VEGETABLE CROPS HOTLINE

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

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http://www.entm.purdue.edu/entomology/ext/targets/newslett.htm

IN THIS ISSUE

SQUASH VINE BORER ON SQUASH AND PUMPKINS - *(Frankie Lam)* - Squash vine borer eggs were found on my pumpkins on June 20. About 25% of the pumpkins that I scouted had at least one egg on the plant. The eggs, which are small (1/20 inch) and brown, were laid usually singly at the base of the plants, on the petioles of leaves, or on the stems. Squash vine borer is an occasional pest on squash and pumpkins in Indiana. Damage is usually worse in areas where squash and pumpkins are grown year after year. The presence of the borer is usually not noticed by growers until after the damage is done.

The eggs of the borer will hatch within a few days. The squash vine borer larvae bore into the plant immediately after hatching. As the larvae bore into the stem, they leave behind a telltale sign of sawdust-like frass at the entrance hole. The larvae, which are white grub-like caterpillars, feed inside the stem for 2-4 weeks. The larvae destroy the vessels in the stems, causing the vines to wilt and eventually die. Once inside the vine, little can be done to control the pest. After full-grown, the larvae leave the vine and spin silken cocoons in soil. In the northern areas of the Midwest, the larvae overwinter in the cocoons, whereas in the southern areas, they pupate and give rise to the second-generation.

The squash vine borer adult is a "clear wing" moth with wingspan about 1 1/2 inches. Their front wings are metallic green, whereas the hind wings are almost without scales. The body of the moth is generally orange-red with black bands on the abdomen. The moth is a daytime flier, and is commonly mistaken as a wasp.

From mid-June through early August, if adult moths are found in fields, vines should be checked for any signs of eggs and larval feedings. Scout at least 5 plants in 10 locations for borer eggs and frass in each 20-acre field. Once sawdust frass is found, stems should be split to check for the presence of borers. Early signs of larval feeding indicate eggs have been laid and probably eggs will hatch within a few days. Two insecticide applications, spaced 5-7 days apart, will control the majority of the newly hatched larvae before they enter the vines. Currently, no economic thresholds have been developed for the borer. Ambush, Asana, Pounce, and Thiodan are labeled for the control of squash vine borer. Be certain to read the label carefully before using any pesticides.

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TWILIGHT MEETING UPDATE - *(Chris Gunter)* - Recently the specialists at the Southwest Purdue Agricultural Program located in Vincennes held a Twilight Meeting for vegetable growers in this part of the state. Vegetable producers came from as far away as Princeton to have their questions addressed by Dan Egel (Extension Plant Pathologist), Frankie Lam (Extension Entomologist), and Chris Gunter (Horticulture Specialist). Also on hand was Kallie Burke, the new Research Technician for the Program.

Questions for Dan centered around Fusarium wilt. He has seen this problem showing up in various watermelon fields. He encouraged proper cultivar selection and long rotations as the best ways to prevent this disease. Fumigation, if cost effective, is another option to reduce this problem.

Frankie's main questions were about spider mite and aphid control. There was interest in knowing more about squash vine borer and squash bugs. Frankie has included articles about these pests musin this issue of the *Vegetable Crops Hotline*.

I fielded a few questions on yellow leaves in the hills of watermelon plants. An article about this is included in this issue. There was some interest in the new Strategy and Sandea herbicides and results of experiments done on those herbicides around the state will be presented at the winter meetings this year.

These Twilight meetings are informal gatherings that allow vegetable growers to bring in their questions and talk casually with Purdue Specialists. I invite and encourage you to attend these meetings when you can and bring current questions and concerns. Chances are if you are seeing something in your fields, others are too and may have good practical advice to help you solve the problem.

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SQUASH BUG ON SQUASH AND PUMPKINS - *(Frankie Lam)* - A pumpkin field was sampled on the last week of June near Vincennes. About 15% of the pumpkins scouted had squash bug eggs, nymphs, and/or adults on the plants. Squash bug is a serious pest of cucurbits particularly during the late season in the Midwest. Nymphs and adults that feed on the fruit can cause the pumpkin to collapse and become unmarketable. Because adults and large nymphs of squash bug are difficult to control by using insecticides, the main tactic for management is early detection and control of the young nymphs.

The brownish black, flat-backed squash bug adults are 5/8 inch in length. After mating, egg masses are usually laid on the underside of leaves in the angle formed by the veins. The egg mass contains 10-20 eggs, and each egg is about 1/16 inch long. The metallic bronze eggs hatch within 1-2 weeks. The newly hatched nymphs are wingless, whitish green with reddish-brown legs and antennae. The older nymphs are wingless, grayish-white with black legs and antennae. The nymphs go through 5 stages and transform to adults after 35-40 days. Only 1 generation develops each year.

The squash bug adults are very active and move easily from plant to plant or field to field. The bug prefers squash and pumpkin over water-

melon, muskmelon, and cucumber. Both nymphs and adults feed by sucking plant sap. Their feeding causes leaves turn black and crisp, and the plant wilts and eventually dies.

The squash bug is one of the most difficult insects to control satisfactorily. Scouting from early season to the flowering of plants is important for management. The most effective tactic to manage squash bugs in small fields and gardens is to collect the bugs by hand and crush the egg clusters as soon as they appear on the plants. For large fields, insecticide application should target on the control of young nymphs. Check at least 5 plants in 10 locations for squash bug eggs. During early flowering stage, the economic threshold for squash bug is 1 egg mass per plant. Ambush, Asana, Capture, Pounce, and Sevin, are recommended for the control of squash bugs; Sevin will provide marginal levels of control. Be certain to read the label carefully before using any pesticides.

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IVGA Wholesale Producer Directory Available - *(Liz Maynard)* - The 2002 edition of the Indiana Vegetable Growers' Association Directory of Wholesale Vegetable Producers is now available from the Web at: <www.in.gov/oca/other/vegetable.html>. The directory lists IVGA members who produce vegetables in wholesale quantities and what crops they produce. A hard copy of the Wholesale Directory will be mailed to all current IVGA members this week. If you need additional copies of the Wholesale Directory, please contact the Association by phone at: 219-785-5673, or send e-mail to: emaynard@purdue.edu.

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Weed Management in Hot and Dry Weather - *(Chris Gunter)* - Weather conditions play a major role in weed management and herbicide effectiveness. Dry weather can slow weed seed germination and growth and increase the hardiness of the weed. Plants tend to develop thicker cuticles in hot, dry weather in order to limit water loss. This thicker cuticle acts as a barrier to any herbicide application applied to the weeds.

Hot, dry weather also leads to drought stress on both cultivated plants and weeds. This stress reduces the weeds metabolic activity and reduces translocation of systemic herbicides. Post emergence herbicides frequently require plants to be actively growing for best control. Post emergence herbicides frequently require plants to be actively growing for best control. Contact herbicides are more phytotoxic to plants under hot, dry conditions. Systemic herbicides are frequently less effective due to a lack of translocation.

Weeds are also able to more effectively compete with your crop for water, nutrients and light under these conditions. Under most conditions, weeds are able to use the available soil moisture more efficiently than the crop plant. This translates to greater survival of the weeds during hot, dry weather than your crop plant and can limit crop plant growth and quality.

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Applying Fungicides Effectively - *(Dan Egel)* - Since we are in the midst of the vegetable season, many growers may have questions about applying fungicides for disease protection. This article addresses some of the possible concerns.

Nozzle types and spray pressures - Research conducted at the Southwest Purdue Agricultural Program over a 3-year period demonstrated no differences in flat fan versus hollow cone nozzles and spray pressures ranging from 30 to 150 pounds per square inch (PSI). For this work, chlorothalonil (Bravo Ultrex) was applied to muskmelon plants inoculated with Alternaria leaf blight. Similar results have been obtained with other vegetable crops. Disease control was the same for hollow cone and flat fan nozzles for early and late leaf spot of peanut, bacterial spot of peppers and blast and purple blotch of onions. In addition, spray pressures ranging from 50 to 250 PSI did not affect control of early leaf spot or late leaf spot of peanut.

One study found that while hollow cone tips provide better overall coverage, flat fan tips provide better penetration into the plant canopy. However, our work at the Southwest Purdue Ag Program with water-sensitive paper did not detect differences in coverage between flat-fan and hollow cone nozzles over spray pressures of 30, 60 and 120 PSI.

Fungicide application timing - The first rule of fungicide application is to apply fungicides before a disease shows up. This is true because by the time one disease lesion is observed, dozens of lesions too small to be seen with the naked eye are already present. Remedial treatments applied after a disease is diagnosed are seldom very effective, regardless of the fungicide. A general rule is to begin fungicide applications before vines touch within a row.

After the initial application, most growers apply fungicides at intervals ranging from 7-days to 14-days. Shorter intervals should be used when disease pressure is high, longer intervals when disease pressure is low.

The manner in which fungicides are applied may not be as important as when and how often they are applied. Apply fungicides before disease is observed and make more frequent applications during warm, moist weather. The time and effort directed at proper disease control will pay handsome dividends at harvest.

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