

Humane slaughter

On-farm guidelines



Humane slaughter on-farm

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

Whatever the reason for putting down an animal, the primary aim of on-farm slaughter is to bring about death with the minimum of pain, suffering and distress to the animal concerned.

The person carrying out the slaughter 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 slaughtered on-farm are put down in a humane and effective manner.

Basic requirements

Basic requirements should be met before slaughtering any animal on-farm.

These include:

- establishing a farm policy that outlines who can slaughter animals, when, where and using what method.
- making sure you and your staff are properly trained and know how to use all equipment safely (including firearms).
- following the correct processes. Bear in mind that processes vary for calves, cows and bulls.
- 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.

Emergency and routine slaughter

Humane slaughter is covered in two areas of the Code of Welfare: Dairy Cattle (2014).

Minimum Standard No.17 (right) covers the routine slaughter of calves and was amended in June 2014 to ban the use of blunt force trauma caused by a blow to the head.

Minimum Standard No. 20 (right) relates to the slaughter of any class of animal in an emergency or unforeseen situation.

For more information visit dairynz.co.nz/humaneslaughter

ANIMAL WELFARE LEGISLATION

Code of Welfare: Dairy Cattle (2014)

Minimum Standard No. 17 – Calf Management

- a) Calves must be handled and moved in a manner which minimises distress and avoids pain, injury or suffering.
- b) Premature calves that are unlikely to survive, or calves that have debilitating congenital defects, must be humanely destroyed at the earliest opportunity.
- c) When calves are killed on-farm, the following apply:
 - (i) calves must be rendered immediately insensible and remain in that state until death is confirmed
 - (ii) persons undertaking humane destruction must be suitably trained and competent in the procedures for handling and killing of calves
 - (iii) calves must not be killed by the use of blunt force trauma caused by a blow to the head, except in unforeseeable or unexpected situations requiring emergency humane destruction.

Code of Welfare: Dairy Cattle (2014)

Minimum Standard No. 20 – Emergency Humane Destruction

- a) Dairy cattle must be rendered immediately insensible and remain in that state, until death is confirmed.
- b) Persons undertaking emergency humane destruction must be suitably trained and competent in the procedures for handling and killing of dairy cattle.

The process

Plan ahead

Each farm should have a written policy and procedures for the humane slaughter of livestock.

A policy identifies those who are trained and competent in the practice of humane slaughter and describes the procedures to be used on-farm. Clear instructions for putting livestock down should be displayed in an appropriate position (gun cabinet, captive bolt box).

Where necessary, a policy should be used for identifying stock selected for slaughter, particularly on larger farms where different people may be involved in selecting and slaughtering animals. The use of paint or neck bands is advised for clear identification of animals to be put down.

Who

Any person who undertakes this task must be trained. They must demonstrate knowledge and competency in the safe handling of animals and effective methods for putting livestock down, before being authorised to carry out slaughter of animals on-farm.

Where a firearm is used, the operator must comply with the Arms Act 1983 and either hold a current firearms licence or be under the immediate supervision of a licence holder.

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

Ideally, each farm should always have at least two senior staff members trained in humane slaughter, to provide cover in the event emergency slaughter is required and other trained staff are unavailable. In the event a trained team member is not available, smaller farms should identify a backup option such as a neighbour or veterinarian. Staff must demonstrate sufficient maturity and knowledge of livestock to carry out these duties.

When

All stock must be put down using an approved method without causing undue stress, pain or discomfort.

Emergency slaughter of stock is covered by Minimum Standard No. 20, which prevents further unnecessary pain or suffering following a serious injury (paralysis, fracture or major trauma).

The humane slaughter of non-viable, newborn calves should take place at the earliest practical opportunity.

If a sick or injured animal has been receiving treatment or veterinary care, once the decision has been made to discontinue treatment and slaughter is required, this must be carried out as soon as possible. To allow an animal to continue to suffer once treatment has been withdrawn contradicts the requirements of the Animal Welfare Act 1999.

The routine slaughter of non-viable calves is covered by Minimum Standard No.17, which explicitly bans the use of blunt force trauma as a method to routinely slaughter calves.

Where

The slaughter of livestock is a sensitive issue and, where possible, should be carried out away from other animals and public view. In a downer cow or similar situation, where the animal is in a public place and moving it is likely to cause additional pain or discomfort, temporary screening (such as parking a farm vehicle to obstruct the view) may be warranted.

Consider the ease of cleaning away any blood and the removal of the carcass e.g. have a plan for getting the dead cow out of the crush or race.

Dead stock disposal

It is important to dispose of stock quickly and appropriately to prevent the spread of disease to other stock and people, the contamination of waterways and access by dogs or other animals.

See DairyNZ Farmfact 3-16 (dead stock removal) for more information: dairynz.co.nz/farmfacts.

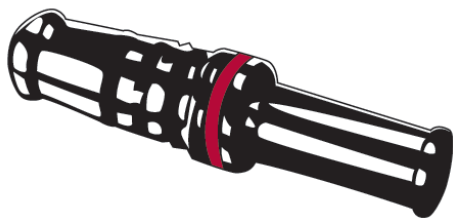
Methods for humane slaughter

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

- a) cause immediate death
- or
- b) render the animal unconscious immediately, followed by a suitable process to cause death
i.e. pithing (inserting a rod through the hole in the skull to damage the brainstem) or bleeding out.

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

1 Captive bolt and secondary methods



Stunning using a penetrating captive bolt, followed by immediate pithing or bleeding out, is the preferred method for the humane slaughter 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. It is advised that an animal be pithed or 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. Using the incorrect charge could result in an ineffective stun or excessive wear on the captive bolt mechanism.

Captive bolts must be regularly cleaned and maintained to ensure they remain effective. Charges must be stored so they remain dry.

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 and eye protection is advised.

- No firearms licence is required for ownership or operation. Secure storage is advised but a firearms cabinet is not required.
- Captive bolts are more robust and compact than rifles. They can be carried without causing undue concern to onlookers.

Disadvantages

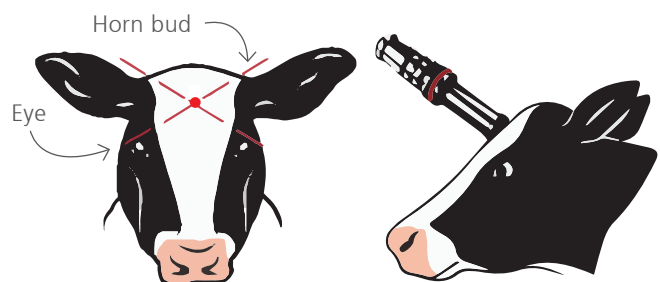
- The initial cost is relatively high for a single purpose tool. Ongoing costs are higher than a rifle.
- Contact with the animal is required, therefore some form of restraint may be necessary.
- To ensure an effective kill, bleeding out or pithing is recommended after stunning.

Target

When stunning cattle with a captive bolt, the only suitable target is the 'frontal target', which is positioned in the centre of the animal's forehead.

Shown in the diagram below: imaginary lines are drawn from the middle of each horn/horn bud to the top of the opposite eye. The target is the point at which the two lines cross. The animal's neck should be straight.

The angle of the captive bolt should be aimed so that the bolt is directed towards, and in line with, the neck. This way, the base of the brain and upper spinal column are targeted.



Secondary methods

Once effectively stunned

Immediately confirm that the animal is unconscious and remains so until death by:

- its immediate collapse and it staying down (no righting itself or trying to stand)
- legs that may twitch, kick and paddle spasmodically
- no rhythmic breathing
- no vocalisations.

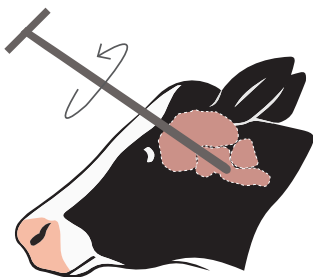
Pithing

A metal or plastic rod is inserted through the hole made with the captive bolt, and pushed into the brainstem and upper spinal cord.

It is important to move the rod around vigorously to destroy nervous tissue in and around the brainstem.

Although pithing may initially stimulate strong involuntary movements of the animal's head and legs, it usually reduces the total amount of involuntary movement. The person pithing should stand by the animal's back to avoid being kicked and have room to quickly move away.

Pithing causes less mess and avoids the operator risk bleeding out presents, where a sharp knife is used in the presence of a moving animal.

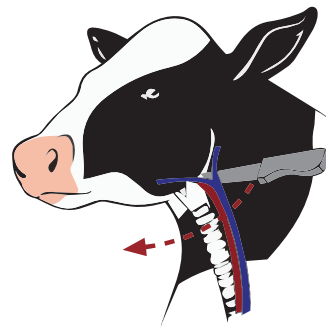


Bleeding out

A sharp knife is used to cut the main blood vessels in the neck and the animal's windpipe. 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 the cut is deep enough and long enough to cut both jugular veins and carotid 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 that the animal may display involuntary muscle movements (thrashing and kicking) during bleeding out.



2

Firearm

Gun choice

The gun must be sufficiently powerful for the bullet to penetrate the skull and cause immediate unconsciousness.

Rifle

Rifles are preferred and most commonly used for on-farm slaughter.

- A .22 is sufficient for calves up to about 1 year of age. If using a .22, a second shot or bleeding out is advised to ensure death has occurred.
- A higher calibre rifle is required for heavier classes of stock.

Note: *air rifles/pistols are not suitable firearms for slaughtering calves or adult cattle.*

Regardless of the chosen firearm, the operator must have had training, hold a current firearms licence and be competent in handling stock.



Shotgun

Using a shotgun to put down young calves can be a highly effective and efficient method, as the shot is widely dispersed within the cranial cavity. However, the resulting physical appearance can be upsetting and messy.

Shotgun cartridges are more expensive than rifle bullets. A 20-gauge shotgun or greater, using heavy load cartridges, is sufficient for all classes of livestock. Lighter 'birdshot' is not suitable as the shot disperses too quickly.

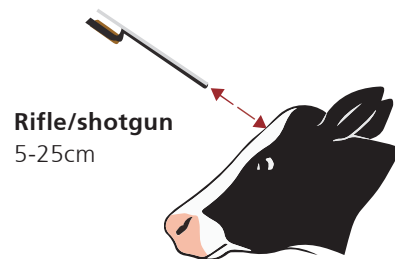


Target

The recognised target for putting down cattle using a firearm is the 'frontal target' (described pg 4).

The animal's neck should be straight, maximising the shot's effectiveness and minimising the risk of the bullet exiting the animal's body. The angle of the gun should be aimed so that the bullet is directed towards, and in line with, the neck. This way, the base of the brain and upper spinal column are targeted.

The operator must ensure the animal is stationary when the shot is taken and not attempt to shoot a moving target.



Advantages

- Many farms already have a registered firearm.
- Cost-effective (cheaper than captive bolt charges).
- Efficient method for slaughtering calves.
- Rifles can be shot from a distance, if the animal is stationary (only advised if suitable restraint is unavailable, or where restraint is going to cause additional pain/suffering to the animal, as operator safety is an issue).

Disadvantages

- Initial cost of rifle (offset if also used 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. Due to their slower velocity, subsonic .22 rounds should only be used to slaughter calves.
- Access to firearms on-farm by unauthorised users may present an unacceptable risk.
- Must be stored in the manner set out in the Arms Regulations 1992.

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.

Avoid shooting animals indoors or around hard surfaces that could cause ricochets. The use of hearing and eye protection is advised.

Whenever possible, the animal should be shot from close range, with the muzzle of a rifle or shotgun held 5-25cm from the head.

Do not, under any circumstances, hold the muzzle of the gun against the animal's head.

Secondary shot

After the initial shot, check death has occurred. If the animal is still conscious, immediately use a second shot to the frontal target. If the animal is unconscious but has signs of life, either pith or bleed out to ensure death.

3 Chemical

Livestock may be euthanised by intravenous injection of a product specifically registered for this purpose.

All products registered for euthanasia are controlled veterinary medicines and must be administered by a veterinarian. Note that carcasses of animals slaughtered in this manner must not be used for human consumption or pet food.

Advantages

- Painless with minimal stress.

Disadvantages

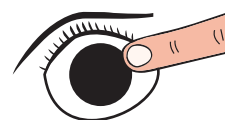
- Cost (vet only administration).
- Care required with carcass disposal.
 - Ensure animals cannot get to carcass at all times (before and after burial).
 - Inform dead stock disposal operators the carcass has been euthanised with a chemical.
- Unlikely to be an option in an emergency.

Confirmation of death

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

CHECK:

No blink reflex



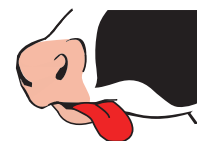
Pupils fixed and dilated



No regular breathing



Jaw relaxed, tongue floppy



No heartbeat



Care must be taken when confirming that death has occurred, as an unconscious animal may have very shallow breathing and a weak heartbeat that is difficult to detect. The operator should check for any signs of life immediately after the animal's slaughter and reconfirm death 3-5 minutes later.

Immediately after being put down, the animal enters a 'tonic phase' and will be stiff. This is followed by a 'clonic phase' where it relaxes, then may twitch, kick and paddle spasmodically. When checking for signs of life/death, the operator should approach from a safe position (by the animal's back), to avoid harm.

If any sign of life is present, either repeat the shot or, while the animal is still unconscious, pith or bleed out.

Guidelines according to age/class of stock



Calves

Humane slaughter of calves (birth to yearling) may be required when rearing is considered non-viable.

Restraint

- The animal may need to be confined, e.g. in a pen or restrained by backing the calf into a corner or pinning it against a sturdy wall or fence in a restricted area, especially if older or more active. This assures an accurate shot/stun.
- Firearm – 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) followed by pithing or bleeding out.
or
- Rifle .22 or greater.

Target

- Frontal target (pg 4).

Steers/heifers/mature cows

Accident or disease sometimes necessitates euthanasia of animals older than 1 year of age. Ensure the site used is accessible for removal of the carcass by tractor/forklift.

Restraint

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

Preferred method

- Captive bolt (using appropriate charge) followed by pithing or bleeding out.
or
- Rifle .22 magnum to or greater.

Target

- Frontal target (pg 4).



Bulls

Bulls pose additional challenges because of the heavier bone in their skull. They can also be more dangerous due to their potentially agitated temperament. Ensure the site used has access for the carcass to be removed by tractor/forklift.

Restraint

- Captive bolt – requires a head bail.
- Rifle – the animal should be sufficiently confined to ensure that in the event of a shot only wounding the animal, it cannot escape.

Preferred method

- Captive bolt (using appropriate charge) followed by pithing or bleeding out.
or
- Rifle .22 magnum or greater followed by a second shot, pithing or bleeding out.

Target

- Preferred target approximately 1cm to either side of the frontal target (pg 4).

Humane slaughter and transport

During transport, it may be necessary to humanely kill an animal before it reaches its destination, in order to prevent the animal suffering further pain or distress.

ANIMAL WELFARE LEGISLATION

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.

*The use of blunt force trauma is strictly prohibited and should only be used as a method of last resort in emergency situations.

Recommended procedures for humane slaughter

Captive bolt

- Confirm the identity of the animal to be slaughtered and move it away, 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 – imaginary lines are drawn from the middle of each horn/horn bud to the top of the opposite eye. The target is the point at which the two lines cross. For bulls, the aim should be approximately 1cm to either side of the frontal target (pg 4).
- Hold the captive bolt firmly at right angles, against the head of the animal.
- Ensure the animal's neck is straight, angle the captive bolt towards and in line with the neck and press the trigger.
- Check that the kill has been effective.
 - No blink reflex (gently touch the eye).
 - Pupils fixed and dilated.
 - No regular breathing.
 - Jaw relaxed, tongue floppy.
 - No heartbeat. Feel for a heartbeat by placing your hand on the animal's chest behind the elbow.
- The captive bolt is only designed to stun the animal. If there is any doubt that the animal is not dead, use a secondary method:
 - pith: insert a rod through the hole made by the captive bolt and push into the brainstem and upper spinal cord, then move rod around vigorously to destroy nervous tissue in and around the brainstem
 - or*
 - use a sharp knife to cut the animal's main blood vessels in the neck and windpipe. Holding the animal's nose, insert the knife behind the angle 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.
- Dispose of the carcass appropriately.

Rifle

- Confirm the identity of the animal to be slaughtered.
- 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 ricochet, 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 .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 – imaginary lines are drawn from the middle of each horn/horn bud to the top of the opposite eye. The target is the point at which the two lines cross. For bulls, the aim should be approximately 1cm to either side of the frontal target (pg 4).
- Hold the rifle at a distance of 5-25cm 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.
- Press the trigger.
- Check that the kill has been effective.
 - No blink reflex (gently touch the eye).
 - Pupils fixed and dilated.
 - No regular breathing.
 - Jaw relaxed, tongue floppy.
 - No heartbeat. Feel for a heartbeat by placing your hand on the animal's chest behind the elbow.
- If there is any doubt the animal is not dead, then either:
 - repeat a shot to the head
 - or*
 - use a sharp knife to cut the animal's main blood vessels in the neck and windpipe. Holding the animal's nose, insert the knife behind the angle 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.
- or*
- pith the animal
- Dispose of the carcass appropriately.

References

Humane Dispatch and Disposal of Infant Calves – *Humane Slaughter Association UK*

Humane Killing of Livestock using Firearms – *Humane Slaughter Association UK*

Procedures for Humane Euthanasia – *Shearer and Nicoletti – University of Florida*

Animal Welfare (Commercial Slaughter) Code of Welfare 2010 *MAF-NAWAC*

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Recommended Captive Bolt Stunning Techniques for Cattle – *Temple Grandin (Updated 2014)*

Euthanasia and Slaughter of Livestock – *Temple Grandin Journal of the American Veterinary Medical Association, Vol. 204 (1994)1354-1360*

Primefacts – humane destruction of stock – *Ross Burton NSW Dept. Primary Industries*

Practical Euthanasia of Cattle (considerations for the producer, livestock market operator, livestock transporter and veterinarian) – *Animal Welfare Committee of the American Association of Bovine Practitioners*

The Arms Code – *New Zealand Police Wellington 2013*

USDA (2004), *National Animal Health Emergency management system guidelines.*

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