



Bait stations and rabbit control

Reviewed
January
2009

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Why are 'conventional' control techniques still required?

Biological control agents such as the myxoma virus (Myxomatosis), and Rabbit Haemorrhagic Disease (RHD), formerly Rabbit Calicivirus Disease (RCD), will not provide 'magic bullets' for reducing the impact of rabbits on agricultural production and the environment. Such agents will be much more effective if they form part of an integrated approach to your rabbit control programs. An integrated approach needs to utilise all available control options, including biological control, the use of vertebrate pesticides, shooting and trapping

programs. Control programs are most effective when they include the greatest number of properties possible (i.e. your neighbours).

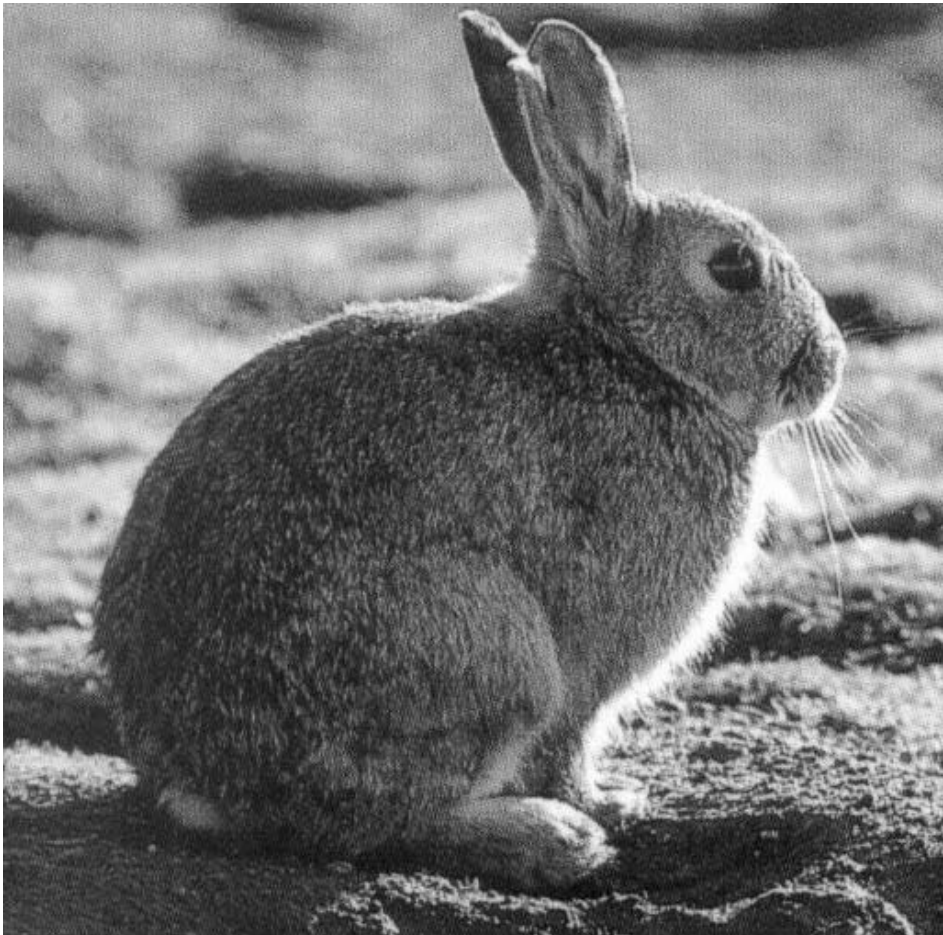
Why do we need bait stations?

Although control programs using suitably approved poisons (1080 or sodium fluoroacetate, and Pindone) are acceptable methods for reducing the impact of rabbits, the use of such pesticides is undergoing ever closer scrutiny. Bait stations provide one means by which potential risks to non-target species may be further reduced. When properly secured and isolated, bait stations may also enable baiting programs to be undertaken in the presence of domestic livestock, and during adverse weather conditions.

However, trail baiting should be your first choice for baiting programs where possible because bait trails are much more effective in reducing rabbit numbers.

What type is best?

The acceptability of a number of different bait station designs to urban and free-ranging wild rabbits has been examined. The raised concrete slab (60x60 cm, on house bricks) and the drum (200 litre drum cut in half longitudinally, with rabbit access holes each end) were the designs most acceptable to rabbits. However, the slab design allowed far greater access to the bait by non-target animals, particularly granivorous birds, so we do



European rabbit (photo courtesy of CSIRO).

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not recommend its use. The drum station (Figs. 1 & 2) is the best design if you need to use bait stations for controlling rabbits.



Fig. 1: A bait station set-up during the pre-feed top-up phase where most of the oats have been eaten. The plastic saucer and the house brick (whole) are also visible.

How to use bait stations effectively

Depending upon the size of the area where rabbits are to be controlled, the spacing between individual stations should not be more than 30 m (urban use) to 100 m (broadacre). These distances may need to be reduced if the stations are to be used during periods when rabbits have well defined territories, such as during the breeding season.

The stations should be placed within known rabbit feeding areas, around 20-30 m away from the areas where the rabbits reside (for example, obvious warrens or bush/scrub refuge). If non-target animals such as kangaroos are known or suspected to be present, enclose each bait station with ring-lock wire-netting so that large animals are excluded (1.5 x 1.5 m; Fig. 2). Do not place bait stations in areas where small native animals like bandicoots are likely to be present. Bait stations can also be made more secure by running wire straps over the stations which are then pegged to the ground.

To ensure maximum effectiveness, a pre-feed period must be used with bait stations. This involves the provision of unpoisoned plain oats in the stations for at least 2 weeks before adding the poison bait. Check the stations regularly (every 2-3 days) and make sure that adequate pre-feed is always available. This allows the rabbits to become accustomed to the stations, and ensures that the maximum number of rabbits will feed at the stations once the poison bait is added. Remember to remove any remaining pre-feed before adding the poison bait.

The best method for applying bait is to place 1 kg of plain or poison oats on plastic saucers (30-40 cm dia.) within the stations. This enables easy monitoring of bait take, and reduces the potential for the bait to become scattered outside the stations. Also place half a house-brick in the centre of the saucers as this prevents rabbits from sitting in the bait, and from moving the saucers. Scattering some unpoisoned oats outside the stations will also help to attract the rabbits. The 1 kg of bait should last for up to 4 weeks for poisoned oats and around 2-3 days if plain pre-feed, depending upon rabbit densities. However, you must check the stations frequently to ensure sufficient bait is always present.

The poisoning phase should not last for more than 4 weeks.

If you still wish to continue with the bait stations in a particular area, then leave the stations empty for 1 week and then repeat the above procedure. *Do not leave the stations permanently loaded with poison bait, because this is likely to increase the development of resistance to the poison used.*

Which poison?

Either pindone or 1080 poisoned oats can be used, and a ready-to-use bait is available for both products from a variety of licensed retailers in Western Australia. Pindone is a chronically acting anticoagulant poison that requires the poison to be ingested over several feeds to be effective. In contrast, 1080 is an acute poison which interferes with energy production within cells, and only requires a single exposure to the poison. 1080 is highly water soluble so it can leach from baits during rainy periods. There are both water insoluble and water-soluble types of pindone bait available.

Permits/authorisation are required for some of these products, and these can be obtained through your local Department of Agriculture office. Because of the lack of an effective antidote, 1080 cannot be used in built-up areas, as there is a greater potential risk to humans and pets.

How effective are bait stations?

Against urban rabbits

Because 1080 cannot be used in or around built-up areas, pindone is the only pesticide available for use in these situations. However, reductions in rabbit numbers achieved with pindone in bait stations can be highly variable and may have little effect, or may achieve kills

of up to 80 per cent. The average reduction in numbers is usually around 50 per cent. More importantly, it can take rabbits a considerable period to become accustomed to the stations, and it may take 30-60 days for any noticeable reduction in numbers. Thus good forward planning is required to ensure you gain the maximum benefit from any bait station program. You should be pro-active and undertake your rabbit control program before planting/sowing, particularly with crops of high value, for example market gardens or horticultural crops.

Also remember that the bait stations alone may not necessarily alleviate your rabbit problem and other control measures may need to be undertaken, for example trapping or shooting. Although the initial cost outlay for rabbit-proofing your boundary fences with wire-netting may be high (ca. \$1600 per km), this will provide a better long-term and cost-effective solution to many rabbit problems in urban areas.

Broadacre use

The use of bait stations alone is unlikely to provide long-term, cost-effective mitigation from rabbit damage in broadacre situations. If bait stations are to be used for broadacre rabbit control, their use should be followed up with a trail baiting program where possible. If this cannot be done, then the use of bait stations should be integrated with another means of control, such as a shooting program. Bait stations will probably work best where rabbit numbers are low to moderate (less than 50 per spotlight km).

The known reductions in rabbit numbers using One-Shot 1080 Impregnated Oats in bait stations for broadacre control of rabbits vary from 34-67 per cent with an average of around 57 per cent after 14 to 25 days. In contrast, the average reduction with One-Shot trail baiting within the same region was around 84 per cent after 14 days. Maximum kill rates with One-Shot bait trails are usually achieved within 8-12 days. This illustrates why trail baiting should be the preferred option wherever possible.

Cost comparison

Assuming the baiting campaigns are carried out by landholders using the 1080 Ready-to-Lay Rabbit Oat Bait product, then the relative comparison of the estimated cost of the two control options is as follows. Trail baiting (3 parallel trails at 6 kg per km per trail) will cost around \$160 per km of rabbit infested area controlled. In contrast, the cost of using bait stations in a similar area with a two week pre-feed period and a four week poisoning phase is \$740 with newly purchased bait stations, and \$420 if the stations do not need to be purchased. These estimates include all associated labour costs at \$20 per hour, and a \$5 per hour nominal vehicle running cost, with 10 stations per km.

When should bait stations be considered?

- Bait stations may offer some solution to the problem of reducing the impact of rabbits in urban situations, such as when rabbits are causing damage to home gardens, horticultural industries and market gardens.



Fig. 2: A bait station using a half 200 litre drum with rabbit access holes at each end, and ring lock to exclude livestock and kangaroos.

- Provided that they are fenced appropriately (see Fig. 2), bait stations can provide a means for reducing the potential risks to non-target species such as kangaroos and granivorous birds. This is particularly relevant to urban areas where pindone bait needs to be used, including golf courses, parks and market gardens.
- Bait stations can protect the bait if rabbit control needs to be carried out during periods when adverse weather is expected, for example during the winter months when rainfall is likely. However, any rabbit control program is best carried out when other food for rabbits is limited, such as during the summer/autumn period. Wherever possible, it is best to avoid undertaking a baiting program when green feed is available because rabbits are less likely to take bait at this time.
- Broadacre use:- Provided they are secured and isolated from livestock, the use of bait stations during the summer drought period will permit some control of rabbits if the need for rabbit control becomes a high priority (crop damage, soil erosion, tree farms, conservation purposes) and where paddocks cannot be de-stocked because water resources are limited. However, follow-up control should be undertaken as

soon as possible after the bait stations have been used, and/or other means of control should be incorporated in the control program.

- Bait stations could also be considered where rabbit numbers are relatively low, where only small areas need to be baited, and/or as a means for mopping-up after rabbit numbers have been reduced by other means, including RHD, myxomatosis or shooting.

Remember, however, that trail baiting should be your first choice wherever possible.

Further information

For further information contact your nearest office of the Department of Agriculture, or the Vertebrate Pest Research Section, Department of Agriculture, Forrestfield, tel: (08) 9366 2300.

Further Reading

There are a number of publications on rabbits available from Department of Agriculture's District Offices and on our website.

Acknowledgements

The financial support of the Bureau of Rural Sciences is gratefully acknowledged.