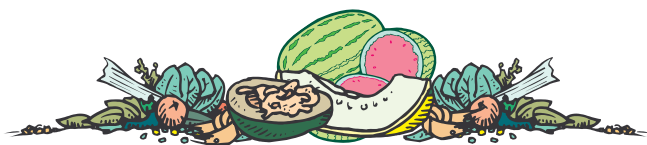


# VEGETABLE CROPS HOTLINE

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

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**HIGH TEMPERATURES** - (*Liz Maynard*) - This week's hot weather is likely to affect fruit set in some vegetable crops. The high temperatures may temporarily prevent pollination or fruit set in a number of crops including peppers, tomatoes, and snap beans. In pumpkins, female flowers may fail to develop until temperatures moderate, delaying fruit set. Plants without developing fruit will grow vigorously, leading to a crop that looks great, but upon closer inspection has little fruit. Once temperatures moderate, flower development and fruit set will continue normally.

Other than making sure plants get enough water, there is little one can do at this time to prevent delayed fruit set. High temperatures increase demand for water. As water in a plant leaf evaporates into the air, it cools the leaf, maintaining its temperature a few degrees below the air temperature. If plants can not take up water fast enough, this cooling effect does not occur and leaf temperature will rise above air temperature. Critical periods for water include seed germination and seedling establishment; transplant establishment; flowering and fruit set; and fruit expansion.

**WILT IN WATERMELON AND MUSKMELON** - (*Dan Egel*) - In the past several days, I have observed a number of watermelon fields with fusarium wilt. Plants in the field may begin to wilt when there is plenty of moisture in the soil. The edges of leaves may become black. Often the leaves along one stem wilt while other stems of the same plant may look fine. The roots of plants with fusarium wilt will look white and healthy, but the inside of the lower stem will look brown compared to the stem of a healthy plant.

Although it can be a serious disease, fusarium wilt will not spread from plant to plant in one season. Plants show symptoms of fusarium wilt depending on the presence of fungal spores in the soil.

Since the fusarium wilt fungus is distributed unequally across the field, the plants that get this disease will occur in clusters.

There is no fungicide that will cure or prevent fusarium wilt. No watermelon varieties are completely resistant to fusarium wilt, however there are varieties that have some resistance. These varieties are listed in the Midwest Vegetable Production Guide (ID-56). The fungus survives in the soil for several years so only rotations of 5 to 6 years will help lower the amount of the fungus in the soil.

Muskmelon plants that have wilted are most likely as a result of bacterial wilt carried by the striped cucumber beetle. The plants that are wilting now are as a result of beetle feeding that took place 1 to 3 weeks ago. Therefore, it is not necessary to apply insecticides on wilting plants. Apply insecticides when beetle feeding or beetles are observed. The larger the plant, the less likely the plant will get bacterial wilt.

**EUROPEAN CORN BORERS** - (*Rick Foster*) - First generation European corn borer moths are flying and some larval feeding has begun. Snap beans are vulnerable to corn borer attack between the bud stage and about 12 days before harvest. Early planted bean may be in this stage when the first generation moths are flying. Again, monitoring is the key. This can be done with pheromone traps, black light traps, inspecting corn for whorl feeding, or looking at the moths at your porch light at night. The key is to know that the moths are or have recently been flying. There is no need to treat snap beans that will be harvested in less than 12 days because the corn borer larvae will not be at a stage that can bore into the pods by harvest. For sweet corn, remember that the most important stage for corn borer control is just before the tassel begins to shoot. A spray at that time and about 5 days later will usually take care of most of your corn borer problems.

**CORN EARWORMS** - (*Rick Foster*) - According to Brian Flood from DelMonte in northern Illinois, he has been catching corn earworm moths in traps that have been damaged, indicating that they most likely fly up from the southern US. We have had lots of winds from the south this year, which helps insects that overwinter down south to get up here more quickly. In most areas there is also a small, although not insignificant, population of corn earworms that overwinters here that should be emerging any time now. If you are growing sweet corn, you should have your pheromone traps in place by now. Your early planted sweet corn is likely to be at risk from corn earworms when it is in the silking stage. However, the only way that you can know for sure in your area is to monitor the earworm flight activity with a pheromone trap. When your corn has fresh green silks, you should treat if you are catching more than 5-10 moths in the trap per night.

Warrior is the best insecticide currently labeled for use on sweet corn, although several others will also give very good control.

**BLACK CUTWORMS** - (*Rick Foster*) - Our pheromone traps captured large numbers of black cutworm moths flying up from the southern US this spring. We are seeing significant black cutworm injury on a number of different crops. Growers should be scouting their fields regularly looking for damage. For most crops, the pyrethroid insecticides will provide the best control, although Lorsban also works well on sweet corn. See ID-56 for details.

**SEED MAGGOTS** - (*Rick Foster and Jerry Brust*) - We usually associate damage to the root and seed maggots with cool, wet springs. However, this year, which has been fairly hot, has produced quite a bit of seed and root maggot injury. In the northern part of the state if you see plants dying, look for the presence of tiny, legless maggots in the stems or roots. When you find damage, there is nothing you can do to stop the problem. Your only decision at that point is whether to replant or do nothing. With the temperatures we are having, I don't think it would be necessary to plant treated seed or to use an insecticide at planting with transplants.



**POTATO LEAFHOPPERS** - (*Rick Foster*) - The strong southerly winds have done a good job at bringing our annual visitors, the potato leafhoppers, to us. Damage has been observed on a number of different crops. Vegetable growers should be watching their potatoes and snap beans for leafhoppers. You can monitor for adults by brushing the plants with your hand and watching the tiny, pale green insects fly away. Or you can monitor for nymphs by turning over leaves and looking for the sideways walking nymphs on the underside of the leaves. Remember that to avoid yield loss, the leafhoppers should be controlled before you begin to see the symptoms of their feeding: curling leaves, veins turning pale, or triangular yellowing or browning of the leaf tip (hopperburn). Once the symptoms are apparent, you have already suffered yield loss.



**SQUASH VINEBORER** - (*Jerry Brust*) - I have caught a few squash vineborer moths in my trap at the research farm and many moths at growers' fields. Surprisingly, on a volunteer pumpkin plant that was rather large (runner was 4 ft. long), I have found squash vineborer eggs. This is surprising because I have caught so few males at the farm so far, but the females are laying their eggs anyway. It looks like females emerge from their overwintering sites, which are areas where larvae were in plants the year before, at about the same time as males. This may make it difficult to use pheromone traps to time insecticide applications - we will see. The female squash vineborer will lay eggs singly (eggs not laid in clusters) near the base of the plant. They prefer pumpkins and squash. Eggs are very small, brown, and usually found on the underside of the plant, either on the stem or on leaf petioles. If squash vineborer moths are active now in SW Indiana, then they will be active in northern Indiana in just a week or so because of the heat. The larger your plants are now the more attractive they will be to the female borer moths. If you have had them in the past, you will more than likely have trouble with them again unless you have a field that is isolated from any other pumpkin or squash field by at least 2 or more miles. Insecticides should be targeted at the base of plants, as this is where most eggs are laid. For now, if you have had trouble with them yearly, start spraying when your plants begin to run and spray every 7-10 days for the next 3-4 weeks. Pyrethroids (Ambush, Pounce, Asana) work well. If you want to go organic, then try pyrethrin, neem, or rotenone. You will have to apply the organics every 3-4 days for them to be effective.



**TOMATO INJURY ALERT** - (*Dan Egel and Rick Latin*) - It has come to our attention that some tomato plants across the mid-west have been injured by the application of a specific product. Tomato stems may turn white and leaves may be distorted in response to the application of BotaniGard ES. BotaniGard 22WP does not show similar symptoms, so apparently only the ES formulation has been a problem. Horticultural oils have been known to cause similar symptoms; growers should follow the label instructions carefully. If in doubt, apply the product to a few plants before applying to an entire greenhouse or field.



**PESTICIDE SPRAY SCHEDULES** - (*Dan Egel and Jerry Brust*) - This time of year, vegetable growers are applying fungicides or insecticides to control or prevent problems in their fields. Fungicides and insecticides were developed for very different types of pests. Therefore, it only makes sense that the spray schedule should be different for these two types of pesticides.

Vegetable growers often see leaf spots this time of year and wonder what fungicide should be applied to take care of it. The idea behind vegetable disease control is to always have a protectant fungicide on the leaves. Protectant fungicides should be applied on a 7 to 14 day schedule. Muskmelon or watermelon growers in southwest Indiana can use the Melcast system to time their applications accurately. The presence of a few new lesions does not mean that the system has broken down. Nor should one wait to for lesions to appear before applying fungicides.

Applying insecticides is different than the system outlined above for diseases. In most cases, it is not necessary to apply insecticides routinely. Routine application of insecticides may result in the elimination of beneficial insects that can help control insect pests and does not result in better control of pests. Insecticides are applied when pests are observed. Often, insecticides are applied only when insect pests reach a certain number per plant at a specific plant stage.

Disease and insect pests differ in their biology and how they damage plants. Understand how to apply pesticides to these very different pests.



#### MEETINGS

**MELON & VEGETABLE TWILIGHT MEETING** - June 25 - 7:00 PM - Nowaskie's - Main Street Rd. - Vincennes, IN - Contact Dan Egel (812) 886-0198 for more information.

**FARM/ORGANIC TRIAL TOUR** - June 30 - 9:00 AM - Southwest Purdue Ag Center, Vincennes, IN. Speakers will be Cliff Sadof and Jerry Brust. Open to interested homeowners and gardeners. For more info, contact Jerry Brust at (812) 886-0198.

#### Disclaimer

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