



CENTRE FOR  
INVASIVE SPECIES SOLUTIONS

# GLOVEBOX GUIDE FOR MANAGING FERAL PIGS



Part of the

**pest**SMART 

publication series

**Website:** [www.pestsmart.org.au](http://www.pestsmart.org.au)

This publication is licensed under a Creative Commons Attribution 4.0 International licence, except for photographic and graphical images contained within it. Photographs and other graphical material must not be acquired, stored, copied, displayed and printed or otherwise reproduced — including by electronic means — for any purpose unless prior written permission has been obtained from the copyright owner. Copyright of photographs and other graphical material is variously owned by Invasive Animals Ltd, individuals and corporate entities. For further details, please contact the Communications Manager, Invasive Animals Ltd.

The Creative Commons Attribution 4.0 International licence allows you to copy, distribute, transmit and adapt material in this publication, subject to the exception for photographic and other graphic material set out above, and provided you attribute the work as shown below. The licence does not transfer ownership of the copyright.

A summary of the licence terms is at:  
<https://creativecommons.org/licenses/by/4.0/>

© Invasive Animals Ltd

**Citation:** Koichi K and Halliday D, Harris C (ed) (2020). Glovebox Guide for Managing Feral Pigs v2.0. PestSmart Toolkit publication. The Centre for Invasive Species Solutions, Canberra, ACT

**Print ISBN:** 978-1-921777-97-4

**Web ISBN:** 978-1-921777-98-1

**Published by:** The Centre for Invasive Species Solutions

The original creation and update of this publication was funded with thanks to the following:

**Disclaimer:** The information contained in this publication has been prepared with care and is based on knowledge and understanding at the time of writing). Some of the information in this document is provided by third parties, and all information is provided “as is”, without warranty of any kind, to the extent permitted by law. After publication, circumstances may change and before relying on this information the user needs to take care to update as necessary.

**NO PRODUCT PREFERENCES:** The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement over any equivalent product from another manufacturer.

**ALWAYS READ THE LABEL:** Users of agricultural or veterinary chemical products must always read the label and any permit, before using a product, and must 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.



Australian Wool  
Innovation Limited



**Australian Government**

**Department of Agriculture,  
Water and the Environment**

# Contents

About this guide.....4

LEARN.....5-11

PLAN.....12-15

MANAGE.....16-24

IMPROVE.....25

## About this guide

This *Glovebox Guide for Managing Feral Pigs* is a practical resource designed to assist Australian landholders (farmers, public land managers and indigenous groups) in the control of feral pigs.

A large part of tackling a feral pig problem depends on the landholder's awareness of the situation and their ability to make informed decisions about how best to take action to reduce feral pig damage. This guide aims to:

- enhance understanding of feral pig biology and ecology, where and how they live
- outline the options for control, advantages and disadvantages

It follows a broad structure to help you learn about the pest animal, then plan, manage and improve your control programs.

Care has been taken to incorporate differences in practice that arise by region.

For further information about feral pigs and other pest animals in Australia, visit the PestSmart website: [www.pestsmart.org.au](http://www.pestsmart.org.au)



**Taxonomic names:**

*Sus scrofa*

**Common names:**

feral pig, feral hog, feral swine, wild pig, wild boar

Image by Chris Lane



## LEARN

### Impacts

#### Economic

Feral pigs cost Australian agriculture over \$14 million each year through predation of lambs, competition with livestock and damage to property, water sources and crops (McLeod 2016). Industries directly affected include wool, meat (cattle and sheep), grains, sugar and fruit.

#### Health

Feral pigs are also known carriers of at least 45 different parasites and diseases. These parasites and diseases threaten livestock, pets, native wildlife, and in some cases, humans. They can also spread plant pathogens such as *Phytophthora cinnamomi*, which causes plant dieback.

An outbreak of Foot-and-Mouth Disease (FMD), which can be carried and spread by feral pigs, could reduce Australia's export revenue by more than \$9 billion. Managing feral pigs costs approximately \$5 million a year.

#### Environmental

Feral pigs cause extensive damage to natural habitats when rooting for food. They also wallow and foul up water sources, trample and consume native vegetation and spread weeds. Ground-burrowing native fauna, such as frogs and turtles, are easy prey for digging pigs. About 40 threatened species are at risk of feral pig predation, habitat degradation, competition and disease transmission (EPBC Act 1999). These include birds, insects, lizards, marsupials and crayfish. Feral pigs are a threat to a range of endangered plants (such as orchids) and protected ecological communities including box gum woodlands, vine thickets and peat swamps.

## Social

Feral pigs can have some positive and negative social impacts.

Positive: they can be a food and/or recreational resource for hunters and Aboriginal and Torres Strait Islander communities.

Negative: they can cause damage to culturally significant Aboriginal and Torres Strait Islander sites. They can also cause damage to property and landscapes generally and the amenity of national parks and reserves. Feral pigs can also impact on animal welfare as they attack and eat livestock and native animals.

## Reproduction

The reproductive potential of feral pigs is more similar to that of rabbits than other large mammals in Australia. Their fecundity often increases with age and body weight. Breeding is influenced by the availability of good quality food — under favourable conditions pigs can reproduce all year round. Sows can breed from about six months of age and may produce two litters of an average six piglets in a little over one year. This means they can recover quickly from the effects of control or other setbacks (eg drought) in good conditions.



Feral pigs. Image: Leigh Deutscher



## Key facts

### Appearance

Feral pigs have been estimated to originate from escaped and released domestic pigs (*Sus scrofa*). After several generations breeding in the wild, they look more like Eurasian wild boar than their domestic relatives; taller, leaner and more muscular with sparse coarse hair. Feral pigs have well developed necks and shoulders that taper to smaller and shorter hind quarters. Their ears are smaller, tail straighter and snout and tusks larger and longer than the domestic pig.

After several generations breeding in the wild, they look more like Eurasian wild boar than their domestic relatives; taller, leaner and more muscular with sparse coarse hair.



Feral pig. Image: Steve Maxwell

As a result of diverse source populations and interbreeding, feral pigs vary in colour and size. They are predominantly black, buff-coloured or black and white spotted. Piglets may be striped, which is typical of the European wild boar. Generally, females are smaller and weigh less (50–60 kg) than males (80–100 kg). Feral pigs are highly social and intelligent animals and normally form groups, known as 'mobs' (or 'sounders' in the United States of America).

These groups are usually less than 12 individuals although they can be as large as 400 in favourable conditions. Feral pigs are generally shy and nocturnal – active from late afternoon to early morning.



Domestic pig. Image: Robyn Anderson

## Distribution

Feral pigs are found in all states and territories of Australia. There are estimated to be 13.5 million feral pigs (95% confidence interval between 3.5 and 23.5 million) spread across about 45% of Australia. Pigs are most common in the northern and eastern states on the mainland. They are most abundant in Northern Queensland. However, distribution and abundance fluctuates widely as a result of food, water and environmental conditions. Feral pig populations continue to expand both naturally and by illegal translocations, particularly in Western Australia, South Australia and Victoria.

## Habitat and range

Feral pigs are habitat generalists. They are highly adaptable and can tolerate a wide range of different climates. They can live almost anywhere if there is regular food, water and shelter. They are most abundant around wetlands and river systems and are not usually found in desert or dry inland areas. Feral pigs tend to stay within defined home ranges, in response to season or regular disturbance. Family groups of sows with piglets and juveniles tend to have more limited home ranges (2–20 km<sup>2</sup>). Boars are typically solitary and can range between 8–50 km<sup>2</sup>. Some boars have been genetically tracked, through siring young, over several hundred kilometres.

## Diet

Feral pigs eat a large volume and a wide variety of foods. They target abundant food sources and eat green vegetation, animal matter, fruits and grains. Using their snout, feral pigs root up the ground for fungi, tubers, grubs and worms. They also consume the eggs of various animal species and prey upon lambs, turtles and frogs.

## Reproduction

Feral pigs can reproduce quickly, particularly in good conditions. Their fecundity often increases with age and body weight. With favourable conditions pigs can reproduce all year round. Sows can breed from about six months of age and may produce two litters of an average six piglets in a little over one year. They can recover quickly from the effects of control or drought.

## Weaknesses

Feral pigs cannot tolerate heat because they lack sweat glands. Therefore, they need access to reliable water and shade to cool down in hot conditions. They also need high quality foods to raise their young. Feral pigs are most vulnerable to predation until they reach about 20 kg, thereafter, few predators pose a serious threat. The size, strength and gregarious (social) feeding behaviour of feral pigs is also unique in the Australian landscape, and can be exploited in baiting operations.



## Policy and Legislation

Wild pig management is regulated and administered at the state and territory government level and is constrained by certain Commonwealth, state and territory legislation and policy. There are also various guidelines, codes of practice, and standard operating procedures. These may be implemented or driven at the local level.

Violation of laws can attract serious penalties (for example fines and jail time) for individuals and agencies. You need to check the latest national and state/territory laws, regulations and policies.

Laws relate to:

- legal status of wild pigs
- threatened species and conservation (most notably the Environment Protection and Biodiversity Conservation (EPBC) Act 1999)
- land tenure, for example the treatment of pigs may be different in national parks versus agricultural areas
- obligations of land owners
- animal welfare (for both pigs and native, livestock and pet animals)

- control techniques, for example specific legislation dealing with the use of poisons, firearms, and traps

Refer to your state/territory agency and the PestSmart website for the latest information about legislation, policies and other strategies.

### National level

In 2002 feral pigs were listed as a 'Key Threatening Process' to endangered species and ecological communities under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

A national framework was developed to guide coordinated action to contain the spread of this threatening process - the [Threat Abatement Plan for the predation, habitat degradation, competition and disease transmission by feral pigs](#) (2017).

The overarching goals of this threat abatement plan are to prevent further species and ecological communities from becoming threatened or extinct due to predation, habitat degradation, competition and disease transmission by feral pigs, and to improve protection for EPBC-listed species and ecological communities currently threatened by feral pigs.

A reduction in the total number of EPBC-listed species and ecological communities threatened by feral pigs is also desirable but may be unlikely due to the extremely high and ongoing level of pig control this would require.

These goals can be achieved by improving our scientific understanding of the threatening process that feral pigs represent and its effects on native species and ecological communities, and improving management and control of feral pigs. To achieve these goals, the threat abatement plan has six objectives that were developed in consultation with experts in relevant jurisdictions. These objectives are to:

1. Prioritise key species, ecological communities, ecosystems and locations across Australia for strategic feral pig management
2. Encourage the integration of feral pig management into land management activities at regional, state and territory, and national levels
3. Encourage further scientific research into feral pig impacts on nationally threatened species and ecological communities, and feral pig ecology and control
4. Record and monitor feral pig control programs, so their effectiveness can be evaluated

5. Build capacity for feral pig management and raise feral pig awareness amongst landholders and land managers, and

6. Improve public awareness about feral pigs and the environmental damage and problems they cause, and the need for the feral pig control.

Each objective is accompanied by a set of actions which, if implemented, will help to achieve the goals of the threat abatement plan. Performance indicators (outcomes and outputs) have been established for each objective. Reports on progress against the objectives may be sought by the Australian Government Department of the Environment and Energy in years 4–5 for the purpose of assessing the effectiveness of the threat abatement plan.

### **State and territory level**

While land managers and government agencies are working to integrate consistent pig management across jurisdictions, each state and territory government may have its own legislation and policies. Check what applies to you in your location. In some locations, wild pigs are a declared pest and penalties may apply for not managing them appropriately.

Check the laws and guidance for your state or territory, including those that address the humane treatment of all animals.

We recommend following the six step pest animal adaptive management framework

## PLAN

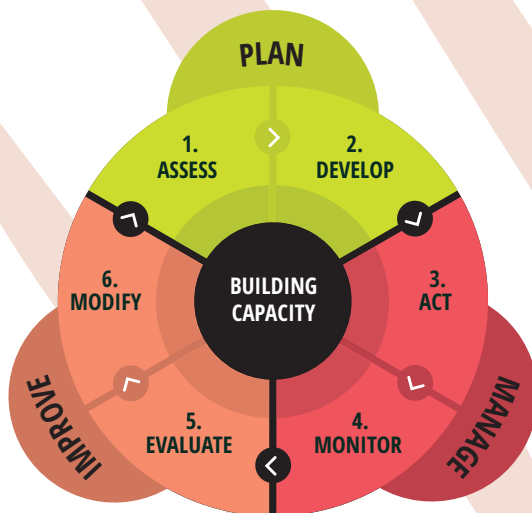
1. Assess and understand the problem
2. Develop a plan and set clear objectives

## MANAGE

3. Choose control techniques and strategies and implement
4. Monitor the outcomes of your plan

## IMPROVE

5. Evaluate the plan – did you meet your objectives?
6. Modify as required and repeat as necessary



Use [FeralPigScan](#) to record and map feral pigs sightings, damage and control activities. Only public data recorded is available to the community, to help decide where to undertake control, and coordinate with neighbours.

**FERALSCAN**  
**.ORG.AU**

## PLAN

Feral pigs are difficult to manage as they can quickly breed, move and change behaviour in response to control and other environmental factors.

To be effective, pig management and control must reduce the population at least 50% to 70% every year. Do not rely on just one control method; is unlikely to have a big enough nor lasting effect.

Structure management processes consistently and in an integrated way to achieve long term and cost-effective outcomes. This means combining control techniques that are suitable to you and your local situation.

The following steps are essential for developing a successful pig management program

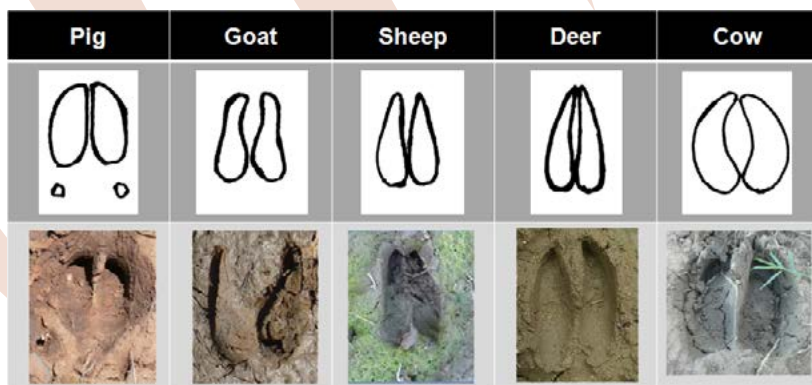
### Define the problem

### Detect feral pig presence

There are a number of signs that indicate if pigs have moved into an area. These include: tracks, rooting, wallows, nests or beds, travel pads, dung, holes in fences, crop damage, tusking and tree and post rubs. The series of photographs on pages 16-17 illustrate many of these field signs.

### Telling tracks apart

Be careful to not mistake pig tracks for other tracks, such as sheep, goat, deer and cows. Pig tracks are more rounded at the tips of the hooves and have a more widely spread dew claws (see diagram below).



Tracks of pigs and other domestic animals. Pigs have four toes but only the middle two have well-developed hooves – only these two toes are evident. The dew claws can be seen in very soft ground. A pig track is square in shape with similar length and width. Goat and sheep have similar tracks to pigs but pig tracks are more square and robust. Goat, sheep and deer tracks are often heart-shaped when not splayed (with the front imprint tapers to a sharp point and the back being rounded). Cow tracks show only the edge of the cattle hooves in hard substrate (Moseby et al 2009) (images: Kana Koichi, Jason Wishart and Pip Masters).

## Understand the problem

Measure the harmful impact (for example percentage loss of a crop or lambs) and ensure that the level of management is appropriate to the impact. The presence of pigs does not always mean there is a significant problem. Control costs can sometimes be greater than the costs of repairs. Make sure you consider 'hidden' costs associated with feral pigs such as disease risk and threats to ecology and native wildlife.

## Set objectives

Feral pig control should be proactive and aimed at reducing damage rather than eradicating pigs altogether. Eradication is often a best-case scenario, but is unlikely except at a local level or on offshore islands. Set realistic, measurable outcomes within achievable timeframes. DO NOT use pig numbers as a benchmark for the outcome of control because pig numbers and the extent of damage do not always correlate. An appropriate objective may be to "Increase lamb-making rates by 20% in one year after control".

## Develop a strategic, detailed plan

As a general rule, you will need to consider the following aspects to develop your management plan:

- How you will work with ecology and behaviour
- How you will work with other people, for example your neighbours and local government
- What your objectives are and how you will judge success
- Which laws and policies apply to your situation
- Resources, including time and money.

This overarching plan will help you choose which control tools are most appropriate to your objectives and your situation and help you monitor and evaluate.

Carefully plan and coordinate control to achieve objectives rather than focus on killing as many pigs as possible. When local eradication is not practical, strategic management is the best option. This may be one-off control (for example erecting fences), sustained control (for example an initial knockdown followed by periodic maintenance control to slow/prevent recovery), or targeted control (for example conducting control only at critical times when damage is most severe).

## Work with nature

Understand the biology and behavioural traits of feral pigs. Three important things to consider are water, food and shelter. As a general rule, implement controls (for example setting bait stations or traps) when it is hot and dry. It is easier to target pigs in these conditions as they may congregate around permanent water points and more readily eat baits when food is scarce. You can undertake control programs year-round, but they may require more time and effort in colder, wetter conditions.

## Work with people

Feral pig control is most successful when people work together over a region. Because pigs are highly mobile, do not respect land tenure boundaries and can reproduce quickly, it is crucial to have widescale landholder buy-in. Landholders in one area are likely to be affected by action or inaction of others in surrounding areas. Individual ad hoc control is unlikely to have a lasting effect. Group schemes and cooperative efforts are also more likely to provide economies of scale and social benefits that will encourage sustained long-term control efforts.

Prioritise and break large areas up into suitable management units. Maps can be useful for setting locations for control and visually identifying potential holes in the target area where pigs may not be exposed to your control effort.

## Monitor before, during and after

Monitoring before control is important to gather baseline data on feral pig abundance and damage, to which you can compare all future data to measure program effectiveness.

## Monitoring during/after control includes:

### Operational monitoring:

recording what was done, when and at what cost.



Image: Jessica Marsh





Ground rooting caused by pigs. Image: Sue Braid



Riverbank wallows. Image: Mick Fletcher

Look for these field signs that indicate feral pigs have moved into an area.



Lamb predation by feral pigs  
Image: Bureau of Rural Sciences



Hole in fence. Image: Jason Wishart



Pig dung - appearance can vary depending on food. Image: Jason Wishart



Travel pad path. Image: Jason Wishart



Mud rub marks on a tree. Image: NSW DPI



Crop damage caused by feral pigs  
Image: Jason Wishart

### Performance monitoring:

assessing effectiveness of control based on pig population abundance and damage extent.

In monitoring performance, **DO NOT** rely on sightings of feral pigs as a guide to their presence. Instead, observe the signs of pigs (page 11). Common pig signs include:

- Recent or fresh rooting: but keep in mind that the area of rooting does not necessarily indicate
- Population size because a small number of pigs can root up large areas.
- Pig tracks and dung: count in particular areas then clear for later monitoring.
- Mud or hair (left hanging on fences).
- Wallowing, tusk marking, or mud rubs (on trees and fence posts).

You can also observe the number of pigs removed per unit of effort, bait uptake levels or observe reduction in damage.

## MANAGE

### Choose suitable control tools

Various lethal and non-lethal tools are available to control feral pigs in Australia. Not all tools are useful or practical so assess your local situation including environment, season, laws and regulations. It is important to consider humaneness of the methods as well as cost-effectiveness.

Each control method has its pros and cons (see Table 1). A combination of techniques usually provides the best results, starting with the least intrusive so as not to alarm the population you are trying to control. Poison baiting is often used as an initial control tool with other methods as a follow-up. There are currently no biological or fertility control agents suitable for feral pig control.



Feral pigs at a HogHopper Image: Jason Wishart

### Poison baiting

Ground-based poison baiting is one of the most economical and effective ways to control feral pigs on a broad scale. 1080 (sodium fluoroacetate)

is the main toxin currently used in Australia and is the only poison available for aerial application. Only authorised persons can supply 1080.

Other toxins, such as CSSP or SAP (yellow phosphorus) and warfarin, are being phased out nationally due to animal welfare and non-target concerns. Sodium nitrite, a common human food preservative (250), is also available as an additional toxin for feral pig management.

Selecting substances that feral pigs are already familiar with as a bait substrate may improve bait uptake. Grain (eg wheat, oats, barley, sorghum, soybeans and lupins) and pellet baits are often used in NSW and QLD. Fruit (eg bananas) is also used in fruit growing regions. Manufactured baits for feral pigs are also available and provide high target specificity. All poisonous baits must be coloured (usually in green or blue) to distinguish them from human and animal food and make them less attractive to birds.

## Trapping

Trapping is useful where poison baiting or shooting is not feasible, such as near urban areas. Trapping is not practical for large scale control but can be used to manage pigs at relatively low densities for small areas of high production (<5000ha), where the operator has time to check traps regularly.

Trapping is a process, not an event. Successful pig trapping hinges upon several key components, including: timing, location, bait materials, pre feeding, setting a trap at the right time.



Feral pigs in a silo trap. Image: Jim Mitchell

## Shooting / hunting

Aerial shooting, conducted in good flying conditions with an experienced pilot and spotter, is cost-effective when pig densities are high. Aerial shooting may also be useful to rapidly reduce pig numbers during exotic disease emergencies. Ground shooting can be an effective mop up operation after poison baiting.

Ground or aerial shooting should not occur prior to, or during trapping and poison baiting programs because it is 'intrusive' and can disrupt pig activity, causing pigs

to move to other areas. Ground shooting is not suitable for population-scale management across large areas. Overseas studies have shown that sport hunting, for instance, only removes about 20% of feral pig populations on an annual basis.

Refer to relevant State and Territory legislations regarding use of firearms and regulations on permission to hunt.



Aerial shooting of feral pigs. Image: Mal Leeson



## Exclusion Fencing

Although expensive, exclusion fencing is useful to protect high value crops or animal enterprises

- the initial outlay will generally be offset over time.

For successful fencing, fences need to be constructed BEFORE pigs get used to crossing an area. Once pigs are aware of a food or water source inside the area and become habituated to the source, fencing

will have little effect. You can modify existing fences to pig-proof standard through electrification. If electrified, you need to regularly control vegetation growing underneath fences to prevent shorting.

## Judas pigs

Ground and aerial shooting can benefit from the use of 'Judas' pigs, which are radio-collared individuals released to associate and reveal the location of pigs in the area that are otherwise difficult to find. It is an expensive operation, requiring telemetry equipment and skilled operators. Judas pigs are used mostly for removing remaining pigs in the last stages of eradication campaigns and are not effective at high pig densities. Sows are preferred as Judas pigs as they are more socially connected to other pigs than old adult boars.

## Choosing the right control tools

Each control method has its pros and cons (see Table 1). Select control techniques that are suited to your local environment and situation. It is important to consider humaneness of the methods as well as cost-effectiveness.

A combination of these tools is essential for effective feral pig control, as no single technique will provide adequate long-term results.



Fences no barrier for feral pigs. Image: Wendy Betts

**Table 1: Pros and Cons of currently available feral pig control tools**

Control technique	When to use	Pros	Cons
<b>Poison baiting (1080)</b>	<ul style="list-style-type: none"> <li>• before breeding events or good breeding conditions - eg, late summer but may be different times in different areas</li> <li>• when there is little other feed available</li> </ul>	<ul style="list-style-type: none"> <li>• can reduce large numbers of pigs over large areas quickly</li> <li>• cost-effective control method</li> <li>• can be applied on-ground or from the air</li> </ul>	<ul style="list-style-type: none"> <li>• pets &amp; other non-target animals can be at risk</li> <li>• restrictions on its use</li> <li>• approval process and qualifications needed varies across states/territories</li> <li>• rain causes loss of toxicity</li> <li>• needs to be followed up with other methods</li> </ul>
<b>Trapping</b>	<ul style="list-style-type: none"> <li>• when poison baiting is not feasible</li> <li>• when food is limited and localised</li> </ul>	<ul style="list-style-type: none"> <li>• can be made target specific</li> <li>• relatively humane and safe</li> <li>• allows commercial use</li> <li>• moveable and reuseable</li> </ul>	<ul style="list-style-type: none"> <li>• labour and skill intensive</li> <li>• not practical for large-scale control</li> <li>• requires access for trap and bait materials</li> <li>• some pigs are trap-shy</li> </ul>
<b>Shooting (aerial or ground)</b>	<ul style="list-style-type: none"> <li>• open terrain, inaccessible or remote areas (aerial)</li> <li>• early morning or late afternoon when pigs are active</li> <li>• spotlighting feeding sites</li> </ul>	<ul style="list-style-type: none"> <li>• target specific</li> <li>• allows commercial use</li> <li>• can be cost-effective when pig density is high (aerial)</li> <li>• quick knockdown of pig population (aerial)</li> </ul>	<ul style="list-style-type: none"> <li>• costly for reducing large numbers (ground)</li> <li>• expensive when pig densities are low (aerial)</li> <li>• not suitable for thick vegetation</li> <li>• may alter activity patterns</li> <li>• labour and skill intensive</li> </ul>
<b>Exclusion fencing</b>	<ul style="list-style-type: none"> <li>• construct fences before pigs get used to crossing an area</li> </ul>	<ul style="list-style-type: none"> <li>• low non-target impacts</li> <li>• humane</li> <li>• effective for small high-value crop areas</li> </ul>	<ul style="list-style-type: none"> <li>• requires constant maintenance</li> <li>• not practical at a large scale</li> <li>• may impede movement of non-target species</li> <li>• no reduction to feral pig populations</li> </ul>
<b>Judas pigs</b>	<ul style="list-style-type: none"> <li>• in the last stages of eradication campaign when pig density is low</li> </ul>	<ul style="list-style-type: none"> <li>• helps remove remaining pigs at low densities following other control (eg baiting, trapping or shooting)</li> </ul>	<ul style="list-style-type: none"> <li>• expensive operation</li> <li>• variable effectiveness</li> </ul>
<b>Poison baiting (sodium nitrite)</b>	<ul style="list-style-type: none"> <li>• before breeding events or good breeding conditions - eg, late summer but may be different times in different areas</li> <li>• when there is little other feed available</li> </ul>	<ul style="list-style-type: none"> <li>• can reduce large numbers of pigs over large areas quickly</li> <li>• Fast acting: Feral pigs succumb within 1-3 hours of bait ingestion.</li> <li>• Carcasses typically found within 200m of the bait deployment point and show limited signs of distress.</li> <li>• No environmental residues</li> </ul>	<ul style="list-style-type: none"> <li>• restrictions on its use</li> <li>• Can only be used in conjunction with the HogHopper bait delivery system ( additional costs)</li> <li>• approval process and qualifications needed varies across states/ territories</li> </ul>





Image by Jason Wishart.

## Additional hints on poison baiting

Ground-based poison baiting is one of the most economical and effective ways to control feral pigs on a broad scale. 1080 (sodium fluoroacetate) is the main toxicant currently used in Australia. It is the only poison available for aerial application and must be supplied by authorised individuals.

Sodium Nitrite, is the newest product available (registered in December 2019) and is more readily-available to landholders as it is a S6 poison. This means landholders can access it without training or certification as long as it is used within a Hog Hopper or Bait Box to exclude non-target animals. It is also more humane than 1080. At very high doses, orally absorbed Sodium Nitrite converts normal haemoglobin to methaemoglobin, which is unable to transport oxygen in blood. Most animals can tolerate modest amounts of Sodium nitrite but pigs have a unique susceptibility to this compound as they lack a protective enzyme that is present in other species.

Other toxicant, such as CSSP or SAP (yellow phosphorus) and warfarin, are being phased out nationally due to animal welfare and non-target concerns.

Refer to the Feral pig – humaneness matrix to see more information.

The different toxicants are deployed in different forms of baits. In some cases, 1080 is placed in grain or fruit. Manufactured 1080 or Sodium Nitrite baits are designed to be more targeted towards pigs. For example, 1080 PIGOUT® Feral Pig Bait is made with a sturdy, fish-flavoured cereal matrix, specially flavoured and dyed to maximise uptake by pigs and minimise uptake by birds and other non-target species. The bait is strengthened by an edible bio-degradable cellulose skin also designed to reduce non-target uptake, ensure ease of handling and increase the resilience of the bait when deployed from the air. All poisonous baits must be coloured (usually in green or blue) to distinguish them from human and animal food and make them less attractive to birds.

Baiting programs should also consider:

- Diet: local and seasonal diet preference of feral pigs.
- Timing: generally, baiting should take place when pigs are suffering from peak nutritional stress caused by natural lows in food resources.

- **Avoiding breeding season:** It is better to bait prior to pig breeding because farrowing sows restrict their normal home range by as much as 94% and their litters do not often get exposed to baits.
- **Locating bait stations in popular pig areas:** Place stations where feral pigs are likely to find them during their daily activity. Look for travel pads, areas of thick cover, creeks and swamp edges, or waterholes when picking a bait location.
- **Pre-feeding:** prior to toxic baiting so that feral pigs become familiar with the bait type and location. In some jurisdictions (for example NSW, the Wet Tropics of Queensland), pre-feeding is compulsory.
- **How to limit non-target exposure to baits:** For example, a bait delivery device such as the HogHopper™ can help increase the selectivity, efficiency and safety of pig baiting.
- **Relevant state and territory legislation and regulations.**

## FAST FACT: Shooting / hunting

While it can remove problematic animals, overseas studies have shown that sport hunting, for instance, only removes about 20% of feral pig populations on an annual basis.

### Do's and don'ts (and why)

**Do pay attention** to seasonal conditions and alternate food availability.

**Do pre-feed for as long as practically possible** when undertaking a trapping or poison baiting campaign. In some situations, visiting pig numbers can more than double with a couple of extra days pre-feeding.

**Do consider the components needed for success.** For example, with trapping you will need to get all components right including: timing, location, bait materials, pre feeding, setting a trap at the right time.

**Do try to coordinate control efforts** with your neighbouring farmers, Parks Rangers or natural resource management authorities. This will give better knockdown of feral pig populations across a much wider area and slow re-invasion.

**Do consider Judas pigs if shooting.**

Judas pigs are radio-collared individuals released to associate and reveal the location of pigs in the area that are otherwise difficult to find. It is an expensive operation, requiring telemetry equipment and skilled operators. Judas pigs are used mostly for removing remaining pigs in the last stages of eradication campaigns and are not effective at high pig densities. Sows are preferred as Judas pigs as they are more socially connected to other pigs than old adult boars.

**Do look for areas where pigs are regularly and currently active**, to set up traps and baits stations. That means visiting each site and look for fresh feral pig signs.

**Don't transport live feral**

**pigs** without a permit. You may inadvertently spread the pig problem and their diseases, and you could be fined or imprisoned.

**Don't use animal carcasses as bait.**

This practice, also referred to as 'swill feeding', is illegal in Australia due to the heightened risk of disease transfer. Mad Cow Disease would be spread by swill feeding.

**Don't use old or illegal poison.** Just because 'the old man used this stuff back in his day' doesn't mean that it's fine to use now. If in doubt, check with your local authorities regarding the use of toxins in your State or Territory.



Feral pig damage. Image: Mick Fletcher



## IMPROVE

When evaluating your plan at the end of the year/season, consider the following questions:

- how well did the plan work
- what features worked and why
- what features didn't work and why not
- did I save money or spend more than I planned
- could I spend money better next time
- what could I change to make the plan work better next time?

You can now modify your management plan if required. Repeat the process until you are satisfied your planning process is the best it can be. You will likely need to adapt the plan each year as the situation changes on your property and in surrounding areas.

To get help evaluating your plan contact your local biosecurity officer or land management authority.

For further information on feral pig control resources, information and references visit [Pestsmart.org.au/toolkits/feral-pigs](https://pestsmart.org.au/toolkits/feral-pigs)

Monitor your activities and evaluate your plan. If you didn't achieve your objectives find out why



Feral pigs. Image: Brian Boyle

## Further information

A range of useful resources are available on the PestSmart website including Standard Operating Procedures, videos and factsheets.

Australian Government (2017). Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (2017)', Commonwealth of Australia, 2017.

Braysher M (1993). Managing Vertebrate Pests – Principles and Strategies. Bureau of Resource Sciences, Canberra.

Choquenot D, McIlroy J and Korn T (1996). Managing Vertebrate Pests – Feral Pigs. Bureau of Resource Sciences, Canberra.

Hamrick B, Smith M, Jaworowski C and Strickland B (2011). A landholder's guide for a wild pig management: practical methods for wild pig control. Mississippi: Mississippi State University. reduce Australia's export revenue by more than \$9 billion. Managing feral pigs costs approximately \$5 million a year. [https://extension.msstate.edu/sites/default/files/publications/publications/p2659\\_0.pdf](https://extension.msstate.edu/sites/default/files/publications/publications/p2659_0.pdf)

McLeod, R. (2016). Cost of Pest Animals in NSW and Australia, 2013-14. eSYS Development Pty Ltd, 2016. Report prepared for the NSW Natural Resources Commission.

Mitchell B and Balogh S (2007). Monitoring techniques for vertebrate pests - feral pigs. Orange, NSW: Department of Primary Industries.

Mitchell J and Dorney W (2002). Monitoring Systems for Feral Pigs: Monitoring the Economic Damage to Agricultural Industries and the Population Dynamics of Feral Pigs in the Wet Tropics of Queensland. Brisbane: Queensland Department of Natural Resources and Mines.

Mitchell J (2011). Feral Pig Control. Townsville: NQ Dry Tropics. Queensland Department of Primary Industries and Fisheries (2008). Feral pig control: A practical guide to pig control in Queensland. [https://www.daf.qld.gov.au/\\_data/assets/pdf\\_file/0008/63926/IPA-Feral-Pig-Control-Manual.pdf](https://www.daf.qld.gov.au/_data/assets/pdf_file/0008/63926/IPA-Feral-Pig-Control-Manual.pdf)

Productivity Commission (2002). Impact of a Foot and Mouth Disease Outbreak on Australia. Research Report, AusInfo, Canberra. <https://www.pc.gov.au/inquiries/completed/foot-and-mouth/report>

Sharp T and Saunders G (2011). A model for assessing the relative humaneness of pest control methods (2nd ed). Australian Government Department of Agriculture, Fisheries and Forestry, Canberra ACT.

West P (2008). Assessing Invasive Animals in Australia 2008. National Land & Water Resources Audit and Invasive Animals Cooperative Research Centre, Canberra.

Williams BL, Holtfreter RW, Ditchkoff SS and Grand JB (2011). Trap style influences wild pig behavior and trapping success. Journal of Wildlife Management 75(2): 432-436. <https://pubs.er.usgs.gov/publication/70036873>

Wishart J (2015). Feral Pigs: a field guide topoison baiting. PestSmart Toolkit publication. Invasive Animals CRC.



7. Notes

Handwriting practice lines consisting of 20 horizontal grey lines. Three large, light orange diagonal brush strokes are overlaid on the lines, running from the top right towards the bottom left.

7. Notes

Lined area for notes, partially obscured by diagonal orange stripes.

7. Notes

Lined area for notes, featuring horizontal ruling lines and three large, diagonal, light brown decorative strokes.

7. Notes

Lined area for notes, featuring horizontal ruling lines and three large, diagonal, light brown decorative strokes.



