

Cochineal - A Biocontrol Agent for Wheel Cactus

What is Cochineal?

- A tiny scale insect (*Dactylopius opuntiae*) covered in a white waxy substance
- Oozes bright red liquid when squashed
- Insects spread either by flying (wind) or crawling between very closely situated cactus plants



Photo Ovens Landcare Network



Photo Lee Mead

What does it do?

- Attaches to the outside of the pads of a cactus plant and sucks juices from the plant

Background about Cochineal biocontrol agent

- Native to Mexico (the same country as the cactus plants originated from)
- Several different strains were released in Queensland in the 1920s to help destroy serious infestations of prickly pear cactus, and five of those cochineal strains have survived since then
- Cochineal biocontrol has been established in South Australia by the S.A. government over the past 10 years to help destroy Wheel Cactus infestations
- Tarrangower Cactus Control Group were given samples of Cochineal from S.A. in 2013
- Cochineal strains are highly host specific, and only feed and survive on specific species of cactus

How can it help to control Wheel Cactus (*Opuntia robusta*)?

- Kills small young Wheel Cactus plants
- Reduces the viability of larger fruiting plants
- Can help control infestations as part of a **long-term integrated** management strategy

Advantages of using Cochineal

- A free, cost-effective and sustainable tool to help destroy Wheel Cactus
 - less chemicals need to be purchased and used
 - less labour-intensive work is required
 - can reach infestations in inaccessible locations

Disadvantages of using Cochineal

- The insect population needs to be abundant to suck enough sap to affect the cactus plants
- It usually takes 3-4 years for the cochineal insects to replicate to an abundant population
- The insects are most effective in dense Wheel Cactus infestations where plants are close together
- The insects usually only suck enough sap to kill smaller cactus plants
- Affected by Climate: rain washes the insects off the plants
 - insects survive best in hot and dry climates
 - some wind helps to disperse the insects

Long-term Integrated Management Strategy for Wheel Cactus

- Cochineal insects spread very slowly between cactus plants & can take **3-4 years** to be effective
- They need manual assistance to help spread from infected to non-affected plants
- It is essential to also inject with herbicide all mature fruiting plants (to prevent new seed production)
- Cochineal will not kill large, mature plants so they need to be injected or manually removed
- Continually monitor both cochineal growth & spread and wheel cactus seed production

What is needed for effective Integrated Management with Cochineal biocontrol:

1. **Continue to inject** with herbicide all large fruiting plants
2. **Leave** all small & medium wheel cactus plants that are **not fruiting** so the cochineal can replicate
3. Frequently **harvest and re-distribute** cochineal infected pads to new unaffected plants
4. Treat isolated and solitary cactus plants by injection or manual digging



1. Inject all large fruiting plants



2. Leave all medium NON-fruiting plants



2. Leave all small NON-fruiting plants

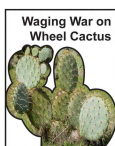


3. Harvest infected pad and re-seed to new plant

How to harvest and re-distribute Cochineal

- Cut an infected pad from a plant, one that is well covered with Cochineal insects
- Place the infected pad in the base of another wheel cactus plant, wedging it between pads
- Lay the face of the infected pad resting against the face of a new unaffected pad
- Re-seed plants approximately 20 metres apart, in hot, sunny but sheltered locations (if possible)

Need help? contact: www.cactuswarriors.org



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