Delicia® Lentils

SLUGGOFF®

The new SHAPE in Snail & Slug control
SLUGGOFF® product is the latest technology from Europe for slug and snail control. Australian users have been amazed at the superior effectiveness at very low proven application rates. Just 3kg/ha for broadacre crops such as cereals and oil seeds and just 6kg/ha for high value horticulture and vineyards will control all pest snails and slugs. No other product offers such performance for slug and snail control at such low approved application rates. It is no surprise that Delicia® SLUGGOFF® Lentils are now the leading slug and snail control method throughout Europe.
Controls all species of slugs and snails in wet or dry conditions.

Why this product is so successful.

In developing this technology European scientists considered:

1. That slugs and snails have small mouths and eat by rasping. A flat bait disc is easy for small mouths to eat.
2. That slug and snail density can be very high, therefore a large number of bait stations per/m² are required.
3. That the ideal bait needs to work well in moist conditions, which is the time of maximum slug and snail activity.
4. That fine tuning the formulation gave a palatable bait.
5. That doubling the dose rate of metaldehyde, from the usual 1.5% (w/w) found in most cheap pellet products, to 3% (w/w), made the bait effective at low application rates.
6. That incorporating the active ingredient throughout the pellet avoids the risk of photodegradation.
7. That adding a bittering agent increased pet safety.
8. That the dust free formulation allows easy application while maximising operator safety.

These features mean that the SLUGGOFF® product is highly effective yet achieves the desired control while putting less total chemical in the environment.

“The new SHAPE in Slug & Snail control”

Delicia® SLUGGOFF® lentil bait
It is for these reasons Delicia® SLUGGOFF® Lentil bait is the biggest innovation in slug and snail management for many years.

Delicia® SLUGGOFF® Lentils are a highly palatable, rain-fast bait to control all species of slugs and snails in all crops and under all weather conditions. Yet at the same time it uses less chemical per hectare than other products.

Extensive trials and experience throughout Europe confirm the outstanding performance of this new technology. The product has been widely adopted as the premium approach in Germany, France, England, Ireland, Italy, Spain and Switzerland, where slugs and snails are significant crop pests.

The benefits of a dust-free formulation and brilliant spreading characteristics help to limit risks to operators, while achieving excellent spreading and minimising aerial or ground application costs.

Delicia® SLUGGOFF® Lentil bait is spread very thinly and should not be applied in heaps. Coupled with the inclusion of a bittering agent, the risks to pets is reduced. However, it is important to avoid placing or storing large quantities where pets have access.

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Snail facts.

Most are familiar with the common garden snail (Contareus aspersus) and the grey field slug (Deroceras reticulatum), found in gardens and vegetable patches in southern regions of Australia and throughout New Zealand. These pests cause major damage in home gardens and intensive horticultural crops.

Less commonly known by city folk is the relatively recent invasion of Australia and New Zealand by a range of introduced slugs and snails from Mediterranean areas. These have evaded quarantine since the 1920’s and now infest large parts of the cereal zones of southern Australia, including WA, and areas throughout New Zealand. These introduced species pose an increasing threat to grain and fodder crops and to intensive horticulture.
Snail threats.

- The common garden snail (Contareus aspersus), is found throughout all temperate regions, growing up to 45mm long.

- The Small White Italian snail (Theba pisana), is found in coastal areas of Vic, SA, NSW, Tas and is emerging in WA. It is common in vineyards and adults are up to 25mm diameter.

- The Vineyard or Common White Snail (Cernuella virgata) is found in Vic, Tas and SA and some parts of NSW and WA. The common white snail is a special pest of crops and pastures. Livestock also reject feed which is heavily infested with these snails. It reaches only 20mm in diameter and is a special problem for grain crops. It can spread via transported grain and fodder.

- The Small Conical or Pointed Snail (Cochlicella barbara) is a special problem in the York Peninsula of SA but is now also found in Vic and NSW. These reach 10mm in length.

- The Conical or Pointed Snail (Cochlicella acuta) is a problem on the York Peninsula of SA with emerging infestations elsewhere in coastal regions of other states. These reach up to 18mm in length.

Snails are less of a problem in tropical areas but the Oriental Snail (Bradybaena similaris) is becoming a pest for ornamental and citrus trees along the north NSW coast. The giant African snail (Achatina fulica) may also pose a future risk in tropical areas, and is already a problem in some Pacific islands where it can reach a massive size of 300mm!

A new incursion of Green Snails (Contareus aspertus) has recently been detected around Perth and is considered to be an emerging threat.

The Common White Snail was detected in grain silos on several farms in Tasmania in 2007. The pest was introduced through feed barley imported from South Australia. Common White Snails are a List A pest under the Tasmanian Plant Quarantine Act 1997.
Snail biology.

Snails have a hard protective external shell and can survive on all soil types. However, they thrive on calcareous or limestone soils which provide abundant calcium for shell development. This is one reason why snails are a special problem for some high value vineyard regions such as the Barossa and Coonawarra.

In summer, snails enter a dormant phase called ‘aestivation’ to avoid dessication (dehydration) in high soil temperatures. They will seek out cooler areas such as fence posts, crop canopy, under rubble or rocks and seal off their shells.

The following autumn, snails reactivate after rain and as temperatures decline, then quickly start to forage. Different types of snails have different activation triggers. The common garden snail is generally more active during summer than other species, possibly due to artificial watering or irrigation of gardens and horticultural crops.

As all snails are hermaphroditic they can fertilise and lay up to 1000 eggs per season per individual. Snail populations can rise rapidly with a series of wet seasons.

Snails move at a “snail’s pace” which can be hundreds of metres in a few weeks. Re-infestations of crops from surrounding land or other crops can occur.

Snail densities can reach thousands of snails per square metre of crop.
Snail damage.

Controlling snail populations is critical for profitable grain and fodder production.

Snails contaminate harvested crops, block header equipment, cause devaluation of grain and can clog irrigation systems. Direct damage to crops at emergence and at later vegetative stages can also occur. Young and high nutrition parts of plants such as buds, new leaves and pods are especially vulnerable, so crops can be destroyed during critical growth phases.

Minimising snail problems in crops.

The Grains industry in conjunction with the SA R&D Institute (SARDI) have published good extension materials for snail control by a variety of techniques. They have promoted a three phase policy of ‘Bash’m - Burn’m - Bait’m’. Since snails are on stubble stems before reactivation or on the soil surface after reactivation, it is possible to bash snail shells by dragging rollers or heavy bars or cables across fallow areas, or to burn snails with stubble. These techniques are cheap and do assist, but once a crop is emerging the physical techniques cannot be used, and only baiting provides adequate control. Even then, it is best to apply bait before snails climb into the crop canopy to feed. Baiting is most effective when the snails are foraging on the ground during the months after Autumn rains. This period is also a risky time for emerging crops so it makes sense to bait in Autumn and Winter.

Techniques to minimise contamination of harvested grain include careful harvester screen selection. Cleaning the equipment helps to minimise the further spread of snails. However, “prevention is better than cure”, so early baiting to remove the pests remains a vital tool for snail management.

Snail Control Calendar

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<td>Inactive</td>
<td>Activating</td>
<td>Snails active</td>
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<td>Egg Laying</td>
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Snail Management

- Stubble slashing, rolling, cabling, grazing
- Stubble burning
- Baiting
Slug facts.

The two most serious problem slugs are the Grey Field slug (Deroceras reticulatum), and the Black Keeled slug (Milax gagates).

Slugs vary in length from less than 10mm to more than 50mm. Unlike snails, that live on the soil surface and aestivate in the crop canopy, or on shelter points such as rocks or posts, **slugs live under the soil surface** and can be difficult to detect. Slug burrows can be seen and eggs can be found on the backs of dead leaves or on other surfaces. Slugs do not have a summer aestivation, hence they can be active at any time if soil is moist.

Detecting slugs is achieved by using a moist harborage on the soil surface. Slugs will be drawn into this from below the soil surface and can be detected when the harborage is overturned. A simple plastic tray or moistened upturned earthenware flower pot or tray is all that is needed.
Baits that contain the active chemical **metaldehyde** have been the primary method to control slugs and snails for several decades. Metaldehyde works on the mucous secretion mechanism to cause dessication. It also immobilises snails and slugs through direct effects on the nervous system, so they are killed quickly.

Other types of baits contain the chemicals methyocarb or iron-EDTA. These are less commonly used on a large scale.

Most metaldehyde products are simple compressed pellets coated in 1.5% w/w metaldehyde. Most of these are known to work poorly under moist conditions. Application rates are as high as 20kg/ha for broad-acre crops and even then, several treatments may be required. Since most baits are only surface coated with metaldehyde, some taste aversion has been reported. Metaldehyde breaks down in sunlight, so surface coated pellets may degrade in Summer conditions. In contrast, Delicia® SLUGGOFF® Lentil bait has 3% (w/w) metaldehyde with the active ingredient impregnated throughout the entire palatable bait matrix.

**The new shape of slug & snail control**

The hi-tech formulation achieves high doses throughout the pellet and provides thin edges for even small snails to eat.

**Operator Safety**

Delicia® SLUGGOFF® Lentils are precisely formed to a uniform shape to give 100,000 bait stations per kilogram of product, yet have no fine particles or dust to maximise operator safety and minimise drift during spreading.

Be sure to follow all approved safety guidelines as per label.

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How SLUGGOFF® is made.

Delicia® SLUGGOFF® Lentils are manufactured in a proprietary process at a high-tech manufacturing plant in Germany then shipped fresh to Australia. The patented technology achieves the lentil shape in every individual particle by high pressure extrusion.

This shape is an important feature of the product. No other product provides such precise uniformity.

The extensive European data package supporting this product, combined with local trials conducted by independent authorities in South Australia and by ACTA, has supported registration in Australia and NZ.

The bait controls all types of slugs and snails in agricultural crops, horticulture and the home garden. The bait is approved for application by hand, mechanical ground spreaders and by aircraft.

Lower risk to pets.

Delicia® SLUGGOFF® Lentils have twice the concentration of metaldehyde (3%) than most other baits (typically 1.5% w/w) but can be used effectively at much lower application rates. The bait is effective at a lower total chemical application since only 3 kg/ha for broadacre crops or at 6kg/ha in high value horticultural crops is needed.

Most common baits pose a risk to pets if baits are placed in heaps, however Delicia® SLUGGOFF® lentil bait is effective when spread very thinly across the area to be treated. Recommended use rates achieve 30-60 pellets/m². This is 0.3 to 0.6 grams of finished product/m² or just 9 to 18mgs of metaldehyde/m². A dog weighing 20 kgs would need to scavenge all the bait in more than a 100 m² to be at risk if the bait is spread evenly as directed (Metaldehyde LD-50 for dogs is 100mg/kg).

In addition, the product contains Dentatonium Benzoate, a powerful bittering agent, to further deter uptake by pets. The risk to pets is therefore reduced. Nevertheless, caution is recommended and the bait should never be placed in heaps.
Bait availability.

Delicia® SLUGGOFF® Lentil bait is now available from all leading rural merchants and horticultural product providers. Packaging includes a variety of sizes for all agricultural applications. Most users appreciate the convenience and safety of the 2, 4 or 8kg resealable pails with tamper-evident lids and the 20kg bags with pourer spouts and carry handles. Aerial operators appreciate the convenience and quick loading capability of the 500kg bulka bags.

Delicia® SLUGGOFF® Lentil bait is also approved for use in the home garden in convenient shaker packs.
Bait application.

This bait is uniformly shaped and dust-free. It is easily applied by any means that achieves a uniform low rate of application.

For small areas the bait can be hand spread using any domestic bait or fertiliser spreader or by hand casting at low rates.

For modest programs a variety of mechanical spreaders are available commercially to achieve very low application rates. These are electrically or ground travel driven and are mounted to, or towed behind, vehicles or agricultural bikes.

For very large-scale application the bait is approved for use by aircraft and can also be applied by spreaders mounted to seed drills or by pneumatic delivery systems such as the PJ Green Agricultural Engineering, seed metering equipment, that can be fitted to large air seeders and cultivators.

A self-contained portable boom air spreader unit covering 12m can be towed behind a ute or tractor.
Why Delicia® SLUGGOFF® lentils are the best option?

- Highly Effective innovative bait.
- Approved in all crops and gardens including vineyards, horticulture, cereals and herbs
- Approved for aerial, ground and hand application
- Spreads further than all other products
- Use just 3kg/ha for broadacre or 6kg/ha for horticulture and gardens
- Controls all species of SLUGS and SNAILS with proven reductions in crop damage from just a single application
- High-tech lentil shape formulation for easy ingestion by large and small slugs and snails
- Lentil shape achieves >100 bait stations per square metre
- The low use rate gives lower application costs per ha
- Low application rate applies less total chemical per ha
- Better time efficiency with less application downtime so lower spreading costs
- Rainfast to give consistent performance and prolonged protection in all conditions
- Uniform particle size with no dust enables easy application and maximises handling safety
- Contains a bittering agent to minimise risk to pets. **Do not heap**
- Available in many pack sizes
- Available from leading merchants
- No special permits required for purchase or use.

www.sluggoff.com
Once application rates are considered Delicia® SLUGGOFF® Lentils provides the most cost-effective solution to slug and snail problems.

It is for all these reasons that Delicia® SLUGGOFF® Lentils are the biggest innovation in slug and snail management for many years.
Other ACTA products for large-scale pest animal management available through agencies and/or leading rural merchant stores:

- **FOXOFF®**
  - Fox Bait
  - For the control of foxes

- **FOXSHIELD®**
  - Fox Bait
  - For the control of foxes in natal dens

- **SLUGGOFF®**
  - Slug & Snail Bait
  - For the control of snails & slugs in the home garden

- **DEN-CO-FUME®**
  - Fumigation Cartridges
  - For the control of foxes in natal dens

- **DOGgone®**
  - Wild Dog Bait
  - For the control of wild dogs

- **RABBRAIT®**
  - 1080 Oat Bait
  - For the control of rabbits

- **RABBAIT®**
  - Pindone Oat Bait
  - For the control of rabbits

- **MOUSEOFF®**
  - Zinc Phosphide Bait
  - For the control of mice in crops

- **MOUSEOFF®**
  - Bromadiolone
  - For the control of rats and mice

- **RATTOFF®**
  - Zinc Phosphide Bait Sachets
  - Reducing rat populations in sugarcane crops

- **RODEMISE®**
  - Bromadiolone Rodent Block
  - For the control of mice and rats in domestic, commercial & industrial buildings

- **PIGOUT®**
  - Feral Pig Bait
  - For reductions in feral pig populations

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Excellence in Pest Animal Management