SWD Control plan

There are three control options for any pest, including SWD, and these are: Biological, Cultural and Chemical controls. Effective Biological control agents for SWD are unlikely to be available in the near future. Chemical control options are limited, with products being either not compatible with biocontrol of other key pests or not available in Australia (spinosad) or facing problems with insecticide resistance.

So, the main control options are cultural (management). Cultural options are being implemented in the UK with good effect and these are listed here. We suggest that all of the measures listed be the basis for control of SWD until our suggested additional methods are tested in Australia.

Cultural Control Methods (current)

1. The first step is that an IPM approach is in place dealing with all other pests (at present mirids pose the most disruptive controls)
2. Hygiene. ALL Non-marketable berries need to be picked every 2 -3 days and destroyed, i.e. placed in a bin with a lid so adult flies do not escape.
3. Trim plants to remove suitable habitat for SWD.
4. Decrease planting density (blackberries and raspberries) and reduce humidity in the crop
5. Herbicide or otherwise keep area under plants bare
6. Use screens/curtains around the edges of the crop from where SWD may invade.
7. Use commercially available bait traps outside the crop area, on the perimeter where SWD is likely to be breeding.

Proposed additional Cultural Control method

In addition to the current methods, we believe that the use of trap plants, which could be the same as the crop plants but with a longer picking interval could be used. These plants would not be trimmed hard and so would provide an attractive place for SWD adults to shelter and oviposit in fruit. All fruit would be picked and removed but at a longer interval than the main crop. Pesticides could also be used on these plants if necessary, but not applied to the main crop, and so avoid disruption to key biological control agents over the main cropping area.

This proposal assumes that at some point in the season SWD adults will have broken through the barriers and be inside the crop typically in July/August. At this point growers start regular applications of pesticides because the cultural controls are not providing adequate control, in part because of the labour needed.

What we have learned about SWD from talking to growers, advisors and researchers is that SWD prefers the berries to the traps, so the traps have little effect on the population during the peak pressure period.

The adults seek shelter and humidity which is why canopy management or reducing the areas for them to shelter is an important cultural control option.

We propose to try and use a small portion of the crop as a “trap and kill” method by providing SWD with exactly what they want. The aim is to draw as many adults as possible to one small part of a tunnel to reduce the pressure in the rest of the tunnel. For example, this could be a 1m strip of plants with a leafier and more humid canopy at the end of each row where the picking interval is longer than in the rest of the crop so more red berries. This would provide an ideal habitat in which to trap flies. Large monitoring traps could be placed here as well.

The adult SWD flies can then be killed by insecticides in the trap crop and larvae removed simply by picking at a 4 - 5 day interval. This has the potential to reduce the need for as many pesticide applications over the whole crop that may interfere with biological control.

Provided that the trap crop is actively managed to prevent the flies from breeding and infesting the rest of the crop it is low risk. The assumption is that at this stage SWD is already established in the crop and not moving in from outside. So the trap crop will not be drawing them in. The trap crop is simply a way of managing the population breeding within each tunnel.

Possible Options:

Instead of strawberries, the trap could be a few pots of raspberries.

The trap area could be on the edge, and also in the centre of the tunnel.

If effective this approach would (i) reduce the costs to growers by reducing the commercial traps (ii) potentially reduce the frequency of insecticide applications and (iii) potentially reduce the requirement for complete screening.

Draft IPM Strategy Our Suggestions

Pest	Beneficial 1	Cultural 2	Chemical (3)
Spotted Winged Drosophila	**?**	• **Hygiene** • **Short pick cycle** • **Repellents** • **Screens** • **+ others**	**Spinosad?**
2-Spotted mite	*Persimilis* *Californicus* *Stethorus*	Hygiene Canopy management	Nil (Spray after Senescence)
Western Flower Thrips	Predatory thrips Predatory mites	Hygiene Canopy management	Nil (Seed dressing) (Spinosad)
Aphids	Hoverflies, lacewings, ladybirds, Parasitic wasps	Weed control	BT or GemStar*