

VegNet Vol. 15, No. 9. July 1, 2008

Ohio State University Extension Vegetable Crops

On the WEB at: <http://vegnet.osu.edu>

If experiencing problems receiving this fax, Call 614-292-3857

In This Issue

1. Insect News
2. Tomato Grafting

Insect News 6/27/08 C. Welty

Corn earworm: this pest is present in Ohio now, but not in high numbers. In Illinois and western Indiana, there have been reports of unusually high numbers of corn earworm moths caught in pheromone traps since 9 June. On 27 June we again have reports of high numbers in Illinois, Indiana, Iowa, and southern Wisconsin. As many as 315 moths in one trap in one night were found in Illinois. We have NOT seen this high level of activity in Ohio. Ohio trap counts are shown on the webpage: http://bugs.osu.edu/welty/veg_traps1/Veg_traps.html In our corn earworm traps at Columbus, which have been out since 28 May, we have caught 1 to 5 moths per trap per week. Traps in Meigs County, Clark County, Wayne County, Sandusky County, and Ottawa County have had similar low catches. The only trap in Ohio with moderate catches is at Celeryville, where 14 moths were trapped this past week. When corn earworm moths are known to be active, preventive sprays of insecticide are needed on sweet corn that is silking. With the current levels of moth activity and temperature, corn should be treated every 5 days starting when 25% of the plants show silk and ending about 5 days from harvest. If moth numbers increase, then the spray schedule should be intensified to a 3- to 4-day schedule. A chart with the spray schedule guidelines is on page 251 of the 2008 Ohio vegetable production guide, or on-line at: <http://ohioline.osu.edu/b672/pdf/Corn.pdf>

Squash vine borer: the adults are beginning to emerge. Our first catch of squash vine borer moths in pheromone traps at Columbus was on 13 June and at South Charleston on 26 June. We expect to see increasing numbers of moths caught over the next few weeks. This pest has one generation per year, and the peak catch of moths is usually in early July. These moths lay eggs at the base of stems of squash, pumpkins, and gourds. The eggs hatch in 10-15 days into larvae that immediately bore into the stem. This pest can be controlled by insecticide if the young larvae encounter a toxic residue before they bore into the stem. Insecticide directed at the base of stems should be applied twice, about 7-10 days apart. The first spray should be applied when eggs are hatching, which is usually in early July. The most effective insecticides for this pest are endosulfan (Thionex, formerly called Thiodan) or pyrethroids (Pounce, Asana, Baythroid, Mustang, or Capture).

◆ **Tomato Grafting: Its Status and Potential** ◆ Dr. Matt Kleinhenz, Department of Horticulture and Crop Science, The OSU-OARDC

Why Grafting?
Tomato and other vegetable crops routinely face less-than-ideal conditions. Air and soil temperatures, nutrient levels, and soil moisture availability can differ from crop preferences. And, disease organisms can attack roots, foliage or fruit. What can farmers do to create ideal growing conditions for their crops and protect them against disease?

Begin by becoming familiar with the principles and practices of integrated crop management. Selecting the best available varieties, using fertilizers, irrigation and crop protectants properly and other practices help maximize short- and long-term profit potential.

These Best Management Practices are an excellent start to successful production. For a growing number of farmers, however, high tunnel use is also important.

A high tunnel is a relatively inexpensive tool used to protect crops from extreme temperature, soil moisture, and wind conditions. In creating specific microclimates, high tunnels also tend to disrupt the onset of certain pest and disease problems common in open field production. Still, successful long-term high tunnel production, especially of tomatoes in the earliest and latest parts of the year, is challenging. Therefore, high tunnel users often ask what they can do to optimize their systems.

Grafting may significantly improve high tunnel tomato production. Grafting may also ♦revolutionize♦ open field production of tomato, eggplant, pepper and other crops.

Grafting directly combines the traits of two varieties, one used as a rootstock and the other as a scion. Grafted plants are now used in fruit and hydroponic greenhouse vegetable production worldwide and field vegetable production in Asia and parts of the U.S. Going forward, organic growers may find the use of grafted plants particularly useful since grafted plants are often more vigorous and disease resistant but require lower soil nutrient levels than their un-grafted counterparts.

Research-based recommendations are required to successfully integrate the use of grafted plants into all farmers ♦toolboxes. The Ohio State University, in collaboration with North Carolina State University, the University of Minnesota, West Virginia State University and Pennsylvania State University are working to develop these recommendations. With broad-based sponsorship, the team has set out to:

1. Test grafted tomato plant performance in fields, high tunnels, and greenhouses;
2. Develop tomato rootstocks that improve fruit yield and quality;
3. Explain rootstock, scion and growing condition effects on the response of grafted plants to stress and resistance to disease; and
4. Increase knowledge about grafting and facilitate its successful use on farms.

The project focuses on tomato grown in certifiable-organic systems. However, what we learn can be applied to various crops and growing areas, so numerous growers will benefit.

The project began in 2008. So far, the Ohio team has:

1. Produced 5571 grafted plants involving ♦Celebrity♦ as a scion grafted onto thirty-five different varieties used as the rootstock;
2. Transferred grafted plants to North Carolina and Minnesota for wider evaluation; and
3. Established a total of 144 organic and conventional plots of grafted plants at the OARDC in Wooster, OH and North Central Agricultural Experiment Station in Fremont, OH.

In the near future:

1. Plants and fruit in all of the experimental plots in Ohio, North Carolina and Minnesota will be evaluated using a wide range of measures completed by the ten investigators on the project;
2. Farmers will be invited to test grafted plants on their farms; and
3. Programs on grafting, including how to graft tomato and other vegetables, will be held. Ohio farmers interested in testing grafted plants on their farm should contact Dr. Matt Kleinhenz, (ph. 330.263.3810; kleinhenz.1@osu.edu). Also, additional information is available at: <http://www.oardc.ohio-state.edu/graftingtomato>

Acknowledgments

We would like to thank the USDA Integrated Organics program (Grant 2007-51106-03794) and the Ohio Vegetable and Small Fruit Research and Development program for their support of the project. We also appreciate the support provided by The OSU-OARDC, Ohio State University Extension and the departments of Horticulture and Crop Science and Plant Pathology.

Michelle Young, Sonia Walker, Troy Aldrich, Alba Clivati-McIntyre, Natalie Bumgarner, Rosa Raudales, Jerrod Weyer, Matt Hochmuth, Freddy Cruz, Lee Duncan, Keisa Hartzler, Bob Napier, Torri Leach, James Howell, John Elliott, and Bruce Williams have provided excellent technical assistance to the project. Ohio Earth Food Growers in Hartsville, Ohio generously supplied transplant growing medium.