



On-farm slaughter operation food safety

Learning module 3:

Animal welfare and humane slaughter

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On-farm slaughter operation food safety

Learning Module 3: Animal Welfare and Humane Slaughter

1.0 What is animal welfare? Why is it important?

Animal welfare refers to the overall physical and mental well-being of animals and is therefore not merely a legislative requirement. Farm animals are living beings, and we have a moral as well as a legal/regulatory responsibility to treat them humanely when they are in our care, up to and including the slaughter process. On-farm slaughter operators (OFSO) can help minimize the amount of stress experienced by animals prior to slaughter by creating and maintaining a comfortable, quiet environment.

Animal health and humane slaughter are connected to food safety. Endocrine changes related to prolonged stress can reduce immune function and make animals vulnerable to infectious diseases. Stress caused by overcrowding during transport or while being housed can lead to increased fecal shedding of *Escherichia coli* in both cattle and pigs. This increases the risk of product contamination during slaughter and processing.

Minimizing stress can also increase meat quality. The energy required for muscle activity in the live animal is obtained from stored sugars (glycogen) in the muscle. In a healthy and well-rested animal, the glycogen content of the muscle is high. After the animal has been slaughtered, the glycogen in the muscle is converted into lactic acid, and the muscle and carcass become firm (rigor mortis). Lactic acid is necessary to produce flavourful and tender meat of good quality and colour. If the animal is stressed before or during slaughter, its glycogen is used up, and the lactic acid level that develops in the meat after slaughter is reduced, which can have adverse effects on meat quality.

Customers and society expect a commitment by agricultural operations to ethical animal farming practices and seek operations and products that reflect their animal welfare concerns. These societal expectations help farmers, ranchers, and processors to improve the lives of their animals and to stay updated with the help of scientists, veterinarians and animal welfare experts.

In simple terms, animal welfare is what the animal is experiencing and how they are coping with their environment. As an OFSO it is your responsibility to continuously strive to provide the highest level of care and welfare for your animals or animals in your care.

1.1 Animal welfare policy

Developing and posting your animal welfare policy in a public place is a suggested best practice and lets customers know of your commitment to animal welfare and humane slaughter. The following is an example of an animal welfare policy from British Columbia's Ministry of Agriculture and Food:

Animal Welfare Policy Insert Company Name

We at Insert Company/ Farm Name are committed to providing optimal welfare to the animals in our care. We do this by providing them with:

- shelter to protect them from the elements;
- facilities that are safe and conducive to animal movement;
- water and feed as needed and required;
- immediate attention if they become injured or ill, and
- humane end of life at slaughter.

We at Insert Company/Farm Name also have zero tolerance for animal neglect and abuse. If any member of our staff is observed abusing or neglecting animals, including those delivering animals to the facility, they will be immediately disciplined including the possible referral to the appropriate authorities.

Insert Manager or Owners Name, Management

2.0. Legislation

In Alberta and Canada, there is legislation that applies to anyone housing, transporting and/or slaughtering animals for food. The objective of these pieces of legislation is that an OFSO licensee and any individuals assigned or hired by the OFSO licensee to conduct slaughter have the knowledge, skills and equipment to do so safely and humanely. The OFSO licensee, the individual who owns the animal, or any other skilled person may conduct the slaughter if they do so safely and humanely.

Safe and humane slaughter means that the individual minimizes pain and distress to the animal while it is being prepared for slaughter and during the slaughter process.

As identified on the OFSO application form, the legislation related to animal welfare includes:

1. [Meat Inspection Regulation](#)

Alternative Methodology on Religious Grounds

8 Where the director, on application, is persuaded that obedience to a specific rule in this regulation would offend against the religious convictions genuinely held by a person affected by the rule, the director may approve an alternative method of meeting the general intent of the provision in which the rule is contained that will not offend against those convictions, in which case that person may use that approved method instead.

Humane Slaughtering

21(1) A person shall minimize pain and distress of any animal; that is being prepared for slaughter or slaughtered.

Method of Slaughter

22.1(1) A person shall restrain an animal and render it unconscious immediately before the animal is slaughtered.

(2) The method of rendering the animal unconscious must

- a) produce rapid unconsciousness,
- b) ensure the animal does not regain sensitivity or consciousness before it has been bled out, and
- c) be one of the following methods:
 - i. delivering a blow to the animal's head by means of a mechanical device that is in accordance with accepted industry standards for animal welfare;

- ii. (ii) exposing the animal to gas by a method that is in accordance with accepted industry standards for animal welfare;
- iii. (iii) applying an electric current to the animal;
- iv. (iv) penetrating the animal's skull and brain
 - (A) with a captive bolt device, or
 - (B) by shooting it in the head with a rifle;
- v. (v) using a method approved by the director for the purpose of developing or testing a new procedure or item of equipment intended to improve humane methods of slaughter.

Please refer to the on-farm slaughter operation technical guide for more information

2. [Animal Protection Act](#)

Prohibition against causing distress

2(1) No person shall cause or permit an animal of which the person is the owner or the person in charge to be or to continue to be in distress.

(1.1) No person shall cause an animal to be in distress.

Animal Care duties

2.1 A person who owns or is in charge of an animal (a) must ensure that the animal has adequate food and water, (b) must provide the animal with adequate care when the animal is wounded or ill, (c) must provide the animal with reasonable protection from injurious heat or cold, and (d) must provide the animal with adequate shelter, ventilation and space.

3. [Animal Protection Regulation](#)

4. [Health of Animals Regulations \(Canada\): Part XII: Transportation of Animals](#)

3.0 Importance of animal welfare and handling (before and after slaughter)

The welfare of animal(s) must be considered during housing, transporting, loading and unloading and movement of animals.

3.1 Housing or shelter

Having a properly designed and maintained area for housing animals can make a huge difference in the safety and welfare of both humans and animals. Housing that is poorly designed or poorly maintained can make the handling of livestock more difficult. This can cause frustration for the handlers, which can lead to poor handling techniques, poor animal welfare and further frustration. Housing or shelter requirements include:

- Space for housing animals should be suitable for the number of animals and appropriately sized to allow the animal(s) to move without injuring themselves.
- Flooring – any area, both indoor and outdoor, where livestock are present should have non-slip flooring. Non-slip flooring can be grooved or textured concrete, sand, dirt (not mud) or non-slip matting. To prevent slips or falls, maintain the flooring.
- Lighting – animals tend to move towards well-lit areas and away from darker areas. The transition between darker areas and light sources can throw shadows. Shadows can affect animal movement. Lights should never shine directly into animal eyes.
- Sharp edges and bruise points - sharp edges such as angle iron, protruding bolts, jagged/broken wood, exposed pipe ends or small diameter pipes can bruise or injure animals. OFSOs should make any necessary repairs or alterations and add padding to abrupt edges or corners to reduce the risk of injury to animals.
- Adequate shelter will protect animals from wind, rain, sun or other adverse weather. If the animal(s) live outside, bedding is needed in cold, wet or muddy areas.
- Access to water – all animals being housed must have access to potable water and feed. Frequently check that water sources are clean and working. During cold weather, check that water sources are not frozen.

3.2 Transport (as applicable)

If an animal is being transported or requires transport, it is important that:

- animals are fit to travel. Unfit** animals (injured, unable to walk, ill) must not be transported
- compromised** animals are loaded carefully, provided with appropriate space and segregated from other animals
- animals are loaded at an appropriate density (no overcrowding)
- transport vehicles and containers, if applicable, are clean and sanitized, designed and maintained to prevent injury and are appropriate for the animal species being transported
- ventilation and bedding are appropriate for the weather conditions to prevent injury or suffering due to temperature extremes (hot or cold)
- rest periods are given as needed during transport. Maximum durations without feed, water and rest are defined in the legislation and associated guidance

**The terms “unfit” and “compromised” are explicitly defined in the regulations and associated regulatory guidance. For more information, please click on [Transporting unfit or compromised animals](#).

Note: animals should be transported in a way that is appropriate for their species, age and health condition. Transportation vehicles should be safe without posing any avoidable risk to the animal(s). It is not appropriate for any animal, including small ruminants or poultry to be transported in the trunk of a car (i.e., in a vehicle that is not a hatchback)

3.3 Loading and unloading (as applicable)

When animals arrive at your operation, it is important that:

- animals are safely unloaded as soon as possible
- unloading facilities are designed and set at an appropriate height so that there is an easy flow of the animals
- trailers are positioned to prevent any unprotected gaps through which an animals could trip, slip, fall or escape
- ramps and chutes are constructed and maintained to allow for safe loading and unloading
- ramps allow animals to walk freely
- lighting is sufficient for animals and handlers to see clearly and does not create shadows or dark areas where animals refuse to move forwards
- floors are free of hazards to prevent falls or slips
- there are no sharp edges in the floors or walls/fencing that may cause injury to the animal(s)

3.4 Movement

If an animal needs to be moved, it is important that:

- distractions are minimized, such as reflections, shadows, blowing air or high-pitched noise
- there are no appearances of dead-ends in chutes
- vocalizations be minimal or absent
- movement of animals has a consistent flow, and no excessive prodding is required to move the animals from one area to another

3.4.1 Handling of live animals:

When handling live animals, please note that animal behaviour can be affected by:

- natural instincts, which are inherited traits and characteristics of the animal species
- individual differences of the animal
- previous experiences of the animal
- level of excitement or anxiety in the animal (calm animals are more predictable and easier to handle)
- attitude and approaches taken by those handling the animals—handlers must work calmly and quietly and use appropriate handling aids, such as pig boards and rattle paddles

3.5 Humanely handling and slaughtering animals:

- prevents needless stress and suffering of the animal being slaughtered
- minimizes stress due to excitement, pain, distress, injury, or discomfort to animals during transport, handling and slaughter
- results in safer working conditions for licence holders, staff (if applicable) and visitors
- is required by law
- improves the safety and quality of meat products
- decreases financial loss to slaughter operations
- can satisfy a buyer's requirement of a formalized animal welfare program
- addresses public concerns of animal cruelty

3.6 Willful acts of abuse

Purposely or willfully abusing an animal is never acceptable and not tolerated, no matter the circumstances.

Willful acts of abuse refers to any situation where a person knowingly or intentionally inflicts undue pain or distress on an animal. These include, but are not limited to:

- dragging a conscious animal, non-ambulatory or otherwise
- intentionally using a prod on sensitive parts of an animal such as eyes, ears, mouth, nose, anus, vulva, testicles, udder or belly
- excessive prodding
- deliberately slamming gates on animals
- malicious driving of animals on top of each other
- purposely driving animals off high ledges or drops
- hitting, kicking or beating an animal
- allowing animals to freeze to a floor or trailer
- lifting sheep by the wool or throwing small animals
- hoisting a conscious or inadequately stunned animal

4.0 Stunning, bleeding and insensitivity

To ensure that animals do not suffer during the slaughter process, they must be stunned in a way that causes unconsciousness on the first attempt and the animal remains unconscious until bleeding out. Bleeding out causes the death of the animal and should be done as soon as possible after the stunning procedure (stun-to-stick interval). The stun-to-stick interval varies between species and the stunning method used.

For more information on the stun-to-stick interval, please refer to [Mechanical, electrical or gas stunning: slaughter methods and monitoring signs of unconsciousness or consciousness](#)

The *Meat Inspection Act* and Regulation require that all animals, including poultry and rabbits, are stunned prior to slaughter, unless an exemption for this requirement has been obtained on religious grounds.

For proper stunning, the animal must be restrained. All restraining devices should be properly designed and maintained to ensure animals are brought under control without causing them pain or distress.

Acceptable stunning methods can include:

- a blow to the head by a mechanical stunning device (e.g., captive bolt)
- using a purpose designed device to apply electric current to the head so that it flows through the brain: and
- shooting with a rifle using non-frangible (i.e., doesn't break into tiny particles upon impact) projectiles

For species-specific information on shot placement please refer to the National Farm Animal Care Council's Codes of Practice (<https://www.nfacc.ca/codes-of-practice>).

After stunning, all animals should be closely observed and any animal showing signs of consciousness must be immediately stunned again. Vocal sounds (e.g., mooring, bellowing or squealing) are an indication of inadequate stunning.

Signs of effective stunning include, but are not limited to:

- animal relaxes and collapses immediately
- intense, uncoordinated muscle contractions (lasting not more than 20 seconds)
- poorly coordinated kicking or paddling
- eyes completely dilated
- tongue hangs out straight and limp
- no reflex responses, and
- loss of rhythmic breathing* (gasping is a sign of a dying brain and is acceptable, a twitching nose may be a sign of partial sensibility)

*Rhythmic breathing refers to an in and out breathing pattern of more than two movements, commonly accompanied by flaring of the nostrils and expansion of the chest wall

As noted above, uncontrolled body movements may occur and should be expected depending on the type of stunning applied. However, the presence of any of the following indicates an ineffective stun or an animal returning to sensibility – so the animal must be immediately stunned again.

- rhythmic breathing
- any coordinated movements or attempts to stand (righting reflex)
- voluntary movement of the eye
- natural blinking or blinking in response to touching the eyelid or the eye
- controlled movements of the lips or tongue (the tongue should be limp)
- vocalization movements

It is helpful to focus on the head and ask yourself “is the head dead?”

Different methods of stunning produce different signs of insensibility making it important that persons responsible for this task are aware of the distinct signs of effective stunning.

Regardless of the method used for stunning, all animals must be bled out as quickly as possible to ensure a maximum loss of blood and to help maintain the state of unconsciousness until death occurs from blood loss.

Efficient and humane stunning requires:

- use of a suitable restraint to ensure accurate stunning
- trained and knowledgeable person
- equipment that is suitable and in good working condition

5.0 Common issues affecting animal movement

Many animal handling challenges can be avoided or minimized if handlers allow animals time and space to adjust to an unfamiliar environment. Forcing animals to move at speed may cause them to bunch up, crowd, slip or fall.

Livestock naturally like to stay in groups and follow a leader. Calm animals are always the easiest to handle and great care should be taken to keep animals calm. If animals become excited, it can be beneficial to leave them alone and try again in 30 minutes.

Best practices for animal movement:

- calm, quiet, low stress handling keeps animals calm and moving. Banging on walls or equipment, yelling and arm waving only increase an animal’s stress level making them harder to handle.
- spots of sunlight, shadows, trying to move animals into dark spaces, flapping objects, rattling chains, puddles of water or other distractions usually disrupt the flow of animals

- with most livestock species, handling animals in small groups is much easier than attempting to handle many animals at once. For a handler to be effective, they must be able to influence the behaviour of the front or lead animals, which is often not possible when many animals are handled at once. Conversely, isolated animals are often more difficult to handle and likely become more stressed and unpredictable

5.1 Worker training

One of the challenges faced by farming operations is worker training and fatigue. Workers dealing with live animals should be trained in animal handling and act with respect towards the animals at all times. Along with training, some workers may have a calmer demeanor suitable for working with live animals than others and this can be considered in worker assignment. The operators own commitment to and expectations for animal welfare should be apparent at all times.

5.2 Animal movement aids

There are many movement persuasion devices that can be used to encourage animals to move such as flags, boards, rattle paddles or even a plastic bag or streamers tied to the end of a stick. These tools can be very effective at encouraging animals to move. These tools provide a gentle option to move animals by making noise, creating movement in the animal's visual field, and creating a temporary barrier. Movement tools must never be used in an aggressive or violent manner (e.g., to beat on, strike or 'karate chop' an animal.)

When handling sheep, leading animals from the front, such as with a trained "judas goat" takes advantage of their following instincts and may be more effective than attempting to push sheep from behind.

Electric Prods must only be used as a last resort. Very few animals should require the use of a prod to move. Prods must not be carried routinely by workers, as this encourages dependence on these tools. Encourage the use of other tools for animal movement. Frequent or repeated use of prods indicate an issue with worker training and/or facility design.

If an electric prod is used, it must be adjusted to the lowest setting and **MUST NEVER** be used on SENSITIVE AREAS of animals, such as eyes, ears, mouth, nose, vulva, testicles, udder or anus.

6.0 Additional resources

For more information on animal welfare and humane slaughter, please click on the following:

- [Canadian Codes of Practice for the care and handling of farm animals](#)
- [Dr. Temple Grandin website – livestock behaviour, design of facilities and humane slaughter](#)
- [Olds College Animal Welfare & Humane Slaughter training](#)

7.0 Quiz

Please complete the **learning module 3: animal welfare and humane slaughter** quiz.

For more information on animal welfare and humane slaughter, please contact agi.foodsafety@gov.ab.ca.