

FORAGE FOCUS

No. 19 May 2007

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PGG Wrightson Seeds

Slug Management

Of the 11 introduced slug species, there are four that are the most damaging to pasture and cropping systems in New Zealand:

- The Grey Field Slug (*Deroceras reticulatum*)
- Brown Field Slug (*Deroceras panormitanum*)
- Jet Slug (*Milax gagates*)
- Orange Soled Slug or Orange Slug (*Ation hortensis*)

The grey field slug is the main threat to pastures and is present in pastures all year round. Populations are highest under the following conditions; moist soil, moderate temperature and high humidity.

With the widespread adoption of conservation tillage and direct drilling practices in which dead plant material is not removed or incorporated into the soil, slug damage has increased as the plant material provides furrows ideal for harbouring slugs. Damage may include seedling wheat being hollowed out, kumara, potato, brassicas and other vegetable harvests severely depleted and seedling forage legume or brassica crops destroyed.

Eggs are laid in moist sheltered areas. Soon after emergence young slugs start feeding, reaching full size between 3 and 9 months. Numbers peak twice a year, in spring and autumn, which coincides with direct drilling.

Left uncontrolled the grey field slug can devastate a newly sown pasture overnight, particularly after direct drilling. Direct drilling creates drill slots that provide moist, dark conditions that slugs favour. Before a new pasture has time to establish the slugs move up and down the drill slots feeding on the seeds and young shoots, wiping out the new pasture.

Slugs can also reduce the clover content of established dairy pastures during winter and spring. Eating into the leaves of clover they also destroy the clover leaf buds and stolon growing points. There are several ways to control slugs, including cultivation, the use of molluscicides and stock management.

Mature grasses are less affected by slug feeding, but legumes remain a favourable food source.

Diagnosis

The best way to establish if you have a slug problem is to put out wet sacks in a pasture, after 4 to 7 days count the slugs underneath. If more than 10 slugs are found per m² then damage will occur in direct drilled pasture. Fifty slugs per m² can damage established dairy pastures.

Remedies

There are three main methods of dealing with the grey field slug.

Cultivation

The more finely cultivated the land, the greater the slug kill. This method rules out direct drilling.

Molluscicides

These include metaldehyde, thiodicarb and methiocarb. They come in bait form with attractants, relying on the slug to find them. They can be drilled with seed but are best spread on the surface of the pasture. It would be better to spread bait a week prior to seed being sown, giving it a chance to kill slugs before drilling begins. Bait must be applied once ground moisture levels have increased after summer to ensure that slugs are active. Repeat applications may be necessary due to weather conditions as the molluscicide baits depend on moisture to make them attractive and palatable to slugs. If they become too wet they become ineffective.

Stock Management

Stock management is an effective tool when planning to direct drill and should be an integral part of direct drilling. First, heavily mob stock the pasture by putting on the equivalent of 1500 ewes per ha per day, for example 300 ewes for 5 days, or 500 ewes for 3 days. This cleans up the pastures and produces lush regrowth. Once the existing pasture has recovered with 5 to 10 cm of growth, herbicide can be applied, followed by normal direct drilling methods. This operation can be reversed by spraying, then leaving the pasture 3 to 4 days before heavily grazing it before drilling.

Trials have shown this system can be more than 90% effective. Slugs normally hide in cracks in the ground or at the base of plants, but the heavy stocking traps them either underground where they die, or above ground where they are trampled by stock, or caught by birds. For this reason slugs are not normally a problem in established pastures, as rotational grazing reduces their number. Slug numbers and damage can, however, increase during winter on dairy farms when rotation length is extended to 50 to 100 days.



Slug damage on brassica



Slugs in straw