



# Grower Summary

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## **CP 122**

Viral Pathogens suitable for the  
Control of *Drosophila Suzukii* in  
the UK

Annual 2016

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The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

## **Use of pesticides**

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

## **Further information**

If you would like a copy of the full report, please email the AHDB Horticulture office (hort.info.@ahdb.org.uk), quoting your AHDB Horticulture number, alternatively contact AHDB Horticulture at the address below.

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AHDB Horticulture is a Division of the Agriculture and Horticulture Development Board.

**Project title:** Viral Pathogens suitable for the Control of Drosophila Suzukii in the UK

**Project number:** CP122

**Project leader:** Dr Darren Obbard (University of Edinburgh)

**Report:** Annual report, December 2016

**Previous report:** N/A

**Key staff:** Dr Darren Obbard  
Dr Jerry Cross

**Location of project:** University of Edinburgh, Edinburgh and East Malling Research, Kent

**Industry Representative:** Marion Regan, Huwe Lowe Farms, Barons Place 215 Willow Wents, Mereworth, Maidstone, Kent, ME18 5NF

**Date project commenced:** September 2014

**Date project completed (or expected completion date):** September 2017

# GROWER SUMMARY

## Headline

- New viruses specific to SWD are being investigated for their potential as commercial control agents

## Background and expected deliverables

*Drosophila suzukii* (Matsumura), also known as the spotted wing drosophila (SWD) is a new pest of soft and stone fruit. Its spread from its native Japan to the fruit growing regions of North America and Europe have prompted an interest in developing new control measures. Conventional crop protection methods have many drawbacks and are difficult to implement within integrated pest management (IPM) programmes. The development of an alternative, IPM compatible biopesticide would be beneficial for growers, consumers, and pest management professionals alike.

The viruses of *Drosophila suzukii* (SWD) offer good potential candidates for the development of a microbe-based bioinsecticide, yet, to date the viruses of *D. suzukii* remain almost completely unstudied. This project seeks to characterise the viral diversity of SWD with the aim of identifying a pathogen suitable for the control of this pest in UK fruit crops. Both cutting-edge genetic techniques and traditional lab based investigations will be employed to identify the viruses infecting SWD, from large samples of wild flies. Viruses will then be isolated and investigated for their interactions with their *Drosophila* host or hosts in the laboratory and field.

## Summary of the project and main conclusions

Metatranscriptomic surveys have revealed a diversity of the viruses infecting *D. suzukii*. So far, we have discovered seven new RNA viruses unique to SWD along with a host of other viruses, which although described first in other fly species, regularly infect British SWD. Techniques have been developed to isolate new viruses, to test their pathogenicity and applicability as biological control agents.

## Financial benefits

The impact of this pest on the European horticultural industry has already been substantial, with *D. suzukii* damage resulting in losses of over €8 million in fruit crops in Northern Italy in 2010 and 2011 and more than €1.5 million for French strawberries in 2011 (FERA, 2015). The European and Mediterranean Plant Protection Organisation (EPPO) in a recent 'Pest Risk Analysis' deemed this organism to be a potential threat to crops in its region. In the Pacific fruit growing regions of the USA, the estimated damage due to *D. suzukii* has been calculated at over €400 million/year (Bolda et al., 2010). With damage estimates for the UK slow to

emerge, it is hard to quantify the level of damage caused in the UK since its establishment here.

A key consideration for UK growers is the effect of disrupting already established IPM programmes. Changes in management techniques, necessitated by the presence of this pest, often include the use of products not compatible with residue or resistance management practices. Without IPM compatible products, damage is not limited to that done by the pest itself but also extends to secondary pest damage.

The development of a viral biopesticide specific to SWD would not only offer significant damage savings, but also provide an IPM compatible control product.

### **Action points for growers**

- No action points have been developed for growers from this project so far.

