

2002/Q04



Producer Research Support

Blue Heliotrope Biological Control

Blue Heliotrope Action Committee (QLD)



The project

Blue heliotrope is an invasive, toxic weed that has been spreading across southern Queensland during recent drought years. Producer interest in controlling blue heliotrope is very high.

The blue heliotrope beetle from South America, that eats the blue heliotrope weed, was introduced by CSIRO. There was no release program planned for Queensland, so the Blue Heliotrope Action Committee (QLD) applied for Producer Research Support funding to run a trial on the effectiveness of the beetle as

a biological control agent for blue heliotrope in southern Queensland.

Objectives

The objective of the project was to significantly reduce blue heliotrope by building colonies of blue heliotrope leaf-eating beetles, *Deuterocampta quadrijuga*, feeding on blue heliotrope infestations, at several sites in Central and Southern Queensland.

The broad plan for achieving this was:

- to release beetles into the field in lots of 300 to 500 by November 2002;
- to have producers establishing at least one colony in each of 6 regions by April 2003; and
- to have producers monitoring and collecting beetles from at least 10 sites in each region by April 2004.

What was done

CSIRO provided a starter beetle colony in June 2002, and beetles were reared on blue heliotrope plants in breeding tubs at the DPI & F at Kingaroy.

Beetle nursery sites were established in each district. Once the beetle population at nursery sites had developed, producers were responsible for harvesting and redistributing the beetles in their own region. The beetles do not readily fly long distances, so the transfer of beetles to other sites by producers was integral to the success of the project.

In November 2002, 700 beetles were released on properties at Kingaroy, Crows Nest and Gayndah. None of the participating regions had much fresh heliotrope due to drought conditions.

In February 2003, the beetles in the breeding tubs in Kingaroy were infected with *Beauveria* fungus, so the tubs were emptied and disinfected, and the breeding program restarted.

The Blue Heliotrope Action Committee (QLD) investigated biological control of blue heliotrope in southern Queensland using the leaf-eating beetles *Deuterocampta quadrijuga*.

A toxic fungus in the beetle-breeding colony significantly reduced the number of beetles available for release. Despite the fungus and drought, three colonies of beetles were established in the field.

Key points

- The blue heliotrope beetle, introduced from South America by CSIRO, eats the blue heliotrope leaves and flowers.
- Many beetles were attacked and killed by a fungus in the breeding colony. Three colonies of beetles were established in the field.
- New trials will be conducted as soon as possible with greater protection provided to the beetle, to enable it to establish itself.

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Producer Research Support

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Contact Gerald Martin
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Blue Heliotrope Biological Control

July 2005 / PIRD OUTCOMES

A blue heliotrope seed-collecting working bee was held at Kingaroy and other seed was sent in by co-operators. The project team experienced difficulty with seed germination despite hot water treatment and physical scarification, so plant roots were collected, washed in bleach and planted in the tubs.

By October 2003, beetles were re-introduced to the cages.

Beetles were again released on farm in January 2004 and by March were found to have started new generations on three of the trial properties at Daringa, Mt. Perry and Crows Nest.

Unfortunately the breeding colony was re-infected with *Beauvaria* in March 2004.

What happened?

Over 5000 beetles and larvae were released at eight sites. New generations of beetles were found at three of these sites, indicating that they were successfully breeding. Third generations of beetles were not found. Releasing infected beetles could have contributed to the unsuccessful colonisation.

Discussion

Identification of a suitable mechanism for controlling blue heliotrope remains a high priority among producers, as the weed continues to spread. The enthusiasm and support for the project among producers did not diminish despite the difficulties created by the fungus destroying the breeding colonies.

Breeding the blue heliotrope beetles, hampered by recurrent fungal infections, was more difficult than anticipated and the support of an organization like DPI & F would be highly recommended for future projects. Reducing the chance of *Beauvaria* infection would be a priority.

The beetles were found to fly more than expected. Releasing a larger number of beetles at fewer sites would have increased the opportunities for the beetles to build up effective colonies.

Next Steps

Producers not initially involved in the trial are expressing interest in participating in biological control of blue heliotrope.

The fungus attacking the blue heliotrope leaf-eating beetles, *Deuterocampta quadrijuga*, has not been found in breeding colonies in Tamworth and Canberra, so the project team have applied for further Producer Research Support funding to further the trial.