

Promising Chemical Alternatives for Citrus Gall Wasp Control

Jianhua Mo

Project team: Andrew Creek, Scott Munro, Mark Stevens

Yanco Agricultural Institute, NSW Department of Primary Industries
Contact: 0269512537, Email: jianhua.mo@dpi.nsw.gov.au

In Queensland and coastal NSW, citrus gall wasp (CGW) (Figure 1) populations are normally kept below damaging levels by its natural enemies, particularly two parasitic wasp species. In the Sunraysia region however the parasitic wasps are at their early establishment stage and their numbers are not high enough to effectively control CGW. Chemical control is the only available option for affected citrus orchards in the region. Currently only methidathion (e.g. Supracide®) is registered. Supracide® is highly toxic to both humans and beneficial insects. It does not always provide satisfactory control of CGW.

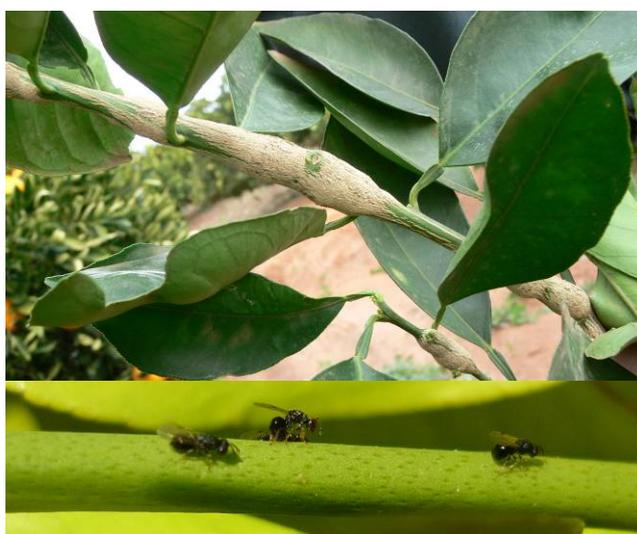


Figure 1. CGW adults lay eggs on a current-year citrus shoot (bottom). Galls form around the egg-laying sites in the following year.

To find alternative chemical options, two systemic insecticides - Confidor Guard® and an unregistered product (Product-X) - and petroleum spray oil (PSO) were tested. Results from the 2010-2011 trial showed that a single application of Confidor Guard® applied as a soil drench (9 mL product/tree) in late October reduced the number of large galls (longer than 10 cm) in May in the following year by about 60% and total gall weight by 62% (Figure 1). Similar reductions of large galls and total gall weight were achieved by three applications of PSO (0.5%). On the other hand, Supracide® and the unregistered product failed to provide significant control of CGW.

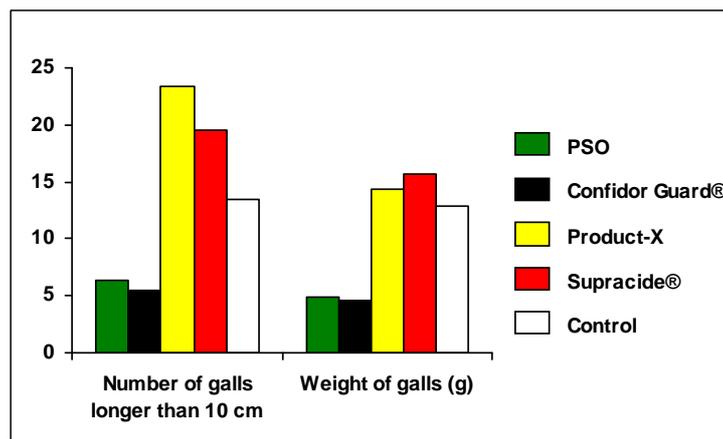


Figure 2. Results of a chemical trial for CGW control conducted at Dareton during October 2010 - May 2011.

Confidor Guard® is effective against many insect pests in a variety of crops. Unfortunately its broad activity also makes it toxic to parasitic wasps of CGW, so it is best used where the parasitic wasps are absent, or their numbers are low. PSO, on the other hand, only repels adult CGW from laying eggs in citrus shoots and has no direct adverse effects on parasitic wasps. Product-X is a new-generation systemic insecticide and has demonstrated efficacy against several insect pests. It also showed some efficacy against CGW in a separate trial. Its unsatisfactory performance in this study may have been due to application timing.

To confirm the performances of the test chemicals, another trial was started at a different site in Dareton in November 2011. The new trial compares Confidor Guard®, Product-X, and two rates of PSO (0.5% and 0.25%). Data will be collected from this trial in May 2012 and the results will be reported in a separate article.

Acknowledgement

The project is funded by HAL using the voluntary contribution from the Murray Valley Citrus Board (MVCB) with matched funds from the Federal Government. In-kind support is provided by Industry & Investment NSW. We wish to thank Mary Canard of MVCB for providing advice on the choice of chemicals and rates to test.