Vegetable Crops Hotline

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

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Black Cutworms - *(Rick Foster)* - We have caught record numbers of black cutworm moths in our pheromone traps this year. Trap catches have been higher in the northern half of the state, but trap catches in southern Indiana have still been much higher than normal. We have now accumulated a sufficient number of degree days in southern Indiana that the cutworm larvae should have grown to a point where they can begin cutting plants (Figure 1). Northern Indiana will likely be subject to cutting damage by next week. Black cutworms will feed on a wide variety of vegetable crops, including sweet corn, tomatoes, cucurbits, crucifers, etc. Growers in southern Indiana should be scouting their vegetable fields regularly looking for signs of cutworm feeding, which might include feeding on foliage of plants cut near the soil line. Thresholds are different for different crops. In sweet corn, for example, treatment is justified if 2% or more of the plants have been cut. Insecticides labeled for cutworm control vary by crop, but in general, the pyrethroid insecticides will provide excellent control.

Figure 1: Black cutworm larvae with a penny for scale. Larvae vary in size from 1/8 inch when newly hatched to 2 inches when fully grown. *(Photo by John Obermeyer)*

Corn Earworm - *(Rick Foster)* - As everyone knows, it has been a highly unusual year weather-wise. I caught my first corn earworm moth on April 9, about 2 months earlier than normal. One thing that tells me is that earworms likely survived much further north and in greater numbers during this mild winter than they normally would. As a result, I think it is reasonable to expect greater problems from first generation earworms than we would normally see. Subsequent pheromone trap catches have been highly variable, mainly because the temperatures have bounced around so much. The highest catch we have recorded so far is 26 months, caught in one of my traps in Tippecanoe County on May 3. Remember that earworms will feed on a variety of crops, including sweet corn, tomatoes, peppers, etc. Although the female moths prefer to lay their eggs on corn silks, if no silks are present, they will lay eggs on foliage and the larvae will feed on foliage. Growers should be scouting their vegetable crops on a regular basis looking for earworm feeding. Again, the insecticides labeled for earworm/fruitworm control varies by crop so be sure to check the *Midwest Vegetable Production Guide for Commercial Growers* (ID-56) **http://www.btny.purdue.edu/Pubs/ID/ID-56/** to select the proper insecticide for your crops.

One thing we have learned about earworms in the last couple of years is that when there are few crops available for them to lay their eggs on, the moths will tend to concentrate their eggs on suitable crops. As a result, particularly early in the season, the thresholds that we normally use are often too high. If you have very early sweet corn that is approaching the reproductive stage, I would take a very conservative approach, basically treating during the silking stage if any moths are being caught in the traps. For crops such as tomatoes, peppers, or sweet corn in earlier stages of growth, I would rely on my scouting results to determine if damage levels are sufficient to warrant treatment.

the MOA represent the classification codes according to the Herbicide Resistance Action Committee (letters with subscripts) and the Weed Science Society of America (numbers in parentheses).

Mitosis Inhibitors: [K_1 (3), K_2 (23), K_3 (15)] Mitosis inhibitors prevent plant cells from dividing. The dinitroanilines [K_1 (3)], including trifluralin (Treflan®), ethalfluralin (Curbit®), and pendimethalin (Prowl®) prevent cell division by interfering with the manufacture of microtubules in plant cells. DCPA (Dacthal®) also disrupts microtubules. The acetamides [K_3 (15)], including acetochlor (Harness®), alachlor, dimethenamid (Frontier®), flufenacet (Define®), and s-metolachlor (Dual Magnum®), seem to interfere with the production of very long chain fatty acids in plant cells. This in turn prevents cell division.

All of these materials are applied to the soil to kill weeds as they germinate or soon after. They are most effective against grasses and some small-seeded broadleaf weeds. Many affected weeds never emerge; those that do are usually stunted and do not survive for long.

Some of the materials are applied to the soil surface without physical incorporation (e.g. ethalfluralin), others may be applied with or without incorporation (e.g. s-metolachlor), and others must be incorporated to prevent volatilization (e.g. trifluralin). All of the materials must be present in the zone of weed seed germination in order to be effective. When not physically incorporated, rainfall or irrigation is needed to move the material into the weed germination zone.

For many crops, injury to the crop from these herbicides is prevented by placing the herbicide where it will not contact crop roots, or at least not in a concentration high enough to cause serious injury. So, for instance, ethalfluralin (Curbit®) may be applied to the soil surface without incorporation after direct seeding pumpkins. The pumpkin seed is planted well below the soil surface, and the pumpkin roots will grow down, avoiding the herbicide. If, however a heavy rain washes the ethalfluralin into the root zone of the pumpkins, or the pumpkin seed is planted very shallow, or the pumpkin seeds are not well-covered, the herbicide may contact the roots of the germinating pumpkin seed, causing poor root development and stunted crop growth. Other use patterns permit application only between rows of a crop, or only after a crop is established and only between the rows. This reduces the likelihood that crop roots will contact enough herbicide to cause injury.

Symptoms of injury from dinitroaniline herbicides include short stubby roots with thickened tips, thickened hypocotyls, swelling at the base of grass shoots, and overall stunting. Symptoms of injury from acetamide herbicides include malformation, twisting, and leaves that don't unroll properly in grasses; and leaf cupping, crinkling, and 'drawstring' appearance on broadleaves; as well as stunting.

Mitosis inhibitors have been used in vegetable production for years. They are common in many weed control programs for preemergence control of grasses and small-seeded broadleaves. Effective use requires getting them on in the right concentration, uniformly, in the zone of weed germination, and away from roots or seeds of sensitive crops.

Funding Available from NRCS for Conversation Practices in Three Indiana Watersheds - *(Liz Maynard)* - NRCS recently announced a National Water Quality Initiative that will provide funds to farmers in the Silver Creek watershed, Ell Creek watershed, and Eagle Creek Reservoir - Eagle Creek watershed. The funds can be used to pay for practices such as cover crops, filter strips, and terraces that will improve water quality in the designated areas. Applications for funding in this fiscal year must be received by June 15. Contact your local NRCS office **http://www.in.nrcs.usda.gov/contact/directory/field_offices.html** to see whether you are in one of these watersheds. For more information, see the NRCS site at **http://www.in.nrcs.usda.gov/programs/eqip/nwqi.html**.

Upcoming Events:

May 15, 2012, 6:00 p.m. ET. *Garden of Eatin'* Field Day and Drip Irrigation Workshop, 268 E. 600 N., Fortville, IN. For more info 317-462-1113 or **rballard@purdue.edu**.

May 24, 2012, 6:00 -7:30 p.m. ET. High Tunnel Construction and Maintenance. Harvestland Farm of Aspire Indiana, 6775 State Rd. 32, Anderson, IN. For more info 765-641-9514 or **orick@purdue.edu**.