‘Doreen’ to lend a helping hand in blackberry crops

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Redberry mite is a tricky pest of commercial blackberries, but it is not alone. Investigating redberry mite (RBM) has led Tasmanian Institute of Agriculture entomologist, Dr Steve Quarrell on a quest for better integrated pest management (IPM) in an industry which has doubled in size over the last two years.

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“The more we look into RBM management, the more we realise how much there is to learn about the whole blackberry production system,” he said. “It’s impossible to manage one pest in isolation of other pests and diseases, particularly with the impact of sucking pests such as mirids and green vegetable bugs on fruit quality”.

“When you intervene with pesticides for these, it is impacting the management of every other insect or mite in the crop and can undo all the good work you have achieved with beneficials if not managed carefully,” Dr Quarrell said.

The good news is that this seasons Tasmanian field trials at Costa Groups Dunorlan and Bengeo farms will investigate how a reduced pesticide program can be married with management of other blackberry pests and diseases. A new native predatory mite from Biological Services, *Typhlodromus doreenae* or ‘Doreen’ for short, will be introduced alongside existing predators this season. ‘Doreen’ is a quality choice, feeding on similar pest mites to RBM. Dr Quarrell said the key to any integrated approach that includes predators is monitoring.

“If redberry mite numbers are low then it’s time to back off with pesticide use and give predators a chance to do their job. However, I am realistic and know that at times pesticide intervention is needed, we just have to be a bit smarter with our timing of predator releases around that”, he said.

Monitoring in the 2018/19 season revealed very low numbers of RBM in commercial blackberry crops. This was great news for growers but can be a little tricky when this is the pest you are trying to research. Dr Quarrell said despite this, his team were able to come up with some encouraging results with the use of predatory mite releases in four blackberry crops, two in Victoria and two in Tasmania.

“We released two predatory mites, *Typhlodromalus lailae* and *Typhlodromus occidentalis* on 3 dates through late spring to mid-summer, and again at the end of the season and monitored mite numbers including RBM, predators and other pest mites throughout the growing season. Over 2,000 fruit samples later, we found lower numbers of RBM and higher numbers of predators, particularly *T lailae*, in the release areas of all but one crop,” Dr Quarrell said. The big question still remaining is does RBM cause redberry disease symptoms and how many do you need to cause damage? With low RBM numbers in commercial crops, Dr Quarrell used wild blackberries as a test case.

"There is definitely a positive relationship between redberry mite numbers and redberry disease, the more redberry mites there are, the more damage we observed on fruit. This season we will use a bigger sample size to get a more accurate figure of the numbers needed to initiate damage", Dr Quarrell said.

The complicating factor is that not all red drupelets are due to redberry mite and it can sometimes be a little tricky distinguishing which pest or physiological disorder is the culprit.

"This season we found very few typical redberry mite symptoms, but quite a lot of damage due to sucking pests, most likely caused by mirids and green vegetable bugs. The drupelets for redberry mite stay hard whilst these looked punctured and soft."

Steve sees the next challenge is finding alternatives to the non-selective pesticides used for sucking pests, or alternatively using pesticides more strategically or in trap crops which lure these pests away from the crop.

"Ideally I would like to see if we could introduce a whole systems approach to pest management in Rubus crops and be a bit smarter in how we tackle sucking pests", he said.

Many thanks to fantastic support from Cindy Edwards (YV Fresh), Biological Services, Costa Group, Fairvew Hills, Blue Hills and Lanoma Estate.

More information on this project – RB17000 – Integrated Pest Management of Redberry Mite, *Acalitus essigi*, on blackberries - can be found on the TIA Redberry Mite project page at: www.utas.edu.au/tia/research/research-projects/projects/red-drupelets-on-blackberries or by contacting project lead, Dr Stephen Quarrell on stephen.quarrell@utas.edu.au


Steve Quarrell monitoring RBM


Collapsed blackberry drupelets likely caused by sucking insects


Unripe red drupelets with the appearance of redberry disease