

On-Farm Euthanasia Recommendations

Farmers dedicate their lives, both professionally and personally, to the health and comfort of the farm animals they care for every day.

Despite the best standards of care, it is inevitable that there will be animals that become sick or injured. Timely and effective euthanasia is a tool that farmers need to use to improve animal welfare and reduce suffering of animals that have unacceptable levels of discomfort or a poor prognosis for recovery. Often, due to the size and physical make-up of farm animals, gunshot is the most practical and humane method of euthanasia in many situations. Gunshot, done properly, results in immediate unconsciousness and death, and is therefore a very humane method of euthanasia.



Human Safety

Operator safety is crucially important when gunshot is used in euthanasia. Only people who have all the necessary licences and permits should use firearms. Great care should be taken to ensure that human safety is protected. Measures to protect operator safety include:

- Using appropriate calibre gun and ammunition for the animal being euthanized
- Assuming that a gun is ALWAYS loaded
- Positioning the animal in front of a backstop that will stop any bullet that exits or ricochets from the animal
- Ensuring that all people present stand behind the person who is firing the gun
- Placing the muzzle of the gun at a range of approximately 6" from the animal and NEVER flush on the animal's head, as this could cause the barrel to explode
- Taking care to stay clear of any reflex animal movements resulting from euthanasia



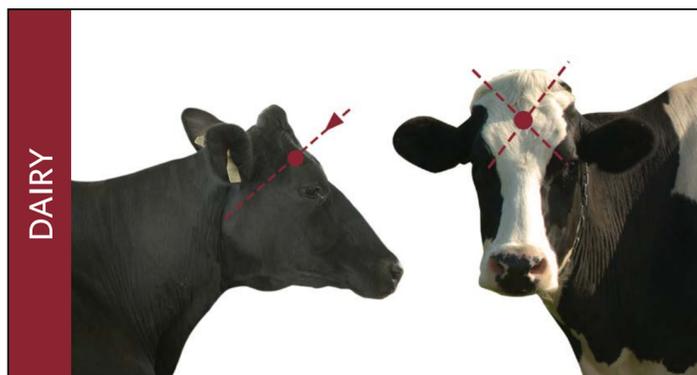
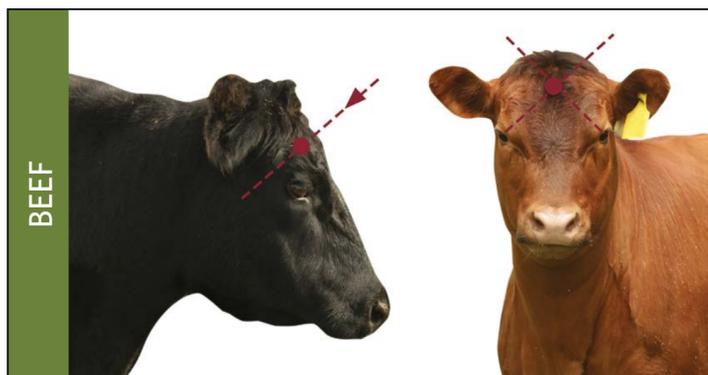
Effective Gunshot

For gunshot to be an effective method of euthanasia, it is important that the bullet contain enough energy to penetrate the skull and kill the animal. Ideally, farm animals less than 180kg (400 lbs) require 300 ft lbs of energy, where animals larger than 180 kg require 1000 ft lbs. Energy is determined by the weight of the bullet and the speed at which it leaves the gun. Because of this, the bore of the gun is not a guarantee that the shot will be effective. The make-up of the bullet is critical. If using gun/bullet combinations of less than the ideal, there is much less margin for error in the selection of site and angle of the shot, increasing the risk of failure.

Guide to Ballistics for Euthanasia of Farm Animals

Appropriate calibre and ballistics decisions will improve the effectiveness and safety of gunshot euthanasia in all species.

CALIBRE	BULLET	MUZZLE ENERGY	TARGET SPECIES	CONSIDERATIONS
.22	.22 Solid	67-100	NOT RECOMMENDED	Unreliable skull penetration
	.22 Hollow Pt	67-100	NOT RECOMMENDED	Unreliable skull penetration
	.22LR	85-140	Polled sheep and goats, calves	Very little margin for error in location, due to low energy of shot
.22 Magnum	.22 Mag	324	Horned sheep and goats, cattle	
.223	Ballistic	1100-1400	Cattle	
	Full Metal Jacket	1100-1400	NOT RECOMMENDED	Overpenetration poses significant risk to operator
.30-06	Part Fragmentation	3076	Cattle	
	Deformation (soft point)	3076	Cattle	
.410 Shotgun	1/5 oz slug, #4, #6 shot	750-850	Sheep, goats, calves	#4/#6 shot spread out inside skull, reducing the risk of overpenetration
20ga Shotgun	5/8 oz slug, #4, #6 shot	1400-1800	All Ruminants	#4/#6 shot spread out inside skull, reducing the risk of overpenetration
12ga Shotgun	1 oz slug, #4, #6 shot	2806-3109	All Ruminants	#4/#6 shot spread out inside skull, reducing the risk of overpenetration



Confirmation of Death

As with any method of euthanasia, it is important to ensure that gunshot has been effective. The following signs can be used to confirm loss of consciousness and death:

- Lack of heartbeat (check with a stethoscope if possible)
- Lack of respiration (be cautious, since respiration can be erratic in unconscious animals)
- Lack of corneal reflex (gently touching the eyeball should not cause the animal to blink)
- Presence of rigor mortis
- Lack of heartbeat, respiration and inability of the animal to blink in response to the touch on the eyeball for a duration of 5 minutes is a reliable indication of death.

If any signs of consciousness are noted, including those above, or attempts to right itself, vocalization, blinking or rhythmic breathing, the anatomical landmarks should be re-evaluated, and gunshot reapplied, ensuring that appropriate calibres and ballistics are used.



Resources

Humane Killing of Livestock using Firearms. www.hsa.org.uk

Computed tomographic evaluation to determine efficacy of euthanasia of yearling feedlot cattle by use of various firearm-ammunition combinations. Thomson, Wileman, Rezac, Miesner, Johnson-Neuman, Biller. American Journal of Veterinary Research, 2013

Evaluation of methods for the euthanasia of cattle in a foreign animal disease outbreak. Baker, Scrimgeour. Canadian Veterinary Journal, 1995.

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