

VEGETABLE CROPS HOTLINE

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

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BACTERIAL WILT - (Dan Egel and Frankie Lam) - Many muskmelon and cucumber growers are noticing scattered plants that have wilted in the field. The leaves of such vines typically begin to wilt and the entire vine may die within a few days. One possible cause of this may be bacterial wilt. To test for this disease, cut an affected vine with a stem about the size of a nickel. Press the two cut ends together and draw them slowly apart. Small sticky strands of sap that hang between the cut pieces are diagnostic for bacterial or "bug" wilt. This disease rarely affects watermelon and pumpkin.

Both striped and spotted cucumber beetles are vectors of the bacterium, which causes the bacterial wilt on muskmelon and cucumber. The bacteria are transmitted to the plants during the feeding of cucumber beetles. The bacteria multiply in the water conducting vessels of the plant and stop the flow of water, resulting in sudden and permanent wilt of a vine or the entire plant. The symptoms appear 2-6 weeks after the plant is infected. Once a plant is infected with the bacterium, nothing can be done to save the plant. The management tactic for the disease is to avoid the beetle feeding on the plants especially during the early season.

Diseased plants that are observed today are the results of beetle feeding that occurred 3 to 4 weeks ago. Therefore it is useless to spray for the striped cucumber beetle. There is no other pesticide or fertility spray that will "cure" the vines of bacterial wilt. In addition, if the vines are within about 3 weeks of harvest, the beetles seldom transmit bacterial wilt. Remember, bacterial wilt will not spread by itself from plant to plant throughout your field. So save your pesticides and worry about something else.

SOUTHWESTERN CORN BORER IN SOUTHERN INDIANA - (Frankie Lam) - During the last week of May, southwestern corn borers were collected by the black-light traps at Southwest Purdue Agricultural Center in Knox County and Southern Indiana Purdue Agricultural Center in Dubois County. The adults of the southwestern corn borer are white moths with light tan

scales along the veins of the wings. The moths are about 3/4 inch long. The summer larvae are white with distinct dark brown to black spots, whereas the overwintering larvae are nearly all white in color and are without spots.

The southwestern corn borer is one of the most serious insect pests of corn. It occurs across the entire southern Corn Belt from Arizona to Georgia. A few years ago it was found in southern Indiana. The borer has two or more generations per year and its biology is similar to that of the European corn borer. The first-generation attacks whorl-stage corn and stunts or kills the plants, whereas the second- and third-generation occurs during mid- to late season and increases yield losses by extensively tunneling and girdling of the corn. In fall, girdling in the base of the corn stalk by the overwintering borer leads to lodging of plants and interferes with harvesting practices.

Due to the relatively low population number in Indiana, no study has been conducted on the infestation of southwestern corn borer in sweet corn. However, in Kentucky the management of southwestern corn borer is suggested to be similar to that of the European corn borer.

- **Early planting.** Planting the corn early is an effective and economic method for the management of this pest. Lower establishment rate by the second- or third-generation borers on older plants is the main reason for early planting.
- **Scouting the field.** Scout the fields in early June for initial shothole feeding on the whorl leaves. Examine 20 consecutive plants at

10 locations within the field and record the number of damaged plants. Control practices should be justified for the first-generation borer if 35% of plants show damage and the borers are present in the whorls.

- **Insecticides.** Similar to European corn borer, larvae of southwestern corn borer can only be effectively controlled while they are feeding within the whorl. Insecticides recommended for the control of southwestern corn borer are Baythroid, Capture, and Warrior.
- **Fall-Tillage.** Deep tillage and destruction of corn stubble are recommended for the management of the borer; however, this is not an option for conservation practices.
- **Bt-Corn Hybrids.** All of the available Bt-corn hybrids provide effective control of first-generation southwestern corn borer larvae, but many do not maintain this level of control against the damaging, late-summer generations.



AVOID PROBLEMS LATER BY MAKING TIME FOR BASICS NOW - (Liz Maynard) - As I think back to July and August of previous summers several examples come to mind of problems that might have been prevented by action earlier in the season. Those examples prompted this article. Hopefully these suggestions will help eliminate problems this year by giving you an early heads-up on them.

Weed Management: Control weeds in the first few weeks of crop growth. Most crops can tolerate moderate numbers of weeds for several weeks before the weeds cause yield reductions. If the weeds grow for too long, they are difficult to control and reduce yield by competing with the crop. The weeds that come up at or soon after crop planting will cause the most yield reductions and produce the most seed. We have all seen weeds 'jump' in size from a couple inches to nearly a foot seemingly overnight. Get them before they do that. Cultivate, hand-weed, use a shielded spray of a labeled non-selective herbicide, or use a labeled post-emergence herbicide.



Plant Population Adjustment: Check plant spacing, especially in crops like pumpkin. Sometimes too many seeds are planted and plants end up so close together that fruit set as well as fruit size is reduced. Thin plants to the desired stand. Alternatively, sometimes large gaps occur in a row, either because of seed predation or uneven seed drop by the planter. If these gaps are noted shortly after emergence, they can be replanted with seed, or with transplants if available.

Irrigation Management: Manage irrigation to apply sufficient water on a consistent basis, taking into account rainfall. Know how much water is being applied to avoid over or under-irrigation. This is especially important with drip irrigation because you can't tell just from looking at a field whether too much or too little has been applied. Proper irrigation is one practice that helps to minimize blossom end rot in peppers and tomatoes.

Insect and Disease Management: Monitor fields regularly and use pheromone traps when appropriate (see Rick Foster's article in Issue 402 of the Vegetable Crops Hotline). Know how to scout for particular insect pests will help you decide when it is economical to spray for control. Also keep an eye out for unexpected problems and call your local extension agent if something unfamiliar is noticed.

Refer to the Midwest Vegetable Production Guide (ID-56) <<http://www.entm.purdue.edu/entomology/ext/targets/ID/index.htm>> for information on weed management, plant spacing, irrigation, and crop monitoring for pests. Additional information on soil water holding capacity, specific insects, and vegetable diseases is available in other Purdue Extension bulletins. Contact your County Extension Office for a list of publications, or go to <<http://www.agcom.purdue.edu/agcom/pubs/>> for an on-line list.



SOIL pH EFFECTS ON MAGNESIUM AND MANGANESE AVAILABILITY - (Chris Gunter and Dan Egel) - This is the time of year when samples of cantaloupe and watermelon vines arrive showing symptoms of magnesium deficiency or manganese toxicity. Both disorders are related to acid soils and usually occur in clusters in a field. Magnesium deficiency appears on sandy ridges and can be recognized by interveinal yellowing and death of tissues on older leaves. Manganese toxicity also first occurs on older leaves but appears in heavier or darker sands, often in swales. The diagnostic feature of manganese toxicity are the tiny pin hole type lesions with yellow halos clustered between the veins. Leaves are best viewed when held up to the sun.

These disorders can easily be confused with an infectious disease. Symptoms may seem to "spread" from areas of the lowest pH to areas of somewhat higher pH. Individual rows seem to be worse than adjacent rows. Such rows may have likely received less lime. The remedy for these disorders is to raise the pH of the soils involved. However, once crops are within a week or so of harvest, there is no remedial treatment.

Although growers may have soil tested and spread lime before the season, there may still be pH problems in some areas of the field. Learn the symptoms of these disorders so you won't be wasting fungicides on a nonexistent disease.



FUSARIUM WILT - (Dan Egel) - The disease Fusarium wilt of watermelon has begun to show up in some watermelon fields. Fusarium wilt is caused by a fungus that survives long periods in the soil. Plants may wilt a leaf at a time or suddenly, depending on the amount of fungus in the soil and weather conditions. The roots and exterior of the stem of wilted plants appear to be unaffected; however, the internal stem tissue of affected plants often appears brown. Fusarium wilt frequently occurs in clusters of plants scattered across a field.

Management of Fusarium wilt may be accomplished through variety selection and rotation. However, no varieties are completely resistant to the Fusarium wilt fungus. High populations of the soil fungus will cause many varieties to show symptoms. Crop rotations of 5 to 6 years will help lessen the incidence of Fusarium wilt; however, the fungus will survive upwards of 10 years in the soil without watermelon. Soil fumigation may offer a disease management tool in some situations.

Transplants replanted in affected fields may later show symptoms of Fusarium wilt. Growers desiring to replant can help lessen the impact of the disease by using varieties with partial resistance to Fusarium wilt. The fungus that causes Fusarium wilt watermelon does not affect muskmelon, cucumbers and pumpkins. Therefore, these plants may be replanted into affected fields.



SOUTHWESTERN INDIANA TWILIGHT MEETING – There will be a Twilight Meeting on Wednesday, June 26 at 7:30 PM at the Emmett & James Deem packing shed located 5 miles south of Vincennes, on the west side of Decker Road. This meeting will have an informal agenda. Please bring questions and plant samples to discuss. Southwest Purdue Agricultural Program staff will be present to answer questions. Refreshments will be available.

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