Vegetable Crop Update #12
July 29, 2010

If you would like an electronic copy of the newsletter via email contact me at ajbussan@wisc.edu.

Events: Contact me for more information
July 29, Webinar on potato storage management
August 10-11, Processing Snap Bean and Sweet Corn Demo, Hancock WI
August 12, Antigo Potato Field Day, Langlade County Airport Research Farm, Antigo, WI, 12:30-2:30

Webinar on Potato Storage Management – 1:00 to 2:00 pm Central time, Storage management

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

It was great to see many of you at the field day in Hancock on Tuesday. Crops are displaying effects of wet production conditions. Many low lying areas within fields have been drowned out and other areas are beginning to show symptoms of nutrient deficiencies resulting from poor root systems, nutrient deficiencies, and soil born diseases. Hot weather could severely stress crops due to the poor root health.

Potato. Digging potatoes today showed relative good tuber quality with little scab present and good tuber shape. Consistent soil moisture has helped minimize scab and prevented the development of off shape even in varieties such as Russet Burbank. I did not look at varieties such as Gold Rush or Bannock to see if cracking is also minimized, but growing conditions should prevent its development.

Two concerns related to tuber health should be monitored closely. Free water in the tuber zone has promoted the opening of lenticels. Lenticels are similar to stomata and enable air exchange. Saturated soil conditions can lead to cell expansion in tissues below the tuber surface causing white colored cells to push through the lenticel. With long periods of free water, expanded lenticels can develop a corky mass leading to dark spots on the surface of the tuber. In addition and possibly more importantly, the open lenticels provide an avenue for plant pathogenic fungi and bacteria to enter the plant and cause tuber infections in the field leading to increased risk of losses in storage.

Wet conditions followed by high soil temperatures have also been shown to promote the development of pink eye. I did not find any pink eye in the potato plants I dug last evening, but I also have not had the chance to search in many fields. Pink eye will start to become more apparent if it is going to occur and can cause elephant hide. Pink eye has been shown to have compromised native periderm that can potentially allow for infection by plant pathogens as well. In addition, pink eye affected areas also form elephant hide that can be difficult to peel.

Processing crop. Snap bean harvest is well underway. Snap bean are taking about 55 d to mature from planting or 7 days less than last year. Heavy rains are believed to have greatly reduced rooting of snap bean leading to shallow root systems. Root rot is affecting a number of snap bean fields as well especially in susceptible varieties. Sweet corn harvest is also well underway with crops maturing in 85 to 88 days. Sweet corn rooting is also believed to be underdeveloped by wet soil conditions. This may have little effect on the crop if rains continue, but hot conditions could stress the crop.

Vegetable Insect Update – Russell L. Groves, Vegetable Entomologist, UW-Madison, Department of Entomology, 608-262-3229 (office), (608) 698-2434 (cell), or e-mail: groves@entomology.wisc.edu.

For Additional Information Please Consult the Vegetable Entomology Home Page at:
http://www.entomology.wisc.edu/vegento/index.html

Potatoes – Emergence of the 2nd generation of Colorado potato beetle (CPB) continues in portions of central Wisconsin with egg deposition and the presence of early larvae. We are likely approaching the end of adult emergence from pupation and will continue to see development of immature stages. At the Hancock Agricultural Research Station, at-plant systemic neonicotinoids appear to still be controlling beetles with limited feeding and even some dead beetles present in furrows. In still other locations, however, the efficacy of these compounds has long since passed and producers and pest management practitioners are faced with the need to use foliar-based programs. Recall that if a Group 4A Mode-of-Action (MoA) class compound was used earlier in the 2010 growing season, it is not only unlawful but highly undesirable to use a foliar form of the same MoA class. Here again, avoid the consecutive use of a single product, or multiple products with similar MoA’s. To assist farmers, growers, consultants and crop protection professionals, the Insecticide Resistance Action Committee (IRAC) has developed and updates a Mode of Action (MoA) classification system with a guide to the selection of insecticides or acaricides (http://www.irac-online.org). This program was the
direct result of the EPA’s voluntary pesticide labeling proposal (2001) for all registered insecticides to include the MoA in a particular numbered group. To implement an effective IRM program, growers can consult this information and select a sequence of insecticides that represent different groups with unique MoA’s.

Regarding the use of foliar-based programs for CPB control, use insecticides at labeled rates and follow prescribed spray intervals. Do not reduce or increase rates from manufacturer recommendations as this can hasten resistance development. Use products at their full, recommended doses. Reduced (sub-lethal) doses quickly select populations with average levels of tolerance, whereas doses that are too high may impose excessive selection pressures. Additionally, ensure that well-maintained equipment is used to apply insecticides. Recommended water volumes, spray pressures and optimal application conditions should be used to obtain adequate coverage.

**European corn borer (ECB)** - With forecast warm temperatures through the remainder of the week and into the weekend, adult moths of ECB resulting from the second generation should continue to be prevalent across much of south-central and west central areas of the state where we are approaching 1,700 accumulated degree days (DD). The established thresholds for initiation of the 2nd generation flight occurs annually around 1,400 accumulated DD which has been surpassed in many locations of the state and will soon be passed in portions of north-central Wisconsin. Current degree day accumulations indicate that the peak period of flights of summer moths may occur south of a line extending from Spooner, WI to Green Bay, WI. In turn, we will be expecting to observe peak oviposition to follow shortly thereafter. Silking sweet corn, flowering to pin-pod snap beans, and peppers should be closely monitored. Black light traps for these particular regions or localities should also be closely watched to note when peak moth flights have begun.

**Western Bean Cutworm (WBCW)** – Drs. Chris DiFonzo (Michigan State University) and Eileen Cullen (University of Wisconsin) have recently issued notifications regarding elevated levels of WBCW trap catches related to potential dry bean infestations. Dr. Cullen’s surveys have documented eggs near hatch and first instar larvae in corn plant leaf axils and on silks in both field corn and sweet corn. Peak moth flight occurred last week in most areas of southern and central Wisconsin. In northern Wisconsin (north and northeast of central sands), fields should experience their peak flight in approximately one week. Traps located at the Arlington Agricultural Experiment Station averaged 600 moths/trap last week and are now reduced to an average of 130 moths/trap earlier this week. The recommendation to provide protection at this time is based on a few factors. Corn will soon become unattractive for egg laying, while moth numbers remain high in selected areas of the upper Midwest. Dry bean fields containing pods that were treated within 1-2 weeks after peak flight should result in low levels of damage or infested pods.

**Potato leafhopper (PLH)** – This insect continues to increase in many southern and central portions of the state. Several commercial snap beans in central portions of Wisconsin have reported sweep net captures exceeding the established threshold of 1 adult per sweep with nymphs also present. The forecast for continued warm weather conditions are conducive to increased population growth and nymphal development. In turn, scouts should continue to monitor for populations of PLH in susceptible crops as we enter into early August. Populations of potato have also continued to increase with adult and nymphal populations exceeding the established thresholds at several locations. Although forecast warmer temperatures later in the week may increase the likelihood for rapid development of this insect, it is important to emphasize continued scouting and population surveillance. Control of this insect can be achieved with foliar applications of members of the neonicotinoid class of insecticides as well as several synthetic pyrethroids. Additional control recommendations can be found at the Vegetable Entomology homepage under sections specific to potato leafhopper (http://www.entomology.wisc.edu/vegento/ci/pests.html).

**Soybean aphids** - Statewide surveys which monitor developing populations of soybean aphid suggest that populations continue to be static over the past week. Few fields have exceeded established economic densities at this time, but populations of this insect can increase rapidly. In past years, the annual dispersal flight of soybean aphids has typically occurred in the interval between late July and mid-August. A period we are entering into at this time. Last year, a significant flight occurred despite soybean aphid infestations that were considered below action threshold(s) in many areas of the state averaging fewer than 100 apterous (wingless) aphids / plant. For snap bean, vine crop, pepper, and seed potato growers, these flights appear to coincide with an elevated risk for significant transmission of non-persistently transmitted plant viruses including alfalfa mosaic virus (AMV) and cucumber mosaic virus (CMV) and Potato virus Y (PVY). At this time, close attention should be paid to the North Central Region’s, Aphid Suction Trap Network web-page (http://www.ncipmc.org/traps) in an effort to anticipate when dispersing populations might be expected.
Potato: Late blight: Additional late blight finds have been made on potato in central Wisconsin this week. It is likely that inoculum was moved and deposited through the state by storm systems – moving from west to east. The weather has been favorable for late blight infection and progress, and forecasted conditions will continue to be disease-favorable. Infection in these recently diagnosed fields can be described as sporadic and lesions have not been easy to spot. For this reason, it is critical to keep on a tight, 5-day fungicide program with effective materials.

It is important to be vigilant in scouting for late blight. Typically, the best place to scout for potato late blight is in field corners and areas of fields that are sheltered by tree lines, or are often inaccessible to aerial pesticide application. However, some of the recent finds were not consistent with these field features. It can be hard to find the earliest symptoms of late blight, especially when foliage is beginning to senesce and lesions are small and few in a large field.

Symptoms of late blight in 2010 have been primarily seen on leaves as dark brown-black, water-soaked, circular lesions (about the size of a quarter). During cloudy or high humidity periods, the undersides of these lesions exhibited white, powdery pathogen sporulation. If undetected and inappropriately managed, these infection spots can rapidly progress to petiole and stems, and the spot can quickly expand in a field when conditions are favorable.

Following vine kill, allow 2-3 weeks before harvest. Fungicide applications should be continued until vines are dead. When foliage dies, spores of the late blight fungus that remain on the foliage also die. This practice will prevent infection of tubers during harvest and development of late blight in storage.

DSVs are over the threshold of 18 for all Wisconsin locations. Information regarding fungicides can be found at: [http://www.plantpath.wisc.edu/wivegdis/](http://www.plantpath.wisc.edu/wivegdis/) or the University of Wisconsin Commercial Vegetable Production Guide A3422. The past several newsletters have included specific fungicides and can be located at the above website.

Early blight: Early blight pressure is great in some areas. As of July 28th, P-day values are all over the 300 threshold for all locations and planting dates in Wisconsin. Values range from 365 (Plover late emergence) to 589 (Hancock early emergence). P-Days of 300 or greater indicate optimal temperature conditions for early blight activity. Consider your early blight pressure when selecting fungicides. Materials with efficacy on both early and late blight include: Quadris, Tanos, Reason, Evito, Headline, Gem, Bravo/Echo/Equus, copper, Curzate, Dithane/Manzate/Penncozeb, Revus Top, Super Tin, and Gavel. An extended list of commercial products and diseases they control can be found in the Commercial Vegetable Production in Wisconsin Guide A3422.

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Visit our web site at [http://www.plantpath.wisc.edu/wivegdis/index.htm](http://www.plantpath.wisc.edu/wivegdis/index.htm) where you can find updated P-Day and Severity Value information throughout the growing season. Values in red indicate a value greater than the threshold (P-Day of 300 and DSV of 18).

Tomato: Late blight: Please see comments above in potato section for information on late blight occurrences in the state. To date, late blight has been identified on tomato in 3 counties: Waukesha, Monroe, and Kewaunee. Symptoms have
been both on foliage and tomato fruit. Appropriate fungicides can manage late blight, however, it is critical that fungicides are applied preventatively rather than after infection has been noted. Because of many field activities in tomato this time of the season, it is critical to observe the re-entry interval (REI) and pre-harvest interval (PHI) specifications on fungicide labels. A table summarizing these key intervals can be found at the “Late Blight” tab on the UW-Vegetable Pathology website: http://www.plantpath.wisc.edu/wivegdis/.

**Septoria**: Septoria leaf spot, caused by the fungus *Septoria lycopersici*, has been the most commonly seen disease on tomato this week. Symptoms typically begin lower in the canopy and can move upward on the plant under favorable environmental conditions. Septoria spots can range in size from small flecking to dime-sized lesions. Spots are typified by tan-white centers surrounded by dark brown-black rings with yellow halos. The symptoms of Septoria can occur at any stage of plant growth – and can already be present on greenhouse seedlings at transplanting. The timing of symptom appearance is associated with presence/amount of inoculum and environmental conditions (optimal at 77°F and wet). Symptoms begin as small water soaked lesions on the undersides of older leaves. The centers of the lesions are gray-tan and the edges are dark brown to black. As lesions mature, they enlarge and coalesce to form large dark brown lesions bearing the black pimple like fungal structures called pycnidia. Pycnidia are not present in early blight lesions. Septoria leaf lesions do not exhibit the target-like lesions typical of early blight. Left unmanaged under favorable weather conditions, Septoria-infected tomato foliage can turn yellow, dry up, and fall off – resulting in poor plant development and sunscalding of fruit. Management includes removal of infected plant debris from production area, selection of varieties with some resistance, staking, maintaining dry foliage by irrigating from below, increasing row spacing, and use of appropriate fungicides such as Quadris, Tanos, Reason, Evito, Cabrio, Bravo/Equus/Echo, or Dithane/Manzate/Penncozeb. An extended list of commercial products and diseases they control can be found in the Commercial Vegetable Production in Wisconsin Guide A3422.

Picture below provide a comparison of typical symptoms for Septoria leaf spot, early blight, and late blight of tomato.

**Cucurbits: Downy mildew**: Three counties have reported downy mildew on cucumber in the month of July: Columbia, Dane, and Portage. According to the cucurbit downy mildew forecasting website (link below), the risk for new infection and spread is moderate to low in Wisconsin at this time. This risk forecast is based on reported finds of the disease. Considering my conversations with growers, county agents, and scouts this week, I would suspect that there is more cucurbit downy mildew progressing in fields and that actual risk is moderate. The website: http://edm.ipmpipe.org offers up to date reports of cucurbit downy mildew and disease forecasting information.

Because cucurbit downy mildew has been identified in WI and there is moderate risk for spore movement, it is necessary to protect all cucumber, melon, and winter squash crops at this time. It is important to make selections of fungicides with known efficacy against cucurbit downy mildew. Downy mildew on cucumbers can quickly devastate a field, leaving foliage behind that resembles frost damage. Although downy mildew does not directly infect fruit, the loss of foliage results in exposed fruit that is susceptible to sunscald. Newsletter #9 contained effective fungicide programs for cucurbit downy mildew and can be found in the archived newsletter at: http://www.plantpath.wisc.edu/wivegdis/. Effective fungicides for cucurbit downy mildew include: Gavel, Presidio, Previcur Flex, Ranman, Tanos alternated and tank-mixed with mancozeb or chlorothalonil. Further information on cucurbit downy mildew fungicides can be found in the Commercial Vegetable Production in Wisconsin Guide A3422 (http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf).