

Pasture Pests: Clover Root Weevil (*Sitona Lepidus*).

The Clover root weevil (CRW) was discovered in New Zealand in 1996. Since this time it has spread throughout the North Island and has recently caused many problems for our South Island clients. CRW, as our more experienced, North Island farmers will know can completely remove all the clover from a pasture. One of my South Island white clover seed grower clients will unhappily testify to these facts as well.

The economic damage from CRW is measured in the 100's of millions of dollars and could account for as much as 10 – 15% in farm gross margins.

Adult CRW are present all year around and leave a distinct “U” shaped notch out of the clover leaf.

The adult CRW doesn't do as much damage as the larvae. The young larva burrows into and feeds on the nodules found on the clover roots and as the larvae increases in size they eat the root system itself.



Distinctive 'U' shaped leaf notch.

Clover Root Weevil infestations lead to reduced pasture growth as they restrict the clover plant ability to fix nitrogen. Remember when CRW is present in significant numbers the presence of clover in your pasture does not always mean nitrogen fixation is occurring.

Description and Identification:



The Clover Root Weevil adults feed exclusively on white clover and are Mahogany Brown in colour, have a narrow head region and normally 4-6 mm in length.



Larval CRW do the most damage to your pasture and are usually found in the soil at a depth of top 5 cm. They have white, legless bodies with a brown head, they range in size from 2-5 cm. From the egg stage until a fully grown larvae takes about 8 weeks



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Life cycle:

The adult CRW emerge from the ground in early October and start feeding. Egg and larvae survival is dependent on summer rainfall. In hot and dry conditions egg and larvae survival is poor. Conversely in wet summers or under irrigation where good levels of soil moisture are present, survival is good.

In the early autumn, there is a drop in the larvae population, as the CRW pupate into adults. As these adults hatch and start to lay eggs the larvae populations increase rapidly leading to increased clover damage. During the winter you will notice less damage to the clover leaf, however as mentioned, if you have had a favourable summer the damage from the larvae will be considerable. This damage is however “invisible” but will impact on the following springs pasture production.

Control:

The following tips will help you minimise Clover Root Weevil populations and clover damage on your farm. Strategies that help keep clover in your pasture healthy are very important if CRW are present.

Spring management strategies include not letting your pasture get to rank as shaded clover plants have reduced ability to grow. If you notice a lot of leaf damage (notching) consider increasing N inputs to counter act losses from poor N fixation.

During the summer, management options include protecting the white clover stolons from damaging direct sunlight. As we have mentioned, wetter summers (or irrigation) can lead to vastly increased larvae survival and autumn damage.

Overgrazing during the autumn should be avoided as much as possible. To give your new pasture the best possible chance in areas of high CRW numbers we recommend that you use a break crop to clean the paddock out and provide a pest free start. Typically used break crops include, summer brassica, chicory and maize. Clover seedlings are particularly susceptible to CRW attack and in years where populations are high (i.e. wet summers). Chlorpyrifos insecticide is registered for the control of CRW should be considered particularly in direct drilling situations. Use the same rates as recommended for Clover Root Weevil’s close relative *Sitona Weevil*.

Please follow the below link for more information on Chlorpyrifos:

http://msdssearch.dow.com/PublishedLiteratureDAS/dh_0079/0901b803800792d3.pdf?filepath=nz/pdfs/noreg/012-00258.pdf&fromPage=GetDoc



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As we have discussed all the above strategies are designed around being clover friendly. As part of this strategy winter pugging should be avoided. Also building up pasture cover during the winter can help long term.

Biological Pest Control:

Ten years after the discovery of Clover Root Weevil a Parasitoid wasp *microctonus aethiopoides* was released to help suppress CRW populations. These very small wasps prefer CRW over other weevil types.

The wasp lays its eggs inside the CRW where it develops into larvae which eventually emerge from the now dead CRW. Once the egg has been laid the CRW is rendered sterile. The wasp has spread throughout New Zealand from several “nursery sites” and it has been very successful.

For more information on Clover Root Weevil please contact Specialty Seeds New Zealand.



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