Humane destruction of livestock

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Animal Welfare Unit

During times of economic depression in the stock market or emergency, stockowners are faced with the difficult decision of on-farm destruction of animals. Past examples have included:

- when livestock have no commercial value
- on animal welfare grounds due to the devastating impacts of bushfires, storms, flooding or drought.

To ensure that this destruction is conducted humanely, efficiently and safely these guidelines have been developed to assist.

If required, additional advice and guidance on the humane destruction of livestock is available from your private veterinarian or the District Veterinarian at your Local Land Services (LLS).

Options for the destruction and disposal of carcasses off-farm

Moving stock requires that a person in charge of animals must not load, nor permit to be loaded, animals that are not fit for the intended journey except under veterinary advice, in accordance with Australian welfare standards and guidelines.

Where stock are fit to travel, it is recommended, wherever possible, to contact abattoirs and knackeries to ascertain whether slaughter through these outlets is a viable alternative to euthanasia on-farm. It may be the case that the cost of transport and slaughter may exceed the value of the livestock.

Advice should be sought from relevant authorities, such as the Environment Protection Authority (EPA) if on or off-farm disposal is being considered. This may include advice on the requirement to construct disposal pits for large numbers of livestock.

General welfare considerations

- A person responsible for an animal that is suffering from severe distress, disease or injury that cannot be reasonably treated must ensure the animal is humanely killed at the first reasonable opportunity.

- A person responsible for an animal must ensure killing methods result in rapid loss of consciousness, followed by death while unconscious. Note: Blunt trauma is not an acceptable method for killing animals, except for lambs and calves less than one day old.
A person killing an animal must have the relevant knowledge, skills and experience, or be under the direct supervision of a person with the relevant knowledge, skills and experience to humanely kill an animal.

A person humanely killing an animal must take reasonable action to confirm the animal is dead. Note: the primary consideration in humane killing is to prevent the animal from suffering further pain or distress. Guidelines below define recommended methods for humane killing for cattle and sheep.

Many practical, safety and legal considerations will influence the choice of a humane killing method.

If euthanasia of stock is considered necessary, all bystanders should be asked to leave the vicinity and every effort made to keep the procedure out of view of members of the public to avoid causing distress.

**Humane killing methods**

Humane killing should be done with the minimum number of people present, and other distractions should be minimised.

Animals should be handled carefully and be appropriately restrained to avoid unnecessary distress or alarm and to avoid operator injury. Where livestock are able to walk, they should be handled in a race or crush. Animals requiring emergency killing should be humanely killed without moving them further than necessary.

Sheep and cattle should be brain-shot by rifle or captive bolt in the approved positions, according to the species specific recommended killing methods below.

Experienced operators, using the techniques described here, can safely deal with more than 1000 sheep or 300 cattle per day.

**Confirming death in livestock after humane killing**

Following use of a humane killing method, livestock should be monitored for at least five minutes to ensure that death has occurred. Where the person in charge is not in danger of being kicked, the signs of death listed below should be used in confirming death of the animal:

- No blink when touching the cornea; no eye movements
- Fixed dilated pupils
- No jaw tone (no resistance when jaws are separated)
- No tongue tone (no resistance when the tongue is pulled outwards)
- No breathing for at least five minutes

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.

**Any unconscious animals (animals which still show signs of life) must be pithed or bled-out (refer to details below).**
Note: the confirmation of an animal’s death following a humane killing procedure can be a difficult task to judge, and requires training and experience of species differences in responses.

**Recommended methods and procedures for humane killing of livestock**

The following guidelines provide information on the recommended methods for humane killing of sheep and cattle.

**Firearms**

In general, firearms provide the most suitable method of humane killing for livestock as the process is quick and painless when carried out correctly.

**Rifles**

For sheep 0.22 calibre rifles are often used, but for cattle the minimum is a 0.22 magnum. Larger calibre centre fire rifles may be required for older stock, larger animals, or where destruction is required at distance. Hollow point or soft nose ammunition is recommended.

Rifles will need regular cleaning and maintenance as breakages may occur. In addition to adequate supplies of ammunition spare rifles should be available. One rifle and operator per 1000 sheep or 300 cattle is recommended.

Operator safety must be foremost in mind at all times and everyone other than the person using the rifle should be well clear of the killing pens. When using rifles around steel yards and cement floors operators and others should be aware that ricocheting bullets will be a major hazard and safety precautions should be in place.

It is recommended that when commencing the destruction of stock from a race, start from the rear and work towards the front. When destroying stock in pens start close to the pit and work away from the pit. A movable panel can be used to keep stock tightly packed together.

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.

Suitable projectiles and propellant charges for the species and class of livestock and situation should be used to always achieve humane killing with reasonable personal safety if carried out correctly.

**Don’t (for rifles):**

- Don’t fire the rifle until all other personnel are safely clear.
- Don’t shoot unless the background is clear.
- Don’t shoot unless all possible hazards and risks have been identified.
- Don’t shoot over long distances.
- Don’t shoot into mobs of animals.
- Don’t place the muzzle of the rifle directly against the animal’s head.
- Don’t shoot in a location where a missed shot might result in a bullet ricocheting off a hard surface near the animal.
- Don’t use a weapon that is not powerful enough. Check that the calibre and ammunition are suitable.
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for shooting the class of livestock concerned.

**Captive bolt devices**

Captive bolt devices are much safer for the operator and those assisting, but are heavy to handle and, being single shot, are slow to operate. The bolt requires regular cleaning to prevent jamming, especially with sheep if the wool is long.

If feasible, two operators using two captive bolt devices are recommended. One operator does the killing while the other reloads the second captive bolt device. Always be aware of safety when handling/passing the captive bolt devices between operators.

**Captive bolt device recommendations:**

- The animal must be appropriately restrained.

- 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 each species of livestock (see diagrams below). NOTE: the temporal position is not an option.

- Following application of the captive bolt, the animal must be pithed or bled-out to ensure death in cases where the animal is not already confirmed dead.

- For penetrating captive bolt stunners, the cartridge power should be appropriate to the species and class of livestock. Non-penetrating captive bolt (concussion) stunners are not recommended.

- Operators should make sure that charges intended for use are appropriate for the species and class of livestock. Check the manufacturer’s instructions prior to commencing destruction.

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

Note: Owners of rifles must comply with the *NSW Firearms Act 1996* and the *Firearms Regulation 2017*.

**Anaesthetic overdose**

Only veterinarians or approved persons should perform anaesthetic overdose as appropriate.

Note: consideration to the likely anaesthetic chemical residues in the carcass should be considered. This will likely limit disposal options.

**Bleeding-out (exsanguination)**

Bleeding-out to cause death is permitted only after an effective stunning method has been used and the animal has been assessed to be unconscious. The use of bleeding-out as a primary method of killing is not acceptable, except in an emergency situation and should only be carried out by an experienced operator.

The animal should be monitored to ensure that death has occurred from effective blood loss.

Bleeding-out (exsanguination) is performed by cutting the main blood vessels; at the top of the heart via the thoracic inlet (chest stick) or in the neck (neck cut).
Pithing

Pithing is the process of destroying nervous tissue in and around the brainstem to ensure death by either inserting a rod into the hole created by a projectile or transecting the spinal cord at the foramen magnum.

Pithing may be done to ensure death after stunning, particularly where blood loss is to be avoided.

Note: Pithing is permitted only after an effective stunning method has been used and animals have been assessed to be unconscious.

Species specific recommended methods and procedures for humane killing

Cattle

The recommended methods of humane killing of adult cattle and calves, including calves less than 24 hours old, are the use of either close-range firearm or captive bolt to the brain.

The use of a firearm using the frontal method is the preferred option for killing cattle (see Figure 1). The brainstem should be targeted. It lies midway along an imaginary line between the base of the ears.

Note: For adult cattle, it is recommended a 0.22 magnum rifle be used.

For larger animals and bulls, high powered centre fire rifle is recommended.

For calves, 0.22 long rifle cartridges are recommended.

1. Figure 1. Recommended position and direction of fire for humane killing of cattle – suitable for firearm or captive bolt (2)

Note:

(A) indicates the frontal method (preferred for cattle)

(B) indicates the poll method

There are two effective aiming points at the head: frontal (A) and poll (B). The frontal method is the preferred target site for cattle.

The dots indicate the point of aim and the arrows indicate the direction of aim for the positions.

The distance between the end of the firearm barrel and the cattle is expected to be between 10 – 100 cm. The only approved target organ is the brain.

Before firing, the cattle’s head must be still.

For the frontal method (A), in polled cattle the firearm or captive bolt should be directed at a point midway across the forehead where two imaginary lines from
the topside of the base of the ears and top of the eyes intersect, or slightly above this point.

In horned cattle aim at a point midway across the forehead at the intersection of imaginary lines that join from the top of each eye with the opposite horn (or where the horn would be).

The line of fire should be aimed into the skull towards the centre of the brain or spinal cord to target the brainstem which is midway along an imaginary line drawn between the base of the ears.

For the poll method (B), cattle are shot through the skull just behind the base of the horns. The line of fire should be directed slightly forward of the angle of the jaw of the cow, depending on the point of impact.

Note: The diagrams are representational and individual anatomical differences should be taken into account.

Bleeding out

Bleeding out of unconscious cattle should be done using a suitable, sharp knife.

Note: Bleeding out is done by cutting the main blood vessels at the top of the heart via the thoracic inlet (chest stick) or in the neck (neck cut) \(^{(2)}\).

Blunt trauma in calves less than 24 hours old

A person killing a calf by a blow to the forehead must first ensure that the calf is less than 24 hours old and only use this method when no other humane killing methods are reasonably available. For blunt trauma in calves less than 24 hours old, use position A (frontal method) \(^{(2)}\).

Sheep

The recommended methods of humane killing of sheep and lambs are either the use of firearms at close range, captive bolt to the brain, or lethal injection. Bleeding-out of unconscious (stunned) animals is permitted.

The use of a firearm using the poll method is the preferred option for killing sheep (see Figure 2). The brainstem should be targeted. It is midway along an imaginary line drawn between the base of the ears.

Note: 0.22 long rifle ammunition is recommended.

- Figure 2. Recommended position and direction of fire for humane killing of sheep \(^{(3)}\)

Note:

(A) indicates the frontal method

(B) indicates the poll method (preferred for sheep)

The dots indicate the point of aim and the arrows indicate the direction of aim for the positions.
For the poll method (B), sheep are shot through the skull just behind the base of the horns. The line of fire should be directed slightly forward of the angle of the jaw of the sheep.

For the frontal method (A), the firearm should be directed at a point midway across the forehead where two imaginary lines from the topside of the base of the ears and top of the eyes intersect.

**Blunt trauma in lambs less than 24 hours old**

For blunt trauma in lambs less than a 24 hours old only, use the frontal position (A)\(^3\).

Note: The diagrams are representational and individual anatomical differences should be taken into account.

**Humane destruction of other stock**

For advice on the humane destruction of stock other than sheep and cattle, contact the District Veterinarian at your Local Land Services (LLS).

**Further information**

For further information on humane destruction of livestock, contact the District Veterinarian at your Local Land Services (LLS).

Personnel who experience distress associated with humane destruction of livestock are advised to contact their local health services or the NSW Government’s Rural Resilience Program.

References:


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