



Vet Call

► by **Bob Larson**, Kansas State University

Euthanasia of cattle

While veterinarians and cattle producers work long, hard hours to protect the health of the cattle in their care, sometimes euthanizing an animal is the best way to protect cattle welfare. A decision to euthanize an animal is based on the level of pain or distress of the animal, how likely the animal is to recover and the length of time required to recover if treated, the ability to get to feed and water, the likelihood that the animal would be condemned if presented for slaughter, and the potential for important diagnostic information to be gained that would protect the health of other animals or humans.

When it's appropriate

Conditions that may indicate euthanasia is appropriate to protect animal welfare include situations when an animal has a severe injury, such as a fracture that prevents it from standing; situations when the animal has poor quality of life due to advanced age or disease (particularly with a low likelihood of recovery); disease conditions with no effective treatment or that produce a high level of pain that cannot be managed; diseases for which the treatment would result in extended drug withdrawal time until clearance of tissue residue; or diseases such as rabies that involve a significant threat to human health.

The goal of euthanasia, as described by the American Veterinary Medical Association

(AVMA), is to use “a method of killing that minimizes pain, distress, and anxiety experienced by the animal prior to loss of consciousness, and causes rapid loss of consciousness followed by cardiac or respiratory arrest and death.”

Basically, euthanasia is the practice of ending the life of an ill or debilitated animal in the most painless and low-stress manner possible. Each approved method of euthanasia will either involve direct destruction of brain tissue (gunshot, penetrating captive bolt); rapid onset of unconsciousness (non-penetrating captive bolt or anesthetic drug) followed by cutting a major artery to remove oxygen-carrying blood; or use of a drug (barbiturates) that directly depresses the brain, which leads to

death by the stoppage of breathing. Because cattle are large and euthanasia options, by their definition, have the ability to end life, human safety is a primary concern when selecting a method of euthanasia.

Options

Several of these euthanasia techniques require that the animal be restrained in a squeeze chute or in a similar manner; if restraint is not possible, it is likely that only a gunshot to the head is practically possible, and it requires specialized skill and training. If performed skillfully, gunshot induces unconsciousness instantly and does not require close contact with the animal (2 to 10 inches from the head).

However, this method should only be attempted by individuals trained in the use of firearms and the proper location of the point of impact for euthanasia, and who understand the potential for ricochet. Care must be taken to minimize danger to the shooter, to bystanders and to other animals. In addition, the shooter should be aware of local ordinances that may prohibit the discharge of firearms in some locations.

Captive bolt “guns” are placed firmly against the skull (training is required to identify the correct location) of a restrained or sedated animal. The bolt is either penetrating or non-penetrating, depending on the gun type. Both types (penetrating and non-penetrating) will consistently cause stunning of an animal.

A stunned animal will “drop” but will still exhibit respiration and sudden quick limb movements. These movements may be misinterpreted as a response to pain by a person inexperienced with euthanasia. An additional procedure such as cutting a major artery such as one or both carotid arteries in the neck, the major arteries located under the front legs, or the aorta to allow the animal to bleed out or injecting a chemical agent to stop breathing must be used to ensure death after the use of the non-penetrating captive bolt and is recommended after use of the penetrating captive bolt. The captive bolt method may not be appropriate if the euthanasia will be observed by people not trained in the method.

Injecting an overdose of a barbiturate drug into a large vein is an effective method

of euthanasia, but it requires a special veterinary license. When properly administered, barbiturate overdose produces rapid unconsciousness followed by slowing and then stopping of breathing and a heartbeat.

This method is particularly appropriate if untrained people will be observing the euthanasia because of the minimal movement of the animal after injection, or if the animal is being euthanized because of concern that the animal may have rabies. In order to test for this important disease that can affect humans, the brain must be sent to a diagnostic laboratory and euthanasia methods that destroy the brain (gunshot and captive bolt) cannot be used.

One drawback to this method of euthanasia is that carcass disposal options may be reduced. Because tissue residues of the barbiturate can be high, renderers may

not accept the carcass. If disposal methods such as composting or shallow burial allow scavengers to gain access to the carcass, unintended animals or birds (some of which are protected by federal or state law) may be killed.

Remaining options for carcass disposal are limited by state and federal regulations, but may include deep burial or incineration.

Final thoughts

Euthanasia of an animal that is suffering from irreversible disease or injury is a primary responsibility for cattle producers and veterinarians. While an important component of animal care, this practice is not simple, because potential methods of euthanasia each have their limitations. Cattle producers will occasionally be confronted with ill or debilitated animals that should be humanely euthanized. This important task

should be done by people with the skills and training to maintain human safety, as well as to ensure the quick and painless death of the animal.

More information is available from *Practical Euthanasia of Cattle: Considerations for the Producer, Livestock Market Operator, Livestock Transporter, and Veterinarian*, prepared by the Animal Welfare Committee of the American Association of Bovine Practitioners (AABP). The publication is available in both English and Spanish, and at http://aabp.org/about/AABP_Guidelines.asp.



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