



On Farm Euthanasia of Sheep and Goats

The decision to humanely end the life of an animal may be necessary in cases of severe injury or disease or as a result of disasters such as fire or flood. On-farm euthanasia may be the most practical and humane way for a livestock producer to relieve an animal's pain and suffering if it is unfit to travel, or to prevent drug residues from entering the food supply.

Whenever possible, livestock producers should consult with a veterinarian before deciding to euthanize an animal. A broken leg with exposed bone, or exposed internal organs are examples of severe conditions that might call for euthanasia. The following questions will help in deciding whether to treat, slaughter or euthanize an animal that is injured, extremely weak or disabled:

- Is the animal in pain or distress? If yes, consider treatment.
- Is the animal likely to recover? If yes, consider treatment.
- Does the animal have the ability to access feed and water? If yes, consider treatment.
- Have medications been administered? If yes, check withdrawal period.
- Have drug withdrawal times been cleared? If yes, consider slaughter.
- Can the animal be humanely transported? If yes, consider slaughter; you will need a veterinary certificate to transport the animal.

- Does the animal show any clinical signs that you don't recognize or that you recognize as a reportable disease? If yes, you must contact your veterinarian.

Methods of Euthanasia

Euthanasia must be performed in a way that minimizes fear and anxiety in the animal. Good stockmanship practice dictates that producers have an ethical and moral responsibility to provide a humane death for animals in their care, without causing additional pain or suffering.

There are three basic methods appropriate for on-farm euthanasia: overdose by barbiturate; stunning with a penetrating captive bolt, followed by bleed-out; and gunshot. Each method has advantages and disadvantages. Euthanasia by barbiturate overdose must be performed by a veterinarian. Producers who choose the captive bolt pistol or gunshot method must take precautions to prevent serious injury to themselves and others.

To choose the most appropriate method for your operation, consider human safety, animal welfare, required skills, costs and other factors. The table on the following page outlines the three methods and considerations for each.

Penetrating Captive Bolt and Gunshot

An experienced person can produce rapid unconsciousness in an animal by using a penetrating-type

Euthanasia, although an unpleasant task, is an inevitable component of animal husbandry.

	METHOD	HUMAN SAFETY	ANIMAL WELFARE	SKILLS REQUIRED	COST	OTHER
Overdose by Barbiturate	Intravenous administration of a barbiturate	Restrain the animal	Excellent rating	Proper technique for intravenous injection	Veterinary fee	Can only be administered by licenced veterinarian
Penetrating Captive Bolt	Penetration of the skull and brain by captive bolt, followed with bleed-out by cutting all the main arteries and veins in the neck	Restrain the animal Be cautious of falling or thrashing animals	Good rating Correct cartridge strength, target site and penetration angle on animal is essential	Correct and safe use of captive bolt pistol Correct and safe use of sharp knife	Low - after purchase of captive bolt pistol	Results in some body movement Results in large volume of blood that requires proper disposal
Gunshot	Penetration of the skull and brain by bullet	Restrain the animal Be cautious of falling or thrashing animals Be extremely cautious about bullet ricochet	Good rating Correct size of firearm and ammunition, and correct target site and penetration angle on animal is essential	Correct and safe use of firearm	Low - after purchase of firearm	Results in some body movement and blood Requires firearm acquisition certificate Local by-laws may prohibit the use of firearms

captive bolt or shot from a firearm which is aimed at the correct target site and penetration angle for the species and age of animal. The same anatomical targets and penetration angles are used for both a penetrating captive bolt pistol and a firearm (see Figures 1 and 2).

Penetrating Captive Bolt

- Ensure the animal is well restrained.
- Use the appropriate cartridge strength for the animal (refer to the manufacturer's manual).
- Place the captive bolt pistol firmly against the animal's head on the target site, and shoot.
- Be careful to avoid injury from thrashing limbs when the animal collapses.
- Cut both the carotid arteries and jugular veins in the neck with a sharp knife to bleed-out the animal after stunning. These arteries and veins are on both sides of the throat.

Gunshot

- Ensure the animal is well restrained.
- Plan to shoot outdoors when possible.
- Have a backstop (e.g., an earth berm, manure pile, or something that will stop the bullet if you miss or it over-penetrates) behind the area you are aiming at.
- Use a firearm and ammunition that are appropriate for the size, age and type of animal. The ammunition used to eutha-

nize an animal must be powerful enough to make the animal immediately unconscious and to penetrate the head deeply enough to destroy the areas of the brain that control breathing and circulation.

- A .22 calibre firearm, using "long-rifle" hollow-nosed ammunition or a .38 calibre firearm can be used to successfully euthanize sheep and goats.
- Hold the firearm 5-25 cm (2-10 in.) from the target site. To avoid personal injury, do NOT place the firearm muzzle against the animal's skull. Aim the shot down the line of the spine so that the bullet will enter the brain stem (the beginning of the spinal cord), and shoot.
- Be careful to avoid injury from thrashing limbs when the animal collapses.

Target Site and Penetration Angle

The target site for euthanizing sheep and goats without horns is at a point on the forehead at the mid-line, just above the eyes, as shown in Figure 1. The shot must be directed at an angle down the line of the spine and into the bulk of the body (or where the body would be if the animal were to be standing normally).

Heavily horned sheep and goats should be shot behind the poll, directing the shot in a path downward just behind the eyes and towards the nose, as shown in Figure 2.

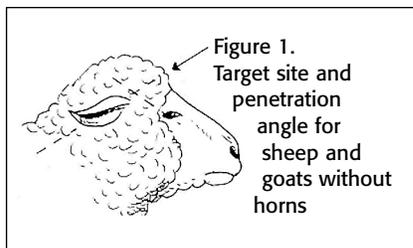


Figure 1. Target site and penetration angle for sheep and goats without horns

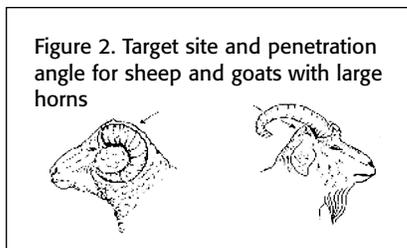


Figure 2. Target site and penetration angle for sheep and goats with large horns

tion where you can easily reach the mortality and to quickly dispose of it.

DADA permits the following three disposal methods:

- Pick-up by a provincially licenced deadstock collector
- Burial under 0.6 m (2 ft.) of soil on the farm
- Composting on the farm

Confirmation of Death

It is essential that you confirm the animal's death directly following euthanasia. A standing animal should immediately collapse. Its muscles may involuntarily contract, usually for no longer than 20 seconds. After this, it may show some poorly coordinated kicking or paddling movements before the muscles completely relax.

Check the animal for breathing, heartbeat and blinking response (corneal reflex). There should be none. The eyes should be fixed and dilated. To check the blinking response, touch the surface of the animal's eye (the cornea). Any eye movement or blinking shows sustained or recovering brain activity. If there is any sign of breathing, heartbeat or blinking, repeat the euthanasia method or use an alternate procedure.

Disposal of Mortalities

The proper disposal of livestock mortalities is critical in preventing environmental contamination and the spread of disease. In Ontario, the Dead Animal Disposal Act (DADA) regulates the disposal of dead cattle, swine, sheep, goats and horses, and any parts, including blood.

Under DADA, producers are required to properly dispose of on-farm mortalities in a safe and environmentally friendly manner within 48 hours of death. When euthanizing an animal, it is a good idea to choose a loca-

Conclusion

Human safety and animal welfare must over-ride economic considerations when deciding if, how, when and where an animal must be humanely destroyed.

Euthanasia, although an unpleasant task, is an inevitable component of animal husbandry. Careful planning and training can help to minimize a person's stress associated with carrying out this necessary act, and prevent the unnecessary suffering of animals. Discuss euthanasia options for your farm operation with your veterinarian, then develop an action plan and update it annually as part of your flock or herd health program.

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NOTICE AND DISCLAIMER: The Ministry of Agriculture and Food does not recommend any specific one of the methods described above. Producers must determine which method is appropriate for their individual circumstances. Possession and use of firearms are governed by federal legislation; producers should ensure compliance with all legislative requirements and ensure adequate safety precautions are used. The Ministry of Agriculture and Food is not liable for injuries or damages resulting from the use of the above methods.



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