

# MANAGING RED SCALE IN PASSIONFRUIT VINES

BY DAN PAPACEK, BUGS FOR BUGS

*Red scale is a serious pest of many crops especially citrus and passionfruit vines. This pest belongs to a group of sucking insects that include mealybugs, aphids, whiteflies and psyllids.*

The scale insects feed by inserting their mouthparts directly into the plant feeding on the sap. Red scale also injects a toxin that can eventually debilitate and even kill the plant.

Many pesticides have been used for red scale control with varying success. It is however extremely difficult to achieve effective long-term control because scale insects have a waxy protective covering and are immobile. Any applied chemical may not reach the pest even with the most rigorous of application techniques. If the chemical does reach its target, red scale has shown a capacity for developing resistance rendering these products useless within a few years or less.

There are several biological control agents that can help keep red scale at manageable levels.

These include the tiny wasp parasite *Aphytis lingnanensis* and a very prominent and highly visible ladybird beetle *Chilocorus circumdatus*. These are both available commercially and can be released strategically to work in tandem with other naturally occurring beneficial species including the wasps *Encarsia* and *Comperiella* as well as another native ladybird species *Rhyzobius lophanthae*.

You don't need to remember all of these names, but it is good to understand that these natural enemies are ready to work for you if you give them the opportunity.

**What can you do to maximise the biological control of red scale in your passionfruit orchard? Some suggestions include:**

Make 4-5 releases of *Aphytis* wasps at 25,000 per hectare commencing soon after winter. Releases should be made at intervals of around 3 weeks. The number and frequency of releases may vary depending on the severity and history of red scale in any particular block. Following these initial releases an assessment of parasitism can help determine the efficacy of the release program. Additional releases may be necessary if red scale persists.

*Chilocorus* ladybird beetles can be released strategically into 'hot spot' areas. These predators will assist *Aphytis* wasps in their role to reduce red scale to acceptable levels.

Manage your fruit fly using our proven systems approach which includes monitoring, placement of MAT cups and protein baiting. At all costs you should avoid the temptation to apply cover sprays for fruit fly as these products universally cause harm to beneficial species and inevitably the result is a sharp increase in red scale activity.

Again, to reduce the adverse impact of toxic pesticides, manage other pest problems such as flat mite (false spider mite) and mealybugs with biological control options, including Lacewing (*Mallada signata*) for the flat mite and Californicus (*Neoseiulus californicus*) for the mealybug.

As much as possible ensure you provide a favourable environment for beneficial species to survive and thrive. This includes minimising dust and doing your best to encourage biodiversity within your orchard. A vigorous grass sod between the rows and suitable flowering plants can offer nectar and pollen as food sources for beneficial insects and mites to your long-term advantage. An idea for suitable plants would be Alyssum and Sweet Basil planted in a cluster of 3-4 at the end of each row.

If chemical sprays are required, do your best to keep their use to a minimum and select materials that are least likely to harm your beneficial insect populations. Be aware that it is not just the insecticides and miticides that can harm our beneficials, but also certain fungicides can be disruptive, including products containing mancozeb.

Finally, after you have applied all the above principles, if you still feel that your red scale control is inadequate then you may need to seek assistance from pesticides. This should only be after you have explored all other options. If this is the case, give us a call and we will do our best to make suggestions on how you might manage to do this in the most sustainable way.



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**Remember that every time you apply a pesticide you may cause harm to valuable biological control agents that are ready to work for you if you give them the chance.**

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**CONTACT: 07 4646 2628**