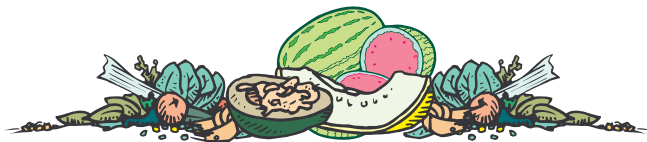


# VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the  
Purdue University Cooperative Extension Service

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**PUMPKIN PHYTOPHTHORA UPDATE -** (Dan Egel) - This disease was discussed in a recent *Vegetable Crops Hotline* (Issue 365). Possible fungicides for use against Phytophthora fruit rot on pumpkin include Aliete, Ridomil Bravo Gold and EBDC related compounds (e.g. Dithane, Penncozeb). Strains of the Phytophthora fungus have been found in other states that are resistant to some systemic fungicides. If you have Phytophthora fruit rot, please let me know. I would like to have a sample of the fruit to test the fungus for possible resistance to fungicides.

The first symptom of Phytophthora fruit rot is often a water-soaked spot or depression in the fruit. The portion of the fruit in contact with the ground is often the first to be affected. Later, fruit may have a cottony white mold. This mold is mostly spore bearing structures. Vines may wilt as a result of infections along the stem. Please see *Vegetable Crops Hotline* Issue 365 for details on management options.



**VIRUS DISEASES IN PUMPKINS -** (Dan Egel and Jerry Brust) - We have observed many pumpkin fields with virus symptoms. Although there is not much that can be done about the problem now, it might be worthwhile to review this annual problem.

The first question that usually comes to mind is, how much yield will be lost as a result of pumpkin viruses? The answer depends on when the pumpkins were infected. Virus symptoms that occurred before or at early flowering can cause poor fruit set and/or mottled, disfigured fruit. Although these small fruit are interesting, they can be difficult to market.

Infections that occur after fruit set is well along may have little affect other than to cause disfigured leaves. Regardless of planting date, virus diseases will likely show up in

all pumpkin patches. Since virus infection usually only causes problems in late-planted pumpkins, planting early can be one solution to virus diseases. In southern Indiana, growers have avoided virus damage by planting seed by June 20. Growers in other parts of the state

should vary their planting dates accordingly. Another option is to use reflective mulch that appears to confuse aphids in the critical early season.

The reason that virus diseases don't usually appear on pumpkins until later in the season is that the aphids that carry the disease travel to Indiana from southern states where virus diseases exist year round. **Although aphids can transmit virus diseases, applying insecticides has not been effective.** Aphids can transmit viruses within a matter of seconds. Therefore, the aphid is relatively unaffected by the insecticide. The best option to avoid virus diseases on late season cucurbits, such as pumpkins, is to plant as early as possible.



**PUMPKIN INSECTS -** (Jerry Brust) - When walking through pumpkin fields now, it is easy to spot squash bugs scurrying to get out of the way. This is the time of year when squash bugs can be in fairly large numbers and growers wonder if they should spray. Seldom is it necessary to spray for them this late in the season. While squash bugs will feed by sucking sap from the plant, their greatest threat to yields was around fruit set. About the only damage they can cause now is if they concentrate their feeding on the pumpkin itself. If you have very little vine left, then the bugs (along with spotted cucumber beetles) will concentrate their feeding on the fruit and they can cause severe damage to the pumpkin. Pumpkins that have been heavily fed upon by squash bugs look like all the air has been let out and it collapses. So try to keep your vines up as best you can as this will also help fill out the pumpkin. If you do have heavy bug or beetle feeding on pumpkins and your vines are about gone, it prob-

ably would be best to harvest and store them, rather than try to spray (see article about pumpkin storage).

Squash vineborer moth catches are slowly declining, but we are still picking some up on a weekly basis (2-5/week/trap) in southern Indiana. Some traps have had no catches for 2-3 weeks. It should not be necessary to apply anymore sprays for the squash vineborer even further north. It seems, with a few exceptions, the time for control is when they are first flying in late May/early June and for the next 3-4 weeks. Spray coverage is vital and next to timing is very important in control. Nearly 80% of all squash vineborer eggs are laid within 1 foot of the base of the main stem. Sprays must be directed at this location or control will be disappointing. Once hatched, larvae take 24-48 hours before they are in the vine. Once in the vine, there are no controls that will work.



**SWEET CORN INSECTS -** (Rick Foster)

- Now is the time of year when sweet corn growers get to test their skill at managing insect pests. Late sweet corn is subject to attack by European corn borers, corn earworms and fall armyworms. From what I have seen so far, it appears that corn earworm may be the major problem this season. I have seen low to moderate infestations of corn borers and fall armyworms, but, at least from my pheromone trap, it appears that we may be in store for a heavy season of damage by corn earworms. I am currently catching upwards of 100 corn earworm moths per night. With catches of this magnitude and temperatures in the upper 80's or lower 90's, if I had sweet corn with green silks, I would probably be spraying every two days until the silks turned brown. When pressure is this high, I recommend using the best insecticide available, which in my opinion is Warrior. You may also want to consider adding some PennCap M to a spray to provide control of the moths. Population densities may vary considerably from area to area. If you have your own pheromone trap, you may catch far fewer moths and be able to save a spray or two.



Several growers have complained that pumpkins are maturing early this year. This article, reprinted from 1997, describes how to store pumpkins if necessary. Pumpkins should probably be left in the field as long as the vines are green. Pumpkin fruit from vines with severe disease may not survive long in the field. - (Editor)

#### POSTHARVEST CARE OF PUMPKIN AND WINTER SQUASH -

Pumpkins and winter squashes are stored quite a bit differently than most of our other Indiana vegetable crops since we want them to dry. Store these vegetables at 50 - 55F and at 50 - 70% relative humidity, if possible. It is not necessary to spend the extra money on cooling with these vegetables since they are chilling-sensitive and they will last longest if dried down partially.

Place them on racks, pallets or in bulk bins or baskets. Ventilation is very important in order to dry down partially and to avoid storage diseases. Leave some space between the storage containers to allow for more air flow.

Hard-shelled squashes will last longer than pumpkins. Pumpkins will usually only last a few weeks at 70° F and may last as much as 2 months if stored at 50 - 55° F. Winter squashes should be well-matured, carefully handled and free from damage or decay when stored. If these vegetables are kept at higher than 50 - 70% relative humidity, decay will be promoted; lower humidities will result in excess weight loss and texture deterioration.

Acorn-type squashes, if kept at 50F, should last for 5 - 8 weeks. Otherwise, if stored at 60 - 70F, the squashes may lose greenness, become yellow, and acquire tough flesh. Alternaria rot may develop on these squashes if kept at lower temperatures than recommended due to chilling injury. The popular Butternut-type squash should keep at least 2 - 3 months at 50F. Weight loss should be kept below 15% to minimize development of hollow neck. Therefore, a relative humidity of 50% is recommended.

A 10- to 20-day curing period at 85 to 90F before storage is sometimes recommended for pumpkins and winter squashes. However, experiments in New York showed that this curing to heal mechanical injuries and to ripen immature specimens is not necessary. There was no advantage to curing several types of squashes (including Butternut types), and curing was detrimental to the quality of Acorn types, causing skin color problems, flesh texture disorders and poor taste. Cured Acorn types also decayed more rapidly than non-cured fruit.

None of these squashes or pumpkins should be stored near apples, as the ethylene gas given off by the fruit may cause skin color problems. Black rot, dry rot, and bacterial soft rot are the principal causes of spoilage of pumpkins or winter squashes in storage.



**BLACK ROT OF CRUCIFERS** - (*Rick Latin & Dan Egel*) - Black rot is a bacterial disease that attacks all cultivated types of crucifers especially broccoli, cabbage, and cauliflower. Since this disease was observed in Indiana this year, a review of the disease and control tips may be useful for fall crops and next year. Plants can be affected at any stage of growth, although the most severe losses occur when seedlings are infected in plant beds or greenhouses. Infections that occur in the field generally result in reduced yield and quality.

The initial symptom of black rot infection is the presence of small, yellow-brown v-shaped areas at the leaf margins. As lesions enlarge, the nearby veins turn black, and affected leaf tissues dry out and turn brown.

The black rot bacteria may survive with contaminated seed or with infested crop residue in Indiana fields. In the spring the bacteria are spread to healthy plants and fields by splashing water, mechanical spread, insects, and by handling infected plants. The disease is favored by warm, wet weather.

#### Black rot control:

- Use disease-free seed or transplants.
- Maintain clean, disinfected containers and planting tools.
- Rotate fields out of crucifers for three years - fall tillage of infected crops may be necessary in severely damaged fields.
- Use resistant varieties where possible. (Resistance to black rot is relative. Under the same conditions, resistant varieties will be much less affected by black rot than susceptible varieties).
- Copper bactericides may reduce spread if infection is detected early. Copper hydroxides (Kocide and Champion) and basic copper sulfates (including copper oxychloride sulfate (COCS)) are often used to protect against rapid spread of black rot.



#### **PINNEY-PURDUE AG CENTER FIELD DAY - August 31, 1999.**

The program includes presentations on agronomic crops in the morning followed by lunch at noon. A health screening is planned and commercial exhibits will be on display. After lunch, a tour of the tomato variety trial will be provided for those interested. The Ag Center is on the Porter-LaPorte County Line Road, just north of US 30, about 3 miles west of Wanatah. For more information, contact the Porter or LaPorte County Extension office at 219-464-3555 or 219-326-6808 ext. 271.



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