



NSWRAB SOP1

Ground baiting of rabbits with sodium monofluoroacetate (1080)

Background

Lethal baiting with sodium monofluoroacetate (1080) is used to minimise the impact of the introduced European rabbit (*Oryctolagus cuniculus*) on agricultural production and the environment. Poisoning with 1080 is one of the most effective methods of quickly reducing rabbit numbers and is usually performed prior to harbour destruction and warren fumigation. 1080 is an odourless, tasteless, concentrated solution that has a coloured dye added for identification of the toxin. It is used for poisoning of rabbits by incorporating it into a suitable bait material. Poison bait is offered either as a concentrated trail or broadcast (scattered) in a swathe on the ground or from the air. Aerial baiting procedures are described in *NSWRAB SOP2 Aerial baiting of rabbits with 1080*. Conventional poisoning methods use free-feeding with unpoisoned bait on at least three occasions, usually three to four days apart, prior to laying poisoned baits.

Rabbits are moderately susceptible to the effects of 1080; however other species, especially some native animals and birds and domestic livestock are also vulnerable to poisoning. Good baiting technique helps to minimise the risk to non-target species and maximise the effect on targeted rabbit populations.

This standard operating procedure (SOP) is a guide only; it does not replace or override the relevant NSW or federal legislation. The SOP should only be used subject to the applicable legal requirements (including WHS) operating in the relevant jurisdiction.

Individual SOPs should be read in conjunction with the overarching Code of Practice for that species to help ensure that the most appropriate control techniques are selected and that they are deployed in a strategic way, usually in combination with other control techniques, to achieve rapid and sustained reduction of pest animal populations and impacts.

Application

- 1080 baiting is subject to an authorised control officer (ACO) risk assessment.
- Baiting with 1080 should only be used in a strategic manner as part of a co-ordinated program designed to achieve sustained effective control.
- Poisoning is used as an initial control method to reduce high rabbit populations to a more manageable level. Fumigation and ripping of warrens are then used as follow-up techniques to reduce harbour and to slow re-colonisation. Poisoning is also an important management tool in areas where rabbits are mainly surface dwelling or where it is too difficult to rip warrens.

- Controlling rabbits with 1080 bait cannot be undertaken in areas where there is an unacceptably high risk to humans and/or companion animals, such as urban/residential environments.
- 1080 use is restricted in areas where there is a high risk of poisoning domestic stock and wildlife.
- Because water reduces the concentration of 1080 in bait, poisoned bait should be laid when there is a low chance of rain within several days of laying.
- Although poisoning programs can be carried out year-round, baiting is most effective when alternative food for rabbits is scarce. This can vary by season and location around the state.
- Baiting may be less effective when feed supply is abundant and also during the breeding season when juvenile rabbit movements may be limited, and they are less likely to find the bait. Kittens over 17 days old can survive even if their mother is poisoned and subsequent breeding by these survivors can cause rapid recovery of the population
- Baiting of rabbits with 1080 can only be carried out under conditions set down in a specific permit issued by the Australian Pesticides & Veterinary Medicines Authority (APVMA) under Commonwealth legislation (*Agricultural and Veterinary Chemicals Code Act 1994*).
- In NSW, 1080 must also be used in accordance with the *Pesticides Act 1999* and the relevant Pesticide Control Orders (PCO's) (which include distance restrictions, signage and notification requirements).
- 1080 is a restricted chemical product (under Regulation 45 of the Agricultural and Veterinary Chemicals Code Regulations 1995) and is listed as a Schedule 7 – Dangerous Poison under the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). These listings require special precautions in the manufacture, handling, storage and use of 1080, along with specific regulations regarding labelling or availability.
- Handling of 1080 concentrated solution and preparation of baits can only be performed by an authorised person (ACO) who has the appropriate training.
- Prepared and manufactured 1080 baits can only be obtained through authorised government agencies.
- The 1080 user should refer to the [NSW Vertebrate Pesticide Manual](#) for all relevant legislation and its application.

Animal welfare implications

Target animals

- The toxicity of 1080 is due to the conversion of fluoroacetate to fluorocitrate, which inhibits the tricarboxylic acid cycle – a mechanism necessary for cellular energy production. In general, herbivores experience cardiac failure, whereas carnivores experience central nervous system (CNS) disturbances and convulsions and then die of respiratory failure. Some species, usually omnivores such as pigs, can be equally affected by both CNS and cardiac signs.

- After a rabbit has ingested 1080 there is a latent period ranging from around 30 minutes to 4 hours before clinical signs including lethargy, laboured respiration and increased sensitivity to noise/disturbance are observed. Convulsions start suddenly, often with gasping and squealing, followed by death. Time to death is variable depending upon the amount of 1080 absorbed but is usually around 3 to 4 hours after ingestion. The precise nature and extent of suffering after ingestion of 1080 is unknown.
- To minimise the animal welfare implications of leaving dependent young to die a slow death from starvation it is preferable not to undertake baiting programs when rabbits are known to be breeding. This is also the time when young rabbits do not travel far from their burrows and bucks vigorously defend their territorial boundaries, making it less likely that all rabbits will have access to bait. In many areas of Australia there is a peak in breeding from late winter to early summer when pastures have greened up after rain.

Non-target animals

- 1080 is toxic to a wide range of species including birds, mammals and reptiles; however, there are marked differences in sensitivity. Dogs are extremely sensitive, and most other mammalian carnivores are highly sensitive to 1080 poisoning. Herbivores are less sensitive, and birds and reptiles increasingly more tolerant.
- Poisoning of non-target species can occur either directly by eating baits intended for rabbits (primary poisoning) or through the scavenging of tissues from a poisoned animal (secondary poisoning).
- The susceptibility of non-target species to 1080 poisoning is determined by many factors including sensitivity to the poison, body weight, concentration of 1080 in the bait, bait placement, bait type and palatability, timing of baiting and level of exposure to toxic baits.
- To help reduce risks to non-target animals, the following baiting strategies are recommended:
 - *Pre-feeding with non-poisoned bait* – allows an assessment of what animals are eating the bait and the quantities of poisoned bait needed for the control program.
 - *Bait type* – use of surface coated rather than vacuum impregnated oat baits will reduce exposure of granivorous birds to the toxin. Most of these birds will only eat the kernel and discard the poisoned husk. Carrots should be diced to an optimal size favoured by rabbits (2 to 5 grams). Pieces smaller than this tend to retain and absorb a higher loading of 1080, dry out and leach 1080 more rapidly and are more likely to be eaten by birds.
 - *Colouring of baits* – baits that are dyed a specific green or blue colour may be unattractive or less obvious to birds.
 - *Placement of baits* – the laying of poisoned carrot bait in a wide swathe (i.e., broadcast or scattered; poisoned oats and pellets only to be used on trails) instead of a concentrated trail, can decrease the consumption of poisoned bait by non-target species and thus their risk of poisoning. However, uneaten broadcast bait is difficult to cover or collect and destroy after a baiting program. Laying the bait as a concentrated trail in a narrow, pre-cut furrow allows subsequent identification of the trail of pre-feed and poisoned bait, attraction of rabbits to the trail and ease of covering up any

uneaten poison bait after the program. The bait should always be placed in the prime feeding areas of rabbits.

- *Timing of baiting* – rabbits mostly feed at night, therefore bait laid in the evening will be mostly consumed overnight before diurnal non-target species such as birds will have access. However, nocturnal mammals will be at risk when bait is laid in the evening.
- *Collection of uneaten bait and rabbit carcasses* – any uneaten sections of bait trail should be covered or collected then destroyed or buried with a minimum of 500 mm of soil.
- *Collection of rabbit carcasses* – where possible, and especially in areas of risk to domestic dogs, carcasses of poisoned rabbits should be collected and destroyed and buried with a minimum of 500 mm of soil.

First aid for dogs

- 1080 baits can be attractive to carnivores such as dogs. Care must be taken to ensure that working dogs and pets do not come into contact with 1080. Dogs may eat poisoned bait or poisoned rabbit carcasses. The prognosis for poisoned dogs is extremely poor unless vomiting can be induced shortly after ingestion of 1080 and before clinical signs are evident.
- If a working dog or pet is known to have consumed a bait but is NOT yet showing signs of poisoning, induce vomiting by giving one of the following emetics by mouth:
 - washing soda crystals (sodium carbonate) – 3 to 5 crystals orally, DO NOT use laundry detergents or powders
 - table salt – 2 teaspoons of salt in 1 cup of water; more or less depending on the size of the dog
 - dilute hydrogen peroxide (3% solution) – 3 to 5ml
 - If the dog has vomited, clean it up immediately as the vomit is toxic.
- THEN SEEK VETERINARY ATTENTION IMMEDIATELY. The sooner action is taken following poisoning the better the prognosis.
- If these emetics are not immediately to hand or you are not having success in making the dog vomit it is better to seek veterinary attention immediately rather than waste time.
- If the dog has already begun to show signs of toxicosis (retching and vomiting, frenzied behaviour such as running and howling, convulsions, difficulty breathing etc.), DO NOT induce vomiting, but seek veterinary attention without delay.
- Veterinary intervention aims to decrease 1080 absorption and facilitate excretion; control seizures; and support respiration and cardiac function.

See *First Aid – 1080 and your dog* for more information: https://pestsmart.org.au/wp-content/uploads/sites/3/2020/06/1st_aid_booklet-1.pdf

Workplace health and safety considerations

- If poisoning occurs, contact a doctor or the Poisons Information Centre (Ph 13 11 26) IMMEDIATELY. Urgent hospital treatment is likely to be needed. There is no effective antidote to 1080.
- For further information refer to the Material Safety Data Sheet (MSDS), available from the supplier, the Pesticide Control (1080 Bait Products) Order, and the NSW DPI Vertebrate Pesticide Manual.

Procedures

- An ACO must conduct a risk assessment to determine if it is appropriate to supply 1080 baits to any person. Risk assessments should consider threats to non-target species particularly domestic dogs, human health and the environment.
- ACOs must conduct a risk assessment of planned group baiting programs where baiting occurs less than the prescribed minimum distances provided in the current 1080 PCO.
- Users of 1080 must always refer to any risk assessment and to specific permit, approved label and Pesticide Control (1080 Bait Products) Order for up-to-date information on conditions of use including distance restrictions, public notification and bait preparation, distribution, storage, transportation and disposal.
 - Pesticide Control (1080 Bait Products) Order: <https://www.epa.nsw.gov.au/your-environment/pesticides/pesticides-nsw-overview/pesticide-control-orders>
 - NSW DPI Vertebrate Pesticide Manual: <https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/publications/nsw-vertebrate-pesticide-manual>

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