

Spotted Wing Drosophila: what is being done to prepare?

Jessica Lye, cesar

This update provides information from the following projects that are funded by Hort Innovation using the Strawberry and Raspberry & Blackberry R&D levies and contributions from the Australian Government.

MT17005 'Improving the biosecurity preparedness of Australian horticulture for the exotic Spotted Wing Drosophila (*Drosophila suzukii*)' & MT18010 which has two components both exploring IPM controls for spotted winged drosophila in berry crops

Through a collaborative Australia-New Zealand research and extension approach, for the past 18 months we have been investigating how SWD travels long distances, how quickly it would spread after an incursion, and the best methods to detect this exotic pest, which is currently not found in Australia or New-Zealand.

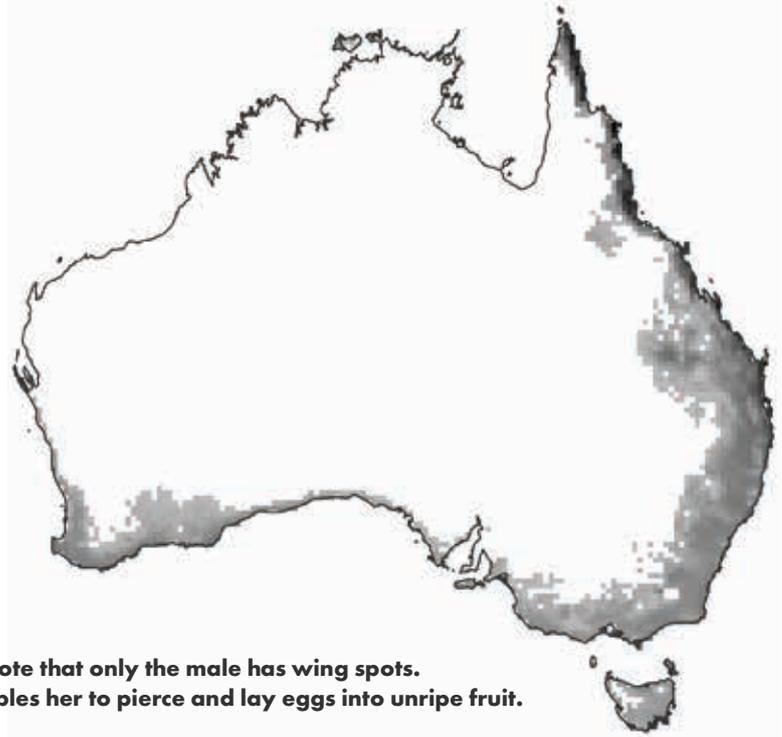
Why has this project been launched?

Spotted wing drosophila (SWD: *Drosophila suzukii*) is steadily becoming a pest of concern for primary industries around the world and has caused quite a few headaches overseas. This exotic fly is cryptic (it looks very similar to *Drosophila melanogaster*, the vinegar fly), it can pierce and lay eggs in unripe fruits still on the vine, and overseas research has found this fly to be persistent in both warm and very cold environments. Larvae stay protected from chemical controls as they feed within the fruit, and adult flies can quickly build up in large numbers, particularly if fruit waste is left to rot in paddocks. Grape, summerfruit, rubus, cherries, and strawberries are all at risk.

Researcher Dr Kelly Hamby from the University of Maryland has previously described the incursion of Spotted wing drosophila (SWD: *Drosophila suzukii*) in the United States: "When SWD first invaded, growers and researchers scrambled to find quick solutions, which necessitated using insecticides...Outbreaks of pests that historically were not problematic have occurred in response to SWD management." ('Growing Produce' Nov 2018).

A number of factors will influence how SWD management and response decisions are made in an Australian context. Crop phenology varies markedly between the northern hemisphere and Australia and will impact the flexibility of harvest schedules – a key management tool used in minimising SWD abundance.

Within Australia, the wide climatic zones spanned by berry, cherry, grape, and summerfruit growing regions will require some unique management recommendations.



Female SWD (top) and male SWD (bottom). Note that only the male has wing spots. The female has a serrated ovipositor that enables her to pierce and lay eggs into unripe fruit.

Photo credit: Dr Elia Pirtle, cesar

SWD establishment potential. Photo credit: Dr James Maino, cesar

Project activities so far

Throughout this project we have investigated a range of topics to increase our understanding of how SWD could be eradicated, contained or monitored if there were an incursion in Australia or New Zealand.

Our areas of focus have included:

- Modelling the most likely spread rates and establishment patterns
- How SWD was first detected overseas and best options for detection
- Predicting financial impacts on affected industries and key regions over time
- Identifying risk pathways into Australia
- Undertaking educational activities, such as workshops, development of information videos, and project articles

In late 2018 the project team organised a SWD preparedness workshop in Melbourne. We invited biosecurity personnel, researchers, industry development officers, and growers. During this workshop a number of 'gaps' were identified around our understanding of SWD and our preparedness for detecting, responding to, or managing this pest. In March of 2020 we will be holding a second preparedness workshop.

At this event we will share and discuss our project findings to ensure that key personnel who are likely to be involved in an incursion response are comfortable and confident about their knowledge of the pest and the decision-aid tools available to them.

Education packs to be supplied to extension professionals in cherries, stonefruit, berries, and grapes will ensure that the findings from this project have a legacy and education on SWD will continue following the project conclusion in June 2020.

Finally, a smaller program of works has been funded by Hort Innovation to investigate the management side of SWD. Working with collaborators in Europe, IPM Technologies are currently investigating options of cultural control of SWD (MT18010 Exploring IPM compatible methods for spotted wing drosophila in berry crops- IPM Technologies).

cesar is reviewing options for beneficial-based control of SWD in an Australian context, as well as delving further into the effects of seasonality and micro-climates on how active SWD may be on an Australian farm (MT18010 Exploring IPM compatible methods for spotted wing drosophila in berry crops-cesar). This work on management of SWD will continue throughout 2020, so stay tuned for more updates from these projects.

The topic for today

In our previous project update we highlighted the modelling work that has been carried out so far, which predicts that spotted wing drosophila would spread down the eastern seaboard of Australia, as well as Tasmania, and the south west of Western Australia within approximately six years in the absence of control measures.

In our latest update we draw on a literature review by Plant and Food Research - Australia and share how early overseas detections were made. We also recommend some simple preparedness actions that will ensure your farm and local industry is set up and ready to act if this fly were to be found in your region.

This project is a collaboration between Plant Health Australia, Plant & Food Research Australia, and **cesar**. This project has been funded by Hort Innovation, using the strawberry, raspberry and blackberry, cherry and summerfruit research and development levies and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

The project team would like to thank the steering committee for their guidance and input into project activities.

