Spotted Wing Drosophila

Statewide reports indicate a drastic increase in SWD infestation in raspberry, blackberry, late season peaches, and late season blueberry. This increase is, in some cases, over a hundred-fold. Upwards of 60% infestation has been seen in raspberry fruit and even greater in blackberries. Larvae are being found developing in ripe fruit meaning eggs were laid in unripe fruit. Locally, we have found SWD adults in traps in Albany, Columbia and Washington counties. We have found SWD larvae in fruit in Saratoga, Schoharie, Columbia, Rensselaer, Washington, Albany and Schenectady counties.

Additionally we are asking growers to look at tomato fruit, specifically cherry tomatoes and tomatoes in high tunnels. We have caught SWD adults in vinegar baited traps in cherry tomatoes, but at this point see no fruit damage.

Damage from SWD will manifest itself as:
- eggs laid in fruit which then hatch out into small, white larvae
- larvae eat the flesh of the fruit, causing a type of “melt-down’ inside the berry
- egg laying introduces fungal pathogens, which rot fruit

Growers Alert! It is critical for at-risk-berry growers to get insecticide protection on your crop. A best approach would be to clean harvest all fruit that is ripe (and check it for larvae before placing it on the market shelf). Then apply the insecticide with an appropriate PHI / DTH. For organic

(Continued on page 2)
Fruit Loads in Vine Crops

A common question from growers and crop consultants is, “How many fruit should a plant carry, and what will affect fruit set and fruit “carry” in vine crops?”

For watermelons, a healthy, vigorous plant may set 3-7 fruits initially. However, for mid-size and larger watermelons, the plant will only carry 2-4 fruits at any time. Smaller fruited varieties will yield more fruits per plant but essentially the same amount of pounds as larger types. This is the carrying capacity of the plant and is directly related to the quantity of photosynthates being produced by the plant, mostly in the leaves. Any additional fruits, even if initially set, will be aborted. Once the first fruit ripens and is harvested, additional sets can be carried.

To carry the maximum amount of fruit, it is necessary to maintain high plant vigor and good foliage health. This requires paying close attention to irrigation and fertility programs; having excellent disease, insect and mite control; and having good pollinator activity during pollination and fruit set. If average fruit carry is less than 2 per plant in watermelons, that is a sign that the plants have reduced vigor and are under stress. Repeated fruit set depends on maintaining vine health through the season.

Another factor to consider is where fruit set is occurring. Crown sets are desired in watermelons, especially in early plantings. Crown sets are those that occur on nodes closest to the base of the plant, within the first 8 nodes. Having good crown sets requires that plants have good early growth so that adequate leaf area is produced that can support early set fruit as well as proper pollination (sufficient bees). Lack of crown set is a sign of poor early growth, early plant stress, or of problems with pollination.

With pumpkins the carrying capacity is similar; however, because pumpkins are not repeat harvested as are watermelons, harvest is limited to those fruits set initially. Medium sized Jack-o’-lantern types will carry 1-2 fruits, larger types closer to 1. All others will be aborted. Smaller types will carry more depending upon their size in pounds (for example a variety with 5 lb. average will carry 4-7 fruits).

Maximum carrying capacity in pumpkins is largely affected by variety (varieties with some heat tolerance will carry more fruits in our climate) and foliage health. Excess nitrogen fertilization will often delay fruit set in pumpkins. In gynoecious cucumbers grown for once over pickle harvesting, there will be two fruits set on adjacent nodes that are ready for harvest at any one time. These will be set on nodes 2-6 commonly. The pollinizers that make up a small percentage of the population will set pickles every fifth node generally and therefore only one fruit will be ready for harvest.

Yield reductions in gynoecious pickling cucumbers occur when there is a loss of set so that fruits are not on adjacent nodes. Parthenocarpic pickle varieties that set fruit without pollination will commonly have 4-6 pickles on 3-5 adjacent nodes ready for harvest at any one time. This allows them to be planted at much lower densities.

Materials for peaches are in the Cornell Guides: peach & nectarine spray table

The fruit blog has SWD updates at http://blogs.cornell.edu/fruit/. The SWD distribution map is at http://hudsonvf.cce.cornell.edu/NY%20SWD%20Monitoring.html.

If you believe you may have SWD larvae in your fruit, please call Laura McDermott, 518-791-5038. This is the first season that we have experienced wide-spread infestation and your help is needed to understand the distribution and dynamics of this new invasive pest. –LGM
Each year we come across pumpkin fields with poor fruit set and this year is no exception. Poor fruit set can be a major problem in pumpkin production, especially with large jack-o-lantern types, and may have a number of causes. Pumpkins produce both male and female flowers and require insect pollinators, primarily bees (honey bees, bumble bees, squash bees and other native bee pollinators). The first nodes will produce all male flowers and then female flowers will be produced some time later on (commonly after the eighth node). This early male flower production attracts bees, initiates bee flights to the field prior to female flowers opening and insures that an adequate supply of pollen will be available for pollination to occur. Jack-o-lantern types will carry only 1-2 pumpkins per plant so anything that affects fruit set will reduce the total crop yield dramatically. Poor crops occur when 1) female flowers or small fruits are aborted or 2) when production of female flowers is delayed and late sets do not have time to develop before shorter days and colder weather set in.

In the first case, female flowers can be aborted due to stresses before pollination occurs, can abort due to lack of pollination or incomplete pollination, or small fruits can abort after pollination due to stress or injury. High temperature is the most common problem causing these abortions. Day temperatures in the 90s and night temperatures in the mid to high 70s (F) can lead to loss of these female flowers or small fruits. High respiratory demand will limit photosynthates so the plant cannot support the production of both fruits and new growth (leaves and stems) – fruit set is sacrificed until growing conditions improve. This can be very variety dependent; however, recommended varieties for this region have proven to be well adapted even at relatively high temperatures. High temperatures also have an effect on the seed set due to reduced pollen viability and poor pollen germination leading to early fruit abortions or deformed and unmarketable pumpkins.

Drought stress can also cause problems with fruit set and cause abortions. Dry weather during early growth will cause plants to develop a high male to female flower ratio. Severe drought and wilt will reduce photosynthesis and limit the number of fruits that are carried. Flooded soils or soils that stay saturated for long periods will cause pumpkin roots to shut down and can lead to temporary wilting that will also cause some flower or fruit abortion.

Planting at too high of a density (closer spacings), especially with high nitrogen, can cause excessive foliage and increased shading that will limit early fruit sets. This can also occur when fields are seeded heavily (more than one seed per hole) and then are not properly thinned. As a guideline for jack-o-lantern sizes (15-25 lbs), semi-vining varieties need 15-30 square feet per plant, full vining types 20-35 square feet per plant. Some varieties will handle higher densities better than others (check with your seed company for recommendations). Excessive foliage and high densities can also limit the ability of bees to effectively move between flowers and complete pollination.

As stated, pollination depends on bees. Even though native pollinators are present, we have reduced numbers due to loss of habitat and use of insecticides. We therefore recommend 1-2 strong colonies (hives) of honeybees per acre of pumpkin field, the higher the planting density, the higher the number. An inadequate number of hives or weak hives can limit fruit set. Colonies should be placed as first male flowers are produced. Delays in hive placement can delay fruit set. Pumpkin flowers are open for about 6 hours starting at daybreak and pollination must be completed during that 6 hour period for fruit to set. Bees must move pollen from male to female flowers and multiple visits to the female flower are needed to complete pollination (one visit every 15 minutes). Bee flights are reduced in cold conditions (below 60°F) and are most active above 70°F. Windy weather (more than 12 mph) will also reduce bee flights. Windy, stormy weather will reduce fruits set during those periods. Hive placement and management, length of rows, alternative flower sources and improper insecticide...
use can also impact bee pollination effectiveness. We had a cool July in 2009 and some significant stormy periods during flowering this year that could have affected fruit set by reducing bee activity.

Insect feeding on flowers or very young fruit can cause abortions directly. Certain insects can cause stress by feeding on plants or can stunt plants so much that flowers are aborted. We had heavy squash bug and cucumber beetle infestations in pumpkin fields at times this year that might have reduced fruit set (squash bug in particular).

Poor crops can also be a result of delayed female flower production. This occurs in two opposite conditions. As previously stated, drought during early growth will favor male flower production and delay female flower production (not usually an issue for DE growers). In contrast, heavy nitrogen application and ample water will often lead to vines remaining vegetative for longer periods of time, producing female flowers only later in the season (too late to mature in time). This is likely to occur on heavier ground, high organic matter soils, fields with heavy manure application (more than 3 tons of poultry manure for example) and where more than 100 lbs of nitrogen are applied with fertilizers.

Due to the many factors mentioned above, planting date can also be important in achieving good pumpkin crops. As planting is delayed into early June, the risks associated with poor early fruit sets become greater. If first sets are lost, later sets may not have enough time to make a crop or may mature out of the main marketing window. To reduce these risks, plant at least a portion of the crop before mid June. In addition, consider using multiple varieties in case one is more sensitive to a particular stress. Consider splitting N applications and assess whether or not the second N application is needed according to vine growth and tissue tests.

(Gordon Johnson, Extension Ag Agent, Kent County, September 11, 2009 Weekly Crop Update, University of Delaware Cooperative Extension)

We’re Online!

Do you ever wish you could remember an article from one of last month’s Weekly Updates? Now, you can revisit that article with the click of a mouse thanks to the new Capital District Vegetable and Small Fruit website! Go to http://cdvsfp.cce.cornell.edu, and log on as an enrolled member and to find a plethora of information.

Features include:

Achieves of Weekly Updates and VegEdge Newsletters

Research and articles (Insects, Diseases, Weeds, Soil health, Greenhouses & tunnels, Organic growing, and Food safety)

Important Announcements

Upcoming Events

Enrollment Info

Interesting Links

Check it out!

Click on ‘Log In’

Enrollee Password: cdvsfp2012
Websites of Interest

- Diagnose pest and disease problems using color pictures: [http://vegetablemdonline.ppath.cornell.edu/](http://vegetablemdonline.ppath.cornell.edu/)
- Cornell Guidelines for fruit and vegetables: [http://www.nysaes.cals.cornell.edu/recommends/](http://www.nysaes.cals.cornell.edu/recommends/)
- USDA Fruit and Vegetable Market News: [www.marketnews.usda.gov/portal/fv](http://www.marketnews.usda.gov/portal/fv)

Weekly and Seasonal Weather Information

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Weekly and Seasonal Weather Information

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Weekly and Seasonal Weather Information

- Diagnose pest and disease problems using color pictures: [http://vegetablemdonline.ppath.cornell.edu/](http://vegetablemdonline.ppath.cornell.edu/)
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