Selontra® Soft Bait Rodenticide

An Innovative Solution for Rodent Control in Australian Piggeries

BASF

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Preface: *This brochure provides general information about using Selontra® Soft Bait Rodenticide to control rat and mice populations in Australian piggeries. It includes guidelines for identifying common rodent pests, steps for complete rodent control, recommended techniques for applying Selontra and safety considerations.*

As an industry leader, BASF is committed to providing you with the products and knowledge you need to protect the health of your stock and the good condition of your facilities, equipment and supplies. Selontra is an innovative solution that can help your piggery operate more productively.

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Controlling Rodents in a Challenging Environment

Each year, rodents destroy approximately 20 percent of the world's agricultural products, cause enormous amounts of damage to homes and businesses, and spread more than 200 human pathogens. With an abundance of food, water and places to harbour, piggeries are quite attractive to rodents, which can cause significant problems at these facilities. Rodents consume and contaminate feed, spread disease and damage equipment and structures.

The health of your stock, the cleanliness of their feed and the good condition of their shelter are essential to your business and its profitability — but rodent infestations can threaten them all. To control rat and mouse populations, you need effective solutions you can count on.

above:
Feed contamination and property damage are among the numerous problems caused by rodents.

BASF Rodent Solutions

BASF recognises the realities of modern piggeries, which is why we deliver rodent-control solutions to serve those facilities' unique needs. We understand there's no substitute for the quickest, most-effective control measures. We know there are numerous challenges to maintaining that control, including rats and mice that are resistant to conventional rodenticides, restrictions on the types of rodenticides that can be utilised, contamination and residue risks, and the difficulty of restricting rodents' access to animal feed throughout your facility.

Our solution is a comprehensive rodent control program tailored for Australian piggeries that aims to:

- Address the conditions that increase rodent population pressure in your facility.
- Eliminate rodents quickly and safely with lower risk of contamination and residues.

A leader in providing sustainable solutions, BASF offers the industry's most innovative products and strategies. We support our products — and our customers — with training and technical assistance. We also provide dedicated sales and marketing support. When you have questions, we are available to provide answers and make your job easier.

above:
Selontra quickly and effectively controls key target rodents including the house mouse, Norway rat and black rat.

Selontra® Soft Bait Rodenticide Overview

Selontra is an innovative rodent bait that offers several unique advantages for Australian producers. It is attractive and highly palatable to rats and mice, which increases its effectiveness in locations where other appealing food sources are readily available. Population control can also be achieved up to three times faster than anticoagulant rodenticides.

The active ingredient in Selontra is cholecalciferol which is lethal to rodents in high concentrations. Due to its unique mode of action, the development of resistance to cholecalciferol in rodents is considered highly unlikely; no cases of resistance have been reported globally. Selontra is a soft block formulation using patent-pending technology, which delivers the unique advantages of cholecalciferol in a highly palatable bait matrix that rodents will readily consume. This novel formulation remains stable and effective in dry environments and across both hot and cold temperature extremes, making it perfect for use in Australian piggeries.

Selontra causes rodents to lose their appetite and stop feeding faster than most competitive products. This allows for just enough bait for a lethal dose to be consumed making Selontra more efficient than many anticoagulant rodenticides. Subsequently, less-dominant rodents are able to feed sooner, with population control being achieved after as little as two bait applications. Conventional anticoagulant baits may require up to six bait applications to deliver similar results. Selontra significantly saves time and labour and reduces the damage caused by rodents.

Due to the unique characteristics of cholecalciferol, it is rapidly metabolised and does not bioaccumulate or persist in the environment. Selontra also contains safeguards to help prevent accidental human consumption: a warning dye and the bittering agent Bitrex®, which is used in a concentration that is undetectable to rodents but acts as a human taste deterrent. These factors ensure that producers can feel confident that they are achieving the best level of control.

Studies on birds (quail and mallard) have shown that compared to rats and mice, they are approximately 50-times less sensitive to cholecalciferol. Secondary poisoning studies on 0.075% / 0.08% cholecalciferol baits have shown no signs of toxicosis in the cats, dogs or birds tested.[1]

Selontra joins the comprehensive range of BASF rodent-control products that include Storm® Secure block and Storm® Soft Bait. In addition, residual herbicide products such as Arsenal® Super can be used to reduce rodent harbourage sites. Irrespective of the situation at your facility, BASF offers reliable, fast and effective solutions to help tackle the toughest rodent populations.

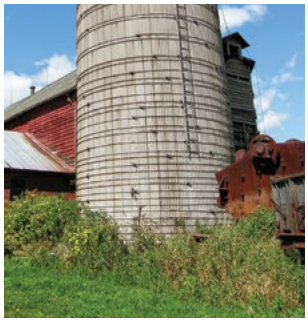
[1] Eason, C.T. et al. (1996), Proc. 17. Vertebrate Pest Conf. 54-58.
Marshall, E.F. (1984), Proc. 11. Vertebrate Pest Conf. 95-98.
Erickson, W. and Urban, D. (2004).
Potential Risks of Nine Rodenticides to Birds and Non Target Mammals: A Comparative Approach.
United States Environmental Protection Agency, Washington, D.C.

Unique Rodent Behaviours and Physical Characteristics

Rats and mice generally live outdoors and invade piggeries looking for food and water sources. A thorough inspection of the structure for rodent signs, both indoors and outdoors, is the first step in implementing a successful control program. Signs of infestation include well-defined runways, droppings, tracks in dust, gnawed holes and urine stains. Sanitation, rodent-proofing and rodenticides are the keys to successful rodent control.

The table below provides physical and behavioural information about the three species of rodents that most commonly infest piggeries.

	 ***Rattus rattus***	 ***Rattus norvegicus***	 ***Mus domesticus***
Common names	Ship rat, black rat, roof rat, fruit rat	Norway rat, brown rat, wharf rat, sewer rat	House mouse
Adult weight	200 – 350 grams	300 – 450 grams	15 – 25 grams
Length (head + body)	150 – 220 mm	200 – 250 mm	60 – 90 mm
Length (tail)	180 – 250 mm, longer than head and body	150 – 200 mm, shorter than head and body	80 – 100 mm, usually longer than head and body
Fur and colour	Smoother and softer than *Rattus norvegicus*; variable in colour ranging from a rare black colour to grey/grey brown above with a white or pale grey underneath	Rough and shaggy; grey to brown with grey or off white underneath	Variable in colour ranging from yellowish brown to grey above, with a white, grey or pale yellow underneath
Ears and hearing	Thin, translucent, large and hairless; excellent sense of hearing	Thick, opaque, short with fine hairs; excellent sense of hearing	Large with some hairs; excellent sense of hearing
Eyes and sight	Large and prominent; poor sight, colour blind	Small; poor sight, colour blind	Small; poor sight, colour blind
Snout, smell and taste	Pointed; excellent sense of smell and taste	Blunt; excellent sense of smell and taste	Pointed; excellent sense of smell and taste
Droppings	Scattered; spindle or banana-shaped, about 12 mm long 	In groups, but sometimes scattered; ellipsoidal capsule shaped, about 20 mm long 	Scattered; rod shaped, 3-6 mm long 
Habits and habitat	Nests mainly in walls, roof voids, vines and trees; however, can develop extensive burrows; active, agile climber; rarely found in sewers; rather more erratic and unpredictable in habit than *Rattus norvegicus*	Does burrow; lives outdoors, indoors and in sewers; nests in burrows; can climb, though not agile; very good swimmer; conservative, somewhat predictable in habit; will avoid unfamiliar objects, e.g. bait trays, placed on runs, for some days; need to gnaw to keep their constantly growing incisor teeth worn down; creatures of habit; will leave regular runs to and from feeding areas	Sometimes burrows; lives indoors and outdoors but is almost unknown in sewers; nest generally within stored materials but may burrow; climbs; erratic in habit; inquisitive toward new objects
Feeding habits	Omnivorous, mainly fruits, nuts, grains and vegetables; consumes 25 – 30 grams per day, drinks water or eats food with high water content; range 30 metres when looking for food	Omnivorous, more likely to eat meat than *Rattus rattus*; consumes up to 30 grams per day, drinks water or eats food with high water content; will hoard food for future consumption; most likely to eat at night; range 50 metres when looking for food	Nibbles; prefers cereals; consumes 3 grams per day; unlike rats, can survive with very little water and often obtains sufficient water in food without the need to drink; range 1.5 – 5 metres when looking for food
Lifespan	9 – 18 months	9 – 18 months	9 – 18 months
Sexual maturity	2 – 3 months	2 – 3 months	1 month
Litter size	5 – 10	7 – 12 (up to 18)	4 – 6 (up to 12)
Reproduction rate	5 – 6 litters per year	About 6 litters per year	About 11 litters per year



above:
Eliminating overgrown vegetation and controlling clutter are essential steps in reducing rodent harbourage sites.

Steps for Complete Rodent Control

Effective rodent control requires that a full Integrated Pest Management (IPM) strategy be developed and implemented around the site. This includes making a thorough site inspection, maintaining proper site hygiene, implementing harbourage reduction measures, installing rodent-proofing material and establishing an effective baiting strategy. BASF recommends implementing the following steps to ensure effective, long-term rodent management. Together, they provide a complete rodent control solution.

1. Inspection

It is important to conduct a thorough inspection of the site. During the inspection, find out which pest(s) are present, where they are located and how they enter key structures. Consider which site conditions and activities may be conducive to the rodent infestation, and identify areas where rodent-proofing and harbourage reduction may be required.

2. Site Hygiene

Site hygiene measures must focus on ensuring the site is as clean as possible at all times. In particular, stock feed areas should be cleaned regularly, with spillage removed daily. Any areas within the site where feed spillage or stock waste accumulates should be regularly cleaned, and all refuse bins should be adequately sealed and covered.

3. Harbourage Reduction

Harbourage reduction measures should focus on areas within buildings and away from buildings where rodents take harbour or use to traverse the site. This may include areas of clutter, stockpiles, machinery, unused or cluttered storage areas and overgrown vegetation. Clutter within or near site buildings should be reduced or eliminated where possible. Stockpiles of materials such as soil, rock or organic waste should be removed quickly from the site, as these areas provide attractive harbourage and nesting sites for rodents.

Particular focus should be placed on reducing overgrown vegetation (grasses and weeds). Grasses and weeds provide cover for rodents and a high-nutrient food resource, both of which are essential for breeding and reproduction. Therefore, elimination of these items is imperative to reducing pest pressure. The use of a residual herbicide, such as Arsenal® Super, can assist with these types of harbourage reduction measures.

4. Rodent-Proofing

Rodent-proofing is an integral component of any IPM strategy. Rodents can gain access to structures by gnawing through timber, mild steel or plastics. As a general rule, rats can gain access through a hole the size of an adult human male thumb, while mice can gain access through a hole the size of a little finger. Holes may be rodent-proofed using steel wool, sheet metal or wire mesh. Pay particular attention to feeding troughs and feed silos.

Although it is impossible to fully rodent proof piggery facilities, it is possible to limit rodent access to areas where you may find it difficult to place baits etc. Rodent-proofing should therefore be focused on forcing rodents to areas were baiting measures have been installed (eg, on the ground, along accessible feed lines, cable trays, or against pens), Steel funnel collars for example can be a useful and inexpensive tool to minimise rodent access to areas which are difficult to bait (elevated support beams or water and feed lines). Another key area to focus on is ensuring rodents can not gain access and develop nest sites in insulated roof cavities - steel wool, bird wire or sheet metal will form useful tools to minimise access to these areas.

5. Baiting with Selontra®

Selontra must be used within lockable bait stations. Ensure bait is maintained in all bait stations, replacing bait once consumed, rancid or soiled. This is important, as once rodents commence feeding in bait stations, an adequate supply of fresh bait will ensure that rodents continue to associate the stations with food and return to them for feeding. Selontra is suitable for use within, outside and around piggery buildings. It may also be placed along perimeter fencelines to minimise invasion of rodents from other areas.

6. Bait Rotation - Outside piggery buildings

In some instances, rotating between baits may be an effective strategy. This may be required if a single bait type has been used for an extended period of time within the facility.

If required, the following approach is recommended; around the outside of piggery buildings Selontra may be rotated with BASF's Storm Soft bait and Storm Secure Wax Blocks. Storm Secure and Storm Soft Bait contain the active Flocoumafen, a highly potent second generation anticoagulant. Due to the potency of the active, only a limited amount of bait is required to gain control. Furthermore as these baits are easily secured in bait boxes so the risk of contamination around the site is minimised.

For outside and around building applications **ONLY**, the following rotation is recommended.

- Selontra during the spring and autumn seasons. Spring and autumn are often high pressure rodent periods due to the availability of seeding grass and the climatic conditions throughout Australia. During this high pressure period baiting with Selontra is recommended.
- Storm Soft Bait during winter. During the winter season rodents rodents tend to seek high fat and protein food sources. Storm Soft Bait is a unique formulation containing both high fat content and high protein content making it the perfect rotation partner for winter months.

above:
Place Selontra in lockable bait stations throughout the infested area. For best results, use stations with bait-securing rods.

- Storm Secure Wax Blocks during summer - summer in Australia can be hot and humid. Storm Secure has been developed to be resistant to both heat and humidity and contains a unique fungicide to minimise mould growth. The high grain content formulation is also perfectly suited for summer months.
- Internally and away from buildings, Selontra is the only BASF product registered (for off building use) and recommended for internal use.

Application Techniques

The information below provides the recommended application techniques for Selontra. Please refer to the approved product label in your area for specific use information.

- To reduce the risk of primary poisoning, Selontra must be used within lockable bait stations which include bait-securing rods.
- The recommended placement of bait points is no greater than 9 metres apart for rats and no greater than 3 metres apart for mice, on initial application.
- Place bait points around structures with particular focus on areas where evidence of rat/mouse activity is seen. It is also recommended to place a baiting point on each side of every doorway where rodents are likely to enter.
- Within buildings baits should be placed either around individual pens or in elevated areas where rodents are known to travel. Once rodents establish within piggery buildings a more intensive baiting strategy (stations placed at 5-6m spacings) may be required as rodents do not need to move as far to fine resources.
- Bait points may also be placed throughout the piggery facility in areas frequented by rodents (between buildings, around grain storage silos, along wind breaks and in vegetated areas) and along perimeter fencelines to minimise rodents colonising your facility from external sources.

- The recommended number of Selontra bait blocks to be used per bait point is between 3-9 for rats and 1-2 for mice. For severe infestations, use the highest-recommended number of bait blocks. Refer to package labelling for specific baiting instructions that may apply to your location.

- Selontra® may control rodent populations in as little as 7 days, provided that sufficient bait for the size of the infestation is placed on the first day of treatment. For large infestations, inspect all bait points 1-2 days after the first bait placement.

- If bait is completely consumed at a bait point, re-apply bait. In such situations, using the highest label rate of 9 bait blocks per bait location for rats or 2 blocks per bait location for mice is recommended to ensure bait is maintained at that location.

- If no bait has been consumed at a bait point for an extended period of time, consider moving that bait point to another location. These strategies will ensure optimum control in the shortest time.

- Continue to inspect bait points regularly, maintaining bait in stations. Note that if an insufficient amount of bait is used at any time of the treatment, suboptimal results may occur. Continue placing bait as needed.

- Long-term rodent management is achieved only with a continued, well-managed program. It is therefore imperative that a complete rodent control program with adequate site inspection, site hygiene, harbourage reduction, rodent-proofing and baiting measures is maintained year-round.

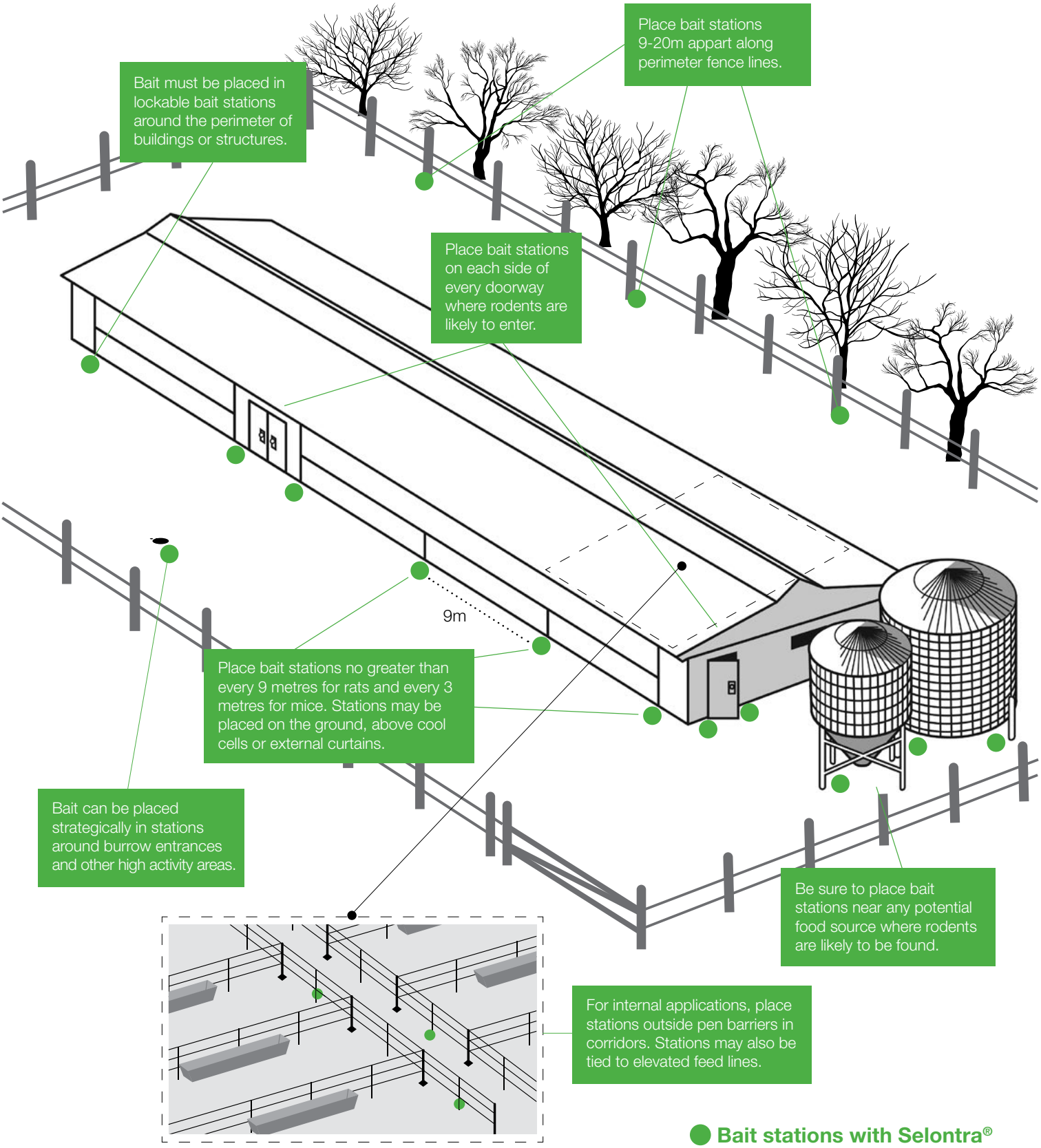
- Containers that have held bait should not be used for any other purpose. Break, crush or puncture empty containers and deliver to an approved waste management facility.

- If an approved waste management facility is not available, bury empty containers at least ½ metre below soil surface in a disposal pit specifically marked and set up for this purpose. The area should be clear of waterways, desirable vegetation and tree roots, and in compliance with state, territory and local guidelines, regulations, ordinances and laws. Do not burn empty containers or product.

- Collect and dispose of all dead rodents and unconsumed bait in accordance with state, territory and local guidelines, regulations, ordinances and laws.

Important application note:
Under-baiting may lead to suboptimal results.

Effective Bait Placement



● **Bait stations with Selontra®**

Safety and First Aid Measures

Please refer to the approved product label in your country for more specific safety, stewardship and first aid measures.

Safety Instructions

- Wash hands after use.

Storage

Store in closed original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room and away from children, animals, food and feedstuffs, seed and fertilisers.

Disposal

Dispose of old or unused bait safely as per label directions and in accordance with appropriate state, territory and local guidelines, regulations, and laws.

First Aid Measures

- If poisoning occurs, visit a doctor or hospital immediately for treatment advise.

Risk to Non-Targets

Studies demonstrate that cholecalciferol has a favourable toxicological profile to non-target animals when compared with other rodenticides. The likelihood of adverse exposure to non-target animals via secondary poisoning is extremely limited. Available secondary poisoning studies repeatedly demonstrate minimal adverse effects to non-target animals. Overall, when used as labelled, Selontra is 33% more efficient than many anticoagulant rodenticides.

In the event of any adverse effects, below is treatment information for physicians and veterinarians.

Note to Physician

Cholecalciferol causes hypercalcaemia. Treat symptomatically. Treatment would include a low-calcium diet, high salt and fluid intake and avoidance of exposure to sunlight. Monitoring serum calcium levels may aid treatment. Cortisone has been used successfully in some cases.

Treatment for Pet or Non-Target Animal Poisoning

Call veterinarian immediately if a pet or other non-target animal consumes this product.

Note to Veterinarian

Calcium Mobilizer Cholecalciferol: If clinical signs develop, treatment consisting of saline diuresis combined with the use of furosemide, corticosteroids and phosphate binders is recommended. Calcitonin or pamidronate may be needed for animals that remain hypercalcaemic despite symptomatic treatments.

Poisoning Symptom Information/Injury Reporting

To obtain information on symptoms of poisoning or if you have concerns about using Selontra, please contact the appropriate emergency advice line below.

24-Hour Emergency Advice Telephone Number

Australia: 1800 803 440

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ALWAYS READ AND FOLLOW LABEL DIRECTIONS.

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