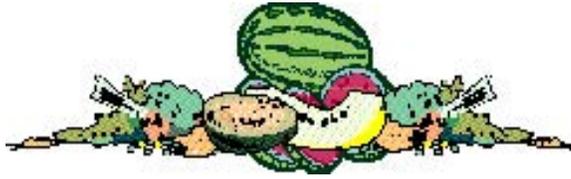


VEGETABLE CROPS HOTLINE

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

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YELLOW CANTALOUPE LEAVES - (Chris Gunter) - It's that time of year when older cantaloupe leaves begin to turn yellow. When this yellowing occurs at the leaf margin it is likely the result of guttation (Figure 1). This is a natu-



Figure 1: Guttation water on the margin of a cantaloupe leaf. (Photo by Chris Gunter)

ral process by which plants lose water at the margin of the leaf. This water is rich in organic material and minerals and as the water evaporates the salts are concentrated at the leaf margin. Over time that high salt buildup shows up as the typical yellowing we commonly call salt burn (Figure 2). The yellow halo may expand to cover a great deal of the leaf surface (Figure 3). Guttation can occur at any time; however the warm days followed by cool nights that we have been experiencing seem to favor the condition.



Figure 2: Salt burn on the margin of a leaf. (Photo by Chris Gunter)



Figure 3: Advanced salt burn on the leaf margin. (Photo by Chris Gunter)

If the yellowing is not limited to the margin of the leaf, you may be observing symptoms of nutrient deficiency. At this time of year we are seeing symptoms associated with soil pH problems including magnesium and molybdenum deficiency and manganese toxicity. For more information on these deficiencies see "Muskmelon problems on acid sandy soils" (HO-191), www.ces.purdue.edu/extmedia/HO/HO-191.html. If you suspect you may be seeing nutrient deficiency or toxicity in your field, have your soil pH tested and corrected before additional nutrient applications are made.



SWEET CORN EAR ROT - (Dan Egel) - Diplodia ear rot was recently observed in southern Indiana. The disease results in bleached straw colored husks (Figure 1). The white fungus may be observed between the kernels (Figure 2). Minor infections may not be visible on the husk.



Figure 1: Diplodia ear rot often results in bleached husks as shown here. Note the white fungus present on the bottom of the husk and between the kernels. (Photo by Dan Egel)



Figure 2: Diplodia ear rot fungus between the kernels of sweet corn. (Photo by Dan Egel)

Diplodia ear rot is caused by a fungus that causes infection through the silks. Ears are most susceptible for 3 weeks after silking. Inoculum for the disease usually comes from residue of another corn crop.

The disease may be managed by hybrid selection and cultivation. Hybrids may vary in their susceptibility—ask your seed dealer. Since infection often comes from corn residue, conventional cultivation should help to reduce the severity and incidence of the disease.



INSECT PESTS ON VEGETABLE CROPS IN SOUTHWESTERN INDIANA DURING MID-SEASON OF 2006 - (Frankie Lam) - In the past few weeks we have had relatively dry weather in southwestern Indiana. Most of the insect pests observed were at relatively low or medium numbers on vegetables and melons. With the continuous dry, hot weather growers should pay attention to the

infestation of spider mites in crops. The following is a summary of the major insect pests observed on vegetable crops in southwestern Indiana during this mid-season.

Cucumber Beetles on Cucurbit - Both striped and spotted cucumber beetles were found on cucurbits, including muskmelon, watermelon, cucumber, summer squash, and pumpkins. However, during early July the average numbers collected were 1-2 beetles per plant for direct scouting and only 1 beetle per sticky trap. Mostly this is a time between two generations of beetles and this year the second-generation of beetles seem to be showing up later than in past years.

Western Corn Rootworm Beetles on Pumpkins - Only a few western corn rootworm beetles were observed on pumpkins this week. This season the rootworm beetle seems to be late on pumpkins; in past seasons during mid-July there were hundreds of western corn rootworm beetles on the flowers of pumpkins. The western corn rootworm beetle has a yellow abdomen (belly) (Figure 1) that is easy to distinguish from the striped cucumber beetle, which has a black abdomen (Figure 2).



Figure 1. Western corn rootworm beetle has a yellow abdomen. (Photo by Frankie Lam)



Figure 2. Striped cucumber beetle has a black abdomen. (Photo by Frankie Lam)

Colorado Potato Beetle and Potato Leafhopper on Potato - Colorado potato beetle (Figure 3) and potato leafhopper (Figure 4) were observed on potato. In July, the potato beetle number was one per plant, whereas



Figure 3. Colorado potato beetles mating on potato. (Photo by Frankie Lam)



Figure 4. Adult potato leafhopper under microscope. (Photo by Frankie Lam)

the potato leafhopper number was 0.2 per potato leaf. The economic thresholds of Colorado potato beetle and potato leafhopper are 30% defoliation during tuber-formation and 0.1 per leaf, respectively.

Caterpillars on Vegetables - Armyworms, Cabbageworm (Figure 5), cabbage looper, and diamondback moth larva (Fig. 6) were commonly found on vegetables. Relatively high populations of cabbageworms were observed on vegetables, especially on cabbage and kale. In early July, an average of 15 eggs and 20 cabbageworms were observed per plant.



Figure 5. Cabbageworms feeding on kale. (Photo by Frankie Lam)



Figure 6. Diamondback moth larvae on the underside of leaf. (Photo by Frankie Lam)

Flea beetles on Vegetables - Flea beetles were found on cabbage, eggplant, potato, and tomato. On eggplant the beetles reached the economic threshold of 2 beetles per plant; however, on other vegetables less than one beetle per plant was observed.

Aphids and Spider Mites on Vegetables and Cucurbit - Infestations of aphids on vegetables and cucurbits were relatively high, especially on pumpkins. Although the colonies on leaves were small, in early July more than 80% of the pumpkins that I sampled were infested by aphids. On the other hand, during this dry, hot weather spider mites were surprisingly not observed on crops that I scouted.

Corn Earworm and European Corn Borer on Sweet Corn - During late June more than 10 corn earworm moths (Figure 7) were collected per night by the pheromone trap at the Southwest Purdue Agricultural Center, which is the economic threshold on sweet corn with green silks. However, the number of corn earworm moths collected in early July decreased to less than 5 per night. In addition, the number of European corn borer moths collected by the blacklight trap at the Center was below the economic threshold.



Figure 7. Corn earworm moth. (Photo by Frankie Lam)

Insecticides applied for the control of insect pests on vegetables, melons, and pumpkins are listed on the Midwest Vegetable Production Guide for Commercial Grower 2006 (ID-56) <www.entm.purdue.edu/entomology/ext/targets/ID/index.htm>. Growers should check the Production Guide and follow insecticide label directions carefully before using any pesticides.



PUMPKIN FLOWER DEVELOPMENT INFLUENCED BY

TEMPERATURE - (*Liz Maynard*) - Experienced squash and pumpkin growers are used to seeing the first flowers develop, open for a day, and then drop off leaving no fruit behind. A careful look at the flowers or even just the flower stalks reveals a long narrow stalk, perhaps ¼ inch in diameter, with no swelling behind the flower petals. Inside the flower the fused anthers form a long narrow structure covered in yellow pollen (or what is left of the pollen after the insects have taken their share). This describes a male flower: specialized to produce pollen but not fruit (Figure 1). Under ‘normal’ conditions, male flowers develop and open shortly before female flowers. It is common for some male flowers to finish blooming and drop off before any female flowers open. Since many more male flowers will be produced, this is no cause for concern.

This year some pumpkins and squash have experienced temperatures cooler than usual early in the season. This promotes the development of female flowers. In fact, on some plants female flowers are opening before male flowers. A female flower has a relatively short and thick stalk, often ½ inch in diameter or more. At the end of the stalk and just behind the petals a swelling is clearly visible; this is the ovary of the flower that will develop into the pumpkin or squash. It looks like a miniature version of the mature fruit (Figure 1).

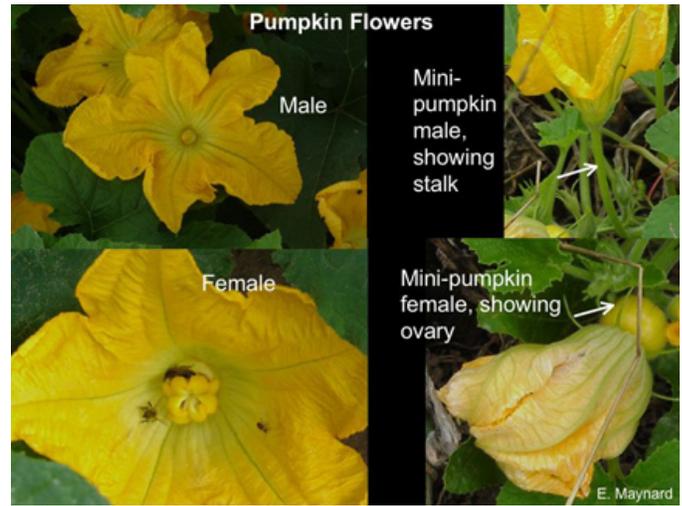


Figure 1: Male and female pumpkin flowers. (*Photo by Liz Maynard*)

When female flowers open and few or no male flowers are open, pollination does not occur. Without pollination the fruit cannot develop. Shortly after petals fall off the flower, the ovary will begin to senesce and eventually it will fall off. Sometimes fungi will attack the dying tissue - but the cause of the lost fruit is not the fungi, but the lack of pollination.

If the first female flower is not pollinated, fruit set will be delayed until the next female flower opens, usually in a week or two, depending on cultivar and temperature. By then male flowers should be open and if bees are present, pollination will occur. The loss of the first potential set could mean the first mature pumpkin or squash will be a little later than expected.

Whether or not your pumpkin crop has female flowers opening before males, the upcoming weeks are a good time to check fruit set on pumpkins that will be harvested in September.

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