Vegetable Crop Update – A.J. Bussan, Department of Horticulture, UW-Madison, Tel. No. 608-225-6842, email: ajbussan@wisc.edu

Intense sunlight and high temperatures have led to rapid crop water use over the past several days. Yesterday the crop in Central Wisconsin used 1/3” of water which is the highest ET I have ever seen reported for Wisconsin. We have received scattered precipitation throughout the state from nothing to over 3” in the last 48 hr. To appropriately irrigate your crops you must track precipitation and ET to follow soil moisture balance.

Under irrigation at present can lead to floral and fruit abortion in vine crops, tomato, peppers and others. Drought stress combined with heat stress can also jeopardize yields in potato, onion, and other shallow rooted crops. Over irrigation can promote disease development in the crop canopy.

Vegetable Disease Update – Amanda J. Gevens, Vegetable Plant Pathologist, UW-Madison, Dept. of Plant Pathology, 608-890-3072 (office), Email: gevens@wisc.edu.

Vegetable Pathology Webpage: http://www.plantpath.wisc.edu/wivegdis/

High winds, precipitation, and hail: For producers managing vegetable fields with damage to crops as a result of intense storms on the night of July 19th, applications of copper-containing fungicides can aid in healing of plant wounds and protecting against bacterial infection.

Black leg: In some fields, black leg has worsened this past week resulting in early senescence of the plants. 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.

Potato blackleg: is caused by Pectobacterium carotovorum, formerly Erwinia carotovora. Symptoms of blackleg have been seen in 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, black stems, and death.
While blackleg inoculum comes primarily from infected seed tubers, it may also be spread in 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 disinfecting 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.

This year, almost all of the black leg 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 at this time offers an appropriate and effective program for control of both diseases.

**Late Blight: No new reports of late blight in WI in the past week.** Nationally, late blight was identified in two new production areas: Washington State (Greene County) on potato and California (Kern County) on tomato. So far this production season, late blight detections have been made in NY, FL, VA, DE, WI, PA, WA, and CA. The website: [http://www.usablight.org/](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. With cloudy conditions and chance of rainshowers in many Wisconsin production areas over the next several days, protective fungicide applications for the control of late blight are recommended on a 7-day schedule.

**Cucurbit downy mildew:** While downy mildew on cucumber has been confirmed and reported only in Columbia County to date, I don’t doubt that other counties may have this cucurbit disease. Earliest symptoms include small, pale green areas of leaves or irregular coloration of leaves, at times looking like nitrogen deficiency. While it has been very hot across the state, high humidity, frequent rain, and nighttime temperatures in the 70s to 80s can favor the disease. Fungicide applications for preventative control of downy mildew are recommended at this time. Best control can be had with prophylactic fungicides, good control can also be had with fungicides applied at first symptom detection. The website: [http://cdm.ipmpipe.org](http://cdm.ipmpipe.org) offers up to date reports of cucurbit downy mildew and disease forecasting information. Newsletter #13
contains fungicide recommendations and can be found at:

**Basil downy mildew:** Dr. Meg McGrath of Cornell University, Long Island Horticulture Research Station, has indicated that there have been recent reports of basil downy mildew on plants purchased for sale at garden centers in MD, PA, NY, and MA. Few greenhouses have reported the disease. Other states with earlier positive detections include FL, TX, and HI.

For further information on any fungicides that may be mentioned in this newsletter, please see the 2011 Commercial Vegetable Production in Wisconsin Guide A3422. An online pdf can be found at the link below or a hard copy can be ordered through the UWEX Learning Store.

[http://learningstore.uwex.edu/assets/pdfs/A3422.pdf](http://learningstore.uwex.edu/assets/pdfs/A3422.pdf)