

2. BIOLOGICAL CONTROL OF INVASIVE CACTUS SPECIES (FAMILY CACTACEAE)

 2.11 Imbricate cactus (*Opuntia imbricata*)

ORIGIN OF THE WEED

Imbricate cactus (fig. 1) is indigenous to South America.

BIOCONTROL AGENT

Read more about biological control in general in leaflet 1.3 in this series, and about biocontrol in cactus species in leaflet 2.1.

a. Imbricate cactus cochineal, *Dactylopius tomentosus*

This cochineal species (fig.2) originates from Mexico and Texas, USA, and was brought to South Africa via Australia. It was released here in 1970. It is an effective biocontrol agent against imbricate cactus and also survives on rosea cactus (*Opuntia fulgida*), although it is not very damaging to the latter cactus. A different biotype of this cochineal species is an effective biocontrol agent of rosea cactus (see leaflet 2.13).

Background information on agent

Consult leaflet 2.5 in this series for essential information on the life cycle of this insect, its potential as biological control agent and its implementation.

Cochineal damage to imbricate cactus

The nymphs and adult females suck the sap from the succulent stems and joints. In the process, they are thought to secrete toxic saliva into the plants that causes the joints to drop off and stems to discolour and rot (fig. 3). The cochineal is particularly effective in killing small plants. Large plants (fig. 4) will lose their joints, but will not necessarily die, but if these plants are left until they are heavily infested by cochineal and then hand-felled, they will succumb without resprouting.



Figure 1. An imbricate cactus plant with flowers and fruits.



Figure 2. Clusters of cochineal on an imbricate cactus plant.

CONTROL STRATEGY

Small cactus plants	Biological control only - cochineal
Large cactus plants in dense infestations	Biological control using cochineal for two years, then hand-fell any plants still living.
Isolated plants	Chemical control - e.g. MSMA
In wet areas	Integrate biological and chemical control. Rely on biological control during dry periods. The presence of the biological control agents reduces the amount of chemical control that is required by about 50%. During wet periods use chemical control - e.g. MSMA

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CONTACT PERSONS

Consult leaflet 1.4 in this series for the most updated contact details.

- Biocontrol research: Weeds Research Division, ARC-PPRI (Rietondale), Private Bag X134, Pretoria 0001; Tel (012) 329 3269; Fax (012) 329 3278; e-mail weeds@plant2.agric.za.
- Chemical control and supply of biocontrol agents: National Department of Agriculture: Directorate of Agricultural Land Resource Management (D:LRM): your nearest Provincial Office.



Figure 3. Feeding by the cochineal insects causes the smaller joint to drop off and die.



Figure 4. For the best results, plants as large as these should be hand-felled at this stage. The cochineal will ensure that they do not resprout.

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