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Insect Notes, 7/27/2011

European corn borer: the first generation was more abundant than usual this year, in June. The second generation is now starting up in central Ohio as indicated by increased catch of moths since 18 July. This pest is likely to cause problems in sweet corn and peppers during the next month. Sweet corn fields planted with Attribute (B.T.) hybrids should not need any insecticide sprays to protect them from this pest. Sweet corn fields with conventional hybrids should be sprayed by insecticide when they are beginning to silk and at 5-day intervals until harvest. Pyrethroids (Pounce, Warrior, Brigade, Baythroid, Mustang Max, Hero) or Penncap-M usually provide excellent control of this pest on sweet corn. On peppers, Orthene is the best insecticide but can be used only twice so its use should be reserved until the peak egg hatch period. Pyrethroids can be used before or after the Orthene. A new alternative for borer control in peppers is treatment with Coragen via drip irrigation.

Corn earworm was active earlier than usual, in May and early June, throughout Ohio, but has been at low levels during July at most farms. Its abundance could increase sharply at any time in mid- to late-summer. Growers who use a pheromone trap to monitor moth activity should check the traps at least three times per week. Trap reports from several Ohio locations are posted on a webpage: http://bugs.osu.edu/welty/veg_traps1/Veg_traps.html. The population is considered to be at low density when trap counts are 1 to 6 moths per week; moderate when 6 to 90 moths per week, or high when more than 90 moths per week. Insecticides can protect silking sweet corn from earworm infestation if applied on a 2- to 5- day schedule, depending on the population density. Pyrethroid insecticides are generally not working as well as they previously did for control of corn earworm; if used, they should be applied at the maximum rate. Alternative insecticides with a different mode of action are Coragen, Radiant, and Belt, or Voliam Xpress which is a pre-mix of the active ingredients in Coragen and Warrior. Plantings of Attribute (B.T.) sweet corn should not need supplemental control if earworm populations remain low, but would benefit from 2 sprays during silking if earworm populations increase to high density.

Western bean cutworm is a new pest that we are watching for, especially in northwest Ohio where it has been detected at increasing density for the past 3 years. The moth is being caught in pheromone traps, with higher numbers in NW Ohio and low numbers in the rest of Ohio. There have been no reports of its eggs or larvae on sweet corn but it would not be surprising if infestations are present at low density. This pest is not suppressed by Attribute (B.T.) sweet corn hybrids but can be controlled by applications of pyrethroids. More information on this pest can be found in a fact sheet on Ohioline:

<http://ohioline.osu.edu/ent-fact/pdf/0040.pdf>

Cucumber beetles: The striped cucumber beetle continues to be found on many farms but has been reported as absent this year on some farms. Since early July, it is often found along with its cousins, the spotted cucumber beetle and the western corn rootworm. Cucumbers and melons should be protected from this pest to avoid infection by bacterial wilt.

Brown marmorated stink bug: We are waiting to see whether or not this new pest will cause economic damage in Ohio vegetables this year. In our large network of experimental pheromone traps around Ohio, there has been no catch yet on vegetable farms although traps in an apple orchard in Columbus did catch the target pest. Our blacklight trap in Columbus has been catching this pest in low numbers since late May, but in increased numbers starting on 16 July. One nymph of this stink bug was found on a cabbage plant in Columbus 2 weeks ago, and a hatching egg mass of this stink bug was found on a velvetleaf plant in a sweet corn field in Columbus last week. Anyone who wished to report a sighting of this new pest can do so at this website: <http://www.surveymonkey.com/s/bmsb>

TOUR NEXT WEEK

Melon pest and disease research is the focus of a field tour on 2 August, 4-6 p.m., at Wooster, as part of the tour series organized by Ohio State University's Sustainable Agriculture Team. The tour site is the Frye Farm at the Ohio Agricultural Research and Development Center (OARDC). The Frye Farm is one mile east of OARDC's main entrance, 1680 Madison Ave., Wooster. Featured will be trials with row covers and trap crops to manage bacterial wilt and cucumber beetle in muskmelon. The trials are part of a SARE-funded project under the direction of Sally Miller, Celeste Welty, and Mary Gardiner at Ohio State and their counterparts at Iowa State University.

Yellow vine disease on squash, pumpkins, and melons

C. Welty

Yellow vine is a relatively new disease of vine crops that was first verified in Ohio in 2003 and has been seen sporadically since then. This disease has been known in Kentucky, Oklahoma, and Texas for about 18 years. Studies in Oklahoma have determined the causal organism and its insect vector. The causal organism is *Serratia marcescens*, which is a common bacterium that is not typically a plant pathogen. The vector is squash bug. Squash bug is a well-known pest of squash but never known to be a disease vector until now.

The symptoms of yellow vine are a sudden yellowing of a plant followed by plant collapse and death, usually in late July. There is a period of at least 28 days between infection and appearance of symptoms.

Symptoms can be confused with wilting due to squash vine borer or to bacterial wilt. Suspicious plants should be examined to determine if there are holes in the base of the stem that indicate squash vine borer is involved, or if there is yellowing or browning between leaf veins, which often indicates bacterial wilt infection.

The best quick field diagnosis of yellow vine is to cut the plant at the stem base and look at the vascular tissue. The phloem ring should be green in a healthy stem but is honey-brown in a plant infected with yellow vine. If a plant is to be sent to a diagnostic lab, this section of the stem base is what should be sent, usually a 2 to 4-inch chunk just above and below the soil line. Our diagnostic OSU clinic is in the process of developing this test (at cost of \$50 per field) but it is not yet available.

As with most insect-vectored diseases, the only control of the disease is control of the vector. To understand control of squash bug, we need to be familiar with this insect's life cycle and behavior. The squash bug overwinters as adults and moves into cucurbit fields as soon as new crops emerge. The adults are often overlooked because they feed on the underside of the cotyledons. They start to lay eggs in July. Eggs are shiny and brown, usually in clusters on the underside of leaves where two veins meet. In one to two weeks, eggs hatch into grey spider-like nymphs. Nymphs feed by sucking sap from leaves and stems. Nymphs go through 5 instars in about one month before they reach adulthood in late summer. They have one generation per year. Squash bugs are usually found on plants during the day but down on the ground under the plants at night.

Control of squash bug is best started at the time of stand establishment. Chemical or non-chemical tactics can be used. Mechanical tactics are row covers from planting time until first flowering, and destruction of crop residue immediately after harvest. Cultural controls are rotation with non-cucurbit crops, and promotion of early growth of the crop. Biological control often happens in plantings where no insecticides are used; squash bug is commonly attacked by a parasitic fly called *Trichopoda pennipes*, and there are several parasitoid wasps that attack eggs of squash bug.

Chemical tactics include foliar insecticide sprays or systemic insecticides applied to soil at planting. Many growers are already using a systemic such as Admire (imidacloprid) or Platinum (thiomethoxam) in-furrow at planting (or as a pre-transplant plug drench) for control of cucumber beetles. These products do not have squash bug listed as a target pest on the label, but they are known to kill adult squash bugs during the seedling stage. Foliar sprays of pyrethroids or Thionex (endosulfan) are other options but these do not have systemic activity. To be effective, these need to be applied at weekly intervals. Pyrethroids currently registered for use on squash are Mustang Max, Baythroid, Warrior, Brigade, Asana, Pounce, Decis, and Danitol. Squash bug can be challenging to kill with insecticides due to their protected location in a dense crop canopy. The soft nymphs are more susceptible to insecticides than the hard-bodied adults. Sprays should be applied at high pressure to get good penetration into the canopy.

Images:



Figure 1. Plant with typical yellow vine symptoms (from Oklahoma State Univ.)



Figure 2. Stem with typical yellow vine symptoms (from Oklahoma State Univ.)

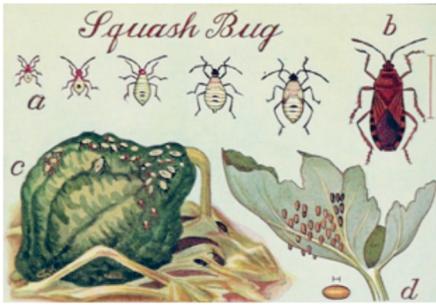


Figure 3. Life stages of squash bug (by Eva Melady)
–Celeste Welty, 7/10/2009, revised 7/27/2011

Heat Related Issues

The recent period of hot weather with temperatures above 90 and very humid conditions and with the return of the low 90s and humidity, conditions may cause some heat related issues to show up with certain vegetables.

Tomatoes:

Getting Them to Turn Red

Temperature plays a very important part in the ripening process. Lycopene, the pigment that gives ripe tomatoes their red color, is only produced at ambient temperatures of between 50 and 85 degrees Fahrenheit. The optimum temperature for lycopene production is 68–77 degrees Fahrenheit. Any great deviation from these temperature ranges will mean that tomatoes won't turn red. Sometimes when it gets quite hot, tomatoes on the vine may have a yellowish orange look. If practical for the size of your operation, it might be better to pick them in the pink stage and let them ripen indoors in cooler temperatures. Tomatoes need warmth, not light, to ripen, so there's no need to put them direct sunlight. Place them out of direct sunlight where the temperature is 65 to 70F.

Causes of Poor Tomato Fruit Set

Fruit Set. The transition of a flower into a young fruit is very sensitive to several environmental factors.

Temperature and Humidity. Daytime temperatures above 90°F and night temperatures above 70°F result in reduced flowering and fruit set. There is considerable evidence that night temperature is the critical factor in setting tomato fruit, the optimal range being 59°F to 68°F. With night temperatures much below or above this critical range, fruiting is reduced or absent. Low temperatures reduce the production and viability of pollen. High temperature, especially if accompanied by low humidity and moisture, hinders fruit set through failure in pollination and/or fertilization.

Sweet Corn

The following article (Hot, dry season putting damper on corn yield potential) is taken from an article written Peter Thomison, a professor in OSU's Department of Horticulture & Crop Science about this year's field corn crop in OH. Some of his observations are possible to also be present in sweet corn fields. We are already seeing more lodging than normal and are likely to see pollination, tip fill and missing kernel problems.

Late-planted Ohio corn may show signs of heat stress and reduced yield potential as extremely hot, dry days plague the state this week, said Ohio State Extension corn scientist [Peter Thomison](#).

When corn is planted in wet soils, root systems often don't develop as well as they would have in drier conditions. And in years with a significant number of abnormally hot, dry days, wet conditions at planting can be very troubling for farmers and yield potential.

Because of the challenges in getting the crop in the ground, Thomison said Ohio essentially has two crops: one planted early and one late. While some corn was planted in April, he estimates as much as 30–40 percent of corn was planted in a window from May 10–12, while the majority of the state's crop was planted after Memorial Day. Those crops are naturally very different, Thomison noted. The corn planted in mid-May, he said, is at or near tasseling now, while corn planted after Memorial day is anywhere from stages V10 to V14. Some corn planted later in June may only be at the V6 stage.

"Given the variability of corn in the fields, some of the later corn isn't rooting very well because of soil conditions at planting – things like sidewall compaction and varying planting depths," Thomison said. "Because of the intense heat and lack of rainfall this summer, some of that corn isn't performing well, even though it was planted in a moist soil bed. Some of this corn could be six feet tall, and in the same field there's corn waist high."

Along with the root structure and development issues, heat may affect yield potential by limiting the number of kernels developed. While conventional wisdom says heat stress at pollination is a problem, Thomison said if hot and dry conditions persist, the real problem this year will be kernel abortion instead of limited pollination.

"If we're looking at temperatures above 90 degrees sustained over a week, combined with soil moisture deficits, the impact on corn could be devastating," he said. "These high temperatures alone may not jeopardize pollination, but in conjunction with water stress they can result in significant kernel abortion after pollination, during early grain fill. So, the ovules may get pollinated, but if we have inadequate moisture, the kernels will just abort and we'll see tip dieback."

Recent windstorms throughout the Eastern Cornbelt also caused problems because of the issues with root development. But Thomison said corn stalks for the most part have already bounced back. In most cases the wind damage was limited and localized, but some problems may still exist with corn stalk crimping, or pockets of green snap.

Observations

Angular leaf spot starting to become prevalent in pumpkins in central OH

Virus in pumpkins is also being found

Bacterial spot is in tomato fields on both leaves and on petioles of flowers and fruit.

It is the last week of July and growers should consider the commencement of their disease control program especially for powdery mildew in pumpkins. Some fruit are already soft ball to soccer ball size. Scout for scarring on the fruit due to cucumber beetles.

Crop Update From July 22 with Brad Bergefurd

Sweet corn harvest volume is beginning to increase after the initial end of June early July harvest. Field tomato harvest has begun. Harvest of field melons and watermelon has begun. Harvest of beans continues with low harvest volumes. Harvest of new potatoes has begun. Harvest of cabbage continues. No real disease or pest outbreaks to speak of. Some Potato Beetle on potato and tomato.

Pumpkin Field Day at Western Ag Research Station - Jim Jasinski, Bob Precheur

The 2011 Pumpkin Field Day held at the Western Ag Research Station in South Charleston, has been set for August 30th, from 6 - 8 PM.

This year, Dr. Sally Miller, Dept. of Plant Pathology, will be in attendance to discuss some recent field and lab work concerning angular leaf spot, downy mildew, and other disease control trials being conducted at Wooster and South Charleston. Dr. Bob Precheur will have a 16 variety pumpkin germplasm evaluation trial at the station for growers to walk through and will present information on fruit size, shape, current trends, yield potential, and disease resistance. Both of these projects are supported by the Ohio Vegetable and Small Fruit Research and Development Program.

Also at the field day will be a demonstration trial of six to eight fungicide programs designed primarily to control powdery mildew, which will be presented by Jim Jasinski, OSU Extension IPM Program. Some of the products included in the demonstration trial include Quintec, Rally, Procure, Pristine, Manzate, Luna Sensation, Torino, and others. A brief update will also be given about the insensitivity (lack of control) of powdery mildew to many of the commonly used fungicides. Rounding out the evening will be Dr. Celeste Welty, Dept. of Entomology, who will give an update on managing insects like squash vine borer and cucumber beetles on pumpkin, as well as some recent findings of a trap crop experiment.

Growers will be transported from site to site via a shaded tour wagon, and will be encouraged to walk around the plots at each stop and ask questions of the specialists. Cost will be \$5 per person, and pre-registration will begin at 5:30 PM, with the tour starting promptly at 6:00 PM. Both CCA and PAT credits are being requested, and liquid refreshments will be served on the tour. The research station is located at 7721 South Charleston Pike, South Charleston, 3 miles south of I-70 on SR 41 or 3.5 miles northwest of South Charleston on SR 41 (Clark County, Ohio) [Click here for a map with directions](#).

The field day is sponsored by the OSU Extension Vegetable Team, OARDC, and other industry partners. For more details contact Jim Jasinski, jasinski.4@osu.edu, 937-484-1526 or 937-462-8016.