



## Redberry mite update - September 2020

### Key Points

- **A reduced spray program** resulted in larger predator populations with no impact on fruit quality
- **The predatory mite *T dorenae*** appears to be having a **positive impact** on reducing redberry mite numbers
- **Combining** a reduced spray program with *T dorenae* release is a management option for redberry mite that can be trialled by blackberry growers
- **The blackberry variety 'Victoria'** has not displayed typical redberry mite damage symptoms despite some crops having moderately high numbers of redberry mite

### Integrated Pest Management of Redberry Mite in Blackberries

Redberry mite (RBM) 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 third year of research we have:

- Investigated the impact of a reduced spray program on RBM and predator numbers and fruit quality;
- Monitored a range of blackberry crops for RBM, sampling winter buds and over 2,000 fruit at different stages of ripeness;
- Released two predatory mites, *T lailae* and *T dorenae* at two sites each in Victoria and Tasmania, including both open field and polytunnel grown blackberries;
- Identified predatory mite species present in blackberry crops, this is continuing.

## Spray reduction trial

We conducted a reduced spray program trial on 'Victoria' tunnel grown blackberries at Costa Berries Bengeo farm in Tasmania. Sampling in winter revealed high numbers of redberry mites (RBM) in dormant buds (25 RBM /bud), despite no evidence of RBM damage in the previous season. The trial included:

- **Reduced Spray:** No mancozeb or miticides applied after flowering
- **Full spray program:** Mancozeb + miticides
- **Predatory mite releases:** *T doreenae* or *T lailae* in individual tunnels and the reduced spray program tunnels

## What we found

### Reduced spray program

- **RBM levels were lowest** in fruit when *T doreenae* was introduced
- **RBM levels were higher** in fruit from tunnels with **no predators** or with *T lailae* release, particularly later in the season

### Full spray program

- **RBM numbers** were at their lowest levels
- **Predator numbers were lowest** in fruit from the full spray program tunnel

No negative effects on fruit quality from any treatment

## Protecting predators, reducing chemicals

Whilst the **full spray program** reduces RBM numbers it also negatively impacts on predatory mites, potentially exacerbating other mite issues and leading to long term use of pesticides.

The combination of a **reduced spray program** and introduction of the predatory mite *T. doreenae* reduced RBM to equivalent levels as the full spray program. This offers a potential alternative for growers that protects predator populations and reduces chemical inputs.

## Is 'Victoria' susceptible to RBM?

The Driscoll variety 'Victoria' is a host for RBM with moderately high levels found in buds and fruit. However classic fruit damage symptoms due to RBM activity have not been obvious. A Yarra Valley crop with moderately high numbers of RBM in 52% of fruit showed no symptoms. This requires further investigation.

## Predator releases, what worked well

The predatory mites *Typhlodromalus lailae* and *Typhlodromus doreenae* were released in both the spray reduction trial and also in 3 commercial blocks of the susceptible variety 'Chester' in Tasmania and Victoria's Yarra Valley. The most consistent finding was that RBM levels were lowest in the *T doreenae* rows.

## Other mites

Predatory mites were also found in rows where no releases were made. The widely distributed predatory mite *T dossei* has since been identified from fruit indicating other predators can impact on RBM when conditions are favourable.

## Cases of mistaken identity

Two cases of mistaken identity this season show just how tricky it can be to know whether you have redberry mite or not.



The fruit at top left was commonly found at the end of a tunnel of 'Victoria' blackberry late in the season. If you look carefully, the drupelets change colour from black to red gradually, without a clear distinction between red and black.

The red drupelets were soft and no RBM were extracted. Environmental conditions, possibly cool nights, may have contributed to this symptom.



The second fruit at left was from a Victorian crop experiencing an extended period of > 32C. This was coupled with high humidity due to frequent overhead misting. Again, the red drupelets were soft and no RBM were extracted.

## What's next?

We are currently processing winter buds to see how well predators have persisted. Dr Jamie Davies (DPIPWE) is continuing to identify the mite species to confirm which mites have persisted in the crop. Keep posted on TIA's RBM web page.

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