

factsheet

Release of biological control agents:

a biocontrol case study for dock



d o c k

Site selection

Wagga Wagga City Council has numerous large dock infestations in locations that present environmental concerns when using chemical control methods.

Although dock is not listed as a noxious weed within the city council area, Senior Noxious Weeds Officer, Bob Thurling decided to implement a biological control program in 1996.

Over the next four years, 17 nursery sites were established. Suitable release sites were selected (as per Dept. Ag WA protocol) on readily accessible crown land, council roadsides and farms. Land managers were consulted and the biological control program explained.

Biocontrol agents used

The biocontrol agent used was the clear wing moth (*Chamaesphecia doryliformis*).



The release site was covered by mature dock.
Photo: B.Thurling

Project: Wagga Wagga City Council: management of dock using non-chemical control (in areas where herbicide usage presented environmental concerns).

Participants: New South Wales Noxious weeds officers (Wagga Wagga City Council) and farmers.

Bob Thurling first heard of this bioagent from officers at NSW Agriculture, Leeton. He was advised to contact the Dept of Agriculture, WA for a supply of egg sticks.

Orders were coordinated for an early spring release. The 'combs' of egg sticks were air freighted overnight to Wagga Wagga.

Bob stresses that delivery has taken up to 3 days, and so to maintain egg viability, couriers must be directed to keep boxes cool at all times but not refrigerated.

Location: Wagga Wagga, southern NSW (dock infestations on crown land, council roadsides, farms).

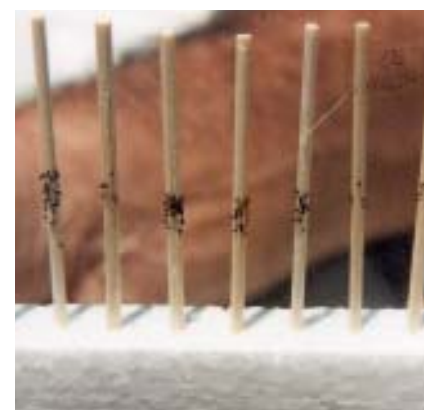
Ave. annual rainfall: 572 mm.

VET sector resource: RTD3707A *Release biological agents.*

Release of biocontrol agents

In early spring, (on the day of arrival from WA), the egg sticks were placed at the field sites. One egg stick per mature dock plant was carefully placed into a cut stem.

Stock and vehicles were excluded from the sites for at least two months after release to reduce egg stick disturbance.



The larvae emerge from eggs that are placed on eggsticks. The eggsticks are dispatched in combs.
Photo: B.Thurling



Mature dock plant
Photo: B.Thurling



Stems of Dock plants are cut prior to inserting the egg stem.
Photo: B.Thurling



Egg sticks are placed in cut stems of mature dock plants.
Photo: B.Thurling

Preparation of release site

Stock was excluded from the farm sites prior to release of the bioagent.

Rank stems of mature dock plants were cut to about 5-8 cm long with secateurs.

The release sites were identified by placing a number of marked tomato stakes or star posts around the perimeter of the nursery area.

Outcomes

It has taken a number of years for the biocontrol agent to build up sufficient numbers to reduce the density of dock. During the first four years of this program, the seasonal conditions were mild and the moths were able to multiply and spread.

There has been a noticeable reduction in the dock density at many of the sites. In the paddock pictured below, (six years after release) there are numerous dead dock plants and grubs are present in more than 80% of the plants.

The site is now grazed. However in general, release sites on farms were not as successful as the other selected areas mainly due to poor management, eg:

not excluding stock from the nursery sites during the establishment phase.

Site monitoring and inspections were carried out about twice a year. "Larvae have been found over a kilometre from the release sites. It may well be more than that," says Bob, "but unfortunately I just don't have the time to monitor the sites more closely".



Six years after the release there are numerous dead dock plants and grubs are present in more than 80% of the plants.
Photo: B.Thurling

For further information visit the Weeds CRC's website: www.weeds.crc.org.au

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