Invasive animal control

Sodium fluoroacetate (1080)

Background

Sodium fluoroacetate (1080) is a very useful pesticide for the control of invasive animals and has been used throughout Australia since the early 1960s.

1080 is a species-specific pesticide currently available for invasive animal control in Australia. In Queensland, 1080 is registered or used under permit for control of the invasive animals wild dogs, feral pigs, foxes, feral cats and rabbits.

1080 is widely used in Australia to protect agricultural production and native flora and fauna from the impacts of invasive animals. The use of 1080 in some conservation areas allows the continued survival of rare and threatened wildlife and assists in the reintroduction of species into areas where they have previously been locally extinct.

If 1080 were not available for use to control vertebrate pests, many less specific and less humane products may be used in an irresponsible way.

Properties

Some of the properties of 1080 include:

- fluoroacetate occurs naturally in about 35 species of Australian plants, such as *Acacia georginae* (gidgee), *Gastrolobium* spp. (heart leaf poison bush) and *Oxylobium* spp. (box poison bush). Consequently, native animal species are generally less susceptible to fluoroacetate than introduced species
- 1080 is water-soluble and is readily broken down by naturally occurring bacteria and fungi. It therefore does not cause a build-up of toxic residues in soil, water or plants, nor does it bioaccumulate in organisms
- fluoroacetate can be found in minute quantities in such common substances as guar gum and tea.

Safety information

The risk of using any pesticide can be expressed by the formula:

Risk = hazard (toxicity) x exposure

The aim is to minimise the risk to non-targets. In order to achieve this, both the hazard (toxicity) and the exposure need to be minimised.

To minimise toxicity, the most target-specific toxin should be selected. Of the current toxins available, 1080 is the most target-specific pesticide for controlling introduced invasive species in Australia.

To minimise non-target exposure, the following steps can be taken:

- bury or secure baits
- mark the position of baits so that uneaten baits can be collected and destroyed at the end of a poisoning program
- use baits of particular size and material that attract, and will be consumed by, only the target species
- use only as much bait as necessary
- use an appropriate dose rate
- lay baits for the shortest possible time
- place the baits where access is limited or restricted to the target species
- time baiting so as to lessen exposure to other potentially susceptible species.

Availability of 1080

1080 fresh meat baits can only be supplied by State or Local Government Officers approved under the Health (Drugs & Poisons) Regulation 1996 and only for the purpose of controlling invasive animals. Commercial manufactured baits may also be supplied by these Government Officers.

Additionally, an individual landholder may apply to Queensland Health for an approval to obtain, possess and use commercially manufactured 1080 baits and 1080 capsules for use in Canid Pesticide Ejectors. An approval holder can purchase these products from an appropriately licensed S7 retailer.

Guidelines for use

The use of 1080 is subject to strict regulatory controls as required by the Health (Drugs and Poisons) Regulation 1996, administered by the Queensland Department of Health. The Department has developed the State Requirements for 1080 baiting programs. The following is a summary of the guidelines for its use:

- baits are to be used for no other purpose whatsoever other than for the destruction of wild dogs, feral pigs, foxes, feral cats and rabbits
- all baits are to be laid on the land described in the agreement for provision of baits or bait user authorisation only
- no baits are to be laid on any stock route or reserve for travelling stock without local government approval
- no baits are to be laid within 5 m of a fenced boundary
- no baits are to be laid within 50 m of a centre line of a declared road.

- no baits are to be laid within 20 m of permanent or flowing water bodies
- owners or their agents must give at least 72 hours notification prior to the commencement of baiting to all neighbours whose property boundary falls within 1 km of the bait site and any property having frontage to the holding where baits are to be laid
- owners or their agents may only lay baits within 2 km of any habitation (habitation includes schools, dwellings and public facilities, but does not include the dwelling of the person laying the baits) only after providing written notification to all habitation occupiers within 1 km of the bait site
- no baits are to be laid within 5 km of a town without biosecurity officer approval
- warning signs must be placed at all entrances to the property and at the extremities of the property boundaries fronting a public thoroughfare. Warning signs must be erected immediately before baiting commences and left in place for one month after the baits have been laid. Owners undertaking an extended baiting program should establish permanent signs for the duration of the baiting and re-notify neighbours as above at six-monthly intervals during the life of the program
- wild game harvesters should also be notified of baits being laid for at least 28 days after the program as they are required to declare that they have not removed feral pigs from areas where baiting has occurred
- additional guidelines can be implemented to manage high risk 1080 baiting by the local governments.

Selectivity of 1080

There is considerable variation in susceptibility between species of animals. Dogs and foxes are the most susceptible of all animals to 1080. In general, birds show considerably more resistance than mammals. Cold-blooded animals such as reptiles and fish are the most resistant.

Examples

Here are some interesting examples of calculations detailing the risks to humans and wildlife:

- One of the risks of 1080 use is the leaching of the 1080 from the impregnated baits due to rainfall. If an area were heavily poisoned using 8 kg of 6 mg wild dog baits per hectare (containing 48 mg of 1080 per kg of bait), and all of this was leached out due to 50 mm of rain, an individual person would need to drink 169 271 L of contaminated water before receiving a lethal dose.
- If a hunter shot a 60 kg feral pig that was in the latent period following ingestion of 3 kg of 1080 bait (at a rate of 1152 mg 1080/kg), and based on the unlikely assumption that half the ingested poison has become evenly distributed through the carcass, that hunter would need to eat 36.1 kg in one sitting before being at risk.

Common myths about 1080

"1080 kills everything—native animals as well as introduced invasive animals."

Australia's native mammals, birds and reptiles have developed much higher tolerance to 1080 than introduced animals, due to their evolution with naturally occurring 1080 in some native plants. The dose rates used in invasive animal control, coupled with responsible baiting practices, mean that the chances of killing native animals are minimised.

If non-target animals are suspected of dying as a result of a 1080 baiting program, your local Biosecurity Queensland office should be contacted so that it can be properly investigated and, where possible, the appropriate tests undertaken.

"1080 kills only domestic dogs, it doesn't kill wild dogs."

All canines (wild dogs, domestic dogs and foxes) are equally susceptible to 1080 poison. This is why it is important that domestic dogs are restrained when baiting programs are being carried out.

"1080 builds up in the soil and in waterways."

Naturally occurring bacteria and fungi found in soil, water and bait materials readily break down 1080. It therefore does not cause a build-up of toxic residues in soil, water or plants. 1080's persistence in the environment depends on rainfall, temperature and amount of bacteria present.

"What if a invasive animal is poisoned with 1080 and another animal eats it? Will it affect the second animal?"

This depends on the dose used for the first animal, the tolerance of the second animal, the amount the animal has consumed, what part of the animal is consumed (the stomach contents will contain more 1080 than other organs and flesh), and how long the dead animal has had 1080 in its system. Unlike some poisons, 1080 does not accumulate in the food chain nor does it keep on killing.

"Baiting just scares the invasive animals away. After a few months they all come back again."

Baiting removes many of the target animals living in the baited area. After a period of time, animals from surrounding areas disperse into this vacant area. This is why it is important to reduce immigration by carrying out regular coordinated control programs.

"There is no effective treatment or antidote for 1080 poisoning in humans."

There is no specific antidote for 1080 but a range of treatments may aid recovery. As with many poisons, these treatments are effective only when used soon after ingesting the poison. Emptying the stomach can get rid of most of the poison in the early stages. Sedatives and barbiturates, as well as life support measures, have also been used to give the body time to detoxify the 1080.

Further information

Further information is available from your local government office, or by contacting Biosecurity Queensland on 13 25 23 or visit www.biosecurity.qld.gov.au.

This fact sheet is developed with funding support from the Land Protection Fund.