



## CLOVER ROOT WEEVIL (*Sitona lepidus*)

### THE HAWKE'S BAY EXPERIENCE

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#### Introduction

Clover root weevil (CRW) was first discovered in New Zealand in 1996. In autumn 2004 the weevil was identified damaging pastures in the Patoka/Puketitiri districts. The lag phase between infection and identification was considered to be around 1.5-2 years. The lag phase is important from a management perspective, earlier detection enabling a proactive approach to monitoring and management.

In winter 2004 an initiative led by the East Coast Clover Root Weevil Group (Leader John Hudson, Gwavas Station) funded by **Meat and Wool New Zealand FITT grant** and **Ballance agri-nutrients** was commenced. The project objectives were met by surveying Hawke's Bay for further incursions and fast tracking the latest technical information about CRW to farmers through four workshops (Puketapu, Tikokino, Dannevirke and Masterton). Links were formed with AgResearch that facilitated the release of the parasitoid *Microtonus aethiopoulos* at Patoka in late January 2006 in Hawke's Bay.

The survey results showed that by November 2004 CRW was established on a line between Porangahau and Norsewood and along the foothills as far south as Pahiatua. In 2005/2006 further incursions have been found in southern Wairarapa, in the west of the North Island and more recently at Christchurch.

CRW is a significant pest of our grasslands and like most other pests is here to stay. Adult CRW can defoliate white clover, the larvae cause the most insidious damage by devouring white clover root nodules, roots and stolons causing a gradual loss in nitrogen fixation and predisposing the plant to secondary infections.



**Plate 1**

**Plate 1:** CRW adult (top) 4-5mm long, a damaged clover plant (note leaf notching and nitrogen deficient appearance) and CRW larvae (bottom) 1-6mm long. (Photos: M. Slay)

## MAIN POINTS ...

### Climate and distribution

- \* CRW is distributed throughout Hawke's Bay.
- \* Farms with rainfall above 1300mm with a cool environment (high altitudes) appear to be sustaining the highest CRW populations. In part, this is proportionate to the high level of clover found in these pastures (for example Patoka, Puketitiri, Mangleton, Maraetotara).
- \* In lowland Hawke's Bay CRW distribution and presence has been affected by the mini drought in early 2005. The drought, the driest January/February since 1983, had a marked effect on CRW fecundity and survival. There was a marked reduction in CRW presence in the Tikokino area relative to populations identified in winter 2004.
- \* A survey conducted in August 2005 to find potential sites for the pending parasitoid release showed CRW incidence and damage increased progressively towards the ranges from State Highway 50.
- \* CRW are attacking clover almost everywhere. For example, at On-Farm Research Poukawa single plants are under attack in the pasture trials...in essence, low populations of CRW and minimal cover of white clover is at a similar risk to good white clover cover and high populations of CRW.

### Pasture damage

#### New Pasture:

- \* There have been reports of CRW causing white clover establishment failures (Wakarara and Balance/Woodville, autumn 2005).
- \* Autumn sown (2005) pastures had high winter infestation rates and high populations of adults this summer (2005/2006) along with substantial white clover leaf defoliation. Symptoms of Nitrogen deficiency were observed. (Patoka/Puketitiri).
- \* Spring sown pasture (2005) shows signs of adult CRW activity (Patoka).

#### Old pasture:

- \* Pastures affected by CRW for over 2 years had marked reductions in white clover in winter/spring 2005 (Patoka).
- \* Over wintering adult CRW are causing substantial defoliation of white clover. In early spring farmers report poor animal performance associated with CRW presence.

***The important message - Monitor CRW activity...Seasonal changes in weather will influence white clover growth and CRW populations.***

#### **CHECK LIST**

- \* When sowing white clover use adequate grass to clover seed ratio and good sowing techniques - **Consider endophyte ryegrass white clover interactions –reduce grass seed/increase clover seed-sowing depth for white clover 5-10mm – warm (above 12°C) and a firm seedbed.**
- \* Direct drilling new pasture- Monitor adult CRW presence – **control with chlorpyrifos as for ASW**
- \* Cropping will reduce/eliminate CRW presence – **Check new pasture for re-infestation.**
- \* Use white clover tolerant cultivars - i.e. **Tribute, Apex, Kopu2.**
- \* Use winter active cultivars – **Winter dormant white clover is more susceptible to attack.**
- \* Avoid pugging in winter - **Damage to white clover stolons and roots.**
- \* Maintain grazing management that encourages white clover - **Avoid shading w.clover in spring-avoid low covers in summer (sunburn) – take care with pasture conservation practises.**
- \* Maintain adequate soil nutrient status for w.clover growth and production – **Use soil management strategies for optimum clover growth.**
- \* Use strategic applications of N little (5-15kgN/ha) and often – **consider necessity and economics.**
- \* Acknowledge the insidious affect of CRW larvae – **Check for presence of CRW larvae and nodule density-The presence of white clover does not mean nitrogen is being fixed.**
- \* Make wise and timely decisions when controlling thistles – **Use clover friendly herbicide.**
- \* Optimise use of known management tools to offset CRW – **Learn from neighbours - Keep abreast of technical developments.**

***“The combined changes in pastoral grazing management systems over the last 25 years have created a very clover un-friendly environment and hastened the demise of clover – CRW is the straw that broke the camels back”***

***(John Brock February 2005)***

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