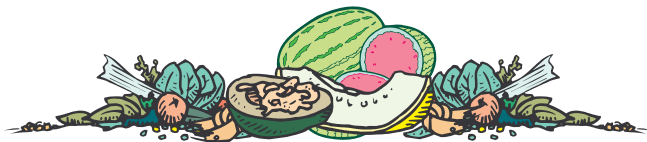


VEGETABLE CROPS HOTLINE

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

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LT. GOV. VISITS KNOX CO. - (Dan Egel)

- Lt. Gov. Joe Kernan visited several watermelon fields in Knox Co. on Friday 11 August to observe first hand a disease of watermelon, Mature Watermelon Vine Decline (previously known as sudden wilt), that has plagued southwestern Indiana farmers for several years. Kernan was not able to promise disaster payments for local farmers, although he said he would do what he could to "make things easier" for watermelon farmers.

MWVD causes vines to wilt as the fruit begin to enlarge. MWVD may begin to display symptoms in watermelon fields from June throughout the summer. The disease does not occur every year or in every watermelon field, but has occurred sporadically in southern Indiana since the late 1980's. The years 1989, 1995, 1999 and 2000 were particularly severe. The incidence and severity of MWVD has been worse in 2000 than in any other year to date.

The exact cause of MWVD is unknown. Although the roots of affected plants appear discolored and rotten, it is not known which, if any, soil organisms may play a role in the decline of plants. It is thought that MWVD is the result of a complex interaction between several environmental and cultural factors and soil microorganisms in the soil.

On August 9, previous to Kernan's visit, several Purdue scientists toured fields affected with MWVD in Knox County. Dr. Ray Martyn, Professor of Plant Pathology and Chairman of the Department of Botany and Plant Pathology, Dr. Rick Latin, Professor of Plant Pathology, Dr. Karen Rane, Plant Disease Diagnostician, and Dr. Dan Egel, IPM Specialist made numerous observations and took plant samples from fields affected with MWVD.

Research on MWVD conducted to date by Purdue researchers has not yielded any clear answers for the cause

of MWVD. Plans are being made for a new series of laboratory, greenhouse and field experiments which will be designed to help determine the factors involved in MWVD and establish management recommendations. Dr. Vic Lechtenberg, Dean of the School of Agriculture, who also was with Kernan, expressed his concern for the farmers as well and pledged to help get some answers.

PUMPKIN FRUIT ROT - (Dan Egel)

- I had a phone call recently from a grower who described a pumpkin fruit rot. He described a white mold that was visible primarily on the bottom of the pumpkins. The mold may have a pinkish cast. The fruit rot may occur on high as well as low ground. The lesions may be large and water-soaked or small and dry. Pumpkin fruit with even small lesions may rot after harvest. Losses as high as 60% have been reported.

This disease is known as fusarium fruit rot. It is not the same fungus that causes fusarium wilt. While the fungus that causes fusarium wilt is limited in what plants it can attack, the fusarium that causes fruit rot can infect a wide number of plants. This means that fusarium fruit rot can not be controlled by crop rotation. (Of course, crop rotation is still a good idea for many other diseases.)

Unfortunately, fungicides have not proven effective against the disease. In a test by a researcher in Connecticut, combinations of 8 different fungicides failed to control the fungus.

It appears that some varieties are more susceptible than others to fusarium fruit rot. It has been reported that the variety "Atlantic Giant" is resistant to fusarium fruit rot. I have observed that the variety "Prizewinner" appears to have some tolerance. Some of the smaller pumpkins such as "Oz" also appear to have some degree of resistance.

If you have the disease this year, there isn't much you can do. To avoid the disease next year, perhaps the best idea is to plant several different varieties of pumpkins.

PLANT DISEASE MANAGEMENT - (Dan Egel)

- Although most vegetable production is winding down

for the season, now is the time to plan for next year.

Fall tillage - After harvest is over, the crop should be tilled to reduce the amount of plant material remaining above ground. Alternatively, growers who prefer not to practice extensive tillage may wish to use rotations of 3 to 4 years (see below). Any plant pathogens that exist on the foliage will be less likely to spread to any remaining adjacent crops if the field has been properly tilled. In addition, plant pathogens often overwinter in association with leaves, stems and/or fruit. When plant material is plowed under, the leaves, stems and fruit begin the decay process sooner resulting in a lower survival of associated plant pathogens. Spring tillage does not allow for much time for old stems, leaves and fruit to rot and disintegrate. This applies to such pathogens such as *Didymella bryoniae*, which causes gummy stem blight of watermelon or *Alternaria solani*, which causes early blight of tomato. In addition, cull piles of fruit often exist along fencerows. Plant pathogens may exist in such fruit over the winter, and affect production next year. Bury or plow under such culled fruit before it becomes a problem.

Rotation - This time of year, growers may begin to think about where crops will be grown next year. Many disease problems can be avoided if proper crop rotation is practiced. Since some plant pathogens survive in the soil, planting the same crop year after year may build up populations of plant pathogens and lead to disease problems. For most plant pathogens, the longer the time in the soil without a suitable host plant, the fewer fungal spores or bacteria which will survive. In general, a 3 to 4 year rotation is recommended. Since plant pathogens often infect related plants, be sure to rotate to plants in different plant families. If watermelon is planted one year, avoid planting cantaloupe, pumpkins, cucumbers, gourds or zucchinis for 3 to 4 years. If tomatoes are planted, avoid peppers, eggplant, or potato. If possible, plant a cereal plant (e.g., corn, wheat) after planting a broad-leaf vegetable. The herbicides associated with cereal production are usually specific for broadleaves.



This practice keeps volunteer plants, which may harbor disease from previous years, to a minimum.

Resistant varieties - When you buy seed for next year consider whether or not the variety is resistant to important diseases. For example, some cantaloupe varieties are resistant to powdery mildew. Growers might want to sow late plantings to resistant varieties since that is when powdery mildew is usually worse. There are no completely resistant varieties to diseases such as *Alternaria* leaf blight of cantaloupe.

Keep these ideas in mind while finishing up this year's production and planning next year's. A few preventive practices may save a lot of trouble (and pesticides) in future seasons.

SWEET CORN INSECTS - (*Rick Foster*) - Not surprisingly, I have received a number of reports recently from sweet corn growers that they are having a hard time controlling insects in their late sweet corn. Corn earworms, European corn borers, and fall armyworms have all been reported to be present in high numbers. Corn earworms seem to be particularly numerous this year. I have caught over 300 corn earworm moths in my pheromone trap in a single night. The treatment threshold is 10 moths per night.

So, what do you do when the insect pressure is so high? First, if you have not been using one of the best insecticides, which in my opinion are Warrior and Capture, then you should switch to those materials now. Second, you should be using rates toward the higher end of what is legal. Low rates just won't get the job done when the insects are this numerous. Third, you should shorten the interval between sprays. Four to five day intervals will be adequate from pre-row tassel until silks appear. Once silks are present, and the main target is corn earworm, you should apply insecticides every two days until the silks turn brown. Finally, you may want to include a low rate of Penncap M with your Warrior or Capture because Penncap will control the adult corn earworms better than the pyrethroid insecticides. Even if you do everything right, you may still have some worms in your sweet corn. But, if you follow these guidelines, you will give yourself the best chance of producing a marketable crop.

PUMPKIN TWILIGHT MEETING - (*Liz Maynard*) - The 2000 Pumpkin Twilight Meeting will be held on September 12, 2000 at County Line Orchard in Hobart, Indiana. Owned and managed by David and Bonnie McAfee, County Line Orchard is known for its school tours and innovative marketing of fall crops. Over 30,000 schoolchildren visit the Orchard each fall. This year, a trial of 30-plus pumpkin varieties was planted at the Orchard in cooperation with Purdue University. The orchard is located 1 mile south of U.S. 6 on County Line Rd. between Lake and Porter Counties.

The meeting will begin at 4:00 p.m. with a demonstration school tour. A picnic dinner will be served at 5:00 p.m. After the meal, we will look at pumpkin varieties in the field.

Purdue University Vegetable Specialists will be present to discuss pumpkin production and pest management practices.

The meeting is sponsored by Purdue Cooperative Extension Service, Lake and Porter Counties, and the Northwest Commercial Horticulture Program, Dept. of Horticulture and Landscape Architecture. The meal is sponsored by Seedway and Rupp Seeds.

Preregistration by Sept. 5 is required for those wishing to have dinner. To register, or for more information, call 219-755-3240, or 800-872-1231, ext. 5674.

THINKING AHEAD TO WINTER MEETINGS - (*Liz Maynard*) - As the days lengthen and tomatoes fill harvest buckets, extension staff begins to plan winter programs. Your ideas and suggestions are needed! What would you like to hear about this winter? Let us know, with a phone call to 800-872-1231 ext. 5673, or email: emaynard@purduenc.edu.

RIPENING PROBLEMS IN TOMATOES - (*Liz Maynard*) - Uneven ripening in tomatoes falls into at least three different categories. Fruit with green or white patches that remain hard after the fruit has ripened have the disorder named 'blotchy ripening'. The wall and internal tissue in the affected area are whitish. Sometimes the vascular tissue (veins) in the outer wall are brown. In a similar disorder called 'graywall', the outer walls of the fruit are black or brown inside, and the surface of the affected area may be wrinkled or sunken.

The causes of these two disorders are not known. Graywall has been associated with bacterial infection. Low light conditions, cool weather, and wet or compacted soils reportedly promote graywall. Both problems have been associated with tobacco mosaic virus (TMV) infection and lower potassium fertilization rates. Susceptibility to both problems varies among cultivars. Recommendations for minimizing the problems include choosing resistant cultivars, maintaining a balanced fertility program, and preventing TMV infection.

A third type of uneven ripening is called yellow shoulder, or persistent green shoulder. The top, or shoulder, of the fruit stays green or turns yellow and remains hard. The problem occurs most frequently in cultivars without the uniform ripening gene and on fruit exposed to bright sun and high temperatures. To minimize the problem, use cultivars with the uniform ripening gene, and maintain good foliage cover for the fruit.

A fourth ripening disorder, named 'irregular ripening', is caused by silver leaf whitefly feeding. This problem has developed in the southern U.S. in recent years, but to my knowledge is not a problem in Indiana.

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