

Strawberry IPM

'Season Review'

Thursday 25th June

Elizabeth Town Café

10:00 am till 2 pm



Major pest management challenge

Participants listed more than one pest challenge. These were rated by the order of their listing. The first most important was given a score of 3, the second a score of 2 and the third a score of 1 to give an overall rating of the pest (Figure 3).

Pest	Most important	2 nd most important	3 rd most important
Two spotted mites	6		
Aphids	0	4	1
Thrips	1	1	1
Lygaeid	0	2	
Black millipede	1		

Table 1: Grower rating of pest management challenges in Tasmanian strawberry crops 2014/15

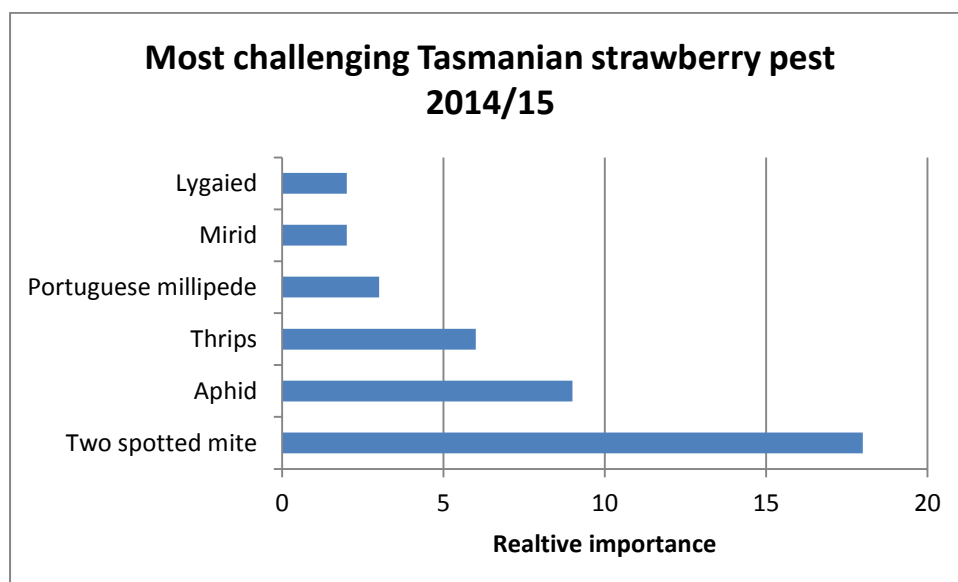


Figure 2: Grower rating of the relative importance of pests in Tasmanian strawberry crops 2014/15

What worked well? Effective management options

1. Introduction of beneficials

90% of growers rated the introduction of biocontrols or beneficials, primarily *Phytoseiulus persimilis* 'persimilis' as their most effective management strategy (Figure 2). Hypoaspis mite, aphidius wasp and orius bug were also effective as introduced biocontrol agents. One grower noted that naturally occurring hoverflies were effective in assisting aphid management.

2. Timing of introduction of beneficials

30% of growers found that introducing biocontrols/beneficial organisms at the correct time to their strawberry crop as having a positive impact on pest management. Scouting was included as a management technique that helped achieve good pest management through correct timing of either biocontrol agents or plant protection products.

3. Health of biocontrol agents

20% of growers highlighted the importance of checking the health status of beneficials prior to release in achieving good pest management results.

4. Weed control

20% of growers rated weed management as an effective pest management option by removing a preferred habitat and breeding site for pests. The removal of wireweed (*Polygonum spp*) was important.

5. Humidity management

Grass plantings between rows and tunnel ventilation were used effectively to manage humidity. One grower noted a "dramatic" improvement in biocontrol establishment and survival with better humidity management.

6. Pesticide use

60% of growers used targeted well timed pesticide as an effective management strategy. The majority rated perimeter or spot application of pesticide as the effective strategy rather than an overall crop spray. Pesticide use was primarily targeted at aphids, perimeter spraying of mirids and minimal or spot use of acaricide for two spotted mites.

7. Runner inspection

One grower noted that runner inspection was a management strategy that worked well. This hygiene check ensured that only clean healthy plants were introduced to the growing system and helped avoid the introduction of pest and disease.

Outcomes

Major pest management challenge

Lygaeid bugs were present in relatively high numbers as a resident in one strawberry crop. Chemical treatment was not pursued by the grower based on information from the first workshop and farm visits. The grower reported that lygaeid bugs were a nuisance but not damaging to strawberry plants or fruit. This low intervention management was concurrent with the observation of large numbers of hoverflies and parasitism of aphids.

Pest management changed during the season with different pests being dominant at different times. One grower (tunnel strawberries) reported two spotted mites were an issue early in the season with aphids coming in mid season. In an outdoor uncovered crop, the reverse was true with two spotted mites requiring management intervention only late in the season.

What worked, effective management options

Of the seven categories of management options that growers nominated as 'what worked well', six of these could be classified as either cultural or biological. Although many growers (60%) indicated that pesticide use was part of their pest management strategy, the majority highlighted that pesticide use was as a spot treatment, border spray, a selective chemical or timed for minimal impact on beneficials.

What's next? Future management strategies

Dr Paul Horne (IPM technologies) led a discussion of future management options for strawberry pests.

Two spotted mites:

Fine tuning predator release was discussed. This included

- Targeting release by introducing predators to hotspots vs over the entire crop and let natural spread
- Timing release so that there is a food source available
- Ensuring conditions at release were conducive to predator survival – including coverage provided by foliage, maintain humidity by closing tunnels during establishment
- Quality of biocontrol: Inspecting predators on arrival to ensure viability
- The

Thrips:

Western Flower Thrips is an inevitable pest in Tasmania. By encouraging natural predators by reduced chemical intervention, management will be much simpler and cheaper. The options for biocontrol include *Cucumber mite* and *orius* (Minute pirate bug). Outdoor beneficials were considered just as important as introduced beneficials and much cheaper.

Aphids:

Whilst there are currently a range of beneficial insects available, a fungus from Qld company Biogrow has potential as a new management option for aphids. Humidity control would be important to establish this. Movento is a new chemical option but is potentially toxic to persimilis

Mirids

The first and best management strategy is to correctly identify the presence of mirids and to be able to distinguish these from lygaeid bugs and prevent unnecessary chemical intervention. Options for management include

- Trap crop such as lucerne which is attractive to the mirid. This is monitored and managed when any mirid is present.
- Light traps on outside of strawberry production area
- Border sprays to control prior to entry into the strawberry production area.
- Weed control: managing particularly broad leaf weeds in the strawberry production area is very important. Wireweed is highly favoured by a number of pests including mirids.

Lygaeid bugs

The best option is to ignore these unless causing significant contamination. Options for management could be the same as for mirids.

Encouraging natural populations of beneficial insects

Grass planting at the end of rows is a method of providing habitat and breeding refuge for beneficial insects, particularly hoverflies.

Mirids and Lygaeids

Both these groups are families of true bugs (Hemiptera – sucking insects), Miridae and Lygaeidae.

Mirids are the ones to be concerned about in strawberry production as they cause distorted berries. In Europe these are often referred to as “capsids”. Lygaeids do not cause the same level of damage and do not generally require control with insecticides.

Mirid Nymph



Mirid Adult



Lygaeid Nymph



Lygaeid Adult

