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Weekly Vegetable Update

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North Country—Clinton, Essex, northern Warren and Washington counties

We narrowly escaped frost in the Champlain Valley earlier this week. Lake Placid and the higher elevations did have frost but down in the valley temperatures stayed just above freezing, around 34 degrees. The hot, steamy weather just a week ago produced a flush of ripening in cucumbers, tomatoes and other warm-loving crops but that has dramatically slowed down now with the cooler day and nighttime temperatures.

Late plantings of corn are slowly ripening after a very slow start this year, up until this current cool spell. Cool season crops are putting on a growth spurt with clear, sunny skies and fall temperatures. The days are getting dramatically shorter now and the intensity of the sun is diminishing as it sinks lower on the horizon.

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington counties

Many farms at elevation saw a frost this week. It wasn't very hard, and seemed to nip a lot of things but not kill them. These cold temperatures are not good for our storage squash, which are largely still in the field.

Most of the cucumber plantings in the area have gone down. Tomatoes are hit and miss, with growers who are still protecting plants from late blight having pretty good success. Pumpkins are coming on strong, and prices have been pretty solid.

Mohawk Valley Pumpkin Auction



Mid-Hudson Valley—Columbia, Dutchess, Greene, Orange, Sullivan and Ulster counties

Heavy onion harvest this week. Harvest is about 50% complete. Winter squash and pumpkin harvest has begun. Signs of Phytophthora have appeared in a few fields. Some pumpkins and other squash are late maturing due to planting dates. As the threat of frost looms, tan-colored squashes (butternut/milk) are most susceptible to damage.

Are My Winter Squash Mature?

It can be a tricky thing deciding if your winter squash are ready to be pulled from the field. Many times the vines go down naturally and we assume the fruit is mature. However, it's important to note that dead vines do not necessarily indicate fruit maturity. Hubbard, acorn and butternut type squash have a very hard rind when they are mature that is difficult to penetrate with your thumbnail. Also, the skins turn dull as they mature. This year there are more than a few growers who say the vines are down (dead) but are not sure that the fruit are mature. A couple of things happened earlier this season that may have caused this situation. There were quite a few plantings that went in late this spring because of cool, wet field conditions; on top of that, later in the season, fruit set was delayed in many plantings because of excessive heat and rain. In some plantings, this situation was exacerbated by poor disease control which hastened the senescence of foliage.

At this point, the vines are totally down in some fields but fruit are not fully mature, and the question is what to do next. Typically immature winter squash do not store well and flavors may not be optimal. If the vines are dead then the best thing to do is to harvest the squash if it is reasonably mature, i.e. it has reasonably good flavor for your clientele. Leaving it in the field without living vines/leaves will not help them mature. Without leaves the fruit may suffer from sunscald. Fruit may become infected by soil dwelling pathogens like *Phytophthora capsici*, especially during rain events. Also squash bugs may feed on fruit and cause damage as well as entry routes for disease. Finally, keep an eye out for cold temps; a hard frost will compromise the quality of squash and all temperatures below 50 F cause some damage. Be aware that immature fruit will likely not store well so plan on moving your least mature squash to market sooner than later.

More on harvesting winter squash.....

The following piece on "When should squash be harvested?" is excerpted from an article written by Brent Loy from the University of New Hampshire, the 2011 NYS Veg and Fruit Expo proceedings. The entire article "Maximizing Yield and Eating Quality in Winter Squash – A Grower's Paradox" can

be found at <http://www.hort.cornell.edu/expo/proceedings/2011/Vine%20Crops/Maximizing%20Yield%20and%20Eating%20Quality%20in%20Winter%20Squash%2011.pdf>

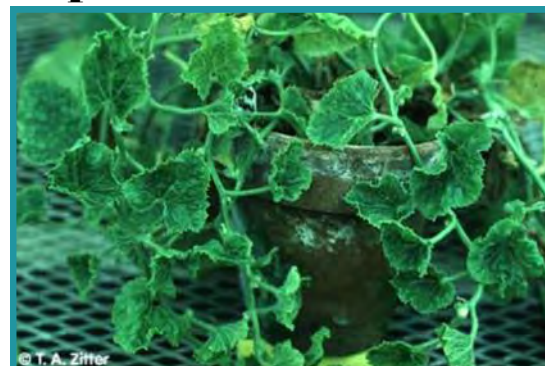
When should squash be harvested? Most of the popular edible varieties of squash have relatively small fruit size, and near full size is attained by 20 days after fruit set. Accumulation of flesh dry matter and therefore starch content peaks between 30 to 35 days after pollination. However, squash maturity can be defined as completion of seed fill which occurs about 55 days after fruit set. Rind color is not a good indication of maturity. For example, acorn squash turn a dark green, mature-looking color within two weeks of fruit set, 40 to 50 days before they should be harvested! By the same token, butternut squash turn a fairly mature tan color by about 35 to 40 days after pollination, some two to three weeks before they should be harvested. If the fruit is harvested before the seed is fully developed, then assimilates for seed fill are remobilized from the flesh to the seeds during subsequent storage. Under conditions of poor plant health or premature harvest, movement of carbohydrates from the fleshy mesocarp tissue to seeds can reduce flesh quality substantially, especially in varieties with inherently low dry matter.

Keeping track of when fruit set occurs may not realistically fit into a grower's crop scheduling, so a reasonable rule of thumb for kabocha and acorn squash is to begin harvesting squash when the ground color of the fruit (part of the fruit that lays on the soil) reaches a dark orange color. Butternut squash does not show orange ground color, so harvest should not begin until at least two weeks after squash turn tan color. Maturity dates listed in seed catalogs are often in error, especially for acorn squash, where maturity is often stated as being between 70 to 76 days when in reality the actual maturities are probably closer to 90 to 100 days. Studies in New Zealand suggest that buttercup squash harvested at 40 days after fruit set may have a harder rind and be more resistant to storage diseases than squash harvested later. However, the sugar content is low in immature kabocha squash, so I recommend harvesting prior to 55 days only when vines have begun to go down, so as to minimize sunburn damage and fruit discoloration. -TR

Banner Year for Virus in Pumpkins

If your pumpkins or squash have been hit by virus this year, you are not alone. 2013 is turning out to be a banner year for virus diseases in cucurbits. As I was searching for more information for my growers I came across an article written by Dr. Tom Zitter, Professor of Vegetable Pathology at Cornell, entitled ***Cucurbit Virus Control Strategies for 2008***. It turns out 2007 was a terrible year for virus in cucurbits too, and growers were asking what they could to avoid another massive outbreak next year. In Clinton County the most common viruses I've seen in squash this summer are CMV (cucumber mosaic virus) and WMV (watermelon mosaic virus).

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Cucumber mosaic virus on melon.

Banner Year for Virus in Pumpkins, continued from p. 2

I have excerpted some pertinent points from Dr. Zitter's article below.

To read the entire article, visit this link: <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/CucurbitVirusControl08.pdf>

- Most virus diseases in cucurbits are not seed borne, so each year you are starting with a 'clean slate'. Many viruses do overwinter in weeds around the fields though, and those weeds act as a virus reservoir.
- Cucurbit varieties vary in their susceptibility. Of the 5 main viruses affecting cucurbits, 3 are more common in the Northeast: Watermelon mosaic virus = **WMV**, Papaya ringspot virus = **PRSV** and Cucumber mosaic virus = **CMV**
- By far the most susceptible cucurbits grown and severely infected by viruses are all summer squash (yellow, zucchini and scallop types), pumpkins (all types) and winter squash (acorn, delicata, and spaghetti types).
- The earlier that plants are infected, the greater the impact the virus will have on plant growth, the amount of symptoms produced on the fruit, and whether any fruit are even set. Thus, delaying the infection period by even a few weeks can have dramatic effects.
- (In 2013, many pumpkins were planted much later than usual due to the heavy rains, so the plants were quite small when they were first exposed and therefore more vulnerable. -ADI)
- 4 of the 5 viruses are spread by the winged form of aphids, moving from the weed virus reservoirs to crop plants.
- Spraying for aphids will not stop the spread of virus. Aphids can infect a plant in a matter of seconds, meaning that insecticides do not act quickly enough to prevent infection or control spread.
- The most common sources for either or both CMV and WMV are the following: Shepherds purse, Virginia pepper weed, field bindweed, dandelion, purple deadnettle, Canadian goldenrod. (see <http://vegetablemdonline.ppath.cornell.edu/Tables/WeedHostTable.html> for a more complete list).
- There are many resistant varieties. The full article contains an extensive list as of 2008. Also check the current Guidelines for Vegetable Production and your seed suppliers for more.

First two images from http://vegetablemdonline.ppath.cornell.edu/factsheets/Viruses_Cucurbits.htm



Watermelon Mosaic Potyvirus (formerly WMV-2).



This photo was taken on 8/27/13 in Clinton County; the vines should have been 10 feet long by this time. This field was planted late and the entire planting was almost immediately infested with both CMV and WMV, severely stunting growth and preventing flower or fruit set. Photo: ADI

Reducing Potato Bruising at Harvest

By Ken Schroeder, University of Wisconsin Extension

Mechanical damage and bruises caused by rough handling during harvest, trucking and piling into storage increase storage rots and reduce quality. The main factors influencing the amount and severity of bruise are: soil conditions; tuber conditions; equipment maintenance, adjustment, operation, and modifications; and, magnitude of impact. The percentage of bruise-free potatoes will be greatest under near ideal temperature and soil moisture, and when the volume of material flowing through the harvester is near its capacity. Soil needs to be moist, not too dry and not too wet. Tubers need to be mature with good skin set, and they need to be hydrated. Pulp temperatures should be between 45 and 60 degrees F, with a minimum temperature of 50 degrees for high dry matter varieties prone to shatter bruise.

What about the harvester?

The most important factor influencing bruising is the ratio of *ground speed to conveyor speed*. Conveyors need to be kept full of potatoes, or potatoes and other material (soil and vines). Proper *digger blade* angle and depth are important to ensure smooth flow of tubers and soil onto the primary conveyor and to avoid slicing. Additionally, check individual *conveyor speeds* relative to preceding and following conveyors and adjust to maintain adequate loads without overloading and causing rollback.

Deviner chains need to be properly adjusted to prevent tubers from bouncing and tumbling upon entering the secondary conveyor. Bruising frequently occurs on harvesters and windrowers when tubers strike the links of

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Reducing Potato Bruising at Harvest, continued from p. 3

the deviner chain. Check *rear crossover chain covering* to be sure it is adequate and in good condition to reduce bruising. Due to the length and slope of the *side elevator*, tuber rollback and injury often occur. Flight intervals should be adjusted to minimize rollback. Use of hugger belts can also reduce tuber roll. Also check for tuber pinching along the edges. Reducing rollback on the *boom conveyor* can be accomplished by using hugger belts or installing flights with stiff ends every 12 to 16 inches.

Shatter bruises are thin cracks or splits in the tuber flesh. This is more common on larger tubers. Susceptibility increases at soil temperatures below 45°F and at high soil moisture that increases the water content of the tuber. Images: www.omafra.gov.on.ca



Blackspot bruises occur under warm, dry soil conditions. High tuber temperatures and low soil moisture decrease the water content of the tuber. Rough handling ruptures cells below the skin of the tuber without breaking the skin. These bruises are not visible immediately, but the damaged tissue will turn dark grey or black in a couple of days. Blackspot bruises can be seen only after the potato is peeled.

Fall Weed Control: Focus on Perennials and Biennials

Fall is a great time to address perennial and biennial weeds in vegetable fields.

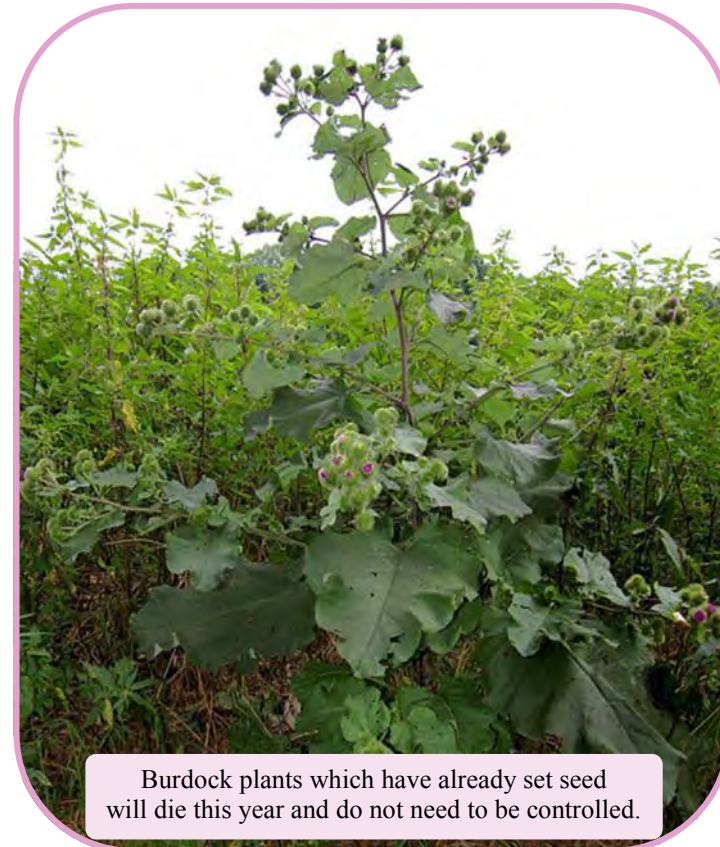
Organic Weed Control using Mowing and Cultivation:

The goal right now is to weaken perennial weeds as much as possible heading into winter so that they either die from lack of reserves or are so weak in the spring that they can be relatively easily controlled through normal spring cultivation. Perennial weeds such as Canada thistle or hemp dogbane could be mowed to stop movement of reserves into the roots, then cultivated to bring as much of the overwintering structures as possible to the soil surface. Hopefully the incorporation of cover crops and normal bed prep will be enough to eliminate these weeds in the spring.

Biennial weeds such as burdock do not need mowing at this point in the season. The overwintering rosettes are low-growing during the first year, and the seed heads are sadly already past the point of control for this season. Hot spots of biennials can be cultivated in the fall to weaken or kill them and then addressed again in the spring as needed. Any plants that make it through these cultivations can be controlled by mowing during the growing season when they flower. If the flower stalk is removed, the plant can do nothing but grow for the rest of the season and then die.

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WEEKLY VEGETABLE UPDATE



Burdock plants which have already set seed will die this year and do not need to be controlled.

Fall Weed Control, continued from p. 4

Conventional Weed Control using Herbicide: Herbicide applications should take place when the plant has begun actively sending nutrients to the root system, but still has healthy top growth to absorb the chemicals. Perfect timing is after a light frost, on a nice warm day. Plants should be left undisturbed for at least a week so that the herbicide has time to move through the plant. Spraying and then cultivating or mowing is not effective.



You will not always see the results of a fall herbicide application right away. Plants may look like they are going through normal fall senescence. However, you should see good control from a well-timed application come spring. -CLS

In the fall burdock rosettes are low to the ground and inconspicuous. Cultivate to uproot and damage the root system.

Identifying Root Diseases of Carrots

By Susan B. Scheufele, UMass Extension; edited by CLS.

Carrot acreage is on the rise in New England, as more growers target expanding, year-round markets. Carrots can be affected by many bacteria, fungi and nematodes in the field and in storage. Root diseases are caused by soil dwelling organisms and therefore their incidence may vary considerably from farm to farm. Proper disease identification will help you to prevent future outbreaks by adjusting crop rotations accordingly, and prevent moving infested soil from field to field. If you are noticing foliar or root symptoms like those described, send a sample to your state diagnostic lab to confirm, and take steps to protect current and future crops.

Root Knot Nematode (*Meloidagyne hapla*) forms galls or root thickenings of various sizes and shapes.



Growth of infected carrots is patchy and uneven and severely infected carrots exhibit forking, galls, hairiness, and stubby roots. When soil populations of *M. hapla* are high symptoms include stunted plants, uneven stands, premature leaf death, and branches and swellings on both lateral and tap roots. *M. hapla* persists in the soil and has a very wide host range so rotation is difficult but monocots are non-hosts so small grains and corn as well as resistant varieties of tomato and bean can be grown in rotations to reduce population size.

Black Root Rot (*Thielaviopsis basicola*) occurs primarily in storage when conditions are not ideal and temperature and humidity are too high. The fungus causes superficial, irregular black lesions which occur in a random pattern.



The discoloration, caused by masses of dark brown to black chlamydo-spores, is limited to the epidermis. The pathogen rapidly invades wounded tissue and is favored by long post-harvest periods without cooling so careful harvest and immediate cooling and storage can minimize disease impact.

White Mold (*Sclerotinia sclerotiorum*) affects many vegetable crops but carrots are particularly susceptible, especially late in the season and during storage. The fungus may be present



in soil, storage areas or containers. Symptoms include characteristic white mycelial growth and hard, black sclerotia (overwintering structures), which can be seen on the crown of infected carrots. Grasses and onions are non-hosts that can be used in long rotations and a biocontrol organism (“Contans”) has been shown to be effective in parasitizing overwintering sclerotia. Contans should be incorporated into infested soils 3-4 months before planting or in the fall if a susceptible crop must be planted there next spring.

Cavity Spot and Root Dieback (*Pythium* spp.).

Infections from *Pythium* spp. can occur during early root development and are favored by moist soil conditions. Root dieback symptoms appear as rusty-brown lateral root formation, or



Image: S. Livingston

forking and stunting; symptoms that can be easily confused with damage from nematodes, soil compaction or soil drainage problems. Cavity spot often shows up later in the season near harvest. Horizontal, sunken lesions varying in size from 1 to 10 mm appear on the surface of the root and can provide an ingress for secondary fungal or bacterial infections.

Meetings and Notices

Sept. 23 4:30-6pm: Vegetable Grower Twilight: Integrated Phytophthora Blight Management

Saunderskill Farm, Airport Rd. at Canyon Lake Rd., Accord, NY 12404

Featured speaker: *Dr. Margaret Tuttle McGrath, Cornell Dept. Plant Pathology & Plant Microbe Biology, NYSAES-Riverhead*

Topics: Sanitation and cultural practices for reducing spread and managing Phytophthora, including reduced tillage and cover crops, crop rotation, promoting drainage and biofumigation with brassica cover crops; current fungicide programs for Phytophthora, managing resistance; example of reduced-tillage pumpkin field; grower experiences with managing Phytophthora blight. **1.5 DEC credits in categories 1a, 10 & 23 available**



Pumpkins in zone-tilled alfalfa stubble. Photo: Justin O’Dea, CCE Ulster

Registration: \$15 per farm, if registered by 9/19, \$20 afterwards. Contact Carrie Anne at 845-340-3990 x311. To register print and mail the form by 9/19 (see link below) or call to RSVP as a walk-in after 9/19: <http://www.cceulster.org/2013%20AG%20Sept%2023%20Registration%20Form%20Veg%20Twilight%20Saunderskill%20Farm.pdf>

Grower Classifieds

Oat straw for sale: Washington County. Small square bales. Contact Albert Sheldon for more info. at 518-796-6564.

Certified organic oats for sale, feed or seed: \$220/ 1000 lb. tote bag. Pick-up, delivery available, add trucking. Contact Chris Cashen, 518-929-5782

| Weekly and Seasonal Weather Information | | | | | | |
|--|--|--|-------------------------------|--|---|--|
| | Growing Degree Information Base 50° F | | | Rainfall Accumulations | | |
| Site | 2013 Weekly Total 9/10—9/17 | 2013 Season Total 3/1 - 9/17 | 2012 Total 3/1—9/17 | 2013 Weekly Rainfall 9/10—9/17 (inches) | 2013 Season Rainfall 3/1—9/17 (inches) | 2012 Total Rainfall 3/1—9/17 (inches) |
| Albany | 107.2 | 2406.6 | 2852.2 | 3.96 | 25.98 | 20.69 |
| Castleton | 102.1 | 2306.7 | 2965.8 | 1.46 | 24.38 | 20.00 |
| Chazy | 83.0 | 2164.7 | 2873.0 | 2.08 | 23.38 | 17.73 |
| Clifton Park | 97.3 | 2382.4 | 2786.3 | 2.70 | 27.42 | 23.30 |
| Clintondale | 119.0 | 2696.1 | 2231.5 | NA | NA | NA |
| Glens Falls | 84.0 | 2075.3 | 2484.1 | 0.74 | 20.22 | 16.30 |
| Granville | NA | NA | 2626.0 | NA | NA | 22.33 |
| Guilderland | 103.5 | 2186.3 | 2623.0 | 0.26 | 7.23 | 7.53 |
| Highland | 117.0 | 2669.3 | 2914.2 | 0.39 | 22.37 | 24.72 |
| Lake Placid | 54.2 | 1394.4 | NA | 1.56 | 24.17 | NA |
| Montgomery | 115.5 | 2793.4 | 2636.0 | 0.17 | 24.00 | NA |
| Monticello | 84.6 | 1917.0 | 2451.0 | 0.00 | 0.28 | 1.86 |

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