Vegetable Crop Update #4  
June 4, 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
June 8, Tuesday, 9-3, Fresh Market Vegetable Grower Field Day, King Berry Farm, Waupaca
June 16, Wednesday, Evening fresh market walking tour, Wilton, Monroe County
June 22, Tuesday, Evening fresh market walking tour, St. Croix County
July 6, 10 am, Walking Farm Tour, Tipi Produce, Rock County
July 12, Monday, Evening fresh market walking Tour, Columbia County
July 16, Friday, Rhinelander Ag Research Station Field Day, Rhinelander, WI, 10 am to noon
July 20-22, Farm Technology Days, River Falls, WI
July 27, Tuesday, Hancock Ag Research Station Field Day, 12:30 to 4:00 pm
August 10-11, Processing Snap Bean and Sweet Corn Demo, Hancock WI

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

Potatoes. The crop is continues to develop. The earliest planted potatoes are 30 to 50% canopy closure with early developing potatoes such as Red Norland and Superior having set tubers. Chipping potatoes planted before April 15 have set tubers, but potatoes planted later are just now beginning to hook in my plots. Russet Bubank were planted later for the most part and these potatoes are just now starting to hook. Tuber initiation typically occurs prior to June 10 and the crop certainly seems on schedule to develop in that time frame. However, tuber initiation does seem to be 5 to 6 days later than in 2010 based on my development records.

Potential ET has varied between 0.1 and 0.2” with cloud cover, precipitation and cooler conditions. Potato crops can tolerate drought stress during vegetative development and maintaining the crop on the dry side can improve management of early dying. However, not that tubers have or are initiating irrigation management becomes much more important. Soil moisture in potato fields should be maintained at 80% of field capacity. Once tuber initiation begins, cell division becomes an important factor for establishing maximum yield potential for the crop. Water limitations during tuber initiation and early tuber bulking can increase the development of common scab on potatoes.

Water management is also crucial for optimizing potato quality. Paul Bethke has shown in the greenhouse that maintaining soil moisture above the critical point (approximately 75% of field capacity) can improve fry color by decreasing stem end sugars. We also know that drought stress during tuber initiation and early tuber bulking can increase the development of common scab on potatoes.

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

Potato – Adult Colorado potato beetle (CPB) continue to emerge and colonize fields. Adults have become very active with the warm temperatures over the last 7-10 days. Egg masses averaged 1.5 / plant at the Hancock Agricultural Research Station (HARS) and several of these egg masses were darker in color signifying they are near hatching. Adult CPB continue to actively mate and egg deposition is well underway at most locations throughout Central Wisconsin. The first egg masses laid are just now beginning to hatch in southern Wisconsin at our Arlington Agricultural Experiment Station and we anticipate the appearance of early larvae later this week at the HARS. Growers and pest management practitioners should consider the use of the first of 2 successive applications of the reduced risk insecticide, novaluron (Rimon® 0.83EC) for control of immature CPB. This compound has been demonstrated to be a very effective tool for management of 1st generation CPB and the initial application can be applied when approximately 10-50% of egg hatch has occurred. For most growers in Wisconsin, this milestone has been met at several locations this week. A second application should follow within 7 to 10 days following the initial application.
Unlike the last two seasons where populations of colonizing adult CPB were rather slow in emerging from their overwintering habitats, most adult CPB have now mated and have laid approximately 50-75% of their egg masses. With forecast moderate temperatures for the remainder of this week and into the weekend, egg masses are expected to hatch and early larval instars will rapidly grow. Growers and practitioners should pay close attention at this time to fields which received at-plant systemic insecticides. As noted in past years, full rates of the neonicotinoids (e.g. Platinum, Belay, AdmIREPro) should continue to be effective in controlling these larval populations if no product insensitivity (resistance) is established or developing. If you notice widely distributed, in-field populations of these larvae persisting and feeding in plant terminals, it is important to consider foliar applications to minimize the threat of the second generation of CPB. The performance of the at-plant neonicotinoids continues to ‘slip’ at selected field locations in the Central Sands. This ‘early breaking’ may (out of necessity) require an additional application of a foliar insecticide to achieve adequate first generation control.

**Flea beetles:** Flea beetles are becoming prevalent in several fresh and direct market operations. These insects are one of the most difficult-to-manage pests of eggplant and cole crops. They are also a problem on seedlings of tomatoes, potatoes, peppers, turnips, radishes, and corn. The adults are active leaf-feeders that can, in large numbers, rapidly defoliate and kill plants. Symptoms of flea-beetle feeding are small, rounded, irregular holes; heavy feeding makes leaves look as if they had been peppered with fine shot. Cultural controls for this insect include perimeter trap crops using highly attractive mustards, row covers, and the use of transplants which can tolerate greater levels of damage. Specific insecticides containing spinosad, plus bifenthrin and permethrin can provide good control for about a week. Applications of insecticides containing imidacloprid (e.g. Provado) or thiamethoxam (Actara) can also provide good and will have a longer residual activity of approximately 10-14 days. However, to protect seedlings, applications usually must be reapplied often. The plants produce continuous new growth and the highly mobile beetles may rapidly reinvade plantings. As with all pesticides, carefully read and follow all label directions. Pay particular attention to ensure that any flea beetle insecticides being considered are properly registered for use on the crop. In 2009, Dow AgroSciences released a product bulletin for the use of spinosad (Entrust) as an organic control option of flea beetles in Wisconsin only. This label amendment includes use on cole crops (Brassica Vegetables) and fruiting vegetables. Specifically, the label proposes that suppression of flea beetle in cole crops and fruiting vegetables can be achieved after application of Entrust at the rate of 1.25 to 2.5 oz per acre.

**Onions** - As we approach early June, onion thrips populations are slowly increasing on dry bulb onion, however many populations have yet to exceed established thresholds in many locations. Here again, as warmer conditions continue to be forecast, growers are cautioned that relatively low populations of onion thrips can rapidly increase and exceed thresholds in short periods of time. Populations have been estimated to average <0.5 immature thrips per leaf at a few locations in the central part of the state and these populations should be scouted regularly.

As noted in a recent newsletter, Wisconsin continues to receive re-certification for a Section 18, Emergency Exemption from the US EPA for the use of both spirotetramat (Movento®) and abamectin (Agri-Mek 0.15EC) against onion thrips. In past seasons, both compounds have performed very well in our onion thrips efficacy trials and are a valuable addition to the current list of materials registered for this pest on onion. Moreover, in last week’s newsletter I mentioned only a few of the suppliers for both compounds in the state of Wisconsin and I need to correct / amend this statement to include (1) Crop Production Services (CPS) – Jim Hoffa to supplement our UAP contact information, and (2) Wisconsin River Cooperative, Mike McClyman has access to these products through WinField Solutions. More generally, both materials can be adequately sourced through contacts at your local retailer.

**Potato leafhopper** – Adult potato leafhopper (PLH) have immigrated into southern Wisconsin, arriving over the last 3 weeks. Populations of adults are still quite low averaging <0.3 adults / sweep at the AAES. Recall, however, that these insects have a broad host range attacking alfalfa, snap beans, and potatoes, to name only a few. They feed with sucking mouthparts similar to mosquitoes and remove plant sap directly from the phloem and cause damage by injection of a salivary toxin that causes cell disruption. Once populations have been
observed, fields should be scouted regularly using standard sweep net sampling. Recommended treatment thresholds are 1 adult per sweep with a net or 15 nymphs on the undersides of 50 potato leaves. In-furrow, seed, and lay-by treatments with the systemic, neonicotinoid insecticides provide excellent early to mid season control of colonizing adults and developing nymphs, but typically begin to become less effective in later July. Middle to low rates of several synthetic pyrethroids are also effective tools for controlling adult PLH. Remember, however, that PLH can re-infest relatively quickly and can build to significant populations over a short interval of time. Frequent scouting of susceptible crops is warranted as well as recently emerged snap beans in the state, as populations can increase quickly with migratory weather events.

**Vegetable Disease Update – A.J. Gevens, Department of Plant Pathology, UW-Madison, Tel. No. 608-890-3072, Email: gevens@wisc.edu**

**Potatoes : Late blight update:** At this time, there are no reports of late blight on tomatoes or potatoes in Wisconsin. New confirmations continue to come in from other states, with the latest from northern Kentucky. Tomato late blight was confirmed on tomato plants from a home garden by extension plant pathologist Kenny Seebold (Univ. of KY) late last week. This find brings with it a greater concern, as the tomato transplants were supposedly from a producer in southwestern Michigan that supplied Wal Mart. I am unaware of any confirmation of late blight in Michigan at this time. Additional evaluation of tomato transplants at a Wal Mart near the Univ. of KY campus, resulted in the finding of tomato plants positive for late blight - and all with the same labels indicating the southwestern MI source. To date, confirmed late blight reports in 2010 have come from FL, LA, MD, PA, and KY. Late blight is likely present in additional geographic locations at this time, but has not yet been confirmed.

It is not yet known if the *Phytophthora infestans* of 2010 is of the new US#22 type which was most aggressive on tomatoes in 2009. However, it is concerning that late blight has been identified so far north, this early in the season. While confirmed disease reports are getting geographically closer to WI, we must also remember the potential sources right here in the state including volunteers, infected seed, cull piles, and composted tomato/potato plants that were infected in 2009 and may have survived the winter. I have been monitoring volunteers in a few fields in south and central Wisconsin and have not identified late blight on foliage or associated seed pieces at this time.

We are working hard to get the weather stations and Blitecast systems all up and running. A precursory look at weather data for Hancock indicates that since potato emergence, the duration of the relative humidity periods of >80% have been low (<10 hours), limiting the accumulation of disease severity values (DSVs) – making conditions less favorable for infection.

At this time, it is advisable to be prepared with effective fungicides for late blight protection. In potatoes, we have Tanos, Reason, Curzate, Revus Top, Gavel, Ranman, Forum, Previcur Flex and Omega. These are all specific late blight products. All should be tank mixed with a protectant such as chlorothalonil, mancozeb or metiram. A more extensive list of products can be found in the extension document entitled Commercial Vegetable Production in Wisconsin Guide A3422 (available at [http://learningstore.uwex.edu/](http://learningstore.uwex.edu/)).

**Tomatoes - Septoria:** Septoria leaf spot of tomato, caused by the fungus *Septoria lycopersici* has been active on tomato foliage this past week. I have also seen some early blight (*Altemaria solani*) on leaves along with Septoria. The two diseases can be distinguished, yet their management measures are similar. The symptoms of Septoria can occur at any stage of plant growth – and can already be present on greenhouse seedlings at transplanting. Once set in the field, typically, symptoms are first observed on lower, older leaves and stems. 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.
**Late Blight:** See above late blight status report in potato section. At this time, it is advisable to be prepared with effective fungicides for late blight protection. For conventional tomatoes, we have Curzate, Tanos, Ranman, Forum, Presidio, Revus Top, Previcur Flex and Gavel. A more extensive list of products can be found in the extension document entitled *Commercial Vegetable Production in Wisconsin Guide A3422* (available at [http://learningstore.uwex.edu/](http://learningstore.uwex.edu/)). In a 2009 tomato late blight fungicide field trial carried out by Dr. Mary Hausbeck at Michigan State University, the top performing fungicides for foliar disease control included: Revus, Reason, Ranman, Ridomil Gold Bravo, Ridomil Gold MZ, Presidio, Bravo WeatherStik, Forum, and Acrobat. The best yielding fungicide treatments included: Pristine, Revus, Reason, Ranman, Ridomil Gold Bravo, Ridomil Gold MZ, Tanos, Presidio, Quadris, and Bravo WeatherStik (Vegetable Crop Advisory Team Alert, Michigan State University, June 1, 2010).

For organics, coppers applied preventatively are the only materials effective for late blight control. Coppers can only slow the epidemic and will not stop the progress of late blight. For a severely infected field, crop destruction may be the only option to limit further spread. If the strain of late blight that is currently active in 2010 is the same as in 2009, there are varieties with some resistance to infection and disease progress. Such varieties include: Mountain Magic, Plum Regal, Wapsipinicon, Matt’s Wild Cherry, Legend, Pruden’s Purple, and Sun Sugar.

*Symptoms of tomato late blight on foliage and fruit.*  
A. Brown, water-soaked lesion on surface of leaf.  
B. Brown lesion with white pathogen sporulation on leaf underside.  
C. Brown and sporulating lesion on stem.  
D. Entire row of plum tomatoes with dead foliage.  
E. Brown, firm, lesions on ‘Roma’ tomato fruit.  
F. Sporulating lesion on shoulders of a ripening fruit.