

USING 1080 FOR POSSUM CONTROL

WHY WE USE 1080

OSPRI's TBfree programme has the objective of eradicating bovine tuberculosis from New Zealand. To achieve that, it is vital to control populations of possums, the main wildlife 'vectors' (transmitters) of TB that infects cattle and deer. There are strict safety, quality assurance and monitoring requirements around the use of 1080 when applied aerially or by hand.

The careful use of biodegradable 1080 to control possums has been a key tool for achieving the significant decline of TB-infected cattle and deer herds - from about 1700 in the mid-1990s to 35 in October 2018.

BENEFITS OF USING 1080

As well as reducing the risk of TB in cattle and deer herds, there are also large positive biodiversity benefits from using 1080 - particularly New Zealand's native bush and birdlife. Intensive bird and bat monitoring following 1080 operations in Kahurangi National Park show that the nesting success of the area's native bird species was significantly higher within pest control areas than outside.

Every year introduced pests kill millions of native birds and destroy native bush, with many of our native species struggling to survive in the wild. Without the use of 1080 to control possums and other predators (e.g. rats, stoats, ferrets and pigs), birds like kiwi, whio and mohua, among many others, will disappear from mainland NZ.



Green possum control 1080-pellets coated with Epro Deer Repellent look significantly different to the brown prefeed baits.

SUCCESS TO DATE USING 1080

- TB eradicated from over approximately 2 million hectares
- Infected herds reduced to 35 (down from 689 in the year 2000)
- Has allowed major reductions in livestock TB testing and movement control requirements

RESEARCH INTO THE USE OF 1080

1080 is one of the most widely researched pest control tools and

in recent years there have been extensive investigations into its use by both the Environmental Protection Agency and the Parliamentary Commissioner for the Environment. It has been proven to be particularly effective in aerial baiting programmes for controlling possums over larger areas of forest or rough terrain that are difficult to access on foot. There is also strong support for the use of 1080 across the conservation and farming communities. Some people are opposed to its use and we try to work with these groups to explain why and how we use it.

HOW 1080 BIODEGRADES IN WATER

Enters waterway



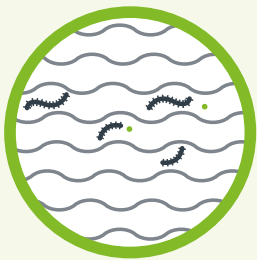
1080 bait loses structure and becomes soft



1080 dilutes and moves with flowing water



1080 is biodegraded by microorganisms in natural waterways



WHY 1080 IS SUITED TO NEW ZEALAND

The use of biodegradable 1080 is ideally suited for NZ conditions as it is particularly effective against mammals – birds are less susceptible. New Zealand doesn't have any native land mammals (apart from bats which are likely to benefit from 1080 control operations) so it's possible to target introduced pest species with little harm to native species, unlike elsewhere in the world.

HOW WE USE 1080

The aerial application of 1080 is the most effective and cost efficient method for controlling introduced possums and other predators like rats and stoats over large areas with difficult access. 1080 is the only toxin registered for aerial application that can ensure possum numbers are kept low enough to eradicate TB. Aerial application enables us to apply the toxic bait over large tracts of forest or other difficult terrain.

One application of bait will often suppress possum populations to low levels for five years, so it may take as few as two or three applications to achieve eradication.

Hand-laid traps and toxins account for about 70 per cent of TB pest management work. The remaining area is controlled by aerial 1080 baiting. There are a number of ground control techniques available to possum control contractors, but the key to effective control is using the appropriate method for the job, depending on a number of factors such as the terrain, local wildlife, previous control work and the objective for the area. On difficult country where ground control is impractical or very costly, we use carefully managed aerial 1080 application.

MINIMAL USE OF 1080

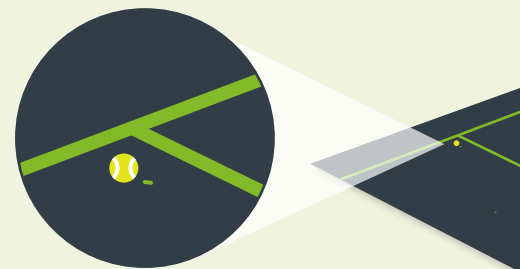
A standard aerial operation uses 2kg of 1080 bait per hectare. That's about 4-6 baits in an area the size of a tennis court. Each bait has 0.15% 1080. In a standard 12g bait there is only 0.018g (or 18 mg) of 1080, which is considered sufficient to kill a possum.



MINIMAL AMOUNTS OF 1080 IN BAIT

99.85%
CEREAL

12 gram pellet



*Illustration only. Not to scale.



DEER REPELLENT FOR 1080 BAIT

Baits containing 1080 target possums, but wild deer are also attracted to them and there is potential for by-kill when an aerial operation is undertaken.

A repellent coating for 1080 baits discourages deer from eating the baits without affecting their palatability to possums. It has been widely used in aerial control operations over the past 17 years. Deer repellent adds a significant cost to operations but its use is increasingly requested.

OSPRI actively engages hunters in consultation over the use of repellent where landowners want to minimise deer by-kill, and in other recreational hunting areas.

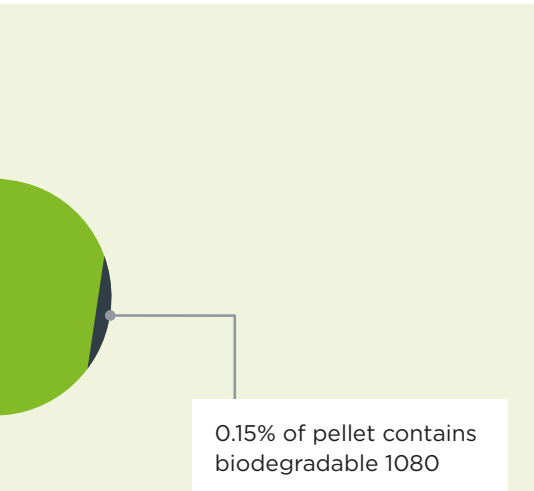
EFFECT ON THE ENVIRONMENT

1080 is highly soluble in water and naturally breaks down in the environment into harmless substances. It does not accumulate or leave permanent residues in soil, plants, water or animals.

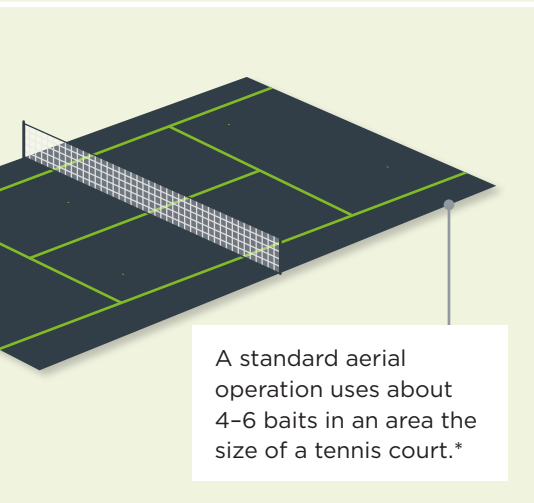
The time it takes for an animal that has ingested a sub-lethal dose of 1080 bait to metabolise and eliminate it will depend on the species and dose. In general, concentrations will reach their highest and start declining in just several hours or days, and are eliminated completely within 7-14 days. Likewise, 1080 contained in a cereal bait degrades over time even though the baits may remain.

SYSTEMS TO MANAGE AERIAL OPERATIONS

Advanced GPS navigational equipment is used to ensure that bait is accurately sown, and identified exclusion zones avoided. Areas where toxins have been laid are clearly identified with warning signs. The EPA and the Ministry of Health also have strict requirements to protect users, the public and the environment.



0.15% of pellet contains biodegradable 1080



A standard aerial operation uses about 4-6 baits in an area the size of a tennis court.*

HOW 1080 BIODEGRADES IN SOIL

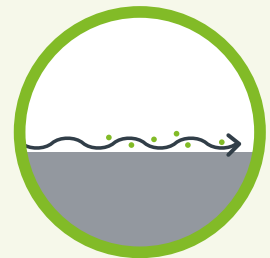
Rain / dew



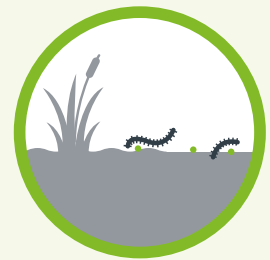
1080 bait loses structure and becomes soft



1080 dilutes and moves with ground water



1080 is biodegraded by microorganisms in plants and soil





SAFETY PRECAUTIONS FOR THE USE OF 1080

There are strict safety, quality assurance and monitoring requirements around the use of 1080.

Contractors who use 1080 must have in place specific hazard controls for the hazardous or controlled substances that they use. Key hazards and controls must cover (as a minimum):

- ✓ Storage requirements, including security considerations in depots and in the field.
- ✓ Safety data sheets for each substance carried or used.
- ✓ Emergency response – safety and environmental and incident reporting.
- ✓ Safe handling practices, including any PPE and first aid equipment or antidotes required.
- ✓ Compliance with all aspects of the HSNO Act, Transport Act and any EPA requirements applicable to each chemical used, including consent and notification requirements.

The EPA and the Ministry of Health also have strict monitoring requirements for certain chemicals to protect users, the public and the environment.

Dogs are highly susceptible to 1080 poisoning and must be kept well clear of treated areas until warning signs are removed.

USING 1080 BAIT FOR GROUND OPERATIONS

Ground operations are ideal for covering areas that have easy access and easy terrain. The main advantage of ground-baiting operations is the ability to limit non-target species by-kill. Baits are placed in bait stations that allow access to the target species but deter other species. Where susceptible non-target species are not present, baits are applied directly to the ground. While ground operations may provide more precise bait application, they can cost significantly more per hectare than aerial operations and often require repeat control on an annual or biennial basis.

CONSULTATION AND NOTIFICATION REQUIREMENTS

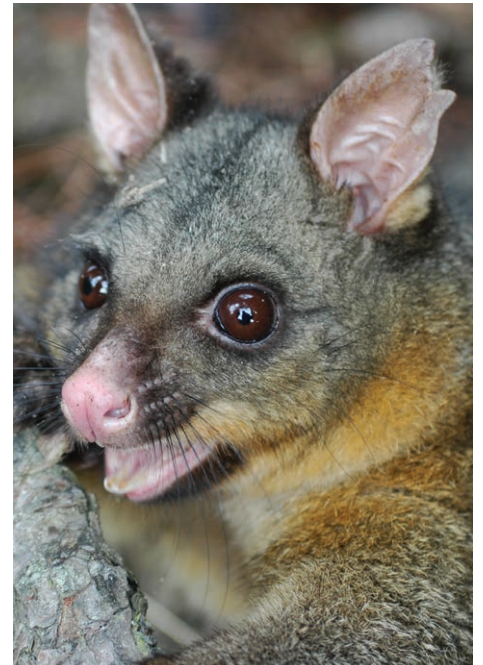
TBfree programme contractors must consult and obtain permission from land occupiers, publish notifications and details of the 1080 operation in local media, and erect warning signs at each entrance point to the operational area. Neighbouring land occupiers must be notified.

OSPRI also provides information and fact sheets before, during and after the consultation phase.

Depending on the operation and the requirements of consent authorities, consultation or notification may be required with other affected parties such as iwi, hunters and outdoor recreationists.

APPROVING THE USE OF 1080

Consent for a 1080 operation must be granted by the local Public Health Unit (Medical Officer of Health) and, when the operation incorporates conservation estate, the Department of Conservation (DOC).



FURTHER INFORMATION

THE ENVIRONMENT AND 1080

epa.govt.nz

WHY 1080 IS USED IN NEW ZEALAND

1080facts.co.nz

REFERENCES

M. S. Srinivasan, A Suren, J Wech & J Schmidt (2012) Investigating the fate of sodium monofluoroacetate during rain events using modelling and field studies. *New Zealand Journal of Marine and Freshwater Research*, 46:2, 167-178.

Alastair M. Suren (2006) Quantifying contamination of streams by 1080 baits, and their fate in water. *New Zealand Journal of Marine and Freshwater Research*, 40:1, 159-167.

Alastair M. Suren & Paul Lambert (2006) Do toxic baits containing sodium fluoroacetate (1080) affect fish and invertebrate communities when they fall into streams? *New Zealand Journal of Marine and Freshwater Research*, 40:4, 531-546.