

# **NATSOP-PIG006**

## **NATIONAL STANDARD OPERATING PROCEDURE: POISONING OF FERAL PIGS USING HOGGONE® meSN® SODIUM NITRITE BAITS**

Reference as:

Terrestrial Vertebrate Working Group (2024) NATSOP-PIG006 National Standard Operating Procedure: Poisoning of Feral Pigs with HOGGONE® Sodium nitrite Baits

Available for download at [pestsmart.org.au/toolkits/feral-pigs/](https://pestsmart.org.au/toolkits/feral-pigs/)

Associated documents (referred to as associated CoP and NATSOPs) relating to the NATSOP-PIG006 National Standard Operating Procedure: Poisoning of Feral Pigs with HOGGONE® Sodium nitrite Baits include:

- National Code of Practice for the Effective and Humane Management of Feral Pigs
- NATSOP-PIG001 National Standard Operating Procedure: Trapping of Feral Pigs
- NATSOP-PIG002 National Standard Operating Procedure: Aerial Shooting of Feral Pigs
- NATSOP-PIG003 National Standard Operating Procedure: Ground Shooting of Feral Pigs.
- NATSOP-PIG004 National Standard Operating Procedure: Poisoning of Feral Pigs with Sodium monofluoroacetate (1080)
- NATSOP-PIG005 National Standard Operating Procedure: Poisoning of Feral Pigs using PIGOUT 1080 Baits

**This document outlines best practice guidelines for the effective and humane management of feral pigs in Australia.**

**The Code of Practice (CoP) outlines humane control strategies and their implementation while National Standard Operating Procedures (NATSOPs) describe control techniques, their application, and strategies to minimise any harmful impacts.**

**The national CoP and NATSOPs comprise model guidelines that set minimum animal welfare standards. They do not override CoPs and SOPs in jurisdictions where these documents have been developed, prior to or after the endorsement of these documents, to address specific management issues or to comply with relevant legislation. For example, the national-level CoP and NATSOP for the management of feral pigs are not relevant in New South Wales, which currently has both state-level CoP and SOPs in place (Sharp *et al.* 2022).**

This CoP along with associated NATSOPs will be reviewed by the Terrestrial Vertebrate Working Group (TVWG) within 12 months of when they were endorsed, to manage any potential risks to operations throughout the country.

Jurisdictions conducting operations for feral pig control are encouraged to submit reports to the TVWG secretariat for discussion at either the 12 monthly review, or sooner if there are urgent matters that need to be raised. The reports should include:

- whether the national CoP and NATSOPs were implemented in their jurisdiction
- whether the national CoP and NATSOPs were effective
- apparent mistakes or oversights in the national CoP and NATSOPs
- unintended consequences or adverse events that occurred when implementing the national CoP and NATSOPs
- new techniques or modifications to existing techniques as a result of research or registration.

These reports will form the basis of reviews by TVWG.

### **Acknowledgements**

*This document is based on the original work by Sharp, Cope and Saunders titled 'NSW Code of Practice and Standard Operating Procedures for the Effective and Humane Management of Feral Pigs' published in 2022. Much of the text presented here is a direct reproduction of the original source. This version primarily involves minor edits and formatting changes to adapt the original material for a national audience.*

*The TVWG acknowledges the significant research conducted by Trudy Sharp, Holly Cope and Glen Saunders which forms the basis of this text and acknowledge that the intellectual property and creative credit for most of this content remain with them.*

*Guidance, input and reviews were provided by the multi-jurisdictional membership of the TVWG. Consultation and input were also provided by animal welfare NGOs, National Feral Pig Action Plan's Implementation Committee and Scientific Advisory Panel, Centre for Invasive Species Solutions, and operational and policy government staff.*

*Coordination was managed by the National Feral Pig Management Coordinator, Dr. Heather Channon.*

## BACKGROUND

HOGGONE® feral pig bait contains sodium nitrite, a compound that is highly toxic to pigs. The mode of action is similar to carbon monoxide poisoning, with sodium nitrite intoxication leading to a state of unconsciousness before death. HOGGONE® baits containing sodium nitrite have minimal risk of secondary poisoning, are usually not attractive to livestock and native species and are less hazardous for operators compared to other toxins. The Relative Humaneness Matrix (Sharp and Saunders 2011) rated sodium nitrite as relatively more humane than 1080.

HOGGONE® is supplied as a dense solid paste bait and is offered to feral pigs in trays delivered in a pig specific feeder (bait box). The sodium nitrite is in a microencapsulated form (meSN®) which is spread throughout the paste.

This National Standard Operating Procedure (NATSOP) is a guide only; it does not replace or override the relevant state and territory legislation or toxin label conditions. The NATSOP should only be used subject to the applicable legal requirements (including WHS) operating in the relevant jurisdiction.

Individual NATSOPs should be read in conjunction with the overarching Code of Practice for feral pigs 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 feral pig populations and impacts.

## Application

- Poisoning with sodium nitrite should only be used in a strategic manner as part of a co-ordinated program designed to achieve sustained effective control.
- Baiting of feral pigs is considered an effective method of reducing pig populations in conjunction with other management options.
- Poisoning is primarily used as an initial control method whilst other methods such as trapping, ground shooting and exclusion are used as follow-up techniques to keep pig numbers at a low level.
- Bait trays can only be used in target-specific bait boxes that prevent access to non-target animals.
- A dose of 250–350g per pig, as specified on the label, provides a small surplus of the minimum lethal dose required to kill the average size target animal. The additional amount of bait ensures sufficient toxin for a range of pig sizes given a mixed population with juveniles and adults is likely.
- The best time to conduct a poisoning program is when surface water is scarce, and pastures have dried off. At this time pigs will be concentrated near permanent water points and are more likely to eat bait due to hunger. It can be difficult to get feral pigs to find bait stations and to take bait when there is abundant green feed. To achieve maximum population reductions, it is also recommended that broad scale control programs be conducted prior to breeding, which usually peaks between May and October. In south-eastern Australia, summer or autumn is usually the most effective period for baiting pigs.
- Baiting of feral pigs with HOGGONE® can only be carried out under label conditions set by the Australian Pesticides & Veterinary Medicines Authority (APVMA) under Commonwealth legislation (*Agricultural and Veterinary Chemicals Code Act 1994*).

## Animal welfare implications

### *Target animals*

- Sodium nitrite works quickly in pigs, resulting in unconsciousness and death within about 1-3 hours. This is a shorter timeframe compared with other toxins currently or previously used for feral pig control in Australia such as sodium fluoroacetate (1080; 4-6 hours) or phosphorus (yellow phosphorus or CSSP; 2-4 days (approved for use in NT only)).
- Sodium nitrite primarily induces the formation of methaemoglobin which restricts the oxygen carrying capacity of red blood cells leading to central nervous system anoxia.
- Sodium nitrite poisoning progresses rapidly in pigs. Signs include progressive lethargy, incoordination, and vomiting. Closer to death the respiratory rate increases and, in some animals, severe dyspnoea, terminal seizure events and coma can occur. Pigs appear to be distressed for only a short period (5 to 10 minutes) prior to reduced consciousness.
- To minimise the animal welfare implications of leaving dependent piglets to die a slow death from starvation it is preferable not to undertake sodium nitrite baiting programs when sows have recently farrowed. This can vary with season and area.

### *Non-target animals*

- Poisoning of non-target species can occur directly by eating baits intended for feral pigs (primary poisoning).
- Sodium nitrite is quickly metabolised, therefore residues in the meat of dead pigs pose minimal threats to non-target scavengers. Vomiting has also shown to be minimal thus further reducing the risk of secondary poisoning.
- HOGGONE® is presented in target-specific bait boxes (e.g., HOGGONE Paste Bait Hopper) which reduces the risk of primary poisoning of domestic stock and wildlife.
- The mode of presentation of HOGGONE® makes it somewhat target specific. However, the paste product itself remains highly toxic to working dogs and pets.
- Veterinary intervention in non-target poisoning cases aims to convert methaemoglobin back to haemoglobin (usually with methylene blue, although this too can be toxic in high doses), provide oxygen and respiratory support and to absorb toxin (with activated charcoal) and promote its excretion (with saline or sorbitol). For further information vets should refer to Blue Healer Glovebox Antidote.

## Workplace health and safety considerations

- If poisoning occurs, contact a doctor or the Poisons Information Centre (Ph 13 11 26) IMMEDIATELY.
- For further information refer to the Material Safety Data Sheet (MSDS), available from the supplier.
- Care should be taken when handling pig carcasses as they may carry diseases such as leptospirosis, Q fever, Japanese encephalitis (JEV), brucellosis, sparganosis, melioidosis and tuberculosis that can affect humans and other animals. Routinely wash hands after handling all carcasses. Carcasses can be heavy (>100kg), so care should be taken when lifting/dragging.

## Equipment required

- HOGGONE® bait has been developed to provide a highly targeted and ready-to-use tool for the management of feral pigs. The paste formulation contains 100g/kg sodium nitrite.
- HOGGONE® bait must only be presented in target specific bait boxes (e.g., HOGGONE Paste Bait Hopper). The HOGGONE® bait hopper is designed to carry 6x trays. Five kg pales of poison bait are also available to replenish trays.

- A 'placebo paste' that doesn't contain any toxin is also available in 5kg pales for free-feeding with the bait hoppers.
- Notification signs must be displayed at all entry points to a baited area or property.
- Chemical-resistant gloves are required when opening HOGGONE® containers and using the bait.

## Procedures

- Do not use HOGGONE® bait unless within a pig-specific bait station such as the HOGGONE® Paste Bait Hopper.
- Sodium nitrite is a very unstable compound that actively absorbs moisture. To retain efficacy, bait must be kept dry at all times and residual bait should not be reused.
- Place bait stations at known places where feral pigs frequent such as pads or water points. The use of free feeding, with grain or pellets for example, will enhance site selection and bait uptake. Guidance on free feeding is provided in the HOGGONE® meSN brochure (link provided in further information list).
- When the poisoning program is finished, ensure that left-over bait is removed from the bait boxes and disposed of. Unused bait and containers should be buried at a depth of 0.5m in a disposal pit specifically marked and set-up for this purpose. Empty containers and product must not be burnt. Do NOT re-use containers for any other purpose.
- Users of HOGGONE® must always refer to any specific permit and approved label for up- to-date information on conditions of use including distance restrictions, public notification and bait preparation, distribution, storage, transportation and disposal.

For further information on HOGGONE® from the manufacturer refer to:

- <https://animalcontrol.com.au/s/ACTA-Hoggone-meSN-Feral-Pig-Bait-brochure-2020-01.pdf>

## Disposal of carcasses

Reasonable steps should be taken to collect and dispose of carcasses poisoned using HOGGONE® to minimise disease risks associated with using meat to attract other pigs as discussed above. Carcasses should be buried some distance away from the baiting area.

For further information about disposal of carcasses in some states and territories refer to:

- NSW: [https://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0003/1299603/animal-carcass-disposal.pdf](https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0003/1299603/animal-carcass-disposal.pdf)
- South Australia: [https://www.epa.sa.gov.au/files/7566\\_onfarm\\_disposal.pdf](https://www.epa.sa.gov.au/files/7566_onfarm_disposal.pdf)
- Victoria: <https://www.agriculture.vic.gov.au/biosecurity/pest-animals/invasive-animal-management/integrated-feral-pig-control>

## References

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**Disclaimer:**

**ALWAYS READ THE LABEL**

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Users of agricultural or veterinary chemical products must always read the label and any permit, before using the product, and strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or not made in this publication.