



Redberry mite update 2019

Key Points

- **Victoria and Tasmania** are the only regions with confirmed incidence of redberry mite in commercial blackberry crops
- **Low numbers of redberry mite were observed in season 2.** A large proportion of fruit damage was attributed to sucking pests
- **The predatory mite *T lailae*** is having a positive impact on reducing redberry mite numbers
- **Redberry mite is directly associated with redberry disease symptoms** in wild blackberries
- **Reduced pesticide use and predatory mites *Typhlodromus doreenae*** will be the focus of 2019/20 field trials

Integrated Pest Management of Redberry Mite in Blackberries

Redberry mite is a tiny mite that infests blackberries in Australia and many other blackberry producing countries. Redberry mite is believed to be the primary cause of redberry disease, a disorder which causes incomplete, delayed or uneven ripening of blackberry drupelets so that some stay hard and red while others are fully black and ripe. This makes the fruit unsaleable for fresh market.

In the second year of research we have:

- Monitored a range of blackberry crops for redberry mite, sampling winter buds and over 2,000 fruit at different stages of ripeness;
- Investigated the geographical spread of redberry mite;
- Released two predatory mites, *T lailae* and *T occidentalis* at two sites each in Victoria and Tasmania, including both open field and polytunnel grown blackberries;
- Investigated the relationship between redberry mite numbers and symptoms

Monitoring mites

In the 2018/19 season, we monitored redberry mite and predatory mite numbers in four commercial blackberry crops, two sites in Tasmania and two in Victoria. During the growing season over 2,000 fruit samples were collected on 5 dates from early season to late season to include fruit at all stages of development. Winter buds were collected in 2019 to assess how well predatory mites persisted in the crop and their impact on redberry mite numbers.

Which varieties are most susceptible to redberry mite?

In 2018/19 commercial blackberry crops of Karaka, Elvira, Victoria, Ouachita, Cowles, Chester, Loch Ness and BL454 were monitored for redberry mite. The now superseded variety BL454 proved to be the most susceptible to redberry mite.

Geographical spread of redberry mite

To date, no confirmed redberry mite have been detected in Queensland (Stanthorpe) or NSW (Corindi). Redberry mite populations are dominant in Victorian and Tasmanian crops. This could be related to fewer wild blackberries in Corindi and Stanthorpe and also the dominance of primocane varieties grown in these districts.

Sucking pests dominate crops

The four commercial crops all had very low numbers of redberry mite in 2018/19. Damage levels were typically less than 1%. Fruit damage was more often attributed to sucking pests such as green vegetable bug and mirids. The damage caused is similar in that drupelets remain red, but with sucking pest damage the drupelets are soft and often show piercing marks and collapsed structure (left image) whereas redberry mite drupelets remain hard (right image)



Predator releases and their impact

Two predatory mites *Typhlodromalus lailae* and *Typhlodromus occidentalis* were released on 3 dates through late spring to mid summer and again at the end of the season.

The low numbers of redberry mite in commercial crops meant that results were not completely consistent. However, in crops of Loch Ness and Chester lower redberry mite numbers were observed in rows where predators were released. Greater numbers of predators compared to control rows were also found in these crops. *T. lailae* releases produced the most consistent positive impact on redberry mite numbers.

In a Tasmanian crop of BL454 the relative number of predators to prey increased fourfold compared to 2018 levels despite a fairly rigorous pesticide program. Whilst still not at the target level of 10 predators to 1 prey, it is a step in the right direction.

Other mites

Broad mite was detected at moderate levels in some crops. However, closer inspection and taxonomic identification has shown not all to be the pest species *Polyphagotarsonemus latus*.

How many mites are needed before you see damage?

The low numbers of redberry mite in commercial blackberry crops meant that this study moved to wild blackberries in 2019. There was strong positive relationship between redberry mite numbers and the level of fruit damage observed. This means that the more redberry mites there are, the more drupelets and fruit with damage symptoms. A larger sample will be collected in 2020 to develop a more statistically robust relationship.

What's next?

Reduced pesticide use and predator releases

Winter bud sampling identified a crop with moderately high levels of redberry mite in a commercial crop in Tasmania. This crop will be the focus for a reduced pesticide trial, specifically excluding miticides and mancozeb, and the release of two predatory mites, *T. lailae* and a new mite from Biological Services, *T. dorenae*. Predator release and mite monitoring will continue in three 'Chester' crops, one in Tasmania and two in the Yarra Valley, Victoria.

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