vegetable Production in Wisconsin Guide is now available for 2018. 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

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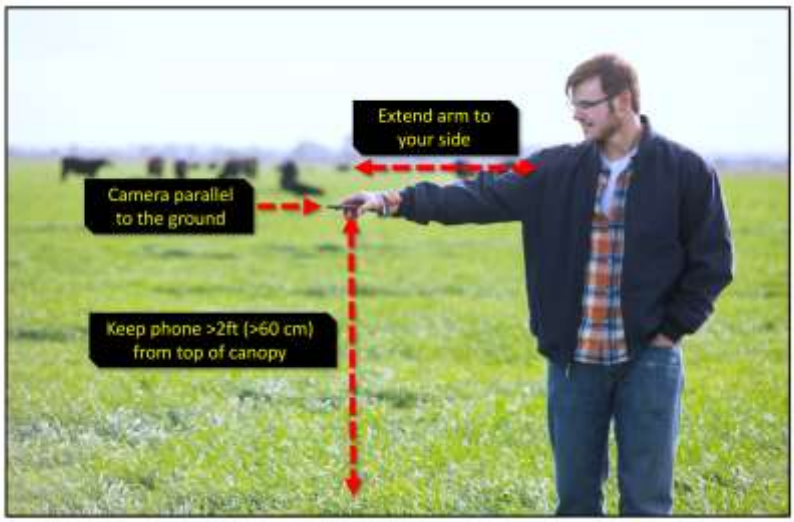
In Central Wisconsin overall, plants are vigorously growing under the warm weather and I have seen potato plants that are 8'' tall with tiny hooks (tuber initiation).

At the Hancock Ag Research Station, Snowden, Hodag, Russet Burbank and Silverton that were planted in the April 30th week are about 8-14'' tall and start to hook. Canopy cover of those four varieties ranges from 35 to 50%. Russet Nortah and Lamoka planted in the same week are a little behind, ranging from cracking to about 6'' tall, and no hooking is observed. Canopy cover is between 10 and 25%.

Snowden and Hodag planted in the May 7th week are about 8'' tall and have started tuber initiation, and Silverton are catching up (no hooking as of June 7th). Canopy cover is about 20% across those varieties.

When I evaluated canopy cover, I used "CANOPEO", a free handy app for Matlab users and for iOS and Android mobile devices. Below I am showing the three simple steps of using this app on your smart phone:



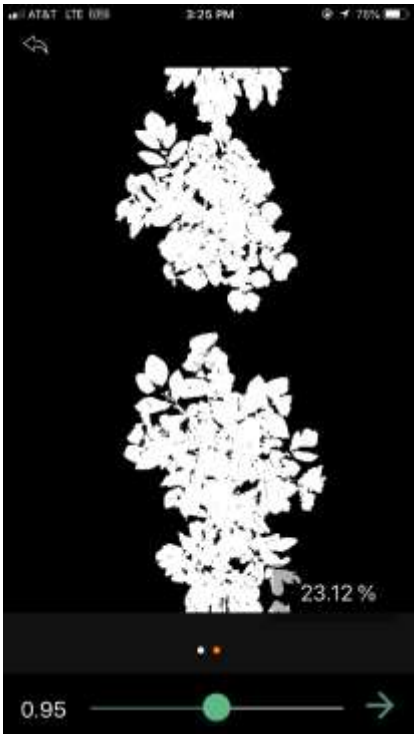
Step 1: Take the photo.

For potatoes, keep your phone 1 yard from top of canopy.

Step 2: Review the black and white pixels on the processed photo

Step 3: Enter your crop information (canopy height, planting date) with the processed photo

Here are the original photo and processed photo I took from our research plot. It shows that our canopy cover is 23.12%. This information can be used for irrigation scheduling and other production management practices.



Additionally, this week on two commercial potato farms, we installed three different soil moisture probes (TDR, WaterMark, and Tensiometer) in and below the rooting zone, at the wettest spot (Figure 1) and dries spot (Figure 2) under a Variable Rate Irrigation system. Photos were taken right after a rain event, and soil difference between the two spots were very pronounced. During spot selection, we found that the lowest spot on the Elevation Map matches up with the highest value on the EC map, and the highest spot on the Elevation Map matches up with the lowest value on the EC map.

Figure 1. Wettest (lowest) spot under a VRI system

Figure 2. Driest (highest) spot under a VRI system

Data collected from the probes will indicate: 1) soil moisture change (of top soil and subsoil) at those two representative spots under a VRI system; 2) how informative different types of soil moisture probes (soil water potential vs. soil water content) are for on-farm irrigation management.