

AHDB funded research on soft fruit

Scott Raffle (AHDB Horticulture)

A decorative graphic at the bottom of the slide consisting of several overlapping, wavy bands of green, transitioning from a dark green at the bottom to a lighter green at the top.

Levy collected for research on



Recent highlights



Blackcurrant LINK project

- Botrytis – Fungicides and nitrogen
- Enhance bee populations
- Blackcurrant leaf curling midge – New plantations, sex pheromone trap
- Blackcurrant sawfly – sex pheromone trap



Western flower thrips research

- One year old crops
- Regular predator release strategies
- *Phytoseiulus persimilis* for spider mite control
- Crop protection programmes
- Integrated production
- Use of compatibility tables

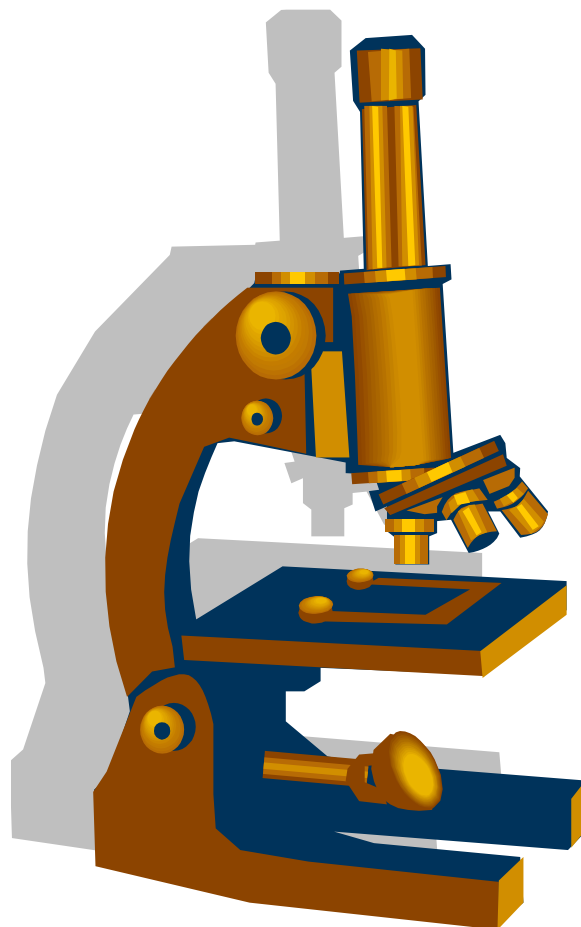


Weed control in strawberry

- Use of Shark in previous research
- Applied at two rates in February
- Despite some initial scorch, no lasting phytotoxic effects on plants or on subsequent yield or fruit quality
- Both rates showed promise against willowherb, chickweed and groundsel and no residues
- Crop safety post-harvest is being assessed
- EAMU application



Some current projects



Strawberry breeding



Raspberry breeding



Improving consistency of fruit quality



New predators of western flower thrips



Aphid control in strawberry



Raspberry leaf blotch virus



Red berry on blackberry



Sex pheromone for gooseberry sawfly



Spotted wing drosophila



Some new projects



SF 156 – Integrated pest management in strawberry

- Biocontrol of western flower thrips
- Refine pest control programmes, integrating these with Phytoseiid mites
- Develop IPM controls for capsids and strawberry blossom weevil
- Improve control of the potato aphid so as to be more compatible with IPM programmes



SF 157 – Integrated disease management in strawberry

Develop strategies to control:

- Crown rot
- Powdery mildew
- Verticillium wilt

Investigate:

- Alternative biocontrol products
- Integrate these with reduced fungicide programmes
- Improve spray application



SF 158 – Integrated pest and disease management in cane fruit

Develop strategies to control:

- *Phytophthora rubi*
- Two-spotted spider mite (whilst controlling SWD)
- Blackberry leaf midge

Develop

- Improved crop spray penetration



Weed control in blackcurrant



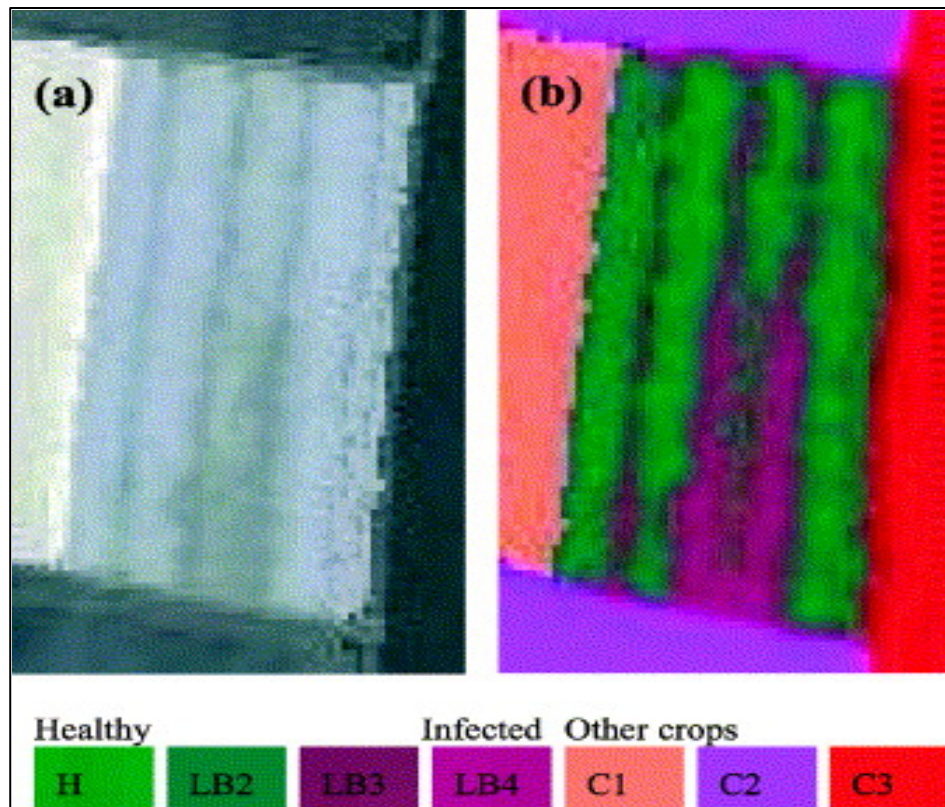
Winter chilling in blackcurrant



Pheromone trap for blackcurrant sawfly



Detecting stress in soft fruit



Yield stability in blueberry



Genetic resources in blueberry



Mechanisms of resistance to Phytophthora



Communications on SWD



Article in Kitchen Garden

Browser address bar: <http://issuu.com/mortons-digital/docs/kjgan>

Browser tabs: No.1 magazine for growing yo... ISSUU - Kitchen Garden - Ja...

Browser toolbar: Create View Home Horticultural Devel... Suggested Sites Google Add Printer Agresso AHDB Intranet

Related publications



Binder[smallpdf.com]
Ruth Tott



Kitchengarden201501
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Grate, Pair, Share.
wisconsincheese
Find appetizer and dessert recipes for cheese lovers.



201401KitchenGarden
TigerRag



Kitchen Garden February 2015
Mortons Media Group Ltd
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201407KitchenGarden
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Browser address bar: <http://issuu.com/tigerrag1066/docs/kitchengarden201407>

Taskbar: Windows Start, Internet Explorer, Firefox, Chrome, Word, PowerPoint, 98% battery, 16:51 23/01/2015

Article in February HDC News

HDC
The technical journal for horticulture

HDC News

No. 183 May 2012

New advice on soil nitrogen sampling p15

Lessons in tree fruit storage p22

SCEPTRE: first results on lettuce, leek and carrot p18

Precision to the last drop
Accurate irrigation scheduling is the aim of HDC-funded projects on field vegetables, p20, and nursery stock, p26

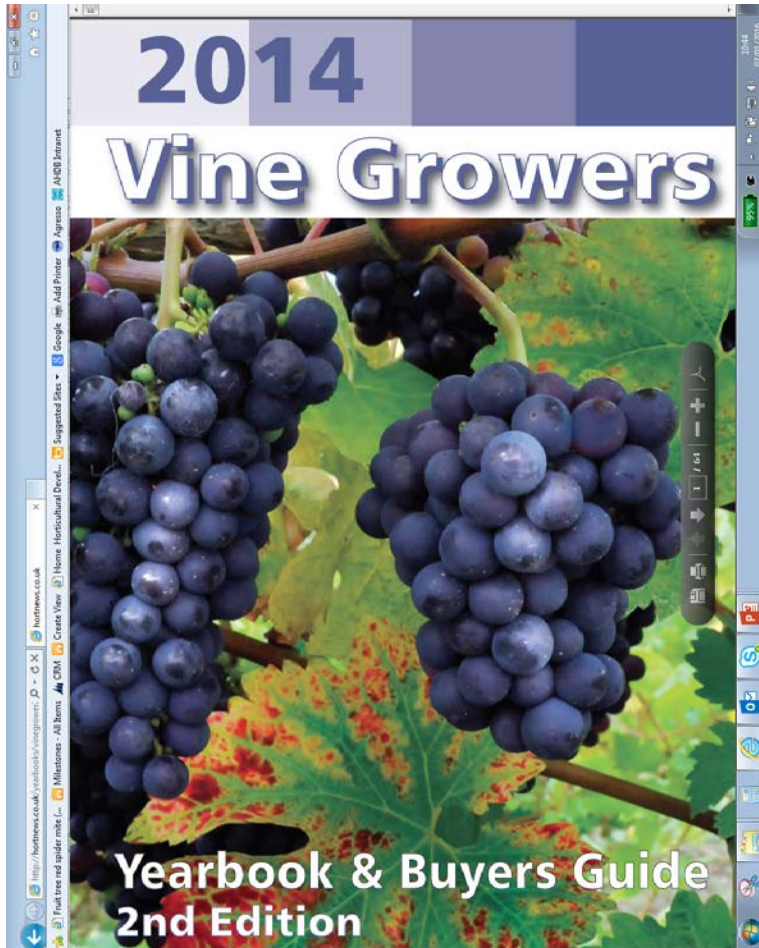
Flowers for seasonal appeal p24

Energy saving the German way p28

“ Horticulture is a skilled career to be proud of ”
Sue Biggs, RHS director general p3

AHDB Horticulture
Agriculture & Horticulture
Development Board

Article in Vine Growers Year Book



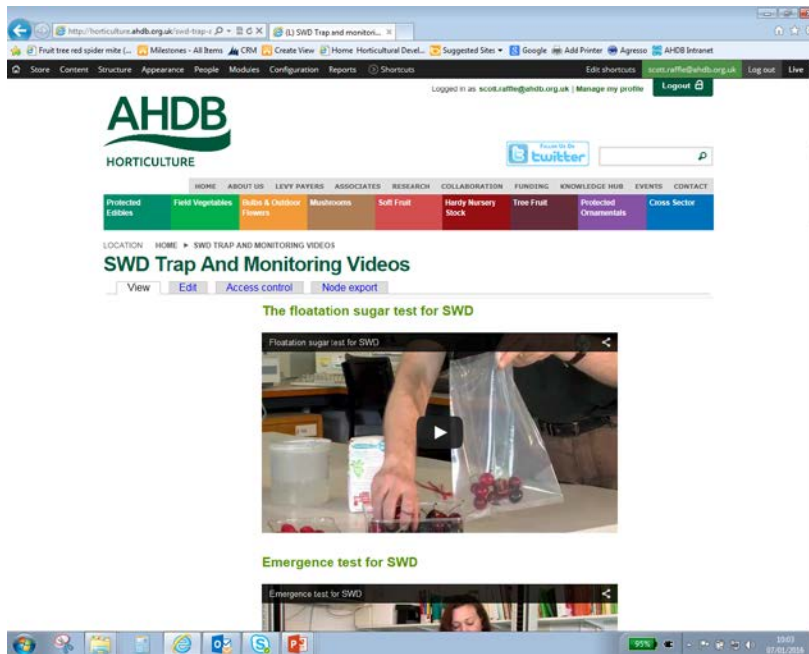
Awareness leaflet

Are you
aware of
this new
pest?



Image © ICRP

New videos of flotation test and emergence test



- <http://horticulture.ahdb.org.uk/swd-trap-and-monitoring-videos>

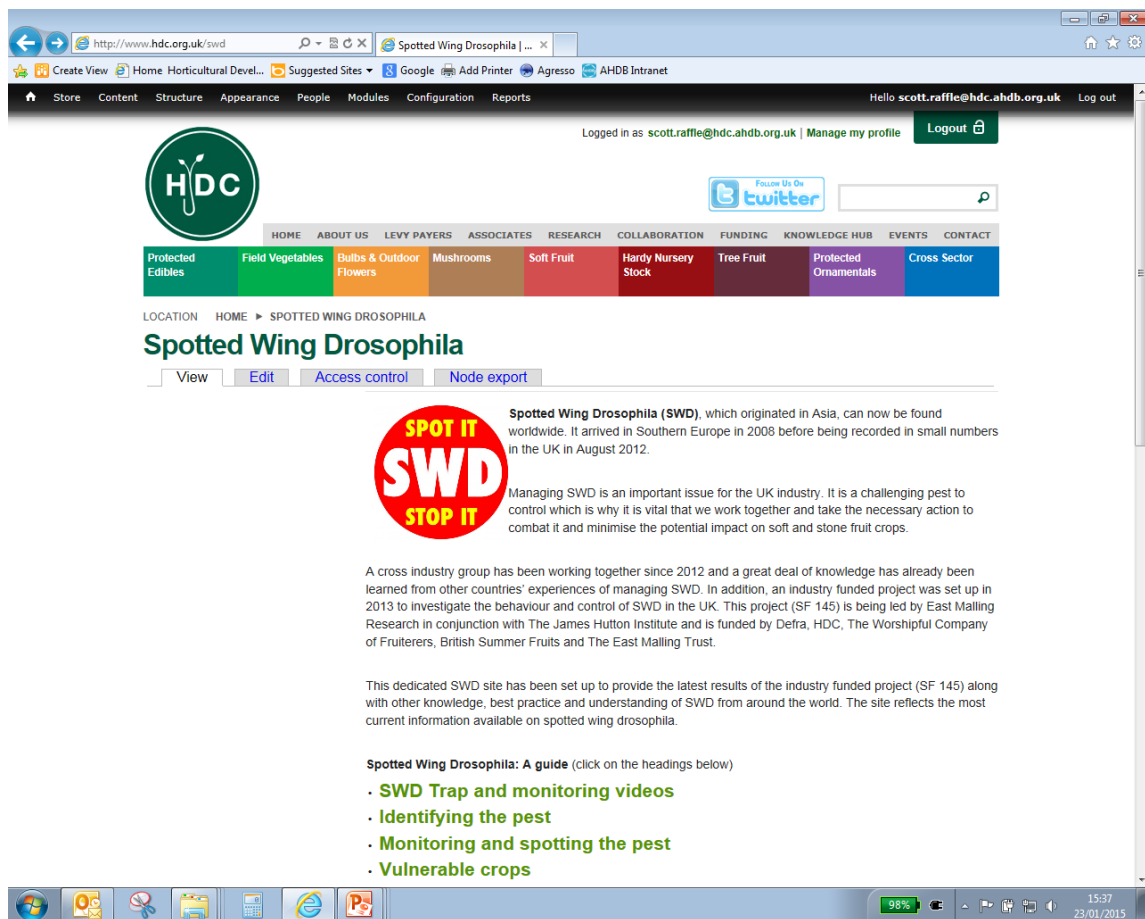
Event for cherry growers



Up-dated trap information on website



Up-dated SWD web pages



The screenshot shows a web browser window displaying the AHDB website. The address bar shows the URL <http://www.hdc.org.uk/swd>. The page is titled "Spotted Wing Drosophila" and is logged in as scott.raffle@hdc.ahdb.org.uk. The navigation menu includes: HOME, ABOUT US, LEVY PAYERS, ASSOCIATES, RESEARCH, COLLABORATION, FUNDING, KNOWLEDGE HUB, EVENTS, CONTACT. The main content area features a "Spotted Wing Drosophila" heading and a "SPOT IT SWD STOP IT" graphic. The text describes the pest's origin and impact, and provides a guide to managing it.

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, HDC, 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**

New identification chart

horticulture.ahdb.org.uk


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SWD monitoring trap catches


Steps to identify SWD

Is it a fruit fly?

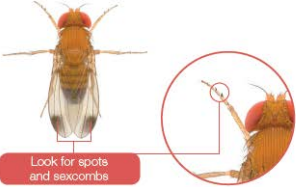
- Fruit flies have red eye
- Fruit flies have arista
- Fruit flies are 2-4mm



SWD has solid banding on its back




Male SWD



Look for spots and sexcombs

Female SWD



Look for saw-like ovipositor

© Darren Oxbard 2015, all other images © Nicolas Gempel 2015

Flotation instruction chart

horticulture.ahdb.org.uk



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:

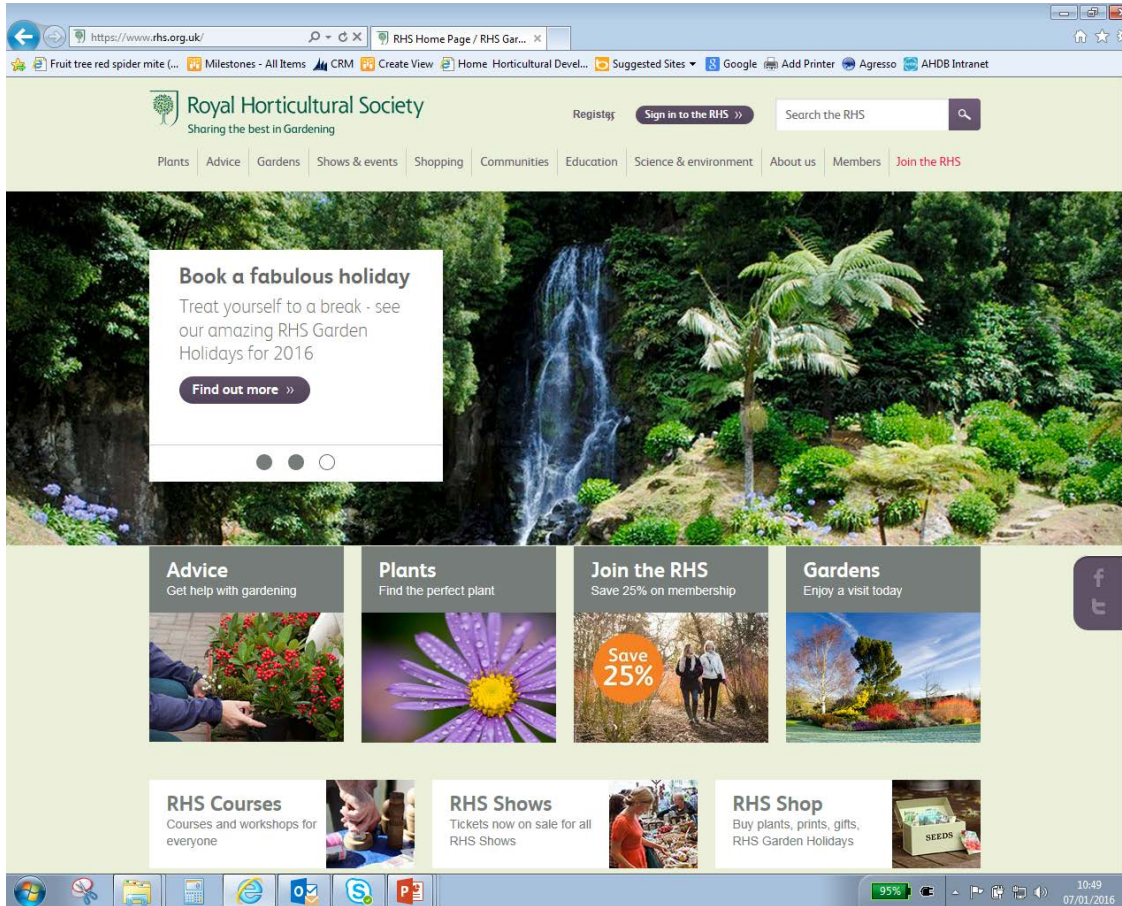
- 1** Make a sugar solution by dissolving 1kg of sugar in 5.5 litres of water
- 2** Place 100g of ripe or semi-ripe fruit in a small clear polythene bag
- 3** Very gently crush the fruit, to break the skin, in the bag on a work surface. Don't be too firm as this can kill the larvae
- 4** Add the sugar solution to the bag, with just enough solution to cover the fruits
- 5** 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
- 6** Leave the bag for around 10 minutes, then mix the fruit a little more in the solution
- 7** After a further 10 minutes, you should be able to see the larvae in solution if they're present
- 8** Look for fine white lines between 1-4mm in length. These should still be moving after 20 minutes, which makes them easier to see.



Fruit agronomist's day



Provision of information to the RHS



Other presentations



- BIFGA Conference
- SSCR Conference
- EMRA/HDC Tree Fruit Day
- Berry Gardens Technical Conference
- Angus Soft Fruits Technical Conference
- EMR Assoc./AHDB Soft Fruit Day

Broadcast E-Mail in 2015

9 Feb – HDC SWD communications and research update information

21 April – High numbers of SWD being caught in traps

27 May – Emergency EAMU for Tracer in cherries

28 May – SWD guidance for the weeks ahead

3 June – Control options for SWD in 2015

18 June – Managing SWD in cherries

3 July – New SWD charts for soft and stone fruit growers

13 July – Emergency EAMU for Exirel in cherries

13 August – SWD trap catches rising

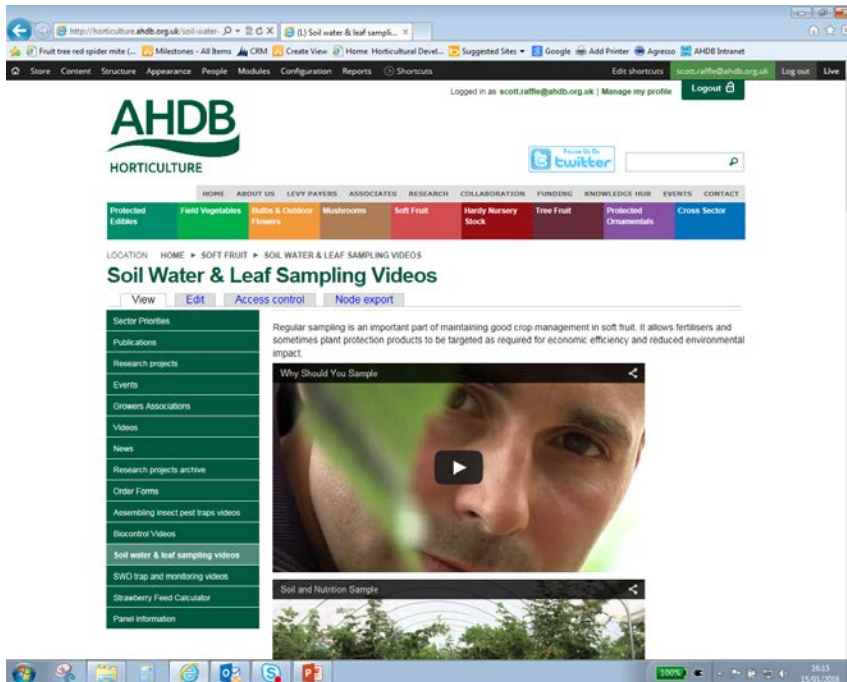
24 August – Managing SWD in cherry after harvest

21 December – High numbers of SWD adults being caught in monitoring traps

Other AHDB Communications

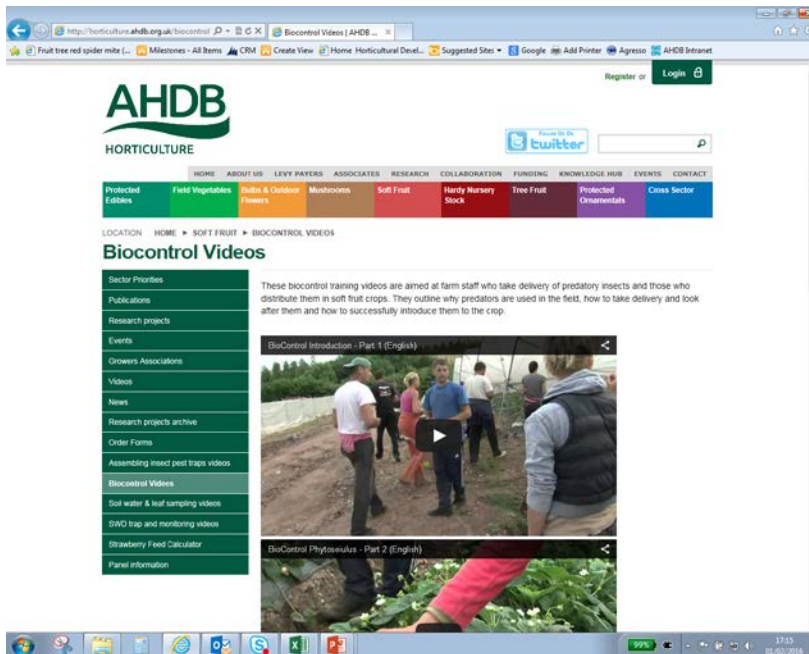


New sampling videos in 2015



- <http://horticulture.ahdb.org.uk/soil-water-leaf-sampling-videos-0>

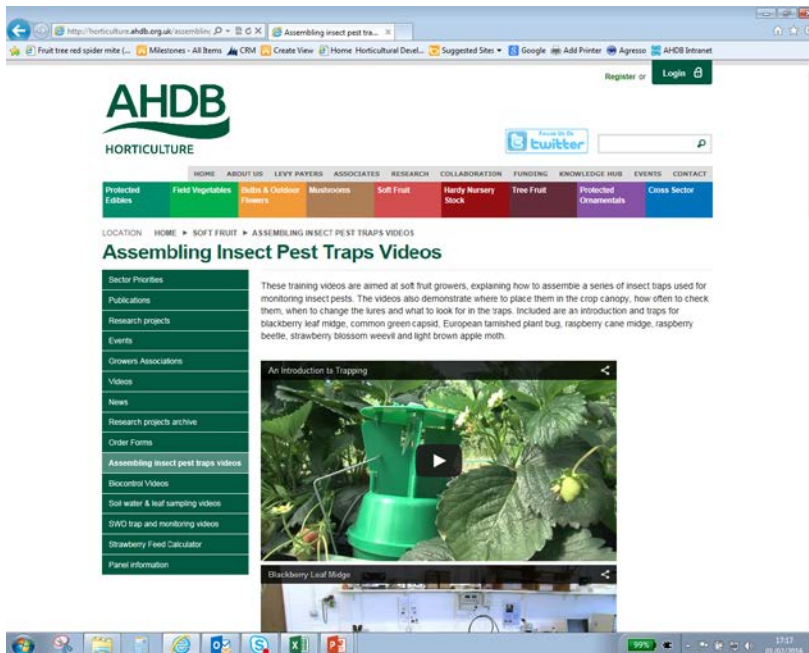
Biocontrol videos



The screenshot shows the AHDB Horticulture website. The main navigation bar includes links for HOME, ABOUT US, LEVY PAYERS, ASSOCIATES, RESEARCH, COLLABORATION, FUNDING, KNOWLEDGE HUB, EVENTS, and CONTACT. Below this is a secondary navigation bar with categories like Protected Edibles, Field Vegetables, Soft Fruit, and others. The current page is titled 'Biocontrol Videos' and features a video player with two videos: 'BioControl Introduction - Part 1 (English)' and 'BioControl Phytoseiulus - Part 2 (English)'. A sidebar on the left contains a list of links such as Sector Priorities, Publications, Research projects, and Events.

- <http://horticulture.ahdb.org.uk/biocontrol-videos>

Monitoring trap videos



The screenshot shows a web browser window displaying the AHDB Horticulture website. The page title is "Assembling Insect Pest Traps Videos". The main content area features a video player with a play button, showing a green insect trap in a field. Below the video player, there is a section titled "Blackberry Leaf Midges" with a small image. The website has a navigation menu at the top with categories like "Protected Edibles", "Field Vegetables", "Soft Fruit", etc. A sidebar on the left contains a list of links including "Sector Priorities", "Publications", "Research projects", "Events", "Growers Associations", "Videos", "News", "Research projects archive", "Order Forms", "Assembling insect pest traps videos", "Biorobot Videos", "Soil water & leaf sampling videos", "SMD trap and monitoring videos", "Strawberry Feed Calculator", and "Pests information".

- <http://horticulture.ahdb.org.uk/assembling-insect-pest-traps-videos>

Blackcurrant factsheet

FACTSHEET 12/15

Soft Fruit



Delta Horticulture LINK Project HL01105

Scott Raffle, AHDB Horticulture, Michelle Fountain
and Angela Berrie, East Malling Research

Developing novel biocontrol methods for pests and disease in blackcurrant

This factsheet summarises the recommendations made following the completion of a Delta funded Horticulture LINK project, which aimed to develop improved management

methods for pollination, Botrytis, blackcurrant leaf midge and blackcurrant sawfly in commercial blackcurrants.



1. Blackcurrant plantation coming into full cropping

Action points

For Botrytis control

- The first three fungicide sprays applied from first flower are the most important treatments for Botrytis control. If an effective fungicide programme is applied at this time, then there is no benefit from additional fungicides near to harvest.
- There is some evidence to suggest that high nitrogen treatments may lead to a high incidence of Botrytis in blackcurrant.

WFT factsheet

FACTSHEET 14/15

Soft Fruit

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Projects SF 80, SF 90 and Defra Horticulture LINK Project HL01107

Scott Raffle, AHDB Horticulture, Jude Bennison, ADAS, Jean Fitzgerald,
East Malling Research and Clare Sampson, Keele University.

Western flower thrips control in strawberry

Western flower thrips (WFT) cause significant financial losses for strawberry growers in the United Kingdom. This factsheet provides information on the pest, the damage it causes to strawberries and the results of AHDB funded research in Projects SF 80, SF 90, SF 120 and a study of control in commercial strawberry production sites, which have led to a series of control guidelines.



1. WFT feeding in strawberry flower



2. Damage to strawberry caused by WFT feeding

Action points

Most successful control of WFT in commercial strawberry production has been found where:

- Strawberry crops are only grown for one season.
- Well-managed regular predator release strategies are used in all crops from either before flowering or from the first flowers, using *Nesoseiulus cucumeris*, combined with one or more of *Stratiolaelaps scimitus*, *Orius* species (later in the season when temperatures are high enough for establishment) or mass trapping with blue sticky roller traps.
- *Phytoseiulus persimilis* is used as the main control method for two spotted spider mite.
- Crop protection programmes that are harmful to predators are avoided.
- Advice on biological control programmes is sought from an adviser who is experienced in using predators.
- Product compatibility tables are consulted to check if proposed crop protection products are likely to be harmful to the predators being introduced.

In progress



Vine weevil factsheet



Conductivity factsheet



Strawberry powdery mildew factsheet



Raspberry dormancy factsheet



Blackcurrant best practice guide



Gall mite emergence model



Bush fruit crop walkers guide



Rhubarb factsheets



Grow Save for glasshouse soft fruit growers



Any questions?

