

Operating Procedure

STANDARD OPERATING PROCEDURE FOR THE HUMANE DESTRUCTION OF LIVESTOCK

Introduction

The information below has been extracted from the draft *Australian Animal Welfare Standards and Guidelines*. For more information about nationally consistent standards and guidelines for livestock being developed under the *Australian Animal Welfare Strategy*, visit <http://www.animalwelfarestandards.net.au/>

The methods recommended in these standards and guidelines provide the same or higher levels of animal welfare as the relevant *Model Code of Practice for the Welfare of Animals*.

Scope

These Standards and Guidelines apply to the major commercial livestock species including cattle, sheep and goats, horses, pigs and poultry.

Objective

Where it is necessary to destroy livestock, it is done promptly, safely and humanely. The primary consideration in humane destruction is to prevent the animal from suffering further pain or distress.

OPERATING PROCEDURES

1. Animals must be humanely killed without unreasonable delay if they are suffering from distress, disease or injury that cannot be reasonably treated in the circumstances, and will ultimately result in their death. Reasonable steps must then be taken to confirm the animal is dead.
2. Approved Animal Welfare Standards and Guidelines must be followed. Humane killing* methods that suit the animal and its stage of development must be used. The technique must result in immediate loss of consciousness followed by death while unconscious.
3. These procedures must be performed by people trained to euthanase animals. The first point of contact should always be a veterinarian. The only exception to this would be trained staff at specialist agricultural schools.
4. Dependent offspring of animals being killed must also be killed or appropriate provision made for their care.
5. All cases of humane killing must be reported promptly to CurriculumSupport@education.wa.edu.au.
6. If euthanasia of animals is considered necessary, all bystanders should be asked to leave the vicinity and every effort should be made to keep the procedure out of view of members of the public to avoid causing distress.
7. Humane destruction should be done with the minimum number of people present, and other distractions should be minimised.
 - The animal should be handled carefully and be appropriately restrained so that it is not unnecessarily distressed or alarmed. Where livestock are able to walk, they should be handled in a race or crush.
 - Livestock should be destroyed using an approved method, according to the species standards.

Observing livestock after humane destruction

Following use of a humane destruction method, livestock should be monitored for at least 3 minutes to ensure that death has occurred. To determine whether humane destruction has caused death, two or more of the following signs should be observed (the first four signs are usually the most useful):

- loss of consciousness and deliberate movement (this sign alone is not sufficient, as the animal may just be stunned; involuntary movements may occur in a dead animal);
- absence of rhythmic respiratory movements (this sign alone is not sufficient, as there may be temporary respiratory failure);
- absence of corneal 'blink' reflex when the eyeball is touched;
- maximum dilation of the pupil, non-responsive to light;
- absence of response to painful stimuli (although the withdrawal reflex is not reliable); and
- absence of intentional vocalisation (animal may gasp but this should not be in a consistent pattern).

Return of rhythmic breathing, corneal reflex, vocalisation or deliberate movement are the main signs that an animal is only stunned and requires the application of an approved method to ensure death.

If it is not certain that an animal is dead, then an approved method should be used immediately to ensure death in a rapid and humane manner. If necessary, bleeding-out or another technique should be used to ensure death in unconscious livestock.

Note: The confirmation of an animal's death following a humane destruction procedure can be a difficult task to judge, and requires training and experience of species differences in responses. It is important that an animal is monitored in the three minutes immediately following the humane destruction procedure.

RECOMMENDED METHODS AND PROCEDURES FOR HUMANE DESTRUCTION

The following guidelines provide information on the recommended methods for humane destruction. Further detail on specific practices and applying methods to particular species is presented in following sections.

Firearms

In general, firearms are the most acceptable method of humane destruction for livestock as it is quick and painless when carried out correctly. It is important to consider the risks associated with using a firearm around livestock and other persons. Also additional ammunition must be available and the legal considerations regarding the use of firearms must be observed. Firearms and/or captive bolt guns must only be used by trained operators.

In most situations, the distance between the end of the firearm barrel and the animal is expected to be between 10 cm and 100 cm. The only approved target organ is the brain. There are three effective aiming points at the head: frontal, poll and temporal. These positions are covered in the species standards. Before firing, the animal's head must be still.

For the frontal method, the firearm or captive bolt should be directed at a point in the middle of the forehead. The line of fire should be aimed into the skull towards the imagined centre of the brain or spinal cord as indicated in the following diagrams.

For the poll method, the animal is shot through the skull just behind the base of the horns. The line of fire should be in line with the animal's muzzle. Generally, the poll method is preferred for horned livestock, such as goats and sheep.

For the temporal method (firearm only), the animal is shot from the side of the head so that the projectile enters the skull at a point midway between the eye and the base

of the ear on the same side of the head. The projectile should be directed horizontally into the skull. This method is an option for adult livestock due to the heavier bone structure of the front of the skull but should be avoided if horn structures interfere with the aim point. A firearms safety consideration is that projectiles may exit the skull. To ensure maximum impact and the least possibility of misdirection, projectiles should be fired at the shortest range possible, but not with the barrel in contact with the animal's head.

Firearms should be cleaned regularly and maintained in optimal working condition.

Suitable projectiles and propellant charges (loads) for the species and class of livestock and situation should be used to always achieve humane destruction with reasonable personal safety if carried out correctly. Firearms energy specifications are as follows:

- the standard 0.22-long rifle cartridge means the use of any 0.22 rim fire cartridge that produces in excess of 100 foot pounds of energy at the muzzle;
- the standard 0.22-magnum cartridge means the use of any 0.22 rim fire magnum cartridge that produces in excess of 300 foot pounds of energy at the muzzle; or
- the centre fire cartridge means the use of any centre fire cartridge that produces in excess of 1000 foot pounds of energy at the muzzle.

Captive bolt devices

Captive bolt pistols are much safer for the operator and those assisting, but are heavy to handle and, being single shot, are slow to operate. In order to achieve a humane kill, ensure the captive bolt pistol is held firmly in contact with the head before being discharged. The captive bolt gun should be used in the forehead position for most livestock. The temporal position is not an option.

Captive bolt stunning should be followed by an effective procedure to cause death, such as bleeding-out.

For penetrating captive bolt stunners, the cartridge power and length of bolt should be appropriate to the species and class of livestock. The penetrating captive bolt stunner is recommended because it is more reliable at delivering an effective stun in livestock. Non-penetrating captive bolt stunners are not recommended.

Captive bolts should be regularly cleaned and maintained in optimal working condition according to the manufacturer's instructions.

Anaesthetic overdose

Only Veterinarians or qualified persons should perform anaesthetic overdose as appropriate.

Note: Anaesthetic overdose depresses the central nervous system causing deep anaesthesia, leading to respiratory and cardiac arrest. Many different drugs are available, but only for use by veterinarians. The method is appropriate for all species that can be handled.

Stunning by blunt trauma to the head

Stunning by blunt trauma to the head is not considered an acceptable method of humane killing to be used in an educational institution and **must not be used under any circumstances** (stunning by blunt trauma to the head is an acceptable method within the *Animal Welfare Standards and Guidelines* for euthanasing piglets up to 15 kilograms live-weight, or other livestock less than 24 hours old.)

Bleeding-out (exsanguination)

This should be considered as a last resort for conscious animals and must only be carried out for sheep and goats when no other method is reasonably available. Bleeding-out of sheep and goats without pre-stunning using the neck cut should be done by a skilled person using a suitable, sharp knife and adequate restraint of the animal. The cut should transect both the carotid arteries and both the jugular veins.

Be aware of the sensitivity of this method and ensure that people who do not need to be involved are not within view. The animal should be monitored to ensure that death has occurred from effective blood loss.

Considerations in the Selection of a Euthanasia Method

The following information should be considered when choosing the appropriate method of euthanasia:

- **Human Safety**
The method should not put anyone at unnecessary risk. Considerations include ricochet of a bullet and/or the unpredictability of a falling or thrashing animal.
- **Animal Welfare**
All methods of euthanasia should produce a quick and painless death. However, certain environments or animal behaviours may prevent the use of a specific method.
- **Restraint**
Each method requires a differing amount of restraint. For example, administration of barbiturate or use of a captive bolt gun requires physical contact with the animal, whereas a firearm does not.
- **Practicality**
The euthanasia method selected must be practical in the situation that currently exists. For example, the necessary equipment and materials must be readily available. Barbiturates are only available to licensed veterinarians.
- **Skill**
All methods require some degree of skill or training in animal handling, restraint and administration. Personnel should be aware of, and appropriately trained in, at least two emergency euthanasia methods.
- **Cost**
Some methods require a larger initial investment (e.g. firearms and penetrating captive bolt gun) but are relatively inexpensive to use thereafter.
- **Aesthetics**
Some methods of euthanasia "appear" less objectionable to the untrained eye. Most methods will result in some exaggerated muscular activity (e.g. leg movements and twitching) even when the animal is not experiencing any pain or distress.

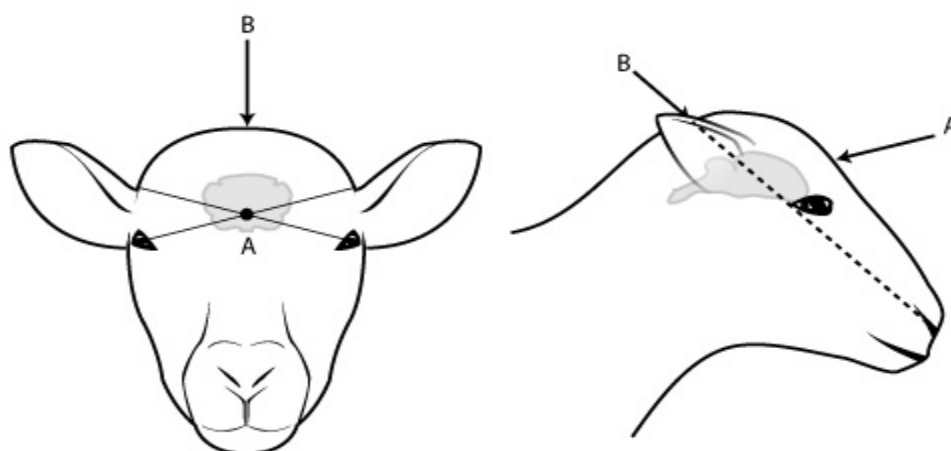
Humane destruction of Sheep and Goats

Recommended methods of humane destruction include: firearm, captive bolt, lethal injection or in exceptional circumstances bleeding-out.

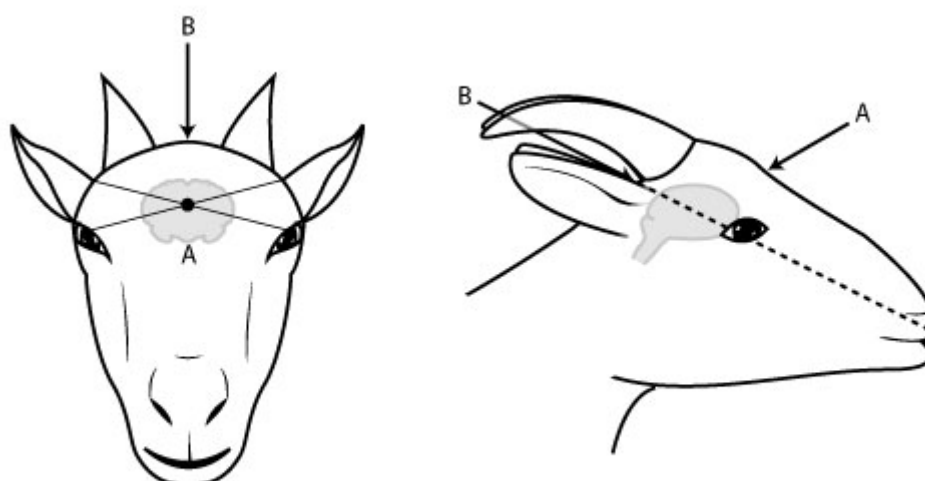
There are two sites for aiming with captive bolt pistol or rifle; the back of the head or the front of the head. Captive bolt use on sheep and goats is recommended to be in the frontal or poll positions, accompanied by appropriate restraint and followed by an effective procedure to ensure death.

The captive bolt stunner should be pressed firmly on the head before being discharged, and should be positioned as described in the approved positions for which are the frontal and poll positions. The poll method is the preferred method for sheep and goats. The temporal position is not an option. The bolt requires regular cleaning to prevent jamming, especially with sheep if wool is long.

Recommended position and direction of fire for destroying sheep.



Recommended position and direction of fire for destroying goats.



Note: The diagrams are representational and individual anatomical differences in animals to be killed must be taken into account. The grey shaded area represents the brain.

(A) indicates the frontal method and (B) indicates the poll method. The dots indicate the point of aim and the arrows indicates the direction of aim for the positions. For the frontal method, the firearm or captive bolt should be directed at a point midway across the forehead and where two lines from the topside of the base of the ears and top of the eyes intersect. With **hornless animals** the captive bolt pistol can be placed on the top of the upper forehead, aimed for the gullet or just behind the poll and aimed towards the animal's muzzle.

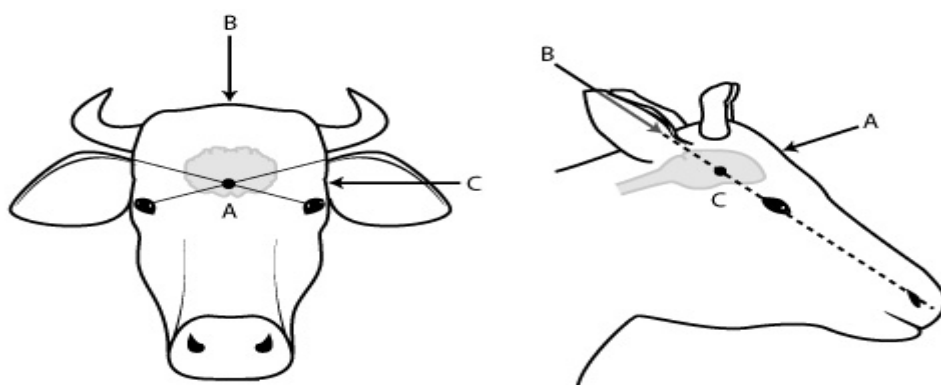
For **horned animals** the top of the head may not be a suitable position so use the position just behind the poll and aim towards the animal's muzzle. Alternatively, when using a rifle aim at a point in the middle of the face just above the level of the eyes and shoot towards the spine.

Humane destruction of Cattle

Recommended methods of humane destruction include: firearm, captive bolt and lethal injection.

- The preferred option for humane killing of cattle is a firearm directed to the frontal position of the head. The only approved target organ is the brain. There are three effective aiming points at the head: frontal, poll and temporal. Before firing, the animals head must be still.
- In the majority of situations, a rifle will be the most appropriate weapon. The distance between the end of the firearm barrel and the animal is expected to be between 10 and 100 cm.
- For adult cattle, a rifle should deliver at least the muzzle energy of a standard 0.22 magnum cartridge. For larger animals and bulls, 0.30-calibre high-power cartridges are recommended. For calves, a rifle should deliver at least the muzzle energy of a standard 0.22-long rifle cartridge.
- Captive bolt pistols are suitable only for cattle that can be adequately restrained. Cattle should be bled out using the chest stick method in preference to cutting the throat.

Recommended position and direction of fire for destroying cattle.



(A) indicates the frontal method, (B) indicates the poll method and (C) indicates the temporal method. The dots indicate the point of aim and the arrows indicate the direction of aim for the positions. Position A and B for firearms and captive bolt, position C for firearms only.

For the frontal method, the firearm or captive bolt should be directed at a point midway across the forehead at the intersection of imaginary lines that join each eye with the opposite horn or the point where the horn would be. The line of fire should be aimed into the skull towards the centre of the brain or spinal cord.

For the poll method, cattle are shot through the skull just behind the base of the horns. The line of fire should be in line with the cattle's muzzle.

For the temporal method the animal is shot from the side so that the bullet enters the skull midway between the eye and the base of the ear. The temporal method is **only** suitable for rifles and the bullet should be directed horizontally.

Note: The diagrams are representational and individual anatomical differences in cattle to be killed must be taken into account.

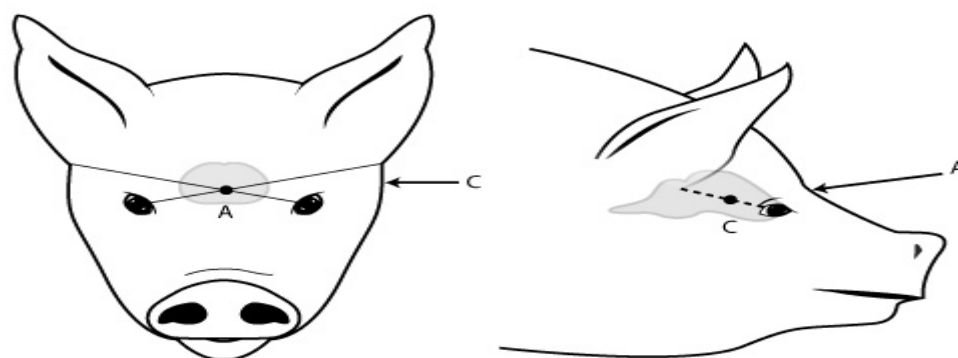
Humane destruction of Pigs

Recommended methods of humane destruction include: firearm aimed in the frontal or temporal position, captive bolt aimed in the frontal position and lethal injection.

The pig must be physically restrained in a way that minimises pain and distress. This may include placing the animal, if small, into the container in which it will be killed. Larger animals may be restrained using a rope snare or placed in a race to restrict the animal's movements. The animal is then killed in a quick and painless way. Finally, the pig is checked to ensure it is dead.

The most efficient and common way to humanely destroy pigs is by a close-range gunshot to the brain. A small calibre firearm is most suitable, to reduce the risk of projectiles exiting the head. A 0.22 calibre magnum rifle is adequate for most pigs if the shot is correctly positioned. A 0.22 calibre rifle should only be used on young pigs. The range should be less than 5 metres and the muzzle must not be placed against the animal's head. The animal must be still and properly restrained.

Recommended position and direction of fire for destroying pigs.



(A) indicates the frontal method for firearm and captive bolt and (C) indicates the temporal method suitable for firearm only. The dots indicate the point of aim and the arrows indicates the direction of aim for the positions. The aim point for the frontal position is low on the forehead. The positioning lines go from the outside base of the ears to the eyes.

For the temporal method: the pig is shot from the side of the head so that the bullet enters the skull at a point midway between the eye and the base of the ear on the same side of the head (position 'a' in Figure 1). The bullet should be directed horizontally into the skull. This method is preferred for adult pigs due to the heavier bone structure of the front of the skull.

For the frontal method: the firearm should be directed at a point midway across the forehead and (particularly for adult pigs) about 2 centimetres above the level of the eyes (position 'b' in Figure 1). Aim horizontally into the skull.

A captive bolt stunner should only be used in the frontal approach and NOT be used for the temporal approach outlined above for fire-arms. The captive-bolt stunner is safer than a firearm, since a blank cartridge is used. The muzzle is firmly pressed against the animal's skull before firing. It must, however, be assumed that the animal has only been stunned and a follow-up method of ensuring death, such as bleeding out, is required. This requires the severing of blood vessels to induce effective bleeding. It is often necessary to follow a neck cut with a thoracic stick to sever the larger blood vessels at their origin near the heart, because the blood loss from

the neck cut alone is not sufficient to ensure the animal does not regain consciousness.

Humane destruction of Horses

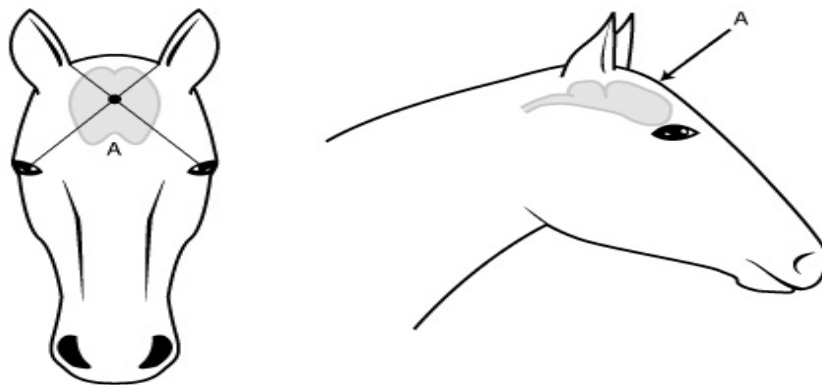
Recommended methods of humane destruction include: lethal injection and firearm. Lethal injection by a veterinarian is the preferred method of euthanasia and firearm should only be used when this option is not reasonably available.

Where euthanasia is necessary, the animal should be handled quietly beforehand to ensure that it is not unnecessarily distressed. Assistance should be sought from a veterinary practitioner, the RSPCA or the police if necessary.

When properly administered by a veterinarian, barbiturate overdose depresses the central nervous system, causing deep anaesthesia progressing to respiratory and cardiac arrest.

Note: After barbiturate overdose, the carcass of the horse will be unfit for human or animal consumption. House pets and wildlife that ingest portions of the barbiturate-injected carcass can also be poisoned.

Recommended position and direction of fire for destroying horses.



(A) indicates the frontal method. The dot indicates the point of aim and the arrow indicates the direction of aim.

When lethal injection is not available and gunshot is the only approved options left then the following guidelines should be used. The proper location of gunshot penetration is important in the destruction of the brain and minimizing suffering. The optimal site for penetration of the skull is at the intersection of a diagonal line from the ear to the in side of the opposite eye as shown in the diagram (A). The firearm should be aimed directly down the neck, perpendicular to the front of the skull, and held at least 100 mm away from the point of impact. When performed skilfully, gunshot induces instantaneous unconsciousness, and does not require close contact with the horse.

A .22-caliber long rifle is recommended as sufficient for most horses. The use of hollow-point or soft nose bullets will increase brain destruction and reduce the chance of ricochet. This method should only be attempted by individuals trained in the use of firearms and who understand the potential for ricochet. Care must be taken to minimize the danger to the operator, observers, and other animals. Personnel must comply with all laws and regulations governing the possession and discharge of firearms; local ordinances may prohibit the discharge of firearms in certain areas.

Humane destruction of Poultry

If transporting birds, they must not be carried or held in the boot of a car or held inside a vehicle under conditions when the temperature may exceed 30° c. Care must be exercised to ensure that poultry are not subjected to unnecessary handling and stress.

The recommended methods for humane destruction of poultry include cervical dislocation of birds less than 6 kg or decapitation. Cervical dislocation should only be performed when competent operators can guarantee success at the first attempt.

Note: Cervical dislocation involves partial separation of the head or brain from the spinal cord. The resulting damage to the nervous system leads to cardiac and respiratory arrest and death. The method requires a high degree of skill to be humane.