

# Humane Slaughter

## OBJECTIVES

Upon completion of this module you will be able to accomplish the following without the aid of references:

1. Select, from a list of definitions, the one that best describes the terms:
  - a. Surgical anesthesia.
  - b. Ritual slaughter.
2. Describe the four approved methods for stunning animals as identified in the Humane Slaughter Act and the regulations.
3. Select, from a list of general humane slaughter or handling responsibilities, those that are applicable to the establishment, to FSIS, or both.
4. Determine if a description of the way an animal is stunned is in compliance with the federal humane slaughter law.
5. Describe a method of slaughter that is exempt from stunning.
6. Select, from a list describing various methods used to move a disabled, yet conscious, animal from one area to another area, those methods that are acceptable according to the Humane Slaughter Act.
7. Compare a description of the way an animal is handled to the federal humane slaughter law to determine if the handling is in compliance with the Humane Slaughter Act.
8. Identify, from descriptions of establishment conditions in or around the livestock holding pens, those that might cause injury to animals.
9. Describe the establishment's responsibilities for animals that are withheld from slaughter for longer than 24 hours.
10. Describe the action an inspector should take when he/she observes an incident of inhumane treatment in an official establishment as a result of:
  - a. Facility deficiencies, disrepair, or equipment breakdown.
  - b. Establishment employee actions in the handling or moving of the livestock.
  - c. Improper stunning.

## References:

1. MPI Regulations (Section 305.5 and Part 313)
2. MPI Guideline #6 Glossary of Meat and Poultry Inspection Terms
3. Humane Slaughter Act
4. FSIS Directive 6900.1 Revision 1
5. FSIS Directive 6900.2 Revision 1

## Humane Slaughter

The use of humane methods in the slaughter and handling of livestock prevents needless suffering, results in safer working conditions for packing house workers, improves the quality of meat products, and decreases a significant financial loss to meat packers. Prior to 1958 there were no laws in the United States governing humane slaughter practices. The majority of the meat industry recognized the benefits of humane slaughter practices and their use was widely accepted. Primarily there were economic incentives; humane treatment generally resulted in less bruising and therefore less trimming of the dressed carcass. Still there was concern from many Americans over isolated, but persistent reports of continued cruelty to livestock at a few plants.

The first law passed to address these concerns was the Humane Slaughter Act of 1958. This law was voluntary for meat packers who did not sell meat to the federal government. It required that livestock be rendered insensible to pain by a blow, gunshot, or electrical or chemical means that is rapid and effective before shackling, hoisting, casting, or cutting.

The law that is currently enforced by the USDA is the Humane Slaughter Act of 1978. An important responsibility of yours is to monitor plant facilities and the activities of plant personnel to assure compliance with this law. The 1978 Act made the proper treatment and humane handling of all food animals slaughtered in USDA inspected slaughter plants mandatory. This includes cattle, calves, horses, mules, sheep, goats, swine, and other livestock. Once again, it required that livestock are rendered insensible to pain before being shackled, hoisted, cast, or cut. It also mandated several additional specific requirements to the humane handling of animals in meat packing plants in the United States. These include: "downers" cannot be dragged while conscious, workers are not allowed to physically retaliate against animals, water must be provided to animals at all times, and cattle prods connected to AC house current must be reduced by a transformer to the lowest effective voltage not to exceed 50 volts.

The only exemption to the statutory requirement of rendering the animal insensible to pain prior to shackling, hoisting, casting or cutting is ritual slaughter. Animals may be approved for slaughter in accordance with the ritual requirements of a religious faith that prescribes a method of slaughter where the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument. Examples of ritual slaughter include Kosher slaughter and Islamic (Halal) slaughter.

## Stunning Methods

The regulations describe four acceptable methods for producing a state of surgical anesthesia (surgical anesthesia is defined as a state where the animal feels no painful sensations). The four acceptable methods are:

- Chemical (Carbon Dioxide -CO<sub>2</sub>)
- Mechanical (Captive Bolt)
- Mechanical (Gunshot)
- Electrical (Electrical Current).

Carbon dioxide gas (CO<sub>2</sub>) is approved for rendering swine, sheep, and calves unconscious. The gas must be administered in a way that produces surgical anesthesia quickly and calmly, with a minimum of excitement and discomfort to the animals. A carbon dioxide gas chamber is designed on the principle that carbon dioxide is heavier than normal atmospheric air. The chamber is open at both ends for the entry and exit of the animals to anesthetizing CO<sub>2</sub> concentrations. Once anesthesia has occurred, the animals are removed from the chamber and are ready to be shackled, hoisted, or placed on a table for bleeding. The establishment must maintain a uniform carbon dioxide concentration in the chamber so that the degree of anesthesia in exposed animals will be constant. All gas-producing and control equipment must be maintained in good repair and all indicators, instruments, and measuring devices must be available for inspection by FSIS.

There are two types of mechanical captive bolt stunners that may be used to produce immediate unconsciousness in cattle, sheep, goats, swine, horses, mules, and other equines. Both types have gun-type mechanisms that fire a bolt or shaft out of a muzzle. The bolt is discharged or propelled by a measured charge of gunpowder (a blank cartridge) or by accurately controlled compressed air. Both types must be operated by a well-trained and experienced establishment employee. The employee must be able to accurately and consistently position the stunning devices so that the bolt hits the skull at the right location to produce immediate unconsciousness. The employee must also be able to adjust the air pressure or detonation charge when the sex, the breed, or the size of the animal changes.

Captive bolts powered by compressed air must have accurate, constantly operating air pressure gauges. The gauges must be easily read and conveniently located for inspection by FSIS. When fired, the bolt in the penetrating type of captive bolt stunner penetrates the skull and enters the brain. Unconsciousness is caused by physical brain damage, sudden changes in intracranial pressure, and concussion. The brain from animals stunned with penetration captive bolts may be saved for edible purposes provided the establishment removes the large blood clots, bone splinters, hair, and debris from the brain.

Many plants will utilize the non-penetration type captive bolt in order to avoid the time-consuming task of physically removing large blood clots, hair, bone, splinters, and debris from the brain. The non-penetration (concussion) bolt is similar to the penetrating bolt except that it has a bolt with a flattened circular head (mushroom head). When fired, the mushroom head meets the skull, but does not penetrate. The animal becomes insensible from the impact or concussion.

Another type of mechanical device used for stunning is the firearm. It can be used on cattle, calves, sheep, goats, swine, horses, and mules. The caliber of the firearm must be such that a single shot of a bullet or projectile into the animal must produce immediate unconsciousness. If a small-bore firearm is used, it must use one of the following types of projectiles:

- Hollow pointed bullets
- Frangible iron/plastic composition bullets
- Powdered iron missiles

Regardless of the type of projectile, a large percentage of the brain, cheek meat, and head trimmings may contain whole or fragmented bullets. Therefore, 310.18(B) of the Regulations states that after the head is inspected, the brains, cheek meat, and head trimmings may not be saved for human food. The only portion of the head that can be salvaged for human food from an animal stunned using bullets is the tongue.

The final method approved for stunning animals is electric current. It is used for hogs, calves, sheep, and goats. While approved for use in cattle, this is not a common practice. It is most widely used for hogs. The animal is physically restrained so that the electric current can be applied with a minimum of excitement and discomfort to the animal. The placement of the electrodes varies from plant to plant. It would not be uncommon to see the operator place one electrode on the head and the other electrode over the thoracic region. The current passing through the animal must be enough to ensure surgical anesthesia throughout the bleeding operation. The operator must control the timing, voltage, and current so that each animal is properly stunned. Animals must be either stunned or killed prior to being shackled, hoisted, thrown, cast, or cut. Animals should be stuck quickly after stunning (within 30 seconds) to prevent them from regaining consciousness during bleeding. If too much current is applied in the stunning process, hemorrhages or other tissue changes can occur that could interfere with the inspection procedure. Too high an electrical current can damage capillaries, resulting in multiple pin-point hemorrhages in the muscle tissue. This is commonly referred to as "splashing" or "speckling".

As previously mentioned, slaughtering is permitted without a stunning device in accordance with the ritual requirements of the Jewish (Kosher) faith or any other religious faith. The animal may be fully conscious when the stick or cut takes place. For Kosher slaughter, the sticking is done by a Shochet (slaughterer) chosen from the community, trained in the laws of the orthodox religion, and supervised by a rabbi in his area. The cut is made with a razor sharp knife called a Chalef that is honed after each cut.

### **Humane Handling and Facilities**

Besides monitoring the establishment's stunning procedures, FSIS must also monitor the establishment's humane handling in connection with slaughter. Personnel responsible for moving livestock from the unloading ramps to the holding pens and from the holding pens to the stunning area must do so with a minimum of excitement and discomfort to the animals. Livestock must not be driven faster than a normal walking speed. The ramps, driveways, and the floors of pens must be constructed and maintained so that the livestock have good footing. It may even be necessary for the plant to use sand during the winter to overcome slick conditions.

When moving animals, the use of electric prods, canvas slappers, or any other type of implement must be minimized to prevent injury and excitement. The use of implements such as baseball bats, shovels, sharp prods, whips, and the like, which in the opinion of the inspector can or will cause injury, are prohibited.

Livestock must have access to water at all times while in holding pens. If they are held longer than 24 hours, they must also have access to feed and have enough room in the holding pen to lie down.

Livestock pens and driveways must be constructed so that animals are not driven around a lot of sharp corners. Pens, driveways, and ramps must be maintained in good repair. They must be kept free from sharp or protruding objects that can cause injury. Loose boards, splintered or broken planks, broken pipe rails, broken unloading ramps, and unnecessary openings where the head, feet, or legs of an animal may be injured must be repaired.

Disabled animals or those unable to move will be segregated into the suspect pen. The regulations strictly prohibit the dragging of a conscious animal that is unable to walk. The establishment must either stun these "downers" before dragging them or move the animals by placing them on a skid, stone boat, bucket lift, or some other type of equipment that is suitable for moving a conscious but disabled animal. The regulations in 9 CFR 309.3 require that non-ambulatory cattle be condemned on antemortem inspection, however, this does not relieve the establishment of their responsibility to handle these animals in a humane manner.

FSIS Directive 6900.1, Revision 1 permits inspection program personnel to either be outside transport vehicles or enter onto transport vehicles to conduct antemortem inspection if disabled livestock cannot be humanely removed from the vehicles by establishment employees. The decision to enter a transport vehicle to conduct antemortem inspection or to conduct antemortem inspection from outside the vehicle is to be made by each inspector individually and is completely voluntary. Inspection personnel may enter onto the transport vehicle or perform antemortem inspection from outside the transport vehicle if, in his or her professional opinion, he or she can safely and adequately conduct the antemortem inspection. No adverse or disciplinary action can or will be taken against any inspection program personnel choosing not to conduct antemortem inspection of disabled livestock on or from outside of a transport vehicle.

FSIS Directive 6900.2 Revision 1 titled Humane Handling and Slaughter of Livestock was issued in November 2003. This directive informs inspection program personnel of the requirements, verification activities, and enforcement actions for ensuring that the handling and slaughter of livestock, including the slaughter of livestock by religious ritual methods, is humane. This directive explains how inspection program personnel should approach these activities.

FSIS Notice 35-04 was issued in June of 2004. This notice provides inspection program personnel with information on the Humane-handling Activities Tracking (HAT) under the Electronic Animal Disposition Report System (eADRS). The eADRS system replaced the use of FSIS paper forms to report information about animals presented for slaughter. The eADRS data provides valuable information concerning animal diseases and welfare in the United States. HAT is one component of the eADRS. The HAT component provides FSIS with data on the time FSIS personnel spend verifying, as set out in FSIS Directive 6900.2, Revision 1, that humane handling and slaughter requirements are met. So that FSIS will have accurate and complete

data, the HAT component is designed to record the time spent on humane handling related activities and to separate that time into nine specific categories. Notice 35-04 gives instructions for including the appropriate category in Block 10 of any Noncompliance Record (NR) completed as a result of inspection verification of humane requirements.

The nine Humane-handling Activities Tracking (HAT) categories are:

- Category I – Adequate Measures for Inclement Weather
- Category II – Truck Unloading
- Category III – Water and Feed Availability
- Category IV – Handling During Antemortem Inspection
- Category V – Handling of Suspect and Disabled
- Category VI – Electric Prod/Alternative Object Use
- Category VII – Observation of Slips and Falls
- Category VII – Stunning Effectiveness
- Category IX – Check for Conscious Animals on the Rail

### **Enforcement**

If you observe a breakdown in the establishment's humane handling procedures, you must take immediate action. For example, you may notice an employee driving livestock with an instrument (the edge of a shovel, a large board, or a baseball bat) that can cause injury. Your action must be to inform plant management and insist that they correct the situation immediately. If the plant management fails to correct the situation, or fails to assure you that they will correct the situation, then you should attach a U.S. Rejected tag to the alleyway leading to the stunning area. You would not allow the plant to move any more livestock to the stunning area until you receive satisfactory assurance from the management that the inhumane handling will not happen again.

If you observe inhumane treatment to livestock as a result of facility deficiencies, you must also take immediate action. For example, you may notice broken pipes that are cutting and bruising the livestock. Again, your action must be to inform plant management and insist that they correct the deficiencies, then you should attach a U.S. rejected tag to the pens or alleyways with the broken pipes. You would not allow the plant to use the pens or alleyways until the deficiencies have been corrected.

If there is an egregious situation of inhumane handling or slaughter, the IIC is to immediately suspend inspection in accordance with 9 CFR 500.3(b) and orally notify plant management. An egregious situation is any act that is cruel to animals or a condition that is ignored and leads to the harm of animals such as:

- Making cuts on or skinning a conscious animal
- Excessive beating or prodding of ambulatory or non-ambulatory disabled animals
- Dragging conscious animals
- Driving animals off semi-trailers without providing adequate unloading facilities causing them to fall to the ground
- Running equipment over animals
- Stunning of animals and then allowing them to regain consciousness
- Disabled livestock left exposed to adverse climatic conditions while awaiting disposition

This list is just an example of some activities that could be considered egregious, but by no means is exhaustive. Each inhumane activity needs to be assessed individually by the IIC. The IIC is authorized to take the immediate suspension if the situation warrants it.

Whenever a violation of the humane slaughter requirements is observed, inspection personnel should document the incident on a Noncompliance Record (NR), with a copy to be sent to the District Office. If a number of NRs are issued for the same cause, or there are multiple NRs for different causes, but together they demonstrate an overall failure in the humane handling system at the establishment, the District Office can initiate an administrative action. This action would be at the advice of the IIC, the FLS, or the DVMS who is monitoring NR activity in the district. To prevent the inhumane slaughtering or handling of livestock, the Administrator may determine that it necessary to temporarily suspend the official establishment's inspection service.

## Humane Slaughter Workshop

Mark your choice(s) with an "X" in the space provided.

1. Which of the following could be deficiencies that could cause injury or discomfort to animals during unloading, weighing, or driving to the stunning area?

\_\_\_\_\_ An unloading ramp with a 2-inch section of the planking missing

\_\_\_\_\_ Several bolts protruding from the pen posts

\_\_\_\_\_ Antemortem pens not covered

\_\_\_\_\_ Icy runways

\_\_\_\_\_ Floors in the pens are smooth concrete

2. "Surgical Anesthesia" is best described as:

\_\_\_\_\_ A drug or implement used to render the animal unconscious.

\_\_\_\_\_ A state where the animal feels no painful sensations.

3. "Ritual Slaughter" is best described as:

\_\_\_\_\_ A method of slaughter dictated by a religious group.

\_\_\_\_\_ A method of slaughter that requires the animal to be bled prior to loss of consciousness.

\_\_\_\_\_ Both of the above.



4. Which of the following implements or methods used to drive or move livestock is prohibited in all instances by Part 313 of the Regulations?

\_\_\_\_\_ Canvas slapper.

\_\_\_\_\_ Wooden walking stick.

\_\_\_\_\_ Battery- operated prod.

\_\_\_\_\_ Bull whip.

\_\_\_\_\_ Electric prod attached to AC current (transformer limits voltage to 50).

\_\_\_\_\_ Whistle.

\_\_\_\_\_ Electric prod attached to AC house current (no transformer available).

\_\_\_\_\_ Flat- blade shovel.

\_\_\_\_\_ Light leather strap, 2 inches wide.

\_\_\_\_\_ Hand- held metal prod.

\_\_\_\_\_ Lead goat.

5. List the four approved methods for humanely stunning animals.

6. Animals that are delivered to the slaughter plant at 3:30 p.m. on Monday are intended to be slaughtered no later than noon on Tuesday would require both water and feed.

\_\_\_\_\_ True

\_\_\_\_\_ False

7. From the following list of responsibilities write the letter "I" opposite those that are inspector's responsibilities and the letter "E" opposite those that are the establishment's responsibilities.

- Provide adequate pens in good repair.
- Adhere to all humane slaughter requirements.
- Frequently observe stunning procedures to determine whether livestock are insensible to pain before shackling and bleeding.
- Provide water and feed when necessary for animals.
- Report any deviation from acceptable humane practices.
- Provide acceptable means to move disabled animals.
- Reject areas/ equipment when inhumane treatment is observed.

8. You are performing the antemortem assignment and you observe a plant employee prodding animals with a sharp pointed implement that could cause pain and injury. Which of the following statements best describes the action you should take as identified in the regulations?

- Tell the plant employee to stop using the pointed implement.
- Inform the plant management of the incident and request that they take the necessary steps to prevent a recurrence.
- Notify the District Manager and the Humane Society.

9. An animal that is conscious, but not able to stand or walk, should be moved by which of the following methods?

- Loading the animal onto a skid, stone boat, bucket lift, or any other method that will not, in your opinion, cause undue excitement and/ or pain.
- Allow the establishment to stun the animal then allow it to be dragged.
- Either of the above.
- None of the above.

10. An injured but alert U.S. suspect may be dragged from the suspect pen to the knocking box.

\_\_\_\_\_ True

\_\_\_\_\_ False

11. The plant is using firearms to stun livestock. Which of the following is a true statement?

\_\_\_\_\_ Condemn both the heads and the tongues if hollow-pointed bullets are used.

\_\_\_\_\_ Condemn the tongues but save the heads if frangible bullets are used.

\_\_\_\_\_ Condemn the heads but may save the tongues regardless of the type of bullets used.

12. Can an establishment's inspection service be suspended if it has a history of treating livestock inhumanely?

\_\_\_\_\_ Yes

\_\_\_\_\_ No