

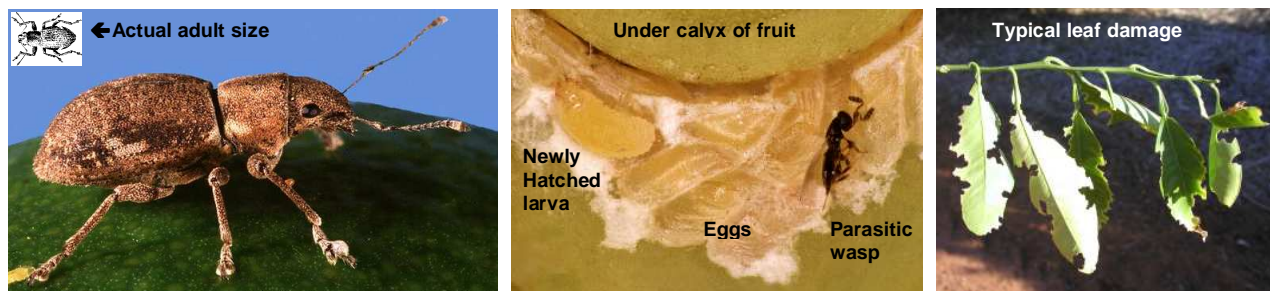
Field management of Fuller's Rose Weevil in citrus

Murray Valley Citrus Board December 2006

The problem

Fuller's Rose Weevil (FRW; *Asynonychus cervinus*) is a high-priority quarantine issue for some key export markets for Australian citrus. FRW lays eggs on citrus fruit and although the pest does not cause significant damage to trees or fruit, the presence of eggs, larvae or adults in shipments can result in the rejection of those shipments by sensitive markets. Groves supplying fruit for those markets require field management of FRW to prevent eggs being laid on fruit. Any field management approach needs to avoid or minimise disruption to established citrus IPM programs.

The pest



- FRW pupate in the soil, then adults emerge and begin feeding on leaves of weeds and citrus
- Peak adult emergence occurs from mid summer to autumn
- Adult FRW are flightless - to reach citrus fruit they must crawl up the tree trunk or enter the canopy by way of tall weeds, sprinkler risers or tree foliage that is touching the ground
- Peak egg laying occurs from late summer to autumn
- After hatching, FRW larvae drop to the ground and burrow into the soil where they feed on tree roots

Grove risk assessment

Younger groves typically have lower risk of FRW infestation. Before any grove can supply fruit for export to FRW sensitive markets, it must be officially inspected for compliance with market requirements regarding FRW status and management. Growers may determine their own grove's FRW status before deciding on involvement in the export programs. To do this, randomly select at least ten trees per block for inspection. At each tree:

- Look for typical FRW feeding damage on leaves in lower parts of the canopy
- Look for egg masses under the calyx of five fruit per tree
- Sharply beat some lower foliage over a white sheet or tray and check for adult FRW

All groves intending to export to FRW sensitive markets should maintain the skirting and weed management program outlined below. Groves with obvious signs of FRW infestation should implement the full program (ie. include trunk banding) to reduce FRW populations to low levels in the longer-term.

Objective of FRW management

The objective of FRW management is to prevent eggs from being laid on fruit. This has two aspects:

- Immediate: Prevent FRW from accessing fruit by preventing their entry into the tree canopy.
- Longer-term: Suppress FRW populations to reduce the overall risk of egg laying on fruit.

Current best-bet management approach

1. Skirt trees to ensure that low foliage does not touch the ground or weeds

- Trees should be skirted high enough to prevent foliage or fruit touching the ground at any time
- Skirt height must take into account the future sagging of branches as a result of fruit growth
- Skirts should be at least 50cm high to allow for easy trunk treatment and inspection for weeds

2. **Maintain good weed control to prevent weeds acting as a bridge into the canopy**
 - Even single blades of grass have been observed to allow FRW access into a tree canopy
 - Groves should be inspected frequently enough to detect and combat weed regrowth before weeds contact the tree foliage
3. **Spray a band of insecticide onto tree trunks to repel or kill FRW that try to climb the trees**
 - Table 1 lists the insecticides currently registered for FRW control on citrus along with relevant critical comments from their labels
 - The insecticide band should be at least 10cm wide and completely encircle the trunk
 - The band should be in a position where it is not 'washed' regularly by sprinkler irrigation
 - Insecticide should be reapplied frequently enough to the band to maintain its effectiveness – reapplication every two to three months may be necessary (refer to product labels)
4. **Maintain a good level of grove hygiene and cleanliness**
 - Light prunings, tumbleweeds, polystyrene boxes etc should be kept out of the grove as they are easily blown under trees where they create bridges between the ground and foliage
5. **Monitor the treated trees regularly to ensure that:**
 - weed control is effective
 - tree skirts are well clear of the ground, weeds and cover crop
 - insecticide bands are reapplied regularly as per the label instructions

The risk of fruit being infested with FRW eggs will be much higher if any of these aspects of management are compromised, even for a short period.

Table 1. Insecticides currently registered for use against FRW in citrus (December 2006).

	Crops and states covered by registrations	
	Citrus generally	Orange & Lemon
Karate Lambda-cyhalothrin 250g/l ¹		All states
Matador Lambda-cyhalothrin 250g/l ¹		All states
Trojan Gamma-cyhalothrin 150g/l ¹		All states
Bugmaster Flowable Carbaryl 500g/l ²	NSW, VIC, TAS, SA, WA	
Nufarm Carbaryl 500g/l ²	NSW, VIC, TAS, SA, WA	
Kendon Carbaryl wettable powder 800g/l ³	NT, VIC, SA, TAS, WA	
Conquest Chlorpyrifos 500g/l ⁴	QLD only	
David Grays Chlorpyrifos 500g/l ⁴	QLD only	
Cyren 500 EC Chlorpyrifos 500g/l ⁴	QLD, WA	

Critical comments from the insecticide labels:

¹ Firstly ensure that the trees are skirted and that all weeds under the trees are removed. Apply 250ml spray solution to the tree trunk at about 300mm from the ground in a 100mm band. Deliver the spray through a U shaped wand fitted with 4 nozzles evenly spaced around the tree. Trees must be treated in the early stages of the adult weevils emerging from the ground.

² Spray lower parts of the trees and ground beneath

³ Spray lower parts of the trees and ground only beneath when attack noticed.

⁴ Skirt trees to 0.5 m above ground. Apply spray to the lower trunk in Jan and again every 2-3 months until harvest.

Treatment timing

For maximum impact in this coming season, skirting, weed management and trunk sprays should be maintained from December onwards. This takes advantage of the seasonally very low numbers of FRW in trees around December. Field management of FRW in export groves should be maintained year-round until populations of the pest have been reduced to low levels. This may take several years.

Band application technique

Insecticide should be applied to tree trunks in a way that minimises run-off to the soil or contact with tree foliage. The ideal applicator may be a 'U' shaped wand that allows the entire trunk band to be applied in a single pass with all spray directed towards the trunk (e.g. see diagram below).

