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College of Agriculture,
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EXTENDING KNOWLEDGE *Changing Lives*



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Spotted Wing Drosophila attacks a number of different fruit crops and weeds, but raspberries, blackberries, blueberries and some grape varieties are among the most susceptible. (Photo provided by Hannah Burrack, North Carolina State University)

When you support Extension, commercial and backyard growers access diagnostic services to minimize impact of insects on fruit crops.

Extension Integrated Pest Management Programs Target Issues Directly Impacting Kentucky, such as the Spotted Wing Drosophila.

The Spotted Wing Drosophila (SWD) Has Changed the Way Fruit Growers Manage Crops



During 2013, observed loss due to SWD across fruit crops in 28 states, including Kentucky, was \$27,558,238 (North Carolina State University, SWD Impacts, 2013).

The Integrated Pest Management Program (IPM) is made up of University and Extension faculty and researchers in entomology, horticulture, plant pathology and plant and soil sciences. IPM identifies, monitors and develops protocol to combat exotic and emerging pests. IPM encourages the judicious use of pesticides while promoting pesticide safety and best management practices in pesticide use for potential economic benefits and to insure human and environmental health. IPM trains and collaborates with County Extension Agents and local agricultural producers to monitor fields, participate in research, and educate the public.

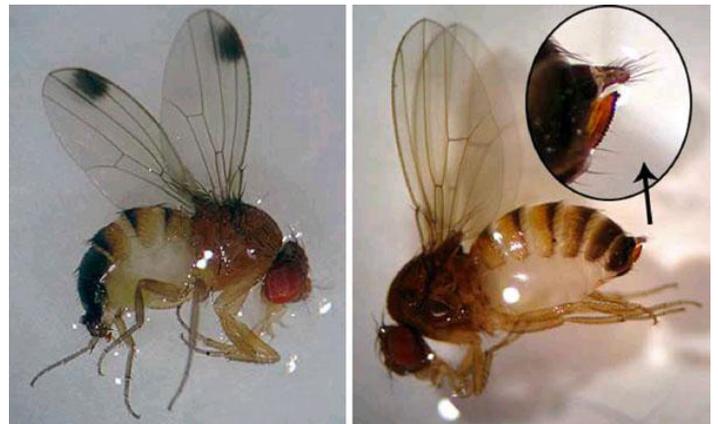
An emerging issue for IPM is the Spotted Wing Drosophila (SWD). Since the 2013 growing season, IPM was able to confirm the presence of a new invasive pest potentially devastating to Kentucky's small fruits. Originally from Asia, SWD was first found in California in 2008 and spread rapidly across the U.S. In September 2012, the USDA Animal Plant Health Inspection Service confirmed Spotted Wing Drosophila (SWD) from samples submitted from IPM fruit fly traps located in Daviess and Warren Counties in western Kentucky.

With the confirmed presence of this new pest, Extension agents in more than twenty counties have been trained to install traps that monitor for its presence. Educational posters were distributed in the spring detailing identification of the pest, and publications with information on management and control of SWD for commercial growers and backyard fruit growers quickly followed. As a result of IPM, Extension agents were well prepared to advise growers in their counties.

Damage results from the female SWD having a stout, toothed ovipositor that enables her to insert eggs under the skin of ripening fruits that are otherwise healthy and sound. Generally, soft-skinned fruits become vulnerable to SWD attack as they begin to ripen and turn color in the final 7 to 10 days before harvest. The larvae tunnel and feed under the skin of the fruit and are about 1/8 inch long when mature. This can result in small maggots in the fruit at harvest or just after harvest. Blueberries, blackberries, and raspberries are very susceptible to this new invasive pest. In addition to damaging a large percentage of a crop, this pest also has potential to upset customers and ruin markets.



SWD larvae in blueberries. Researchers are unaware of any risk to human health from ingesting SWD eggs and larvae.



A male SWD is on the left and the female is shown on the right.

The confirmation of SWD requires commercial and home growers to adopt additional control practices. Because of the short ripening period for many berries, growers prefer to minimize the number of pesticide sprays or to not spray. Cultural controls such as removing overripe fruit, wild hosts and timely crop harvest can help to minimize the buildup of SWD population. However, once SWD has been confirmed controls are necessary. The short (about 10 day) life cycle of the SWD combined with the female's ability to lay 200 to 600 eggs can result in very high populations by the end of the season. Kentucky growers reported an estimated maximum loss of \$569,576 of blackberries in 2015 due to SWD.

IPM research and educational programs and materials address fruit, vegetable, nursery crop, ornamental and grain production in Kentucky. IPM enables agricultural producers to make informed decision that impact production costs, food quality and environmental impact.