

BRODIFACOUM - IS IT THE BEST CHOICE?

FACT SHEET 3

Q & A

ARE THERE ALTERNATIVES?

What methods are currently used to successfully eradicate rodents from islands?

A 2007 review of rodent eradications showed invasive rodents have been eradicated from 284 islands worldwide. With the exception of a few very small islands, second-generation rodenticides were used in all eradication programs. Brodifacoum is a second-generation rodenticide that has been used successfully in over 200 eradications with minimal environmental harm. Because the environmental effects of brodifacoum are well known any potential risks can be mitigated against with confidence.

What is brodifacoum and how does it work?

Brodifacoum is a chemical rodenticide that was developed in the 1970s as an agent to control rats and mice that were becoming resistant to warfarin. In Australia brodifacoum is marketed for household and farm use in several formulations e.g Talon and Tomkat II. Brodifacoum (and other anticoagulants including warfarin) act by effectively blocking the vitamin K cycle in vertebrate animals, resulting in the inability to produce essential blood clotting factors, which can lead to haemorrhage and death.

What alternatives were considered? Are there other rodenticides that are not anticoagulants?

An assessment of all available rodenticides was conducted to ascertain the most appropriate and safest method to eradicate rodents from Lord Howe Island. Alternative non-anticoagulants such as zinc phosphide, strychnine, cholecalciferol, bromethalin and norbormide are considered unsuitable. The rodent-specific bait Eradirat (developed in NZ) works by physically blocking the water absorption in the gut. While this product has been used for control on farms, it has never been used in eradications. Recent research indicates rodents will only eat it when no other food source is available.

Why not use warfarin or other first generation anticoagulants?

Our mice are now resistant to warfarin, a first-generation anticoagulant. First-generation anticoagulants are generally less toxic and thus require a higher concentration and multiple feeds over a number of days to be effective. Second-generation anticoagulants require lower concentrations with only a single feed needed to kill rodents and thus are ideal for eradication programs.

Is development of a viral agent a potential for eradication?

Research over two decades focused on developing a genetically modified virus that would be transmitted between mice rendering females sterile. Unfortunately researchers were unable to develop a system of spreading the virus amongst a wild population. The research has now been abandoned. It was only ever being considered as a control measure, and was not suitable for eradication.

What happens to the bait pellets and brodifacoum on the ground.

Tests on LHI have found that baits completely break down over a period of 100 days. Each pellet contains just 0.002 % of brodifacoum. Brodifacoum does not dissolve in water and thus will not enter streams or the water table; rather the brodifacoum binds to soil particles and is broken down by bacteria into harmless non-toxic compounds. (See also fact sheet 6).

Is brodifacoum dangerous to pets and is there an antidote against accidental ingestion of brodifacoum?

Brodifacoum prevents the production of vitamin K. Vitamin K injections provide a reliable antidote that is readily available. During an eradication program, a doctor or a vet would administer treatment with vitamin K in the unlikely event of accidental poisoning of pets or livestock. A large quantity of pellets would have to be consumed by a pet for it to be seriously affected. Although accidental poisoning of pets is unlikely, as pellets will be widely dispersed, precautions should be taken for dogs (e.g. muzzles when off a lead).

Would an eradication program on populated Lord Howe Island be an experiment?

No. Brodifacoum is a tried-and-tested tool for eradication of rodents, and has been used on islands with human populations (e.g. Frégate, Laucala and Denis islands). The Island Eradication Advisory Group (worldwide eradication advisors) confirm that brodifacoum is the most efficient poison for rodent eradications. Brodifacoum has been widely used by residents on the island for many years.

Does brodifacoum affect non target species?

Brodifacoum has the potential to kill non-target species such as birds. Research carried out on LHI in 2007 has identified those bird species most at risk. Specific risk mitigation measures are being proposed to protect populations of our endemic birds that are at risk. While there may be some loss of individual birds, bird populations are expected to dramatically increase due to a lack of predation and increased food availability. Invertebrates are not generally affected by brodifacoum, however as a precaution trials are being undertaken with our Placostylus snails to determine their susceptibility to brodifacoum.

Having considered all these facts, can we consider brodifacoum the best choice for Lord Howe Island?

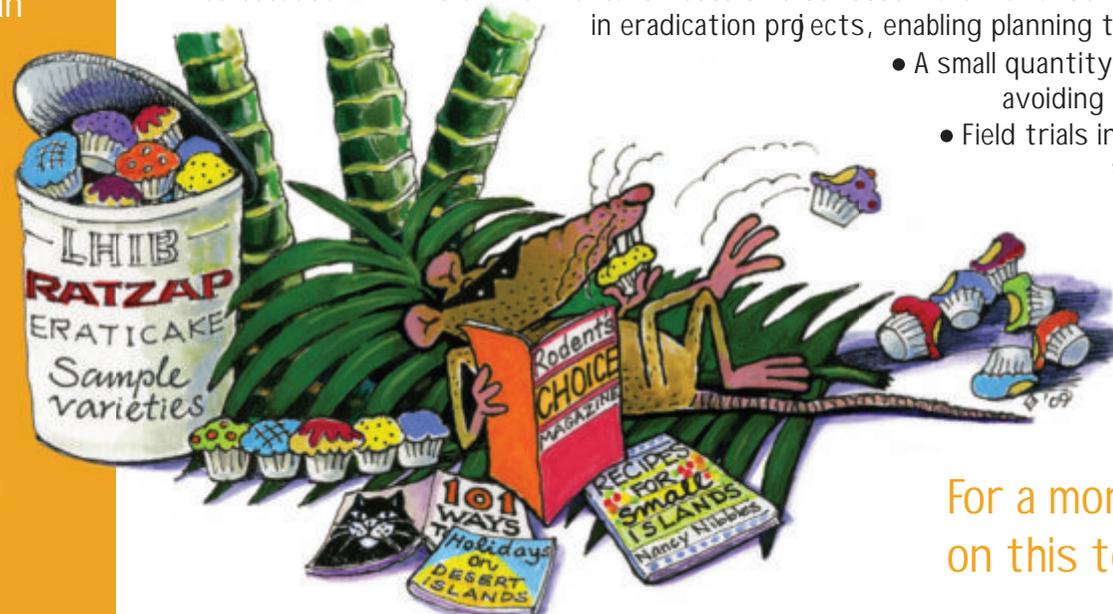
Yes because:

- The environmental effects of brodifacoum are well understood through 30 years experience in eradication projects, enabling planning to minimise any non-target impacts.

- A small quantity is highly effective in a single dose, avoiding the risk of bait aversion developing.

- Field trials in 2007 on LHI confirmed bait pellets with brodifacoum are very palatable to rats and mice.

- An antidote is readily available in the extremely unlikely event of poisoning of humans, pets or livestock.



For a more detailed fact sheet on this topic see the LHI Board

