



Feral pigs and 1080 baiting – what you need to know

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Feral pigs (*Sus scrofa*) occur over about 40 per cent of Australia, where they can inflict losses to agricultural production in excess of \$100 million per year. Feral pigs also have detrimental impacts on biodiversity, and can act as reservoirs/transmission agents for a number of endemic and exotic animal diseases.

In Western Australia, feral pigs are mainly found in the mid-west and south-west of the State, and in parts of the Kimberley. Feral pigs also occur in parts of the De Grey river system, and on some off-shore islands in the Kimberley.

Although shooting and trapping can be used as control techniques, baiting using 1080 (sodium fluoroacetate) is the most effective option for controlling feral pigs.

Shooting is the least preferred technique as it usually only removes a small proportion of pigs, and/or it can disperse the pigs, making their control more difficult. Trapping is relatively labour-intensive and may not always remove the older and 'wiser' pigs.

Status

In Western Australia, feral pigs are declared pests under the *Agriculture and Related Resources Protection Act 1976*, and as such landholders are required to control feral pigs on their properties. Any control option used must be in accordance with the *Animal Welfare Act 2002*. It is illegal to 'swill feed' feral pigs for control or other purposes. It is also an offence to hold feral pigs in captivity without a permit.



Figure 1: Feral pigs feeding at a bait station. (T. Lowe)

Important Disclaimer

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Important biology

Contrary to popular belief, feral pigs are not always confined to waterways or drainage areas, but rather can be found in most areas where they can find appropriate food, water, and shelter (for example breakaways, remnant vegetation, swamps, riparian habitats). They will also travel considerable distances (>20 km) in a single night to reach preferred feeding and/or watering areas. Consequently, it is important that you and your neighbours have a reasonable understanding of the behaviour of feral pigs in your area so you can maximise the chances of a successful baiting program. Baiting programs will also be more effective when they are coordinated with your neighbours.

Feral pigs will often travel along defined tracks, creating pads similar to those of sheep and cattle. Evidence of feral pigs is usually most pronounced at the end of autumn and early winter when food supply is more limited, and pigs need to travel further to find food. This is the best time to bait, provided that six to eight days of fine weather are expected (1080 is highly water-soluble and thus readily leaches from baits as a result of rain).

Bait station design

Bait stations comprise two raked-earth plots each 1 m² in size and spaced 5 m apart. If necessary, cattle can be excluded with a temporary fence of barbed wire with the lowest wire about 65 cm above the ground (Figures 2 and 3). Where possible, ensure that there is at least 100 m between each bait station.

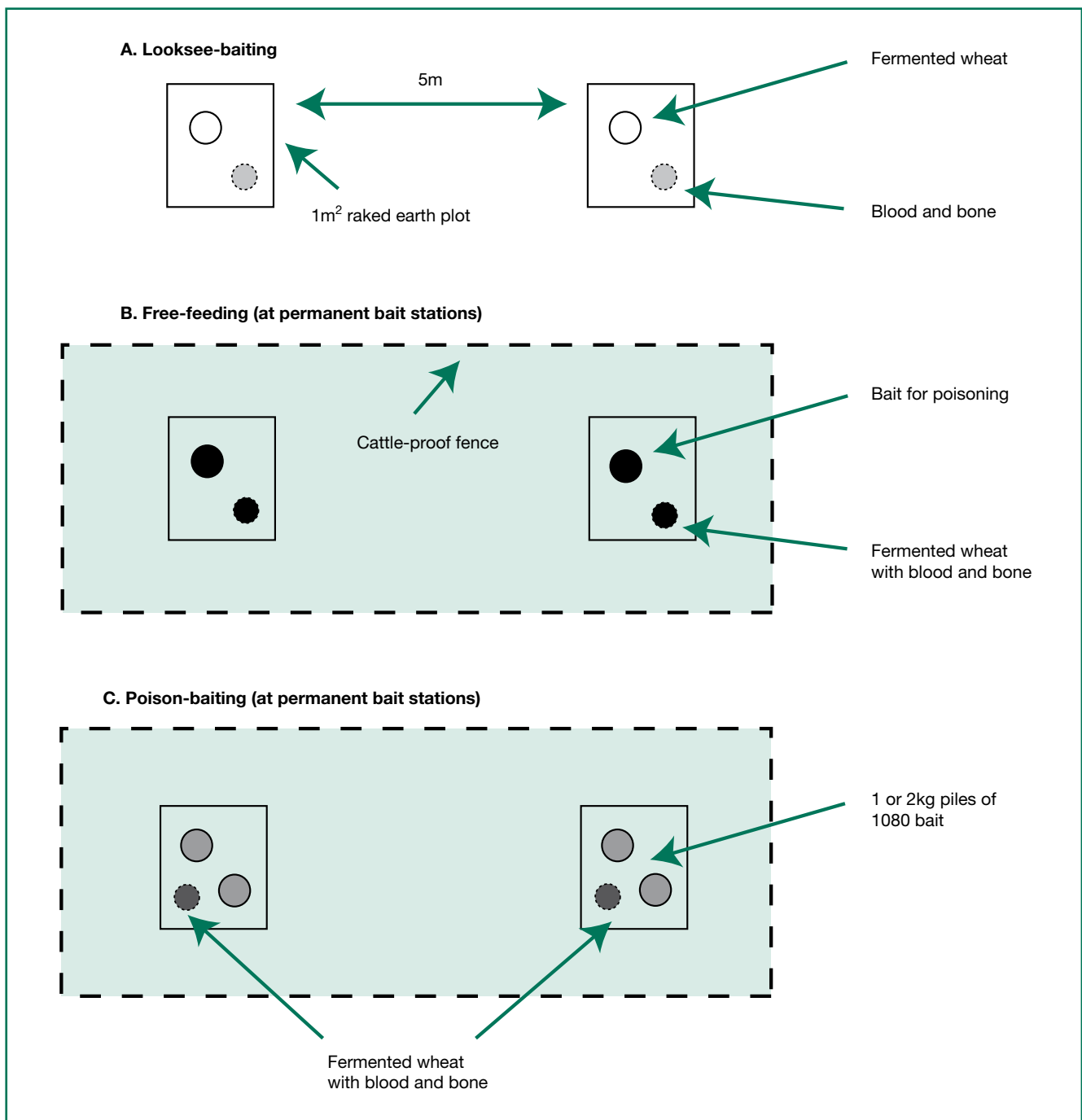


Figure 2: Layout of the raked-earth plots and the bait stations.

Suitable bait materials

Research trials in Western Australia indicate that the best bait materials for feral pig control are malted barley, wheat and plain barley. Feral pigs display a very mixed response to lupin bait so lupins may not always result in good control. Commercial pig pellets are ineffective in controlling feral pigs.

Fermented wheat is a good attractant for feral pigs and is prepared by soaking wheat in equal parts of water for at least 24 hours. A small handful of blood and bone (do not use the deodorised product) is placed on top of, or next to, the piles of fermented wheat as an added attractant.

Baiting method

1080 Concentrate Black is the only product registered for baiting feral pigs in Western Australia, and it must be used in accordance with the label.

The baiting method is a four stage process.

Stage 1: Looksee-baiting

Looksee-baiting is undertaken in those areas with recent evidence of pig activity (rooting, pads, faeces, feeding areas) to determine where the bait stations should be located. Looksee plots (one or two 1 m² raked-plots) are established by placing a 0.5 kg pile of fermented wheat with about 90 g of blood and bone on each plot (Figure 2). A light trail of fermented wheat (about 5 m in length) can also be laid either side of the plots to maximise the likelihood that the pigs will find the grain. Each day, record the amount of fermented wheat taken, then remove any tracks on the looksee plots using a garden rake. If any fermented wheat is taken, then replenish each plot back to its original amount.

Stage 2: Free-feeding

Formal bait stations (two raked-plots spaced 5 m apart) are only established at those plots where most of the fermented wheat is eaten during the looksee-baiting stage. You need to ensure you have several areas where this occurs so that you can establish at least two to six permanent bait stations at these locations.

Once the formal bait stations are established, free-feeding is undertaken using a pile of the fermented wheat (about 0.5 kg per raked plot with added blood and bone) and a 1 kg pile of the bait type to be ultimately used to poison the pigs (Figure 2). Free-feeding should continue until there is good consumption of grain for at least three to four consecutive nights. Do not continue to free-feed for any longer than necessary, as pig behaviour may change, and the pigs can leave the area.

Stage 3: Poison-baiting

Poison-baiting should be only undertaken after three to four consecutive nights of good take of the free-feed has occurred. Make sure you remove all residual grain/bait before poison-baiting commences.

Two 1 or 2 kg piles of 1080-treated bait are then added to each raked plot. Thus, each station generally has 4

or 8 kg of 1080-bait. A small amount (about 200 g) of the fermented wheat with blood and bone (about 50 g) is again added as an attractant in the corner of each raked plot (Figure 2).

If more than about 30 pigs are suspected to be present (see next section on estimating numbers), do *not* increase the amount of 1080-bait per raked plot, but instead add one to two additional raked earth plots as described above (maintain about a 5 m spacing between plots). This ensures that all feral pigs have an opportunity to feed on the toxic bait, and avoids any excessive feeding by individual pigs.

Poison-baiting must continue for at least four to five consecutive days or until no further poison bait is eaten. The piles of poison bait at each station are made up to their original amounts each day. Keeping a record of bait station visits (for example, tracks of pigs, birds, kangaroos etc.), and the amount of bait eaten, is important as it helps to determine when baiting should cease.

Usually, most pigs are killed in the first one to two nights of poison-baiting, but you need to leave the poison bait in place for at least four to five nights to ensure that all pigs in the area have been killed. Occasionally, there may be several mobs of pigs using an area, and some individuals may not return to the stations for a few days. Thus, there may be periods with no pig visits or feeding, followed by a period with reasonable consumption of poison bait. Poison-baiting should continue until you believe all pigs have been killed.

Stage 4: Follow-up monitoring

If required, follow-up monitoring can be undertaken by removing any residual grain (toxic or non-toxic) and adding 0.5 kg piles of fermented wheat (with about 90 g of the blood and bone) to each plot as a final measure to determine if any pigs remain. If further grain is consumed by pigs, remove the residual bait and re-poison as above. Follow-up monitoring is particularly important if the number of pigs is not well known and/or a number of different mobs are believed to be present.

Estimating pig numbers

It can be difficult to estimate the number of pigs which are present. Visual observations, the amount of rooting and other signs of pig activity can help. The use of raked-earth plots are important in this respect as they can allow the age of the pigs to be determined, and hence some estimate of numbers. For example, the presence of one to two sows with juvenile pigs/piglets suggests there would be eight to 12 pigs in such a mob. However, when making these estimates be aware that a small number of pigs can cause a lot of damage/rooting, so it is easy to over-estimate pig numbers.

When unsure, it is better to add extra bait stations or raked plots. Four kilograms of 1080 bait can kill about 20 to 25 moderately-sized adult pigs, and the recommended baiting method regularly kills large pigs (>70 kg).

Baiting and non-target species

Research trials have shown that there are very few potential risks to non-target species from the recommended baiting method, and that any risks can be easily managed by a common sense approach. Birds and kangaroos will occasionally spread bait, but little bait is actually eaten. Interestingly, a number of foxes have been killed by eating 1080-treated grain meant for feral pigs.

Muscle residues in pigs poisoned with 1080 are too low to pose any risk to those native animals likely to feed on these carcasses. Irrespective of season, poisoned carcasses readily degrade and become inedible within two (small pigs, <20 kg) to eight (large pigs, >50 kg) days. However, because of their higher sensitivity to 1080, introduced animals such as dogs, foxes and cats can be killed by feeding on the carcasses of poisoned pigs.

A number of steps can be taken if there is a concern regarding possible effects on native species. These include digging a shallow depression and lightly burying the poison bait, or covering bait placed on the surface with a few small sticks to restrict access by birds. However, do not undertake either of these steps until the feral pigs are feeding freely at the bait stations. Because of the potential for increased degradation of 1080, do not bury bait in moist soil, and do not leave the buried bait available to pigs for more than 14 days. Burying bait should be a last resort when all else fails.

If there are concerns regarding the germination of grain in conservation areas (for example bush remnants), malted barley can be used as bait as it goes through a steeping process and is not fertile.

Other factors

Although pigs poisoned with 1080 are often found within 200 m of a bait station, some pigs can travel more than 3 km before they succumb. This, together with the dense vegetation and often difficult terrain where many pigs reside, makes finding poisoned pigs difficult. The lack of obvious carcasses does not mean your campaign has failed. The best indicator of success is the amount of bait taken, and the level of decline in pig activity (for example rooting, tracks). This is where follow-up monitoring can be a useful component of your baiting strategy.



Figure 3: A 1080 bait station with a temporary fence to exclude cattle. The lowest wire is about 65 cm above-ground. (L. Twigg)

Who can receive, mix and use the bait?

Only Licensed Pest Control Operators (LPCOs) specifically endorsed by the Department of Health to mix 1080 Concentrate Black and authorised officers of the Department of Agriculture and Food, Western Australia (DAFWA) can receive and mix the poison on your behalf.

On the 1080 baiting application form you can nominate the LPCO who will be receiving 1080 Concentrate Black and mixing the bait. Alternatively, if there is not an endorsed LPCO in/near your area, you may nominate a DAFWA officer to receive and mix the bait. After mixing, the 1080 bait can be laid by the LPCO or by yourself if you have received appropriate training from DAFWA.

Further information

Contact the Department of Agriculture and Food on Freecall 1800 084 881 or email info@agric.wa.gov.au. Additional publications on control of feral pigs can be obtained by visiting the Department's website at: www.agric.wa.gov.au.

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