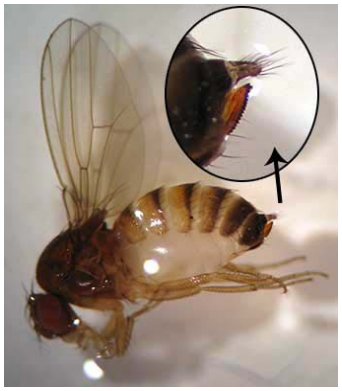
**Report to the New Jersey State Board of Agriculture**
**October 2011**

# Spotlight on Spotted Wing Drosophila

**A *potential* pest of New Jersey blueberries and other soft fruit**

In July, the first adults of the Spotted Wing Drosophila were found in blueberry farms in New Jersey. Spotted Wing Drosophila (*Drosophila suzukii),* native to Southeast Asia, with some reported presence in Hawaii, is a fruit insect pest that had its first confirmed sighting in the United States in 2008, in the state of California. Since then, it has spread to states like Oregon, Washington, North Carolina, South Carolina, Michigan, Virginia, and Florida. It's also spread in the last two years to several provinces in Canada like Alberta, British Columbia, Manitoba, Ontario, and Quebec.



Spotted Wing Drosophila adult female. Inset shows saw-like ovipositor used to cut into fruit skin. Photo credit: British Columbia Ministry of Agriculture

The greatest potential impact is expected to be in blueberry, peach, cherry, strawberry, raspberry, and blackberry crops because it's easier for these flies lay their eggs in soft-fleshed fruit and for larvae to develop. This pest has also been reared out of other fruit crops and from berries of wild plants. Apple crops are not at risk because they are not soft-fleshed fruit.

Spotted Wing Drosophila flies are small, around 2.5-3 mm in length, with light brown bodies and darker brown bands on the abdomen. Adults have characteristic bright red eyes and the males have a prominent dark spot on each wing that can be easily seen with a hand lens. Females are less distinctive but their serrated ovipositor is a distinguishing feature.

Spotted Wing Drosophila adult male with distinctive wing spots. Photo credit: British Columbia Ministry of Agriculture

Led by **Dean Polk** (fruit IPM coordinator) and **Cesar Rodriguez-Saona** (extension specialist, entomology), Rutgers NJAES fruit IPM program has been monitoring traps placed in all IPM-participating peach orchards, blueberry fields and vineyards. Trapping results and insect identification is being done at the Rutgers **Philip E. Marucci Center for Blueberry and Cranberry Research and Extension** in Chatsworth, NJ. Even after the crops were harvested, high levels were found in traps, although no infested fruit was found. This may be due to the protective sprays on the hanging fruit, while still a presence in fallen fruit on the ground.

Results from these monitoring efforts are provided to growers through the Rutgers Plant and Pest Advisory and Blueberry Bulletin newsletters and at grower meetings.

In August, New Jersey Secretary of Agriculture Douglas H. Fisher issued a statewide advisory about this potential threat to the state's fruit

industry. Fisher credited the discovery of the pest to the Rutgers entomologists and later confirmed by experts at the United States Department of Agriculture's Systematic Entomology Laboratory. According to the New Jersey Department of Agriculture, of the thousands of drosophila species, commonly known as "vinegar flies" or "fruit flies," approximately 175 types are known to exist in North America.

Spotted Wing Drosophila-infested blueberry fruit with pupae. Photo credit: British Columbia Ministry of Agriculture, Pest Management

Spotted Wing Drosophila is not a true fruit fly like blueberry maggot or cherry fruit fly. It is a vinegar fly similar to the other small flies that infest ripe fruit during the summer, but with some important differences. This species attacks intact fruit, using the saw-like ovipositor to lay eggs under the skin. Also, female flies can lay hundreds of eggs and this species develops quickly, completing a life cycle in about three weeks during our typical summer temperatures, allowing buildup of the populations through the season. Although these facts make the *potential* impact high, our fruit crops are managed already using IPM programs for other pre-harvest insect pests such as blueberry maggot. This, coupled with our cold winters, is expected to provide some level of resilience against Spotted Wing Drosophila.

Spotted Wing Drosophila oviposition holes in blueberry. Photo credit: British Columbia Ministry of Agriculture, Pest Management

In September, an unsprayed raspberry planting in North Jersey was suspected Spotted Wing Drosophila infestation. According to **Win Cowgill** (agricultural resource management agent, Hunterdon County) the berries appeared "like raspberry jam." Scientists in the IPM program were unable to confirm the presence of this pest from the refrigerated samples and found, in a conference call with scientists from other state IPM programs, that they also were unable to retrieve the flies from refrigerated samples.

The takeaway is that the major crop that is at risk in New Jersey is blueberries, with cane berries considered the minor crop at risk. Winter grower meetings will address this new pest and growers are asked to be vigilant against this new threat.

## Spotlight

***Jersey Fresh* Farm to School Week Celebration**

On September 30, the culmination of the first-ever *Jersey Fresh* Farm to School Week in the state, Secretary of Agriculture Douglas H. Fisher and **Rutgers Food Innovation Center** (FIC) unveiled several new school lunch recipes at the Gloria M. Sabater Elementary School in Vineland, NJ. At the event, students and officials sampled whole grain Jersey blueberry muffins, Jersey eggplant rollatini with Jersey Tomato primavera sauce, and Jersey blueberry and cranberry yogurt parfaits. Last year, the New Jersey Department of Agriculture (NJDA), in collaboration with FIC and the **Department of Family and Community Health Sciences**, received a $51,215 federal grant to create new food items derived from New Jersey agricultural products for use in the National School Lunch Program. Under the U.S. Department of Agriculture grant, awarded to the NJDA, the FIC has been working to develop single serving, innovative items that meet the nutritional, cost, and shelf life requirements necessary to be utilized in school meals. According to **Diane Holtaway** (associate director of client services, FIC, and the project director), "We have met with many food service directors across the state to understand their preferences for locally produced products that will work well within their kitchen parameters, meet healthy nutritional guidelines, and deliver on pricing." These value-added products include portion-controlled products that meet the nutritional guidelines of New Jersey schools, such as fresh-cut fruit and vegetable snacks, healthy beverages, soups, entrees, and desserts, all derived from produce harvested from New Jersey farms. [Read more.]


Pearl Giordano of Limpert Brothers; **Julie Elmer** (associate director of Food Technology, FIC); Secretary of Agriculture, Doug Fisher; and **Diane Holtaway**

Students at Sabater Elementary School waiting to sample Eggplant Rollatine with Chunky Primavera Sauce

## Spotlight

**Discovery Workshop "Food for Thought"**

On September 7, the **Office of Community Engagement** held a Discovery Twilight Seminar titled "Food for Thought" at the Clifford E. and Melda C. Snyder Research and Extension Farm in Pittstown, NJ. The workshop featured **Win Cowgill** (agricultural and resource management agent, Hunterdon County), **Peter Nitzsche** (agricultural and resource management agent, Morris County), **Jim Simon** (Plant Biology and Pathology), and **John Grande** (director, Snyder Farm), who gave lively presentations and tastings of some of our favorite foods – tomatoes, apples, peaches, basil, and peppers.

**Peter Nitzsche** speaks to workshop participants

The purpose of the workshop was to share the research and science that take place at Snyder Farm to produce these popular *Jersey Fresh* summer staples. Workshop participants learned that hybrid tomatoes bred for taste are as delicious as many of the more revered heirloom varieties. They learned that the "heat" of peppers very much influences prepared foods, as they tasted three styles of chili made with sweet (Fooled You, Aji Dulce #2, and Zavory), medium-hot (Astry and Cajun Bell), and hot (Kukulkan and Burning Bush) peppers.

As they tasted varieties of peaches, participants also learned that in spite of the fact that stores label peaches as either yellow or white, the varieties do have names and distinct flavors. And finally, they got to taste Simon's coveted basil, tomato, and mozzarella salad using four different varieties of basil – lemon, lime, sweet, and Thai -- each imparting a unique flavor.

The farm has been in operation for more than 20 years and is home to research plots covering not only several types of fruits and vegetables, but such diverse products as sports turfgrass, culinary herbs, exotic or ethnic varieties, home orchards, vineyards, and even agricultural/environmental best practices.

**Jim Simon** assembling his signature basil, tomato, and mozzarella salad

## Faculty and Staff Activities and Accomplishments

**Brian Schilling** (Agricultural, Food, and Resource Economics; Food Policy Institute - FPI) was awarded a $112,616 grant under the Northeastern Sustainable Agriculture Research and Education program for "Development of extension programming to support the advancement of agritourism in the Northeast." The study team comprised **Lucas Marxen** (FPI), **Stephen Komar** (agricultural and resource management agent, Sussex County), Lisa Chase (University of Vermont), and **Jenny Carleo** (agricultural and resource management agent, Cape May County).

**Jim Simon** (Plant Biology and Pathology) was awarded $979,856 by the Horticulture Collaborative Research Support Program for "Sustainable African indigenous vegetable production and market-chain development for improved health and nutrition and income generation by smallholder farmers in Kenya, Tanzania, and Zambia" beginning October 2011.

**Ning Zhang** PI (Plant Biology and Pathology) with **Bruce Clarke** (Plant Biology and Pathology) F. Wong, P. Harmon and S. B. Martin as co-PIs were awarded a three-year, $60,000 grant from the U.S. Golf Association for collaborative research titled "Promotion of turf health through early pathogen detection-development of a Turf PathoCHIP." Zhang and colleagues will develop a fast and sensitive molecular diagnostic method for early detection of important turfgrass pathogens.

## Mark Your Calendars!

**Southern Pine Bark Beetle Class**
**WHEN:** October 27, 2011.
**WHERE:** RCE of Cumberland County, 291 Morton Ave., Millville, NJ.
**WHAT:** Free class presented by **Mark Vodak** (associate extension specialist).
**MORE INFO:** Call 856-451-2800, ext. 4 to register.

**South Jersey Landscape Conference and Nursery Meeting**
**WHEN:** October 29, 2011.
**WHERE:** Masso's Crystal Manor, Delsea Drive, Glassboro, NJ.
**MORE INFO:** Contact Mary Cummings at 856-307- 6450, ext. 1.

**36th Annual NJ Green Expo Turf & Landscape Conference**
**WHEN: December 6-8, 2011.**
**WHERE:** Taj Mahal, Atlantic City, NJ.
**MORE INFO:** Contact the New Jersey Turfgrass Association at 973-812-6467 or visit www.njturfgrass.org.

This report is produced by the Office of Communications and is available online at http://execdeanagriculture.rutgers.edu/boa/.

For information or to provide comments, please contact Paula Walcott-Quintin at quintin@aesop.rutgers.edu or 848-932-4204.