

Pest of the month

Biological control of pest plants

Biological controls (biocontrols) use one or more living organisms (usually insects or fungi) to control pest plants. Once a biocontrol agent is well established there is no need for further releases, although these agents may need human assistance to move to new sites. Selection of a control agent involves studying the plant in New Zealand to find if there is anything that is already damaging it; if not, it is then necessary to look at the natural enemies of the pest plant in its native range. Safety tests are then carried out to determine if the proposed biocontrol is likely to attack non-target plants.

Permission is required from the Environmental Risk Management Authority (ERMA) to import the agent into secure conditions in New Zealand and again to release it from custody. This involves consultation with a number of interested parties.

Biocontrols are most effective when complete eradication of the pest plant is not the aim. Biocontrol agents can reduce plant vigour, slow the spread of noxious weeds and can reduce existing infestations to a level that landowners can live with or can control using other methods. This is a slow process that may take years, as numbers of the biocontrol agent build up to a level where they are able to significantly affect pest plant populations. Some of the more vigorous pest plants may need two or more different agents to achieve effective control.

Biocontrols have advantages over other methods of control. They are sustainable, incur very little ongoing cost after successful establishment, pose no concern to human health, and are independent of land ownership.



Receptacle weevil on nodding thistle.



Gallfly larvae in nodding thistle seed head.

Landowners who once had nodding thistle in this region have benefited substantially from biocontrol agents. A receptacle weevil was first released and has slowly dispersed with human assistance. Later, a gallfly was released. Both these agents damage the seeds. A third agent, the crown weevil, attacks the rosettes. These three agents have been highly effective in reducing the heavy infestations of nodding thistle that were once present in the region.

Similarly, landowners with ragwort have benefited from biocontrol agents. It was once one of New Zealand's four worst weeds because it was toxic to stock and displaced pasture. The introduction of the cinnabar moth, whose caterpillars defoliate plants, and more recently, the ragwort flea beetle, which damages the roots and crowns of rosette plants, has dramatically reduced ragwort populations.

The Council, in association with other regional councils, contributes to the funding of a biocontrol research programme and to selection of the programmes for ongoing