Vegetable Crops Hotline

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

Liz Maynard, Editor
600 Vale Park Road
Valparaiso, IN 46383
(219) 531-4200
emaynard@purdue.edu

vegcropshotline.org

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Corn Earworm - (*Rick Foster*) - It appears that we are now between generations of corn earworms. We had a very significant first generation but the trap catches seem to be winding down now. Sweet corn growers should check the field corn in the vicinity of your sweet corn fields. If they are still in the pre-silking stage, we recommend using one moth per night in a pheromone trap as a threshold. When those fields start to silk, egg laying by earworms will be diluted so you can adjust to the old 10-moths-per-night threshold.

When it occurs on tomatoes, the corn earworm is known as the tomato fruitworm (see Figure 1). They will feed on tomato foliage but the most important damage they do is to feed on the fruit. Larvae that came from the eggs laid in the last two weeks will be getting close to maturity now and can cause considerable damage if you have fruit present on your tomatoes, either in the field or in high tunnels.

Figure 1: This small tomato fruitworm will cause big problems when it starts to feed on tomato fruit. (*Photo by Liz Maynard*)

Aphids, Again - (*Rick Foster*) - 2013 seems to be the year of the aphids. While many other insects are present in normal or below normal numbers, we continue to see infestations of several different species on many different crops. Growers should be scouting for aphids on a regular basis because their ability to give birth to live young without mating and short generation times allow them to build up to damaging numbers relatively quickly if you don't detect them early. Natural enemies often keep them below damaging levels but for some reason don't seem to be helping much this year. Again, don't wait until your see the symptoms of curling leaves before treating because you will likely have already suffered yield loss at that point. We have a number of effective insecticides for aphid control. Check the ID-56 (*Midwest Vegetable Production Guide for Commercial Growers 2013*) for recommendations for your specific crop.

Black Rot of Cabbage and Other Crucifers - (*Dan Egel and Liz Maynard*) - All vegetables in the crucifer family, including broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, kale, mustard, radish, rutabaga, and turnip, are susceptible to the bacterial disease known as black rot. The rainy conditions this year have been favorable for spread of the disease in a field.

Lesions of black rot may start out as chlorotic (yellow) areas before growing into necrotic (brown) V-shaped lesions with chlorotic margins (see Figure 2). Lesions can expand to cover much of the leaf (see Figure 3). In severe cases and when the plant is infected early, the entire plant may be stunted (see Figure 4).

If only the lower leaves are affected a cabbage crop will probably be able to mature with minimal damage from black rot. If infection is systemic, or occurs on leaves in the head, yield losses can be significant.

Management recommendations for black rot include:

- Purchase only disease free transplants or seed that has been tested for the bacterial pathogen.
- Grow cabbage in fields that have been rotated out of plants in the cabbage family for 3 to 4 years or more.
- Eliminate all weeds in the crucifer family as well as

all volunteers from previous crucifer crops.
- Avoid overhead irrigation.
- A copper containing fungicide may slow the spread of black rot of cabbage to uninfected plants.
- Deep plow to bury all crucifer crop residues after harvest.

Cabbage growers should inspect their crops now so that damaged heads can be culled. If black rot is present, the field should be noted so that proper measures can be taken in the future.

Figure 2: On this cabbage leaf, the necrotic (brown) V-shaped lesion with chlorotic (yellow) margin is typical of black rot. (*Photo by Liz Maynard*)

Figure 3: Black rot lesions may spread to cover much of the leaf. (*Photo by Liz Maynard*)

Figure 4: When black rot is severe and when the cabbage plant is infected early on, leaves may become distorted and the entire plant may be stunted. (*Photo by Liz Maynard*)

Vegetable Disease Report - (*Dan Egel*) - In addition to the diseases/problems reported in this issue of the *Vegetable Crops Hotline*, these diseases have been observed.

Diseases reported on **tomato** include: bacterial spot, bacterial speck, Phytophthora blight and Tomato Spotted Wilt Virus.

Pumpkin diseases observed recently include Phytophthora blight and bacterial spot.

On **cantaloupe** and **watermelon**, diseases observed include anthracnose, bacterial fruit blotch and gummy stem blight. On watermelon, Fusarium wilt has been observed.

All of the diseases listed above, except Fusarium wilt and Tomato Spotted Wilt Virus, are favored by and spread with rain. Therefore, the recent rains have lead to an increase in these diseases. Remember that fungicides are not effective against bacterial diseases–use copper products instead. Similarly, copper products are not very effective against fungal diseases.

Finally, keep to a regular fungicide/bacteriacide application schedule. More applications are appropriate during wet periods and fewer applications can be made during dry weather. Cantaloupe and watermelon growers can use the **MELCAST** system. If a regular application schedule is kept, it is not necessary to make a new application each time a new lesion is found.

Questions and comments? Contact Dan Egel, (812) 886-0198, **egel@purdue.edu**.

Low Soil pH in Melon - (*Chris Gunter and Dan Egel*) - High amounts of rain have caused symptoms of magnesium deficiency or manganese toxicity to occur in cantaloupe and/or watermelon in southwestern Indiana. 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 lower areas of the field. The diagnostic feature of manganese toxicity is 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 be easily confused with an infectious disease. Symptoms may seem to "spread" from areas of the lowest pH to areas of somewhat higher pH. Individual rows may seem to be worse than adjacent rows due to differences in soil pH. The remedy for these disorders is to raise the pH of the soils involved. This can be difficult to accomplish with crops growing under plastic mulch, because of the difficulty of getting the lime into the root zone.

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.

Addressing Food Safety Issues in Wagons - (*Scott Monroe*) - Over the course of the summer, I have had several discussions with cantaloupe and watermelon growers concerning the wagons used to haul fruit from the field to the packinghouse. Many food safety standards require that products be transported from the field in vehicles constructed of a nonporous and easily cleaned material. Neither carpet nor the underlying wood used to construct most wagons meets these criteria.

The following idea is one that I am putting out to growers with the hope that they can improve upon it. As a possible way of meeting transport vehicle criteria, aluminum locking clips, or 'poly-locks' (used to secure greenhouse plastic or shade cloth) were scavenged from a scrap pile, cut to the proper size, and secured on the sides of a wagon with ¾-inch self-tapping screws (see Figure 5). A sheet of 1 mil clear plastic sheeting was then placed over the wagon (see Figure 6). The sheeting was 12 feet wide and was purchased in a 400-foot roll. Once the plastic was over the wagon, it was secured in place with the poly-locks (see Figure 7).

Since the poly-locks were designed for thicker plastic, they are easily separated to release the plastic sheeting. Putting a layer of plastic between the product and the wagon creates a new food contact surface and prevents the produce from contacting the underlying wood or carpet. As a way to further decrease the risk of contamination during transport, I suggest using a rubber matting for cushion, instead of carpet, and then overlaying it with plastic sheeting.

This "prototype" is currently located at the Southwest Purdue Ag Center in Vincennes. Feel free to contact me at (812) 254-8668 if you would like to stop by and take a look.

Figure 5: Aluminum poly-lock on side of a wooden wagon. (*Photo by Scott Monroe*)

Figure 6: Plastic sheeting over wagon. (*Photo by Scott Monroe*)

Figure 7: Plastic sheeting attached to wagon with poly-lock. (*Photo by Scott Monroe*)

Cool Season Crops Project Update – Lettuce Variety Screening - (*Liz Maynard*) - The first cool season crops research plot at Pinney Purdue Ag Center in Wanatah is ready for harvest: a screening of 38 lettuce varieties, mostly green leaf, romaine, butterhead, and bibb (see Figure 8). If you are in the area and want to see the varieties, contact me. Have a special customer who might be interested in seeing the varieties? Invite them to visit the trials with you.

A big "Thank you!" to everyone who responded to the cool season crops survey sent out earlier this year. We are already making use of what you told us as we evaluate the lettuce varieties. But, if you haven't responded, it's not too late. Access the survey by one of these methods:

- Take the survey online at **purdue.qualtrics.com/SE/?SID=SV_0jRDJRxaCYO3hAh**.
- Download a copy to print at **ag.purdue.edu/hla/fruitveg/Documents/cool_season_crops_survey1_2013.pdf**.
- Request a hard copy by calling (219) 531-4200 ext. 4201.
- If you received a survey in the mail, use it.

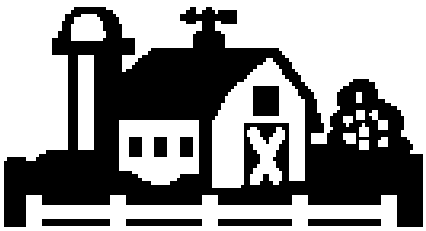
Figure 8. A few of the lettuce plots in the screening trial, ready for harvest. (*Photo by Liz Maynard*)

Fence Rows Provide Insights into Restoring Healthy Soils - (*Rebecca Fletcher*) - "Any farmer can tell you his or her fence rows have the best soil on the farm," says Jim Hoorman, an assistant professor and Extension educator for Ohio State University.

"The organic matter there, where the soil was built naturally, may be 5 to 6 percent or higher depending on soil type," Hoorman says. But organic matter levels have been cut in half on tilled soils. "And the critical part of what's missing is the active organic matter that comes from live roots. So what we're trying to do is create farm fields with soil like the fence rows," he says.

That means eliminating tillage and creating continuous living cover on the land. Hoorman has worked with farmers who have regained organic matter to levels as high as 5 percent with the system. "Three of our primary goals for healthier soils and sustained yields are to get rid of compaction (improve soil structure), add organic matter, and jump-start microbial activity in the soil," Hoorman says.

The transition may take a while, but it's definitely worth it. For more information on how to "Unlock the Secrets in Your Soil," call or visit your local USDA Natural Resources Conservation Service.



Author Information

Dan Egel, Vegetable Pathologist, Southwest Purdue Ag Center, (812) 886-0198, **egel@purdue.edu**
Rebecca Fletcher, NRCS State Public Affairs Specialist, (317) 295-5825, **rebecca.fletcher@in.usda.gov**
Rick Foster, Fruit and Vegetable Entomologist, Purdue, (765) 494-9572, **rfoster@purdue.edu**
Chris Gunter, Vegetable Production Specialist, North Carolina State University, (919) 513-2807, **chris_gunter@ncsu.edu**
Liz Maynard, Extension Specialist, Purdue, (219) 531-4200 or (219) 508-1429, **emaynard@purdue.edu**
Scott Monroe, Extension Educator, Purdue Extension, Daviess County, (812) 254-8668, **jsmonroe@purdue.edu**