

# Stubble Guidelines

## Managing Snails in Stubble Retained Systems on Lower Eyre Peninsula

Local Management Guideline for the GRDC Stubble Initiative Project (LEA0002)

There are four species of pest snails found on Lower Eyre Peninsula; vineyard or common white snail (*Ceriuella virgate*), white Italian snail (*Theba pisana*), conical or pointed snail (*Cochlicella acuta*), and small conical or pointed snail (*Cochlicella Barbara*).

Snails mainly cause issue with grain contamination. This is particularly relevant on Lower Eyre Peninsula where the region relies on export markets for grain sales. Snails cause damage to crop seedlings, particularly canola, and have been observed consuming grain from maturing cereal crops under extreme snail pressure. They can also cause significant issues at harvest, causing harvester blockages and slowing harvest.

### Economic importance: when is it a problem worth worrying about?

A rule of thumb is if snail numbers are above 20 per square metre in cereals and 5 per square metre in pulses and canola, be prepared to deal with grain contamination at harvest.

Snail numbers can explode in seasons with wet springs, summers and autumns.

Snails appear to build up most rapidly in canola, field peas and beans. However, they can feed and multiply in all crops and pastures.

**Stop baiting eight weeks before harvest to avoid bait contamination in grain and only use registered products.**

### In what areas do snails cause issues?

On Lower Eyre Peninsula round snail contamination is typically restricted to calcareous soils or soils with high pH as snails need a calcium source for shell production.

Significant issues with both conical and small conical snails commonly occur throughout the coastal strip from Wangary to Coult, where high winter rainfall, cool coastal conditions and large areas of free-lime provide suitable conditions for these snails to proliferate.

Many growers report snail invasions in the year following lime application. These populations tend to dwindle 12 months after application, once the lime becomes suitably incorporated. The benefits of liming a soil of low pH will outweigh the cost of managing snails in almost all situations.

### Factors that trigger snail activity

Snail activity around rainfall events is dependent on significance and timing of rainfall and day time temperatures post the rainfall event. Periods of activity are not linked just to rainfall as heavy dews are also a strong driver of movement throughout warmer months. Ground wetness below 9% will stop significant movement.

Snails may become active after rainfall in late summer or early March. In summer, relative humidity of 90% is likely to result in snail activity, whereas in cooler March temperatures, 80% humidity will trigger snail movement.

### What are the solutions?

Snails need to be monitored regularly to establish numbers, types, activity and success of controls.

To control snails, a combination of treatments is necessary throughout the year. Baiting can be successful during warmer months if snails are active and feeding.

Baiting before egg laying is vital to reduce the population long term. Timing and choice of controls will depend on the season. Understand the factors that determine control effectiveness.

Baits are ineffective in controlling juvenile snails of less than 7mm diameter.

## Cultural Controls - Rolling / Cabling / Slashing

Combining cultural and chemical methods will provide optimal snail control.

Cultural control methods including cabling, rolling, slashing and grazing are all effective for round snails. For maximum efficacy undertake these activities on hot sunny days when the temperature is at least 35°C.

Burning is very effective for round snails. If summer weeds are controlled prior to burning and rocks are dislodged by cabling or similar, nearly 100 per cent snail kill has been achieved in trials.

Harvester modifications and grain cleaning may prove to be necessary to eliminate snail contamination of grain if snail numbers are above thresholds prior to harvest.

## Baiting

The size and density of a bait pellet determines the distance it is spread.

Spreaders are designed for use with fertiliser so snail and slug bait is not spread as widely as farmers may expect. Growers must calibrate their spreaders for snail bait to achieve optimal bait coverage.

Spreaders can break baits into small fragments and can significantly reduce the efficacy of the baits.

Ute spreaders have been found to distribute snail and slug bait unevenly.

## Timing / Product / Rate

Bait when snails are actively feeding and before egg-laying. Expect most baits to remain effective for about two weeks after application before they need to be replaced. Baits that develop mould in the paddock should still be effective.

Keep metaldehyde baits below 40 degrees C, both during storage and when applying bait.

Avoid applying EDTA baits when 10 millimetres or more of rain is forecast.

## Further Reading

Hopkins, D. C., Leonard, E., Baker, G. & South Australian Research and Development Institute. (2003) Bash'em, burn 'em, bait 'em: integrated snail management in crops and pastures South Australian Research and Development Institute (Adelaide)

[www.grdc.com.au/BPG-SnailIdentificationAndControl](http://www.grdc.com.au/BPG-SnailIdentificationAndControl)

[www.grdc.com.au/GRDC-FS-SnailManagement](http://www.grdc.com.au/GRDC-FS-SnailManagement)



**Figure 1: Control of Vineyard and Conical snails with bait in summer. Greenly 2017**

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