Feed Planning

Slugs and snails

Dairy farmers are increasingly growing more winter crops to supplement their nutritional feed gaps. These crops, particularly cereals and clover can be affected by slugs and snails at the early stages of crop establishment. Much less is known about slug and snail damage to established pasture and how they can limit pasture persistence.

Identification and behaviour

Slugs and snails have similar behaviours and biology. They seek refuge in damp or moist areas to avoid drying out and emerge during favourable conditions such as after rainfall or temperature change. Tilling less allows slugs and snails to increase in numbers. Rasping-type damage is a typical sign of slugs and snails. The damage on plants can extend from shredded edges and irregular shaped holes in leaves to removal of plant parts or entire seedlings. Slugs and snails are hermaphrodites, meaning that both members of a mating couple can lay eggs. The most obvious distinction between them is the presence of an external shell, present in snails but absent in slugs.

Life cycle

Mating usually takes place from mid-autumn to mid-winter when favourable moist conditions return after summer. Spherical pearl-white eggs are laid into moist soil two to four weeks after mating. Egg laying can continue from the break of the season to late winter. Eggs do not withstand hot and dry summer conditions and do not lie dormant in the soil. Hatching takes place two to four weeks after being laid. Slugs and snails usually become sexually mature after one year.

Hosts

Slugs and snails affect a wide range of plants used in agriculture including pastures, cereals, and pulses, among others.

Monitoring and control

Early detection prior to seeding is ideal as there will be more control options available. Grazing in summer may reduce the number of slugs and snails by trampling and destroying their refuges prior to resowing. Once the crop has been seeded and germination has commenced, control options are limited to baiting.

The best time to monitor slugs and snails is on moist, warm and still nights. However, fresh trails of white and clear slime (mucus) visible in the morning can also indicate their presence.

Key messages

- ☑ Tilling less allows slugs and snails to increase in numbers
- ☑ Grazing in summer may reduce the number of slugs and snails by trampling and destroying their refuges in paddocks prior to resowing
- ☑ Early detection prior to seeding is ideal as there are more control options available
- ☑ Pasture systems that depend on pulses and clover might be particularly affected by slugs and snails

Vineyard snail. Image: Arthur Chapman

Slugs and snails must be monitored before and after applying control measures to estimate the efficacy of the treatment and size of the population.

To estimate the numbers of slugs present in a paddock place wet carpet squares, hessian sacks or tiles on the soil surface (at least be 32x32cm in area). Place pellets under them and count the number of slugs under and around each square after a few days. Multiplying by 10 will give an estimate of slugs per square metre.

To estimate the numbers of snails present in a paddock, count snails in 50 spots (10 x 10 cm square) in the paddock. Multiplying by 2 will give an estimate number per square metre.

Stages of monitoring and control strategies

January to February – assess grazing management options to reduce population of slugs and snails.

March to April – assess options for burning and/or baiting.

May to August – assess options for baiting, especially along fence lines.

Thresholds

Careful monitoring is essential as the distribution of slugs and snails in crops is patchy. This table gives an indication of the level of slugs and snails required to cause damage in broadacre crops and pastures.

	Dec	Jan	Feb	Mar	Apr	Mar	May	Jun	Jul	Aug	Sep	Oct	Nov
Egg laying													
Egg hatching								Two weeks after being laid					
Juvenile feeding													
Mature form	Dormant until sexually active												

Present

Species	Oilseeds	Cereals	Pulses	Pastures
Black keeled slug	1–2/m^2	1–2/m^2	1–2/m^2	5/m^2
Reticulated slug	1–2/m^2	5/m^2	1–2/m^2	5/m^2
Small pointed snail	20/m^2	40/m^2	5 per seedling	100/m^2
Vineyard snail	5/m^2	20/m^2	5/m^2	80/m^2
White Italian snail	5/m^2	20/m^2	5/m^2	80/m^2

These thresholds for control of slugs and snails in broadacre crops come from limited data.
Table: Svetlana Micic

Typical slug damage on pasture. Image: Barenbrug agriseeds

Black keeled slug. Source: Cesar

Reticulated slug. Image: Bruce Marlin

Small pointed snail. Source: Cesar

White Italian snail. Image: Tato Grasso

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