Practical emergency humane destruction of cows and calves

On-farm guidelines
**Introduction**

The humane destruction of livestock is an unpleasant, but necessary, fact of farming life.

Whatever the reason for destroying an animal, the primary aim of on-farm destruction must be to bring about death with the minimum of pain, suffering and distress to the animal concerned.

The person carrying out the destruction of any animal has a legal responsibility to ensure the procedure causes minimum stress to the animal. This guide will help you and your staff ensure any animals destroyed on-farm are done so in a humane and effective manner.

**Basic requirements**

A number of basic requirements should be met before attempting the destruction of any animal on-farm. These include:

- **Having a plan**: establish a farm policy which outlines who can destroy animals, when, where and using what method
- **Making sure you and your staff are properly trained**: make sure you know how to use all equipment safely (including firearms)
- **Following the correct processes**: bear in mind the needs of calves, cows and bulls will vary
- **Minimising stress for all**: a quick, effective kill is best for both animal and operator
- **Choosing the right location**: different methods have different requirements to make them safe and effective.
**The process**

**Plan ahead**

Each farm should have a written policy and procedures covering the humane destruction of livestock.

The policy identifies those people who are trained and competent in the practice of humane destruction and clearly describes the procedures to be adopted on-farm. Clear instructions regarding humane destruction should be displayed in an appropriate position (gun cabinet, captive bolt box).

Where necessary, a policy for clearly identifying stock selected for destruction should be employed, particularly on larger farms where different people may be involved in the processes of identifying then destroying animals. Use paint or a neck band to allow clear identification of animals to be destroyed.

**Who**

Any person who undertakes this task must be trained. They must be able to demonstrate knowledge and competency in the safe handling and effective methods for humane destruction of livestock during training, before carrying out destruction of animals on-farm.

Where the free-bullet (rifle) method is used, the operator must comply with the Arms Act 1983 and either hold a current firearm licence or be under the immediate supervision of a licence holder.

The destruction of animals is a distressing procedure. The farm owner or manager should ensure that designated people are willing and physically able to carry out humane destruction. Consideration needs to be given to staff whose religious beliefs or ethical position prevents them from carrying out or being present when stock are being destroyed.

Every farm should have at least two staff members or people available (e.g. a neighbour) who are trained in humane destruction, in the event emergency destruction is required and other trained staff are unavailable. Senior staff must demonstrate sufficient maturity and knowledge of livestock to carry out these duties.

**When**

Humane destruction of non-viable, newborn calves should take place at the earliest practical opportunity. Calves must be destroyed using an approved method without causing undue stress, pain or discomfort. Emergency destruction of stock of any age prevents further unnecessary pain or suffering following a serious injury (paralysis, fracture or major trauma) or as a result of disease or old age.

If a sick or injured animal has been receiving treatment or veterinary care, once the decision has been made to discontinue treatment, destruction must be carried out as a priority. To allow an animal to continue to suffer, once treatment has been withdrawn, is contrary to the requirements of the Animal Welfare Act.

**Where**

The destruction of livestock is an emotive issue and, where possible, should be carried out away from public view. In a downer cow or similar situation, where the animal is in a public place and movement of the animal is likely to cause it additional pain or discomfort, temporary screening, such as parking a farm vehicle to obstruct the view, may be warranted.
**Approved methods of on-farm emergency humane destruction**

A number of methods are available. Regardless of the chosen method, it should either:

a. cause immediate death, or  
b. render the animal insensible (unconscious) followed immediately by a suitable process to cause death i.e. exsanguination (bleeding out – usually by throat cut).

The method chosen must be carried out in a safe manner, including consideration for the safety of the operator, other animals and bystanders.

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**Animal welfare legislation**

**Animal Welfare (Dairy Cattle) Code of Welfare 2010**

Minimum Standard No 20 – Emergency Humane Destruction  
a. Dairy cattle must be rapidly rendered insensible and remain in that state, until death  
b. Persons undertaking emergency humane destruction must be competent in the handling and killing of dairy cattle.

**Animal Welfare (Transport within New Zealand) Code of Welfare 2011**

Minimum Standard No 13 – Emergency Humane Destruction  
a. Equipment kept for emergency humane destruction must be well-maintained in order to operate efficiently  
b. Animals to be killed must be handled, restrained and killed in a manner that minimises unnecessary pain and distress prior to death  
c. Animals being killed must be rapidly rendered insensible and remain in that state, until death has occurred  
d. The spinal cord must not be severed or broken in any hoofed animal, until death has occurred  
e. Animals rendered insensible by a blow to the head or a shot to the brain from a firearm must be bled out immediately to ensure death occurs before recovery from stunning.
1. Captive bolt and bleeding out

Stunning using a penetrating captive bolt, followed by immediate exsanguination (bleeding out), is the preferred method for the humane destruction of animals on-farm.

Captive bolt devices are designed to stun the animal, so death may not occur as a result of firing the captive bolt on its own. The animal must be bled out immediately after it is stunned, to ensure an effective kill.

Different charges are available for use in captive bolts and the operator must ensure the correct charge is used for the appropriate class of stock. Failure to do so could result in an ineffective stun. Captive bolt is not recommended for bulls.

Advantages

- It is a safer method than using a gun, as there is less risk to the operator and no risk to other people or stock through ricochet, or a projectile exiting the body. The use of hearing protection is advised
- No firearms licence is required for ownership or operation. Secure storage is advised but a firearms cabinet is not required
- Captive bolt ‘guns’ are more robust and compact than rifles. They can be carried without causing undue concern to onlookers.

Disadvantages

- The initial cost is high. Ongoing costs are greater than rifle or shotgun
- Contact with the animal is required, therefore some form of restraint may be necessary
- To ensure an effective kill, bleeding out is required after stunning.

Target

- For destroying cattle using a firearm or captive bolt, the recognised target is the ‘frontal target’ and is positioned in the centre of the animal’s forehead. Shown in the diagram: imaginary lines are drawn from the horn/horn bud to the opposite eye. The target should be 10mm above the point at which the two lines cross
- The angle of the captive bolt (or gun) should be aimed in such a way that the bolt (bullet) be directed towards, and in line, with the neck. By aiming in this way, the base of the brain and upper spinal column are targeted.

Bleeding out

- A sharp knife is used to cut the main blood vessels in the neck and the windpipe of the animal. Holding the animal’s nose, insert the knife at the top of the neck, behind the angle of the jaw and in one swift movement, cut in an arc from one side of the neck to the other
- Because cattle have deep arteries on both sides of the neck, it is important that the cut is deep enough and long enough to cut all arteries. A significant volume of blood is drained from the animal, which can be distressing for onlookers. Blood should be drained or washed away to prevent hygiene issues unless bleeding out is done in a paddock.

Note: the animal may display involuntary muscle movements (thrashing and kicking) during bleeding out.
2. Firearm

Gun choice
The gun used must be sufficiently powerful for the bullet to penetrate the skull and cause immediate unconsciousness or death.

Shotgun
Using a shotgun to destroy young calves is an effective method, as the shot is widely dispersed within the cranial cavity. However, the resulting physical appearance can be upsetting. When using a shotgun, shoot from a distance of 1-2m.

Shotgun cartridges are more expensive than rifle bullets. Use the lighter 4, 5 or 6 shot cartridges for calves. Very light ‘bird shot’ is not suitable as the shot disperses too quickly.

12, 16 and 20 gauge shotguns may be used to destroy all classes of livestock. Smaller gauges such as 28 or .410 should only be used for destruction of calves.

Rifle
Due to their slower velocity, subsonic rounds should only be used to destroy calves. Rifles are most commonly used for on-farm destruction:

a. .22 is sufficient for calves up to about 1 year of age. If using a .22, exsanguination (bleeding out) is advised
b. A rifle with muzzle energy 1000 ft/lb is required for stock over 180 kg (USDA 2004).

Note: air rifles and pistols are not suitable weapons to use to destroy calves or adult cattle.

Regardless of the chosen weapon, the operator must have received training, hold a current firearm licence and be competent in handling stock (and performing humane destruction).

Target
The recognised target for destroying cattle using a firearm is the ‘frontal target’ (described on pg 5).

With a rifle shot, the animal’s neck should be straight (and head held low) maximising the shot’s effectiveness and minimising the risk of the bullet exiting the animal’s body. The operator must ensure the animal is stationary when the shot is taken. Do not attempt to shoot a moving target!

Advantages
• Relatively available (most farms have a registered firearm for pest control)
• Cost-effective: cheaper than captive bolt charges
• Efficient method for destroying calves
• Can be used from a distance (only advised if suitable restraint is unavailable, or where restraint is going to cause additional pain/suffering to the animal, as safety to the operator is an issue).

Disadvantages
• Initial cost of rifle (offset for pest control)
• Firearms licence is required in accordance with the Arms Act 1983
• Safety: there is potential for ricochet or for the shot to exit the animal’s body
• Noise: caution should be taken around other animals. Rifles may be moderated and subsonic rounds may be used to reduce noise levels.

Safety
Where possible, the animal should be shot outdoors and on soft ground. It is good practice to place some hay or straw bales behind the animal. Try to avoid shooting animals indoors or around hard surfaces that could cause ricochets. The use of hearing protection is advised.

Whenever possible, the animal should be shot from close range, with the muzzle of the gun held 5-20 cm from the head. Do not, under any circumstances hold the muzzle of the gun against the animal’s head.
3. Chemical

Destruction may be carried out by intravenous injection of a product specifically registered for this purpose. All veterinary products registered for destruction are controlled veterinary medicines and must be administered by a vet.

**Note:** carcasses of animals destroyed in this manner must not be used for human consumption or pet food.

**Advantages**
- Generally painless with minimal stress.

**Disadvantages**
- Cost, due to vet only administration.

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**Confirmation of death**

Regardless of the method chosen to destroy the animal, the operator must confirm that the animal is dead. There are a number of indicators to confirm that death has occurred.

**Check:**
- Breathing – no sign of rhythmic (or regular) breathing
- Heart beat – no sign of heart beat, no jugular pulse (observable on the neck)
- Eyes fixed and pupils dilated – no reflex when touched.

Care must be taken when confirming that death has occurred, an unconscious animal may have very shallow breathing and a weak heartbeat that is difficult to detect. It is advised that the operator check for any signs of life immediately after the animal’s destruction and that death is re-confirmed 3-5 minutes later.

Immediately after destruction, the animal enters a ‘tonic phase’ during which it will often twitch or kick-out spasmodically. When checking for signs of life/death, the operator should approach from a safe position to avoid harm.

If any signs of life are present, either a repeat shot must be taken (free bullet) or the animal must be bled out, using a sharp pointed knife to cut the main blood vessels and windpipe in the neck.
**Guidelines according to age/class of stock**

**Non-viable newborns 0-24 hours**

Newborn animals that are identified as being non-viable due to being premature, or exhibiting signs of congenital defect, must be destroyed as soon as is practical after birth.


a. Premature calves that are unlikely to survive, or calves that have debilitating congenital defects, must be humanely destroyed at the earliest opportunity

b. Calves must be handled and moved in a manner which minimises distress and avoids pain, injury or suffering.

**Calves**

Destruction of calves (birth to weaning) may be required in the event of injury, disease or metabolic disorders.

**Restraint:**

- The animal may need to be confined in a restricted area, especially if active, so that an accurate shot/stun can be assured

- Captive bolt – it may be sufficient to hold smaller animals against a bale of hay or straw. For bigger animals, use a head bail

- Rifle – use a chute or race constructed from hay or straw bales to minimise any risk of ricochet in the event of the projectile leaving the body

**Preferred method:**

- Captive bolt (using appropriate charge) and exsanguination (bleeding out) or free bullet (long rifle/pistol .22 rim fire bullet).

**Target:**

- Frontal target.
Steers/heifers/cows

Humane destruction of animals after weaning may be required in emergency situations. Ensure the site used allows access to remove the carcass by tractor/forklift.

Restraint:
- Captive bolt – requires a head bail or race
- Rifle – where possible, the animal must be sufficiently restrained to ensure that in the event of a shot wounding the animal, it cannot escape.

Preferred method:
- Captive bolt (using appropriate charge) and exsanguination (bleeding out) or free bullet (long rifle .22 magnum – .44 rim fire bullet).

Target:
- Frontal target.

Bulls

Bulls pose additional challenges due to the heavier bone and extensive nasal sinuses in their skulls, potentially combined with an agitated disposition, meaning the use of a captive bolt is not recommended. Ensure the site used allows access to remove the carcass by tractor/forklift.

Restraint:
- Rifle – the animal must be sufficiently restrained to ensure that in the event of a shot wounding the animal, it cannot escape.

Preferred method:
- Free bullet (long rifle .22 magnum – .44 rim fire bullet) and exsanguination (bleeding out).

Target:
- Preferred target approximately 10 mm to either side of the frontal target to avoid the heavy bone running down the centre of the sinuses/face.
Recommended practice

Captive bolt

- Confirm the identity of the animal to be destroyed and move or screen it, if visible to the public.
- If required, restrain the animal.
- Select the correct charge/cartridge for the age and class of animal.
- Minimise handling stress – handle stock quietly without fuss or excitement.
- Aim – draw two imaginary lines from base of the horns/hornbuds to the opposite eye and aim for a point 10 mm above where the two lines cross. Use of captive bolt is not recommended for adult bulls.
- Hold the captive bolt firmly at right angles, against the head of the animal.
- Depress the trigger (the captive bolt is only designed to stun the animal).
- Having stunned the animal, the operator must use a sharp knife to cut the main blood vessels and windpipe of the animal. Holding the nose of the animal, insert the knife behind the point of the jaw and in one swift movement, cut in an arc from one side of the neck to the other. The cut must be deep and long enough to cut both jugular veins and carotid arteries.
- Check that the kill has been effective.
- Feel for a heartbeat by placing your hand on the animal’s chest behind the elbow.
- The eyes should be fixed and dilated – touch the eye to ensure that there is no blink reflex.
- Dispose of the carcass.
Firearm

- Confirm the identity of the animal to be destroyed
- Confine animal in an area out of sight to the general public with soft ground under foot (not concrete). Use hay or straw bales to form a ‘wall’ behind and to the sides of the animal to reduce the danger, should the bullet exit the animal’s body
- Select the correct rifle for the age and class of animal. Use a .22 for calves/young stock and a .22 magnum to a .44 rim fire bullet for adult animals
- Minimise handling stress – handle stock quietly without fuss or excitement
- If required, restrain the animal, but ensure it can be moved easily once dead
- Aim – draw two imaginary lines from base of the horns/hornbuds to the opposite eye and aim for a point 10 mm above where the two lines cross. For bulls, the aim should be approximately 10 mm to the side of the frontal target
- Hold the rifle at a distance of 5-20 cm from the head. Do not hold the muzzle of the rifle against the animal’s head (this is extremely dangerous)
- Any onlookers must stand behind the operator
- Depress the trigger
- Check that the kill has been effective
- Feel for a heartbeat by placing your hand on the animal’s chest behind the elbow
- The eyes should be fixed and dilated – touch the eye to ensure that there is no blink reflex
- If there is any doubt that the animal is not dead then either:
  - repeat a shot to the head, or
  - use a sharp knife to cut both the jugular veins and carotid arteries, and windpipe of the animal. Holding the nose of the animal, insert the knife behind the point of the jaw and in one swift movement, cut in an arc from one side of the neck to the other.
- Dispose of the carcass.

References

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