

VEGETABLE CROPS HOTLINE

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

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TOMATO BLOSSOM END ROT - (Chris Gunter) - Blossom end rot is a physiological disorder caused by a deficient supply of calcium to the developing fruit. It is a common problem on tomatoes, but can also occur on peppers, eggplants, and melons.

Blossom end rot appears first as a small darkened or water soaked area around the blossom end of the fruit (Figure 1). This spot darkens, enlarges and dries



Figure 1. Early blossom end rot on processing tomato fruit (Picture by Chris Gunter)

out as fruit matures (Figure 2). This area is an open wound on the fruit surface that may be invaded by secondary decay causing organisms. This disorder is caused by a combination of both cultural and climatic factors including nitrogen, calcium and soil moisture. Prevention is the best way to avoid losses from blossom end rot.



Figure 2. Advanced blossom end rot on processing tomato fruit (Picture by Chris Gunter)

Avoid excessive nitrogen, which promotes vegetative growth that will compete with the developing fruit for an adequate supply of calcium. Remember that the calcium necessary for plant growth moves to the roots in the soil water. It is transported from the roots to the leaves and fruit through the xylem. Any interruption of water supply to the roots, for example during hot dry weather, can cause a temporary calcium deficiency in the developing fruit. Low pH can also cause calcium to be less available, maintain pH between 6.0 and 6.8. Be aware that foliar applications of a calcium containing products, which are frequently advocated, may be of little value because calcium has poor absorption and remobilization to the fruit where it is needed. If a spray is applied, follow label directions carefully to maximize effectiveness.

PHYTOPHTHORA FRUIT ROT ON PUMPKIN - (Dan Egel) - This disease has been reported in northern Indiana. Phytophthora Fruit Rot has become increasingly important in the last several years. The first symptom of this disease 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 (Figure 1). This mold is mostly spore bearing structures. Vines may wilt as a result of infections along the stem.

Water is essential to the fungus that causes Phytophthora fruit rot. Water is required for spores to be released, for spore dispersal, and for new infections to take place. The spores that cause Phytophthora fruit rot are motile in water. That is, they can “swim” to find new infection spots. The fungus can survive for at least two years between hosts. Possible hosts besides pumpkin can include pepper, tomato, and eggplant.



Figure 1. *Phytophthora* fruit rot on young pumpkin fruit (Picture by Dan Egel)

Management options for this disease are limited. The most important option is water management. Avoid poorly drained fields, especially those with a history of the disease. The use of raised beds can help control this disease in some crops. Limit irrigation as much as possible. Fumigation has been effective in some cases. The use of preventative fungicide applications from the start of the season may also be useful. Possible fungicides include Aliette, Ridomil Bravo Gold and mancozeb compounds (e.g., Dithane, Penncozeb). No fungicide will provide adequate control without also using the cultural controls discussed above. Always read and follow the label carefully when applying any pesticide.

APHIDS IN MELONS AND TOMATOES - (Frankie Lam) -

A relatively high aphid number has been found in melon and tomato fields in southwest Indiana. Many aphid species, including the melon aphid (Figures 1 and 2), the green peach aphid, and the cowpea aphid, feed on cucurbits; however, the prominent aphids



Figure 1. Wingless melon aphid (Picture by Frankie Lam)



Figure 2. Winged melon aphid (Picture by Frankie Lam)

of tomatoes are the potato aphid (Figure 3) and the green peach aphid. Aphids can transmit viral pathogens by feeding on plants a single time; therefore, controlling aphids with insecticides is not an effective method for the control of viral diseases.

Aphids are small insects from 1/16 to 1/8 inch long depending on species. Individuals may be winged or wingless. Almost all aphids have a pair of cornicles (siphon-like structure) located at the end of the dorsal abdomen. Both nymphs and adults suck the plant sap from the underside of the leaves, weakening the plant and reducing the quantity and quality of the fruit. Melon leaves damaged by aphids have a distorted, cupped appearance (Figure 4). Plants with a heavy infestation have a mottled appearance or necrotic spots on leaves and stunting of the plants. The “honeydew” secreted from the anus of the aphids may cause the growth of a sooty, black mold. The honeydew and the growth of the mold may cause cosmetic injury to the fruits. If the plants are infected before fruit set, a severe reduction in yield may occur.



Figure 3. Potato aphid on potato (Picture by Frankie Lam)



Figure 4. Aphid damage on muskmelon (Picture by Chris Gunter)

When scouting for aphids, first check the underside of leaves on the plants located along the field border, because most infestations will start at the border. If aphids are found, then also check inside the field (Figure 5). On each colony of aphids also check for natural



Figure 5. Melon aphid on the underside of a muskmelon leaf (Picture by Frankie Lam)

enemies, including predators and parasitized aphids. The predators of aphids are the larvae and adults of lady beetles and lacewing larvae (Figures 6 and 7). The parasitized aphids, also known as mummy aphids, appear tan and are 2-3 times larger than the normal aphids (Figure 8). If a couple of natural enemies are found, mark the infested areas with flags and return to inspect it in 5 days. If the aphid population is not increasing, no treatment is necessary. If the infested area is expanding, then spot spray the infested areas and 100 feet beyond the edges of infestation. Thiodan, Endosulfan, Phaser, Dimethoate, and Fulfill, are recommended for aphid control in melons and tomatoes. Please read and follow the label carefully before applying insecticides.



Figure 6. Adult lady beetle feeding on potato aphids (Picture by Frankie Lam)



Figure 7. Larvae of the lady beetle feeding on potato aphids (Picture by Frankie Lam)



Figure 8. Parasitized aphid on a tomato leaf (Picture by Frankie Lam)

UPCOMING EVENTS

Aug. 14, 5 to 7 pm and Aug. 19, 3 to 4 pm - Tours of Sweet Corn and Grape Tomato Variety Plots at Pinney - Purdue Ag. Center. Sugar enhanced and similar varieties of sweet corn will be at peak harvest the week of Aug. 14; shrunken-2 and similar varieties will be at peak harvest the week of Aug. 19, but both plots will be available to view both days. Pinney-Purdue is located on County Line Rd. between LaPorte and Porter Counties, 1/2 mile north of US 30, about 3 miles west of the intersection of US 30 and US 421. A list of varieties included in the trials is available on-line at www.hort.purdue.edu/hort/ext/veg/trials.html.

Aug. 19, 5 to 7:30 pm - Muskmelon Variety Plot Tour at Garwood Orchards, 5911 W. 50 South, LaPorte. We will start with a tour of muskmelon plots (8 varieties/numbered lines) and other fields at the farm. At 6:30 pm a picnic dinner will be served, sponsored by Syngenta/Rogers Seeds and Garwood Orchards. Purdue Vegetable Specialists Chris Gunter and Liz Maynard, Vegetable Pathologist Dan Egel, and Vegetable Entomologist Rick Foster will be present to provide updates in their areas of expertise. Harvested sweet corn and grape tomato varieties from the plots at the Pinney-Purdue Ag. Center will be on display. See notice above for URL with list of varieties. Directions to Garwood

Orchards: From SR 2 west of LaPorte, turn north on CR 500 W. Cross railroad tracks. Turn west (left) onto CR 50 S. Go through one intersection and turn into parking lot of Garwood Farm Market on the right. Note: if you take US 421 north from US 30 to get to SR 2, there is a detour around the intersection of US 421 and US 6. From US 421 north of US 30, turn east onto CR 800 S. and then north onto CR 900 W. Take 900 W. to SR 2. Turn east (right) on 2 and then follow directions above. A map is available on-line at www.hort.purdue.edu/fruitveg/; click on 'Events'.

For more information about either of these events, call (219) 785-5673, or e-mail emaynard@purdue.edu

Pumpkin Variety Trial Tour - Tuesday, September 16, 2003, 5:00 p.m. - New Haven, IN.



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