



# Biology and Management of Spotted Wing Drosophila in Fruits

This project created a national framework for multistate collaboration, setting the stage for research and outreach on the most effective, sustainable control options for spotted wing drosophila and providing evidence of this new pest's importance to state and national leaders.

## Who cares and why?

Spotted wing drosophila (SWD) was recorded on multiple crops in California during 2008 and 2009 and in British Columbia, Oregon, and Washington in 2009. Producers of stone fruits (cherries and peaches) and small fruits (blackberries, blueberries, raspberries, and strawberries) experienced substantial economic losses. California growers reported a 25 percent loss of fresh cherries. Several California, Oregon, and Washington berry growers reported 100 percent crop losses in late-ripening small fruits during 2009, and growers in Oregon reported 100 percent crop losses on fresh peaches.



Spotted wing drosophila lay eggs under the soft skin of fresh, ripe fruit. The larvae hatch and grow in the fruit, destroying the fruit's commercial value. Photo courtesy of the Upper Mountain Research Station.

The pest subsequently invaded Florida, North Carolina, Michigan, and beyond. Because of the rapid spread and uniqueness of this pest in the U.S., very little information is available on SWD biology, monitoring, and management. Information on overwintering capability, spring emergence, seasonal abundance, susceptible fruit stages, and detailed control strategies is needed for local strains of SWD, and information on integrated and sustainable system-wide control strategies is essential in order to facilitate financial survival of growers.

## What has the project done so far?

This project has helped multiple states exchange information on research and extension activities needed for management of SWD. Prior to funding of an SWD Specialty Crop Research Initiative (SCRI) grant in late summer of 2010, Oregon State University hosted a stakeholder meeting in Portland in spring 2010. In the morning session, 20 scientists from California, Washington, Oregon, Canada, Michigan, and Florida and state, federal, and private industry representatives participated. The afternoon session provided 130 participants with hands-on activities, including identifying SWD and its life cycle, building monitoring traps, detecting the pest, reporting data, and



Scientists retrieve trap spotted wing drosophila cider vinegar traps from an orchard.

reviewing control options. This session was critical in helping to identify additional funding sources for research. In November 2010, the SWD SCRI participants met with the stakeholder group to present research and outreach accomplishments. In March 2011, the SWD SCRI scientists were joined by other W-504 members for an Adobe Connect conference. Publications are pending from that full-day session and a new 5-year Education/Extension and Research project to succeed W-504 is being planned.

## Impact Statements

**F**acilitated coordination of SWD research and control efforts far beyond the western region and provided evidence of SWD's importance to state and national leaders, encouraging timely and successful responses to SWD problems.

**D**etermined the most effective sustainable control options for SWD based on effective monitoring, susceptible life stages, and timing of control.

**D**eveloped training programs for identification and management of SWD and provided resources to growers. Detection of the pest and the use of thresholds for control before application of chemicals have reduced the amount of chemicals applied, providing an economic advantage for growers and reducing environmental and health risks for applicators and consumers.

## What research is needed?

Additional information is needed on biology and alternate control options, especially for organic growers. Assessing the value of training and control programs, both in terms of effectiveness and economic return, is also needed. Providing ongoing national coordination of the research and education/extension efforts for management of this pest will reduce duplicate efforts and provide broad benefits to growers and consumers.

## Want to know more?

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Edited and designed by Sara Delheimer



Experiments conducted at the Oregon State University's fly lab have helped scientists understand fly biology and control options. Photo courtesy of Oregon State University.