

Surveillance and Management of Spotted Wing Drosophila (*Drosophila suzukii*) in the Interior of British Columbia

Surveillance of spotted wing drosophila in the Okanagan, Kootenay and Similkameen valleys will be undertaken from May-September 2010 by the Okanagan Tree Fruit Company in collaboration with BCMAL, Agriculture and Agri-Food Canada, private consultants and cooperating growers. The purpose of the survey is to measure the presence and distribution of spotted wing drosophila, determine overwintering potential, host and non host crops, and identify pathways of pest entry and distribution in the interior, following discovery of the fly in B.C. in 2009.

Funding and support for this project is provided by the Okanagan Cherry Growers' Association, BC Wine Grape Council, BC Fresh Market Grape Growers' Association, BC Ministry of Agriculture and Lands Biosecurity Funding, Agriculture Environment Wildlife Fund and Okanagan Tree Fruit Industry Development Fund.

Hosts:

Spotted wing drosophila attacks thin-skinned fruit including cherry, raspberry, blueberry, strawberry, blackberry, peach, plum, nectarine and grapes.

Identification:

Male spotted wing drosophila have a black spot at the end of each wing. Females have saw-like ovipositors (egg laying device); no black spots on wing.

Damage:

Female egg laying leads to scarring of fruit, fruits get contaminated with larvae, become soft and the fruit wall collapses. There may be secondary infection of mold and bacteria at egg laying site.



Spotted wing drosophila adult male has one dark spot on each wing.

Photo Credit: Sheila Fitzpatrick, Agriculture & Agri-Food Canada



Spotted wing drosophila female does not have spots and is similar to many other species of vinegar flies. *Photo Credit: Sheila Fitzpatrick, Agriculture & Agri-Food Canada*



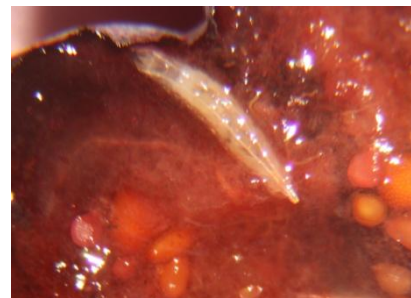
Adult female has a saw-like ovipositor that distinguishes it from other vinegar flies. *Photo Credit: Sheila Fitzpatrick, Agriculture & Agri-Food Canada*



Spotted wing drosophila oviposition holes in blueberry



Spotted wing drosophila-infested blueberry fruit with pupae



Spotted wing drosophila larva in blueberry fruit

Monitoring:

Begin monitoring spotted wing drosophila adults with traps when temperature is above 10°C for several days. Place traps in earliest cherry blocks first, before straw colour and expand trapping to later maturing blocks. It is crucial to know if spotted wing drosophila is present before cherries start to show pink colour. Continue monitoring harvested blocks to determine if a clean-up spray is needed.

Trap design

Traps can be made of any 250-750 ml plastic container or cup with a tight fitting lid. Drill 4-5 holes (use a 3/16 - 3/8 inch drill) on one side of the container to allow flies to enter (holes shouldn't be too big or other large insects can get in). Containers that already have holes, like commercial vinegar/fruit fly traps will work. Place holes on the side of the container to keep out rain.



Apple cider vinegar trap



Contech fruit fly trap.
Photo courtesy of CFIA.



Trap in a strawberry field

Baits

Bait traps with either pure apple cider vinegar or a yeast attractant mixture of 2.5 oz baker's yeast (4 tablespoons or 70 grams), 4 teaspoons (20 ml) sugar, 12 fl oz (355 ml) water. Divide the mixture between 4 to 5 traps. Add 1 ½ inches (4 cm) of apple cider vinegar to the trap. For efficient detection, a small yellow sticky card can be hung or wedged in the trap container to catch flies. Hang trap near fruit level or for berries place on the ground in a cool area. Apple cider vinegar is clear, so it is easier to see spots on adult male wings.

Replace yellow sticky traps and bait solution once per week. Do not dump old bait solution in the orchard. Count male flies on sticky traps and in bait solution. Use a magnifying glass or hand lens to help identify male flies. Keep a weekly record of spotted wing drosophila male fly counts, location, host crop, and date of collection.

Management:

Monitor and control adult flies before they lay eggs. Field sanitation is critical to control of spotted wing drosophila because infested ripe, overripe and rotten fruit serve as a source of food for egg and larvae to complete development. Remove and dispose of infested and fallen fruit by burying or dispose of in closed bags or containers. All vinegar flies are weak fliers but are spread easily on infested fruit or by wind. When detected, all nearby sources of fruit should be managed to eliminate flies, including other commercial fruits, backyards and fruit stands.

Emergency registration requests for Delegate, Malathion, Ripcord, Entrust/Success for berries and stone fruits have been submitted to the Pest Management Regulatory Agency. Check the

BCMAL website (see link below) for updates on chemical control recommendations.

Further Information:

- BC Ministry of Agriculture and Lands:
<http://www.al.gov.bc.ca/cropprot/swd.htm>
- http://www.al.gov.bc.ca/cropprot/swd_monitoring.pdf
- Oregon State University:
<http://swd.hort.oregonstate.edu/>

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