The risks of SWD in blackcurrant plantations, risk mitigation and control strategies David Buss



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Introduction to Spotted Wing Drosophila

Drosophila suzukii Only males have spotted wings

Females can lay eggs in ripe and **ripening** fruit







Population growth in the UK since 2012







Crops at risk

These include;

blackberry, blueberry, cherry, grape, plum, raspberry, redcurrant, strawberry

- Eggs potential to introduce pathogens
- Larvae feed on fruit flesh
- Collapse of fruit
- Described as 'melting' appearance





Blackcurrants

- Very little data on blackcurrant
- Blackcurrants are also vulnerable to SWD (AHDB project SF 145)







 Work on grapes and blueberries suggests there are likely to be differences in vulnerability between varieties.

AHDB project SF 145 - 2016

- NIAB EMR in collaboration with Harriet Roberts
- Identified 9 common UK grown varieties which range from early to late harvesting
 - Assess for natural presence of SWD
 - Inoculate and assess the egg laying and survival of larvae in the different varieties





horticulture.ahdb.org.uk



Monitoring

How to do a floatation test for SWD

This is a technique for extracting spotted wing drosophila (SWD) larvae from fruit using a sugar solution.

The sugar encourages the larvae to leave the fruit so that they can be seen, thereby confirming their presence in a fruit crop. It works on cherries, plums, raspberries, blackberries, blueberries, currants, grapes and strawberries. For larger fruits like plums and strawberries, it is best to cut the fruit into quarters to make it easier for the larvae to escape. Follow these guidelines when doing the test:

- Make a sugar solution by dissolving 1kg of sugar in 5.5 litres of water
- Place 100g of ripe or semi-ripe fruit in a small clear polythene bag
- Very gently crush the fruit, to break the skin, in the bag on a work surface. Don't be too firm as this can kill the larvae
- Add the sugar solution to the bag, with just enough solution to cover the fruits
- Seal the bag with a cable tie wrapped round the neck of the bag to prevent the solution from running out and compress the fruit a little more on a work surface
- Leave the bag for around 10 minutes, then mix the fruit a little more in the solution
- After a further 10 minutes, you should be able to see the larvae in solution if they're present
- B Look for fine white lines between 1-4mm in length. These should still be moving after 20 minutes, which makes them easier to see.



Important to monitor fruit for SWD

- Flotation test
- Crop walking open fruit up





Cultural controls - Crop Hygiene

High value hand picked crops – removing unmarketable fruits at the same time.

Crop hygiene has been shown to be very effective at reducing damage. Collecting waste and damaged fruit and disposing is important.

Sealing fruit in bins destroys eggs and larvae.

This takes 48 hours on warm summer days for soft fruit.







Blackcurrants

Mechanically collecting dropped fruits? Leave to be destroyed by mammals, birds and inverts? Mowing and pulverising to help break down fruits more quickly?







Cultural controls - Netting

Another option is netting

However, mesh gauge has to be very small, less than 1 mm

Can be effective, though expensive



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Future options - biological control

Little evidence that native UK predators have an significant impact on SWD.

However there are trials ongoing in France and Italy on use of *Trichopria drosophilae*, a parasitic wasp.

This species is likely to be in the UK but this has not been confirmed.

Maddie Cannon as part of SF 145 will bait traps to scout for this parasitoid in 2016.



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Chemical control

Products applied to protect crops - in response to monitoring.

Is it in the crop? What is the pest pressure? Use adult traps.

Are eggs and larvae being found in the fruit? – Monitor using flotation test - QA

Traditional crop protection products are the most effective control at present.

Approved products vary by crop, and with EAMU each year.

2016 – spinosad (x2, HI 7 d), lambda-cyhalothrin (x2, HI 14 d) UK (broadspec.).

So far appears to be successful, however, resistance may develop.

Control in USA, France and Italy relies more on organophosphates.





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Spotted Wing Drosophila

SPOT IT Worldwide. In the UK i Managing control wh

Spotted Wing Drosophila (SWD), which originated in Asia, can now be found worldwide. It arrived in Southern Europe in 2008 before being recorded in small numbers in the UK in August 2012.

Managing SWD is an important issue for the UK industry. It is a challenging pest to control which is why it is vital that we work together and take the necessary action to combat it and minimise the potential impact on soft and stone fruit crops.

A cross industry group has been working together since 2012 and a great deal of knowledge has already been learned from other countries' experiences of managing SWD. In addition, an industry funded project was set up in 2013 to investigate the behaviour and control of SWD in the UK. This project (SF 145) is being led by East Malling Research in conjunction with The James Hutton Institute and is funded by Defra, AHDB Horticulture, The Worshipful Company of Fruiterers, British Summer Fruits and The East Malling Trust.

This dedicated SWD site has been set up to provide the latest results of the industry funded project (SF 145) along with other knowledge, best practice and understanding of SWD from around the world. The site reflects the most current information available on spotted wing drosophila.

Spotted Wing Drosophila: A guide (click on the headings below)

- SWD Trap and monitoring videos
- Identifying the pest
- Monitoring and spotting the pest
- Vulnerable crops
- Crop hygiene and waste disposal
- Crop management and control
- UK Industry funded research
- Frequently Asked Questions
- Links (including Spotted Wing Drosophila Working Group)

AHDB Website





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