

Vegetable Crop Update - #12

September 20, 2007

The vegetable crop update is archived on the Wisconsin Crop Manager website at: <http://ipcm.wisc.edu/wcm/>.

Crop Update – A.J. Bussan, Department of Horticulture, UW-Madison, Tel. 608-262-3519, Cell 608-225-6842, email ajbussan@wisc.edu

Frost over much of the state last Saturday morning has brought an end to much of the growing season. Vegetation on crops in all but the southern most counties is showing the gray to brown color symptomatic of frost damage. The frost was a bit earlier than the past few years and its delay by a week or two would have been welcome by many, but most crops have been harvested and so total damage was minimal.

Potato: Weather that past week or more has been decent for harvest with conditions today almost perfect. Cool air temperatures and overcast skies allow for maintenance of low tuber pulp temperatures during harvest. Cool nights provide cooling air for potatoes being placed into storage which should also allow for good management of air quality in the storage and prevention of CO₂ build-ups. In addition, the cool nights help to bring down soil temperatures which lower tuber pulp temperatures during harvest.

Remember that tuber pulp temperatures should be between 45 and 65 F when harvesting especially if the crop is going into storage. Given the current conditions, harvesting potatoes at 65 F and higher can lead to storage issues. Current conditions does allow for cooling of newly harvested potatoes rather quickly due to the low night time air temperatures.

Potatoes harvested above 65 F will respire more rapidly and require larger amounts of outside air to cool the pile. Maintaining storage humidity when bringing in large volumes of outside air can be difficult when harvesting potatoes at optimal pulp temperatures. When potatoes are harvested and put into storage at warmer than desired pulp temperatures maintaining humidity can be nearly impossible. Water losses from the tuber become unacceptable when tubers are harvested to warm due to high respiration, direct evaporation from tubers, and lower than desired storage humidity. The increased water loss from tuber harvested warm during the first several days in storage will lead to increased pressure flattening and pressure bruise.

The rains in Central and Northern Wisconsin on Monday may have delayed or interrupted harvest, but were valuable from the standpoint of managing soil moisture. Even after potatoes are vine killed, the roots and stems still continue to draw water from the soil and release it into the atmosphere. On sand soils in Central Wisconsin, soil moisture dropped from field capacity to below the AD level without any precipitation or irrigation in four days during sunny weather.

The drying of the soils depletes the tuber moisture content which increases the susceptibility of tubers to impact bruises as well as pressure bruising in storage. Fields in Central Wisconsin should be lightly irrigated during sunny and windy conditions in the absence of rain. Hill moisture content can be monitored using the feel method or through electronic monitoring devices. Volumetric water content should be maintained above 10 to 11 percent for Plainfield loamy sands. The minimum volumetric water content will be slightly higher for heavier soils. Water matric potential should be maintained above -36 kPa.

Soils in Northern Wisconsin were very dry when we harvested last Tuesday at Antigo. I know excessive soil moisture can make harvest impossible on heavier soils so decisions to irrigate to maintain hill moisture must be weighed carefully with time of year, forecast, harvest schedule, and numerous other factors. The lack of rain during late August and early September led to dry soil conditions. Soil moisture

content at the research farm by the airport was less than 40% of the AD level which will increase the potential for impact and pressure bruise on potato if harvested and stored.

Final reminder is to harvest potatoes above 45 F. Current conditions are leading to tuber pulp temperatures of 50 F or higher, but a lot of crop remains to be harvested. Low pulp temperatures increase bruising as well, especially potato varieties susceptible to shatter and impact bruise.

Vegetable Disease Update - W. R. Stevenson, Department of Plant Pathology, UW-Madison, Tel. No. 608-262-6291, Email: wrs@plantpath.wisc.edu

Potato: It appears that we have completed our fifth consecutive season without the appearance of late blight. This is no small feat since many states have observed late blight over this five year span. So hat's off to the Wisconsin growers who both grew and purchased seed that was free of late blight, practiced a solid IPM program aimed at disease management, destroyed all cull piles before the growing season, calibrated their sprayers, routinely monitored crop and weather conditions throughout the season and carefully harvested and stored their crops. By my calculations, you saved yourselves another \$12 million dollars. Multiplied by 5 for the five years without late blight, that's \$60 million that you are using for better storages, new equipment and taking your wife out for dinner.

Early blight seemed to respond to fungicide sprays for the bulk of the season. We saw several treatments in our Hancock trial that provided control throughout the growing season. We'll be summarizing the data over the next few weeks and will be reporting on this at upcoming meetings.

Snap Beans: Lot's to write about this week since I've been out of the state for the past four weeks. In late July, there appeared to be massive migrations of winged soybean aphids. Beginning about August 10, symptoms of virus infection began to appear on snap bean plantings and other susceptible crops. Symptoms were widespread, probably distributed over a broader range than we've seen in the past 5 years. Limited testing has shown that the primary virus is cucumber mosaic virus (CMV), similar to previous years. CMV appears to have also caused serious damage on peppers and pumpkins.

Over the past few weeks, there were several snap bean fields in the Midwest with symptoms of halo blight. Symptoms include tiny water soaked angular spots surrounded with large and distinct yellow haloes. In advanced cases, the upper foliage of affected plants is a distinct yellow. In fields, spread is primarily through blowing rain, but the bacterium can move on contaminated equipment, workers' shoes, and even wildlife. The halo blight bacterium is a rarity these days due to careful seed production in arid western states. I have not seen halo blight in Wisconsin in close to 25 years. The finding of halo blight brings out some important points. First, we have gone through one or more generations of field personnel in most companies and most have never seen halo blight. Few know what to do regarding management. Second, when fields are planted, there must be accurate records on the seedlot planted, identifying numbers, date of planting, etc. If halo blight shows up, without these records it is virtually impossible to trace the seed origin. Third, when fields exhibit symptoms and are harvested early to preserve pod quality or are bypassed due to a variety of issues, the field residue or standing plants need to be chopped and disked into the soil to accelerate residue decay. Finally, fields with halo blight symptoms should be avoided for planting snap, wax and lima beans for at least one and preferably 2-3 years. We'll cover more details on halo blight management at the winter meeting in Milwaukee.