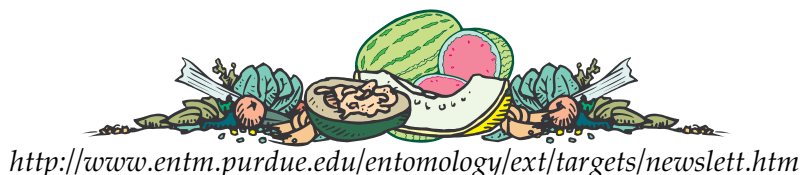


VEGETABLE CROPS HOTLINE

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

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VIRUS PROBLEMS ON SQUASH - (*Dan Egel*) - Yellow squash fruit have been observed with abnormal coloring and shape. The surface of the fruit I observed was blistered and raised while part of the fruit retained a green color.

The cause of these fruit symptoms is watermelon mosaic virus. Aphids transmit this disease. However, it is very difficult if not impossible to stop virus transmission by killing the aphids. Aphids transmit watermelon mosaic after very brief feeding periods. Thus, even if the aphid comes into contact with an insecticide and dies, the virus may still be transmitted.

There is hope of controlling this disease in squash with resistant or partially resistant varieties. The resistance bred into yellow squash may be genetically modified or of traditional breeding. In addition, aphid transmission may be slowed if growers are willing to apply a fine stylet oil very frequently to the vines.



BACTERIAL SPECK - (*Dan Egel*) - This disease is usually of minor importance compared to several other tomato diseases. However, bacterial speck has been observed this year, perhaps due to the cool weather we experienced earlier.

The symptoms of bacterial speck are similar to bacterial spot. Lesions on leaflets are round and dark brown to black. A yellow halo may be present on older lesions. On the fruit, small lesions or specks may develop that are rarely larger than 1/16 of an inch in diameter. This lesion size on fruit is much smaller than the lesions observed on fruit affected with bacterial spot.

This disease may be seedborne. The bacterium also may be able to survive in crop residue or on weed hosts. Temperatures of 64 to 75 degrees F and high humidity are necessary for the development of bacterial speck. Note that these temperatures are much lower than that necessary for bacterial spot.

Bacterial speck may be best managed by avoiding the disease. Production of disease free transplants is

key. Maintain strict greenhouse sanitation and find a seed source you feel comfortable with. Avoid planting tomatoes two years in a row in the same field. The Midwest Production Guide for Commercial Growers 2001 <<http://www.entm.purdue.edu/entomology/ext/targets/ID/index.htm>> contains these recommendations as well as several bactericide treatments. Greenhouse tomatoes or transplants may be treated with Agrimycin 17 or fixed copper. In the field, several fixed copper formulations may be used as well as Actigard. All of these formulations work better if applied prior to the presence of the disease.



WEB CORNER - (*Chris Gunter*) - With all the information on the Internet these days, it's almost impossible to separate the useful from the useless. In this feature, we'll be poking around in the corners of the World Wide Web uncovering and reviewing web sites that may be of interest to you. Let us know if you have a site that you find useful and we'll feature it in the Web Corner.

<<http://aggie-horticulture.tamu.edu/cucurbit/intro.html>> Here's a really useful link for identifying common problems in developing cucurbits put together by Texas A & M University. There are sections on leaf, stem, root, and fruit disorders. These sections are preceded by a set of pictures in which you can match

the symptoms you see on your plants, it gives you details about what might be causing those symptoms. It can be a good starting point to find out what may be going on in your cucurbits.



NEW INSECTICIDE FOR USE ON POTATOES - (*Frankie Lam*) - The Environmental Protection Agency has granted registration to Leverage 2.7 suspension emulsion for use on potatoes. Originally the insecticide had been registered for use on cotton only. The active ingredient of the insecticide is a combination of imidacloprid and cyfluthrin. Imidacloprid is the same active ingredient in Admire and Provado, whereas cyfluthrin is the same active ingredient in Baythroid.

According to the label, Leverage can be applied by air, ground, or through chemigation. The insecticide is labeled for the control of cabbage looper, Colorado potato beetle, cutworm, European corn borer, flea beetle, potato leafhopper, potato tuberworm, tarnished plant bug, aphid, and potato psyllid. For ground sprayer application, the recommended dosage for aphid and potato psyllid is 3.75 fl oz/A, while for other insects on the label the recommended dosage is 3.0 to 3.75 fl oz/A. Additionally, for aphids, two applications at a 7-day interval are recommended to achieve control.

The chemicals of the insecticide have a contact and stomach action. They affect the functions of the central nervous system of insects. The restricted entry interval of the insecticide is 12 hours, whereas the pre-harvest interval on potatoes is seven days. However, Leverage is highly toxic to bees, aquatic invertebrates, and fish. The insecticide should not be applied or allowed to drift onto blooming plants if bees are foraging in the treated area. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Be certain to read the label carefully before using any pesticide.



BLOSSOM END ROT ON TOMATOES - (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. This spot darkens, enlarges and dries out as fruit matures. 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.

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, therefore maintain pH between 6.0 and 6.8. Be aware that foliar applications of 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.



YELLOW LEAVES – (Dan Egel & Liz Maynard) – Earlier this week I was brought some muskmelon leaves that had yellow edges. When I visited the field, the affected leaves could be seen down the very middle of the row since only the older leaves had symptoms. Some yellowing of older leaves is normal with most vegetable plants this time of year. One exception to this rule is that tomato leaves with yellow edges may have bacterial canker. The condition of the new growth is usually more important than the old growth in determining the future of the crop.

The most common problem I observe could be called "salt burn", which is a noninfectious disorder that affects muskmelons more than watermelons. Early in the morning, water droplets from the plant accumulate at the edge of the leaf. If these water droplets have a high salt content, the leaves may turn yellow. Salt accumulation often is associated with foliar applications of nutrient solutions and/or pesticides. Soil-applied urea or ammonia nitrogen fertilizers may contribute as well. No yield loss has been recorded as a result of these symptoms and therefore no control measures are necessary.

Another cause of the yellowing could be insufficient nitrogen. Plants with insufficient nitrogen will have yellow older leaves but not necessarily on the leaf edge. When a plant does not take up enough nitrogen, it will relocate nitrogen from older leaves into new growth. Inadequate uptake of nitrogen could occur if the soil has been too wet. Roots can't effectively take up nutrients from saturated soils. In some cases there may not be enough nitrogen in the soil. If nitrogen applied prior to planting was primarily in the nitrate form (such as calcium nitrate or potassium nitrate), rains or over-irrigation may have moved it out of the root zone. Nitrate is very soluble and will move with water down the soil profile. A tissue test for nitrogen or a quick test of petiole sap nitrate concentration can aid in diagnosing nitrogen-deficiency. The solution to nitrogen-deficiency depends on the cause of the problem. If saturated soil has prevented uptake, the problem should correct itself when soil dries. If wet conditions persist, foliar nitrogen application is an option. For foliar applications, no more than 10 lb. nitrogen per acre is recommended at one time. If nitrogen has leached from the soil, additional applications through irrigation, side-dressing, or foliar sprays may be warranted.

Magnesium deficiency also leads to yellowing of older leaves, but usually the veins remain green. This deficiency is common in soils with low magnesium content. It can be corrected by a foliar application of 1-2 lb. magnesium per acre, equivalent to 10-20 lb. magnesium sulfate per acre.



POWDERY MILDEW ON PUMPKIN - (Dan Egel) - Although a few varieties have partial resistance to powdery mildew, most pumpkin varieties are susceptible. The strategy behind powdery mildew control on mid-western pumpkins is based on protecting vines from infection through mid-September. Fungicides are much more effective when applied before powdery mildew is observed. In the following list of fungicides labeled for use on pumpkins against powdery mildew, fungicides with similar modes of action should not be used back-to-back. Fungicides with similar modes of action are:

- Benlate (8 oz./ acre) and Topsin 85WDG (4 oz./ acre)
- Flint (1.5 to 2.0 oz./ acre) and Quadris 2.08 SC (11.0 to 15.4 fl. oz./ acre)
- Nova 40 W (2.5 to 5 oz./ acre).

Initial applications should be made when earliest pumpkins are still green and are 1/2 the estimated full size (mid-late July). Repeat applications at 2-week intervals through early September. Both Flint and Quadris recommend shorter application intervals. Please note that powdery mildew, unlike many diseases, does not need leaf wetness to infect. Please read the label carefully.

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