



Standards for the Raising and Handling of Beef Cattle

BCSPCA
SPEAKING FOR ANIMALS

Standards for the Raising and Handling of Beef Cattle

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1.0 INTRODUCTION

The SPCA Certified program is an independent, third party animal welfare certification system. SPCA Certified brings stakeholders together to further common goals in farm animal welfare. Products come from farms that have been annually assessed to BC SPCA farm animal welfare standards by trained, independent inspectors. Certification is then determined by third party, independent reviewers.

The BC SPCA believes that an animal's welfare is synonymous with its quality of life and that animals' health and emotions both contribute to their welfare.

While we acknowledge it is not possible to prevent animals from experiencing all pain or discomfort in their lives, BC SPCA standards strive to provide animals with the Five Freedoms, which are derived from those first described by the Farm Animal Welfare Council of the UK:

1. Freedom from hunger and thirst
2. Freedom from discomfort
3. Freedom from pain, injury and disease
4. Freedom from distress
5. Freedom to express behaviours that promote well-being

The Beef Cattle Standard

The key components of the beef cattle standards are:

- Space and an environment to move freely and exhibit natural behaviours
- Access to feed and water at all times and provision of feed that does not contain mammalian or avian derived protein, except for milk products
- Surgical procedures are regulated by age and through pain control
- Formalized lameness scoring protocols
- Development, implementation and maintenance of a Herd Health Plan for cattle health management

The BC SPCA *Standard for the Raising and Handling of Beef Cattle* incorporates current research in animal welfare science with practical protocols developed by a Species Advisory Committee (SAC), an expert panel of animal welfare scientists, veterinarians, and farmers, in consultation with the BC SPCA. No endorsement by SAC members or their respective organizations is implied.

Standards are updated and amended by the SAC as new scientific information and improved animal care practices are developed and proven to enhance animal welfare. Further details regarding standard development and exemptions to the standard are in the program Operations Manual.

How to Use the Standard

This standard meets or exceeds Canada's *Code of Practice for the Care and Handling of Beef Cattle* (2013).

- a) SPCA Certified program participants must have a thorough understanding of, and adhere to, the *Codes of Practice* and the additional requirements set out in this document.
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- b) Program members are required to follow federal and provincial acts and regulations related to environmental and food safety practices.
 - c) **Mandatory Requirements** are represented as **Must** do practices for program participation.
 - d) If a farm is not in compliance with a particular mandatory requirement, the Certification Body:
 - Expects the farmer to demonstrate how s/he intends to come back into compliance via an action plan, which must be developed and implemented. The Certification Body will use this action plan to benchmark the farmer's progress on the non-compliance issue. OR
 - May, depending on the severity of and/or failure to address the non-compliance issue, opt to decertify the farm.
 - e) **Recommendations and Guidance** provide further information and, when appropriate, outline timelines for future standard requirements.

**Further detail on non-compliance issues can be found in the Operations Manual.*

2.0 FEED AND WATER

2.1 Feed

- a) Feed must be provided each day. Provide additional feed to meet animals' increased energy requirements when facing cold stress (Code requirement, pg. 8).
- b) The following feeder space allowances must be met. Horned animals must be given 25% more space at feeding areas.

Feed Bunk	Cows, bred heifers or heavy feeders		Yearlings		Calves up to 225 kg (500 lb)	
	mm	inch	mm	inch	mm	inch
Length per head						
▪ Simultaneous or limited feeding	660-760	26-30	560-660	22-26	460-560	18-22
▪ Full or self-feeding						
▫ Roughage only	220	9	200	8	150	6
▫ Complete ration	150	6	150	6	125	5
▫ Grain and concentrates only	75	3	75	3	50	2
Max. height at throat	560	22	560	22	460	18
Max. reach (top of throat board to bottom outside corner) ^a	860	34	760	30	600	24

^a Bunk width: 1200mm (48 inch) if fed from both sides; 1370-1500mm (55-60 inch) if divided; 460mm (18 inch) bottom width if fed from one side.

Adapted from: Canada Plan Service, 2010 – Beef Cattle Housing and Equipment, Plan M-1000. Available at <http://www.cps.gov.on.ca/english/plans/E1000/1000/M-1000L.pdf> (accessed August 29, 2012).

- c) When cattle are grazing (see Section 3.8 – Outdoor Access), pasture may be capable of meeting their nutritional requirements. However, care must be taken to ensure that pastured cattle receive a well-balanced, complete diet.
 - Should cattle health or body condition score be poor or be indicative of poor nutrition, the Certification Body may request a pasture nutrient analysis and average dry matter intake.
 - If pasture quality is poor, nutritional maintenance through feeding of quality forage and concentrate will be required.
- d) Cattle must have access to a diet that is nutritionally complete and provided in a quantity to maintain their health and vigour, taking into account factors such as age, frame size, reproductive status, health status, level of production, competition and weather (Code requirement, pg. 12). This includes feeding quality fibre to promote rumination and prevent rumen acidosis. Fibrous feeds like grass, hay or silage must be continuously available. See *Recommendations and Guidance*, below. Also see Beef Code, pg. 45.

- e) Feed management must be well planned to ensure cattle maintain appropriate body condition at each stage of production. Producers must take corrective action for animals at a BCS of 2 or lower on a 1 – 5 scale (See Appendix B; Code requirement pg. 12).
- f) Feed must not contain mammalian or avian derived protein, with the exception of milk and milk products.
- g) Addition of antibiotics (at sub-therapeutic levels or for production enhancement), hormones, ionophores and growth promotants to feed is prohibited.
- h) Provide salt/mineral supplements (e.g. blocks/licks) as required to meet the nutritional needs of the herd. Consult with a practicing veterinarian or nutrition specialist if unsure of what salt/mineral supplements are necessary for your herd.
- i) A list of supplements or additives to feed (other than vitamin/mineral mixes) must be presented to the Validator.
- j) Take steps to prevent exposure of cattle to toxins (such as lead batteries, fertilizer, treated seed, antifreeze, nitrates) and to avoid feed with adverse physical qualities that could cause injury or limit intake (Code requirement, pg. 12).

Recommendations and Guidance

Consider age, frame size, stage of production, reproductive stage, weather and competition when planning a feeding program to meet the nutritional requirements for cattle.

Cattle require fibre in the diet to promote rumination and a healthy rumen. If the diet lacks quality fibre, or if there is a sudden change in the diet, cattle are prone to developing rumen acidosis or other illnesses. Consult with your vet or ruminant nutritionist for additional guidance.

It is recommended that feed be tested for nutrient content and quality at least annually as nutrients may vary depending on geographic area, land inputs and crop/pasture outputs each year.

Cattle unable to access sufficient feed to meet their needs may vocalize and roam more.

Body Condition Scores should be kept below 4 to avoid reproductive problems and other associated disorders. See Appendix B and the Alberta Agriculture, Food and Rural Development resource *What's the Score? Body Condition Scoring for Livestock*.

2.2 Water

- a) Cattle should not have to compete aggressively for access to drinking space. Horned animals must have 25% more space at watering areas.

Water	Cows, bred heifers or heavy feeders		Yearlings		Calves up to 225 kg (500 lb)	
	m ²	ft ²	m ²	ft ²	m ²	ft ²
Surface area, per 25 head	0.1	1.1	0.1	1.1	0.2	2.2
water demand (average)	38 L/(head-day); hot weather, 76 L/(head-day) 8.4 gal/(head-day); hot weather 17 gal/(head-day)					

Adapted from: Canada Plan Service, 2010 – Beef Cattle Housing and Equipment, Plan M-1000. Available at <http://www.cps.gov.on.ca/english/plans/E1000/1000/M-1000L.pdf> (accessed August 29, 2012).

- b) Cattle must have access to palatable and clean water in quantities to meet their needs. Water must be provided at all times including when temperatures are below the freezing point.
- c) In barns, water troughs or bowls must be checked daily to ensure they are clean and working properly with adequate flow rate for cattle.
- d) On pasture, water troughs or bowls must be checked daily if they provide the sole source of water for cattle.
- e) Snow will only be considered a water source for non-lactating, healthy cattle (with good body condition > 2) on pasture if it is clean, loose and in ample supply. Have a back-up water source in the event of insufficient loose snow or an interruption in water supply. (Code requirements, pg. 13). **Producers who provide snow as a primary water source for these animals will be expected to phase in an alternate primary source once certified in the program.**
- f) Cattle must not be expected to walk farther than one mile (1.6 km) to access water.
- g) Although uncommon, addition of antibiotics (at sub-therapeutic levels for production enhancement), hormones, ionophores and growth promotants to water is prohibited.
- h) A list of supplements or additives to water (other than vitamins/minerals) must be presented to the Validator.

Recommendations and Guidance

Pasture water sources require special management to reduce the destruction of land and creation of deep mud around them. Sand and concrete aprons are suggested in problems areas.

Although troughs may not be the sole source of water on pasture (i.e. other bodies of water may be accessible), it is recommended that pasture water troughs be checked daily to ensure they are in good working order. Research has indicated that cattle prefer to drink from troughs, even when natural water sources are available.

Inexperienced cattle may have to learn that snow can be consumed as a water source. The learning process can take several days. Cattle should be monitored during that time.

Cattle which are unable to access sufficient water to meet their needs may vocalize and roam more.

Annual testing of water samples taken from animals' drinking sources is recommended to ensure safety and suitability as a drinking source.

2.3 Calves

- a) Bull calves from the dairy industry intended for meat production are to be fed according to the requirements of this standard.
 - b) All reasonable efforts must be made to ensure that calves receive colostrum within the first 12 hours of life with the first meal occurring no later than 6 hours after birth. A calf that appears alert and healthy and that is up, active and nursing will have nursed adequately.
 - c) Frozen colostrum or a commercial colostrum substitute must be provided to a calf that is not nursing (Code requirement, pg. 21).
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- d) Calves must have access to fresh water from birth and high quality roughage from two weeks of age.
- e) Calves must not be weaned before 6 months of age unless the welfare of the cow or calf is expected to be compromised by leaving the calf on the cow for 6 months.
- f) A low-stress weaning method is required, such as Fenceline or Two-Stage weaning. If Fenceline weaning is practiced, producers must ensure they have strong fences. If Two-Stage weaning is practiced, Stage 1 (when the anti-sucking devices are in place) must last for between 5 – 7 days.

Recommendations and Guidance

Colostrum intake is critically important to calf health and welfare and research on beef cattle herds shows that inadequate colostrum intake is linked to calf mortality. The ability of calves to defend against disease is directly linked to the amount, quality and timing of colostrum intake. It is particularly important that calves receive colostrum very soon after birth since their ability to absorb it is substantially reduced 6 – 8 hours after birth.

For cows that are sick, dead or unable to provide milk for a calf, a practical fostering program should be adopted. Fostering should occur within the first 48 hours after calving. In the event that fostering is unsuccessful, calves should be offered a daily ration of 20% of their body weight in milk replacer.

Any automatic feeding equipment should be cleaned daily to ensure fresh feed and milk.

Weaning causes stress associated with both the change in diet and the physical separation of the calf from its dam. Stress at weaning can reduce weight gains in calves and is likely a factor in calf illness. Research shows that the behavioural response of calves to separation from the dam can be significantly reduced if the 2 sources of stress are separated so that calves maintain physical or visual contact with their dams even after they are no longer allowed to nurse. Two-Stage weaning relies on simple nose tags which allow calves to eat and drink but not suckle. The tags can be fitted or removed in seconds while other procedures are performed (vaccinations, weighing). The tags have a very high retention rate and can be re-used after cleaning and disinfection.

3.0 ENVIRONMENT

3.1 General

Bull calves from the dairy industry intended for meat production are to be raised according to the requirements of this standard.

- a) Feed and water must be freely available in all areas housing animals.
- b) Cattle (including bulls) must be within sight, sound and smell of other cattle.
- c) All beef cattle operations must have access to equipment or facilities for the safe handling, restraint, treatment, segregation, loading and unloading of cattle (Code requirement, pg. 8).
 - Facilities must be constructed and maintained so that there are no areas likely to cause sickness, injury, or distress to the animals.
 - Pens must be designed to ensure the comfort, hygiene and health of all animals.
 - Floor surfaces must provide solid and stable footing and good traction to prevent slipping / falling.
- d) The use of tie stalls is prohibited.
- e) Flooring must be maintained to prevent the accumulation of manure or urine.
- f) Housing cattle on fully slatted floors or bare concrete is prohibited. Slatted floors are permitted in loafing/waiting areas and alleyways.
- g) Pens must provide well drained and well maintained bedding.
- h) Cattle must have access to areas (natural or man-made) that provide relief from weather that is likely to cause a serious risk to their welfare. Cattle not coping with adverse weather must be promptly assisted (Code requirements, pg. 7).

Recommendations and Guidance

When housed indoors, it is recommended that cattle be provided with fixed brushes or other grooming tools to give them the ability to groom themselves.

3.2 Space Allowances

- a) All cattle must have space and freedom to lie down in their normal resting posture, stand up, stretch their limbs and turn around freely at any time (meets Code requirements, pg. 8). For cattle housed in pens, space must be provided for all cattle to lie down and rest comfortably in bedded loafing areas at the same time.
 - b) Mature bulls must have at least 18.6 m² (200 ft²) of total space. The bedded area must be at least 16 m² (172 ft²).
 - c) Stock density on pasture must ensure maintenance of pasture productivity (See Section 3.8 – Outdoor Access).
 - d) Specifically, the following minimum space allowances (per animal) must be met:
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Type of Floor	Cows, bred heifers or heavy feeders		Yearlings		Calves up to 225 kg (500 lb)	
	m ²	ft ²	m ²	ft ²	m ²	ft ²
Pens and Feedlots						
Hard ground surface	5	56	3	33	2.3	26
Soil	28	311	23	256	14	156
Covered shelter area						
Floor area	3	33	1.9	21	1.4	16
Clear height	3	33	3	33	3	33
Slatted floors	2.8	31	2	22	1.5	17
(0.4-0.5 m ² per 100 kg OR 4.4-5.6 ft ² per 222 lb live weight)						

Maternity Pens 1 pen per 20 cows
(additional area, not slatted) 3x3m(9.8'x9.8') min.

Adapted from: Canada Plan Service, 2010 – Beef Cattle Housing and Equipment, Plan M-1000. Available at <http://www.cps.gov.on.ca/english/plans/E1000/1000/M-1000L.pdf> (accessed August 29, 2012).

3.3 Maternity Housing / Calving Pens

- a) Provide an environment that is safe and clean for calving and that promotes calf survival (Code requirement, pg. 9).
- b) Calving pens must be distinct from hospital pens.
- c) During severe weather conditions, sheltered calving areas (either constructed or natural) must be available.
- d) Calving pens must provide enough space to accommodate the cow and calf. All occupants must have the ability to lie down simultaneously and turn around without difficulty. See space requirement in Section 3.2.
- e) Remove and dispose of dead calves and afterbirths in accordance with government regulations (or recommendations where regulations do not exist) and in such a way that cattle and predators will not have access to them.
- f) Calving pens must be cleaned and re-bedded between occupants.

3.4 Bull Housing

- a) Housing must allow bulls to easily stand up, lie down, adopt normal resting postures and mount safely. See space requirement in Section 3.2 b.
- b) Bulls must have a bed that provides comfort, insulation, warmth, dryness and traction.

Recommendations and Guidance

Aggressive behaviour increases with age. For this reason, farmers may wish to discontinue group housing of bulls around 3 years of age. Smaller or subordinate bulls should be removed from the group. If removed for more than 3 hours, a bull should not be returned to the group.

Note: When housed alone, bulls must still be housed within sight, sound and smell of other cattle (see requirement in Section 3.1 b).

3.5 Lighting

- a) Lighting programs must allow cattle access to a normal period of daylight hours.
- b) Natural lighting of barns must allow for assessment of cattle and their surrounding environment at any location in the barn during daylight hours. For barns that do not have a source of natural lighting (e.g. windows, doors, open sides), an implementation plan for natural lighting must be submitted to, and approved by, the Certification Body. The implementation period cannot exceed 5 years.
- c) Indoor artificial lighting (e.g. light bulbs) must allow for assessment of the herd and the surrounding environment at any location in the barn at any time when natural daylight is insufficient. Supplementary lighting must also allow natural behaviour patterns (Code requirement, pg. 8).
- d) At night time, it is not required that lights remain on; however, lighting must be available for use should it be required. Portable lighting sources (e.g. lamps, flashlights) are acceptable for non-electrified facilities.

Recommendations and Guidance

Provision of natural light is recommended when cattle are housed indoors. Examples of natural lighting sources that could be added are windows, doors, open-sided barns, etc.

3.6 Ventilation and Air Quality

- a) Cattle must be provided with fresh air through effective ventilation programs and maintenance of barn conditions, such that aerial contaminants are not noticeably unpleasant to a human observer. Effective ventilation rates will help to ensure proper circulation of fresh air throughout the animal's indoor environment, and exhaustion of air contaminants (e.g. dust and gases) to the barn's exterior.
- b) Ammonia concentrations must not exceed 25 ppm (Code requirement, pg. 8). Ammonia levels must be measured and recorded monthly using automated equipment or litmus paper test kits available through the Certification Body. These records must be made available to the Validator.
- c) Special attention to ventilation in barns is required in the summer months.
- d) Care must be taken to avoid creating a draughty environment in the barn.

Recommendations and Guidance

The Certification Body will provide a litmus paper test kit to certified members for use in measuring ammonia levels.

3.7 Sanitation and Waste Management

- a) For indoor housing, producers must remove manure from alleys and beds to keep animals clean.
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- b) All by-products such as manure, bedding and carcasses must be managed and disposed of in accordance with all relevant government regulations (or recommendations where regulations do not exist).
- c) Any facilities housing cattle must be cleaned between uses.

3.8 Outdoor Access

- a) All cattle must spend at least 2/3 of their lives on pasture or suitable range.
- b) In winter, if adequate/suitable pasture is not available, access to an outdoor exercise yard (i.e. dry lot) is acceptable.
 - Full/bare concrete without a bedded area is not acceptable. Partial concrete is acceptable provided the cattle have access to a non-concrete (i.e. bedded, compost pack, etc.) area of the yard large enough to accommodate the entire group.
- c) Pasture must provide access to clean drinking water (See Section 2.2 – Water). Availability of an easily accessed supply of drinking water is particularly important during hot weather.
- d) To ensure animal comfort, all cattle kept on pasture must have access to natural or artificial shelter, shade and windbreaks to protect them from direct sunlight and heat stress during hot seasons, and from wind-chill effects during cold seasons. Cattle showing signs of cold or heat stress must be attended to immediately (Code requirements, pg. 7).
- e) Pasture must be maintained to minimize the risk of injury and disease to all cattle.
- f) Smooth wire, barbed wire and electric fencing are all acceptable for field fencing of pastures. Electrifying barbed wire fencing is prohibited. All forms of fencing must be maintained to avoid injury.
- g) Cattle density on pasture or in yards must not be so high as to damage the ground quality such that cattle health and safety are compromised. Pasture/yards must be maintained to minimize the risk of injury and disease to all cattle. Give particular attention to frequently used paths to ensure they are maintained in a condition that does not damage the feet of cattle.
- h) Cattle density on pasture must ensure soil/pasture productivity by:
 - Preventing damage to soil/pasture quality via degradation, destruction or over-grazing. Particular attention must be given to paths frequently used by cattle, riparian areas and areas around other water sources.
 - Preventing overloading of manure nutrients on land or to water sources via run-off, leaching or direct contamination – ensure compliance with relevant government nutrient management regulations
- i) Cattle density on pasture must also consider local conditions and feed production capacity.

Recommendations and Guidance

Pasture management should aim to provide high quality forage. Sustainable pasture management practices, such as rotational grazing, should be employed. It is recommended that pasture supply the majority of cattle dry matter intake and nutritional requirements during the grazing season.

Also see Sections 2.1 (Feed) and 2.2 (Water).

Signs of heat stress include reduced feed intake and an increase in water intake, respiration rate and/or body temperature.

4.0 HEALTH AND BIOSECURITY

4.1 General

- a) Cattle that are sick, injured, in pain or suffering, those who cannot consume feed and water or those who show continuous weight loss or emaciation must be provided immediate medical care or be euthanized. See Section 7.0 – Transport and Handling and Section 8.0 – Euthanasia and Slaughter.
- b) Cattle with untreatable conditions, not responding to treatment, or not fit for transport must be euthanized. See Section 8.0 – Euthanasia and Slaughter.
- c) Appropriate authorities must be advised of any suspect or confirmed cases of reportable disease.
- d) Areas must be provided to segregate and treat sick and injured cattle.

4.2 Herd Health Plans

- a) Farms must establish a working relationship (VCPR) with a licensed, practicing veterinarian and develop a strategy for disease prevention and herd health (Code requirement, pg. 14).
- b) A written Herd Health Plan must be implemented by the farm manager and submitted to the Certification Body for review. The Certification Body has developed a template health plan that is available as a resource.
- c) The Herd Health Plan must be updated after a major health incident (e.g., disease outbreak) and/or when a significant change to the production system is made (e.g., introduction of new species to the farm, facility changes, etc.).

Recommendations and Guidance

The herd health plan should be updated at least annually.

4.3 Prevention of Disease and Injury

- a) Each animal must be observed for signs of:
 - Physical injury
 - Foot health and lameness (see Appendix C for lameness scoring chart)
 - Infectious diseases
 - Metabolic diseases
 - Body condition scores other than 3 (see Appendix B for body condition scoring guide)
 - b) Reasonable efforts must be made to keep cattle free of disease and injury, and any injury or disease must be treated promptly.
 - c) Pharmaceutical products may only be used to treat specific illnesses or conditions. Administration of pharmaceutical products to enhance growth or production (e.g. hormones, ionophores) is prohibited. Use of vaccines, drugs and other treatments other than as indicated on the label is prohibited, unless prescribed by a veterinarian.
 - d) Conduct on-farm vaccinations in accordance with your herd health plan, which is to be written with consultation with a veterinarian (Refer to Section 4.2 – Herd Health Plans).
 - e) Complete and accurate records must be kept of all vaccines, drugs and treatments used on injuries, illnesses and diseases.
 - f) Records of lab testing or other diagnostics must be kept on farm and may be requested by the Certification Body as part of the Herd Health Plan.
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- g) Complete and accurate production, health and breeding records must be kept for each animal.
- h) Lameness must be diagnosed early and either treated, culled or euthanized:
 - If treated, monitor the animals' response to therapy or care. If the initial treatment protocol fails, reassess the treatment options and/or seek veterinary advice (Code requirement, pg. 16).
 - Cattle that have a poor prognosis for recovery or that do not respond to treatment or care must be promptly culled or euthanized (Code requirement, pg. 16).
 - Treatments, culls and euthanasia must be recorded with reason. If culling off-farm occurs, see 7.3 – Fitness for Transport. See Appendix C for course of action.
- i) Lameness rates must not exceed 5% at any given time. If exceeded, a follow up consultation with a vet and action to mitigate is required. See Appendix C for the lameness scoring guide.

Recommendations and Guidance

Monitoring the incidence of acidosis or bloat and foot health will assist with evaluating the quality of the feeding program. For example, a high incidence of acidosis may indicate that the level or quality of fibre in the ration is insufficient or that too rapid a dietary change has occurred.

4.4 Monitoring Mortality Rates

- a) Mortalities (including stillbirths and animals lost to predation) and euthanized animals must be recorded along with the reason. These records must be made available to the Validator.
- b) If reason for mortality is suspicious, send dead animals for diagnostic testing (as per the herd health plan – see Section 4.2 – Herd Health Plans).
- c) It is unlikely that predation will be completely eliminated. Occasional losses are likely. However, every effort must be made to manage predation and protect the cattle. If the number of cattle lost to predation annually is more than 2 animals or 1% of the herd (whichever is greater), a plan to improve herd protection must be implemented.
 - Areas of consideration could include fencing, guard animals (e.g. dogs), dead stock management, housing and grazing practices
 - Also see Section 5.13 – Nuisance Animal Control
- d) The following table outlines maximum mortality thresholds. If these thresholds are exceeded a follow up consultation with a veterinarian is required to discuss future mitigation and prevention. A summary of the outcome or a copy of the veterinarian's report, including causes and suggested strategies to prevent or minimize recurrence, must be submitted to the Certification Body.

	Maximum Prevalence
Calves (pre-weaning)	5 % per calving season
Cattle post-weaning	2 % per year

Numbers include animals that die or are euthanized on farm. Numbers also include those animals culled or shipped for reasons of poor health. These numbers do not include animals lost to predation (see Section 4.4 c) for predation thresholds).

Recommendations and Guidance

Producers should adopt a parasite control program based on the recommendations of their veterinarian and the level of risk in their region.

Producers are urged to select bulls for traits that contribute to animal welfare, including calving ease, mastitis resistance, low incidence of metabolic disorders, and good conformation of feet and legs.

4.5 Biosecurity

- a) Farms must have a written biosecurity plan to minimize the risk of introducing disease to the herd. The plan can be simple or more complex depending on the level of risk on the farm. Also see Section 6.0 – Feedlot Management.
- b) It is the producer's responsibility to ensure visitors to the farm follow protocols described in the farm's biosecurity plan.

Recommendations and Guidance

The Certification Body has developed a template biosecurity plan that is available as a resource. Farmers may submit their own plan provided it addresses the information requested in the Certification Body's template.

Biosecurity plans can be developed using an industry-approved program, such as the Canadian Cattlemen Association's *Verified Beef Production Program*.

All guests, personnel and Validators should sign a visitor log-book in order to assist in on-farm disease tracking/control. The log-book should indicate when the last contact with another beef farm occurred. It is recommended that all visitors to the farm be free from contact with other cattle within the 72-hour period prior to their visit.

People should have access to foot dips or dedicated footwear, and disinfectants for washing hands must be accessible at each barn to avoid cross-contamination, especially if different breeds, species, ages or sources of cattle are located on the same site. Guests should be encouraged to wear footwear and clothing (e.g. plastic booties or disinfected rubber boots, clean cover-alls, etc.).

5.0 MANAGEMENT

5.1 General

- a) Farm records must be kept up to date. See Appendix A for a list of all required records.
- b) The use of hormone implants is prohibited. See Section 4.3 c.

5.2 Staff Knowledge and Training

- a) Staff with responsibility to farm animals must have access to a copy of and be familiar with the *SPCA Certified Standards for the Raising and Handling of Beef Cattle* and the *Code of Practice for the Care and Handling of Beef Cattle* (2013).
- b) Staff with responsibilities to farm animals must be knowledgeable of the normal and abnormal behaviours, common diseases and physical and psychological needs of the animals, as well as management techniques and skills in quiet handling of cattle and performing common procedures (Code requirement, pg. 19).

5.3 Surgical Procedures – General

Discuss protocols for painful practices with a veterinarian, including the method used and options for pain control, and consider the following:

- Local anesthetics reduce the pain caused during the procedure but do not provide long-term post-operative pain relief.
- The use of analgesics (e.g. ketoprofen, meloxicam) in addition to an anesthetic or sedative minimizes pain and stress in the hours that follow and is therefore strongly recommended for any procedure. Meloxicam is longer acting (~ 2 days) than ketoprofen and is now approved for use on beef cattle in Canada.
- The use of a sedative (e.g. rompun) makes the animal calmer and easier to handle and restrain.
- Post-surgery, segregate animals in a separate hospital pen with a clean, spacious, bedded lying area so they are allowed time to recover.

Recommendations and Guidance

It is recommended that painful procedures be performed at the same time to reduce the stress associated with multiple handlings. This will also enable producers to make the most efficient use of pain medications administered/required for these procedures. Avoid conducting surgical procedures at the same time as weaning to reduce stress.

5.4 Surgical Procedures – Castration

- a) If castration is performed, producers must ensure it is performed only by a skilled and competent operator using clean, well-maintained instruments (Code requirement, pg. 24) and one of the approved methods described in this section.
 - b) If castration is performed on the first day of life, careful observation is necessary to ensure the calf consumes colostrum. Poor colostrum intake will have negative consequences for calf health (also see Section 2.3 – Calves re: colostrum feeding).
 - c) The following table provides a list of accepted methods of castration with associated age and pain medication requirements.
-

Method	Age	Required Pain Medication(s)	Further Guidance
Surgical (knife/scalpel)	1 - 21 days	local anesthetic AND analgesic	Consider using bleeding control and sedation.
Rubber ring / banding	1 - 7 days	must be phased in if not already used	Producers who use the rubber ring alone will be expected to phase in the use of pain medication within 2 years of certification, or adopt one of the other methods.
	8 - 21 days	can choose local anesthetic OR analgesic	Although producers have the choice of which pain medication to use, it is recommended that both be administered when possible.
Clamp (burdizzo)	1 - 7 days	must be phased in if not already used	Producers who use the clamp alone will be expected to phase in the use of pain medication within 2 years of certification, or adopt one of the other methods. See <i>Recommendations and Guidance</i> below.
	8 - 21 days	can choose local anesthetic OR analgesic	Although producers have the choice of which pain medication to use, it is recommended that both be administered when possible. See below for further <i>Recommendations and Guidance</i> .
Any method	> 21 days	local anesthetic AND analgesic	Must consult with a veterinarian first. Use a method of bleeding control for surgical methods. Also consider sedation.

- Local anesthetic: e.g. Lidocaine. Must be injected at the site of the procedure (i.e. locally).
- Analgesics: e.g. Non-steroidal anti-inflammatories (NSAID) like meloxicam, a long-acting (~ 2 days) analgesic.
- Consult with your veterinarian regarding appropriate injection sites, timing and procedures (Code requirement, pg. 24).
- Should farmers find it difficult to meet the requirements of this section, they are encouraged to contact the Certification Body for guidance.

Recommendations and Guidance

If planning to disbud calves, castration and/or other painful procedures should occur at the same time. This will reduce the stress caused by handling because producers will only have to handle the calves once instead of multiple times. Since both a local anesthetic and an analgesic are required for disbudding, producers will not need to re-medicate with analgesia if performing castration at the same time, and it will be easier to give a second dose of local anesthetic in the testicles because the animal is already restrained. See Section 5.5 – Surgical Procedures - Disbudding and Dehorning.

Castration is painful at any age; however, research indicates that castration is less painful when performed before 7 days of age than at an older age. Research also indicates that weight loss resulting from castration is more drastic in older animals.

Meloxicam, a longer acting (~ 2 days) analgesic, is approved for use on beef cattle in Canada. Producers are strongly encouraged to provide both a local anesthetic and an analgesic regardless of the method of castration chosen. When planning the method of castration, consideration should be given to the amount of acute pain caused by the procedure as well as the amount of pain/discomfort that persists after the procedure due to wound healing and inflammation.

The rates of wound healing differ with the method of castration. Generally, surgical (knife) methods are more acutely painful in the hours following the procedure but the superficial wounds (i.e., those on the outer layer of skin) heal faster compared to other methods. The rubber ring and burdizzo methods are less acutely painful, but are associated with longer healing times. The pain control protocols required in the standard above will effectively mediate the pain in the hours following castration, but may not control longer lasting discomfort. Producers should take both into account when selecting a method suitable for their herd and operation.

The clamp causes less pain than the rubber ring because it destroys the nerves more quickly, thus reducing pain impulses below the crushed point. To be effective, the clamp must be applied for 10 seconds across the width of each cord. Clamp each cord separately. Clamping each cord individually allows more precision – you can manipulate one testicle into the scrotum at a time – and prevents accidental crushing of a testicle or the urethra. Furthermore, there is a thick piece of tissue running down the center of the scrotum that can prevent the burdizzo from completely closing when attempting to clamp both testicles at once, thus preventing complete destruction of the two cords. The clamp can be applied either proximal or distal to the rubber ring (see diagram below); however, research suggests this method is less painful if the clamp is applied proximal to the ring. Note: Added care should be taken to avoid crushing the urethra if the clamp is applied proximal to the ring.

PROXIMAL

Toward body



DISTAL

Toward tip of scrotum

5.5 Surgical Procedures – Disbudding and Dehorning

- a) Before performing the procedure, the animal must be restrained, sedated or both.
- b) The person performing the procedure must be trained and experienced and must use accepted tools and veterinary techniques. The method must be appropriate for the size of the horn bud and the age of the animal. Discuss options with a practicing cattle veterinarian to ensure the appropriateness of the intended method prior to performing the procedure. (Code requirements, pg. 23)

- c) Although it varies by breed, as a general rule, horn buds fuse to the frontal bone of the skull by 8 weeks (2 months) of age. For the purposes of these standards, the following definitions will apply:
- Disbudding: removal of the horn buds before they fuse to the skull, usually by 2 months of age (permitted)
 - Dehorning: removal of the horns after the buds have fused to the skull (prohibited)

PERMITTED				
Procedure	Method	Age	Required Pain Medication(s)	Further Guidance
Disbudding	Cutting			Producers are strongly encouraged to administer both an anesthetic and an analgesic, when possible.
	Cautery or	Up to 8 weeks (2 months)	can choose local anesthetic OR analgesic	A sedative is also permitted at the option of the farmer or veterinarian.
	Caustic paste			Colostrum may have to be hand fed if disbudding is carried out using caustic paste, otherwise there is risk that the cow will get chemical burns on her udder from the paste.

PROHIBITED *				
Procedure	Method	Age	Required Pain Medication(s)	Further Guidance
<i>*The following procedures are prohibited unless approval for an exemption has been granted by the Certification Body.</i>				
Dehorning	Any	Over 8 weeks (2 months)	local anesthetic AND analgesic AND bleeding control	When necessary (e.g. due to a failed attempt to disbud or late horn development), must be performed by an experienced cattle veterinarian. A sedative is also permitted at the option of the farmer or veterinarian.
Horn tipping	Any	Any	n/a	See Section 5.5 g).

- Local anesthetic: e.g. Lidocaine. Must be injected at the site of the procedure (i.e. locally).
- Analgesics: e.g. Non-steroidal anti-inflammatories (NSAID) like meloxicam, a long-acting (~ 2 days) analgesic.
- Consult with your veterinarian regarding appropriate injection sites, timing and procedures.
- Should farmers find it difficult to meet the requirements of this section, they are encouraged to contact the Certification Body for guidance.

- d) If disbudding is performed on the first day of life, careful observation is necessary to ensure the calf consumes colostrum. Poor colostrum intake will have negative consequences for calf health (also see Section 2.3 – Calves re: colostrum feeding).
- e) Producers must monitor polled calves to identify any that do develop horn buds. In the rare case that polled cattle develop horn buds, perform disbudding before 8 weeks (2 months) of age to prevent injuries later in life.
- f) Care must be taken to ensure disbudding is done correctly to avoid re-growth. Instances requiring dehorning due to re-growth must be recorded as part of the treatment record.
- g) Routine tipping of horns is prohibited. Producers may request permission to perform tipping on an individual horned animal if they are unable to control aggression through contributing factors such as group size, feeder space and lying space. Producers must monitor horned cattle, and, if there is concern that the horns may grow into the animal's head, the Certification Body must be contacted to discuss tipping. If tipping is approved and performed, only the non-living horn material may be removed.

Recommendations and Guidance

In order to prevent the need for disbudding and dehorning, producers are strongly urged to consider selectively breeding for polled genetics. The polled gene is dominant over the horned gene, making it easy to produce polled calves from horned cows reliably. Research has found that polled cattle reproduce and perform just as well as horned breeds.

Disbudding is much less invasive than dehorning and poses a lower health risk to the animals, which is why it is permitted and dehorning is not. Performing disbudding within the first week of life is recommended as healing times are faster and health risks are lower among younger animals.

Producers are strongly encouraged to use a combination of sedative, local anesthetic and an analgesic when performing disbudding because of the high level of pain and stress cattle experience during the process. Meloxicam, a longer acting (~ 2 days) analgesic, is approved for use on beef cattle in Canada. Research indicates that the pain caused by caustic paste disbudding is much easier to control than the pain caused by cautery or cutting methods.

Exercise care when applying caustic paste. Trim the hair around the horn bud first. Paste must only be applied to the horn bud, taking care to rub it in well. Apply petroleum jelly in a ring around the horn bud to prevent the paste from running off and burning skin or eyes. It is not recommended that this procedure be carried out in wet conditions. Follow product or veterinary recommendations for how long treated cattle should be segregated to prevent accidental caustic (chemical) burns to other animals.

With any method of disbudding, skill and experience of the person performing the procedure is of the utmost importance. If performed incorrectly:

- Excessive heat from hot irons can damage underlying bone and tissues.
 - Gouge methods pose an increased risk of sinusitis, bleeding, prolonged wound healing and infection, especially in adult cattle.
 - Runoff of caustic materials can burn surrounding skin or eyes for as long as the chemical remains in contact with the area. Penmates and dams are at risk of accidental caustic burns as they may rub against the chemically treated horn buds of a recently disbudded animal.
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5.6 Surgical Procedures – Other

- a) If any surgical procedures are performed on the first day of life, careful observation is necessary to ensure the calf consumes adequate colostrum as poor intake will have negative consequences for calf health (also see Section 2.3 – Calves re: colostrum feeding). Farmers are advised to avoid performing surgical procedures on the first day of life unless medically necessary.
- b) Although uncommon in beef cattle production, when performed, supernumerary teat removal must be done by trained personnel. It must be performed using pain control on animals no older than 5 weeks of age, and preferably performed at the same time as another painful procedure for which analgesia is used (e.g. disbudding).
- c) Tail docking is prohibited unless medically necessary. Consult a veterinarian. (Code requirement, pg. 25)
- d) Spaying (females), which is not generally performed in beef cattle production, is prohibited unless deemed absolutely necessary by a veterinarian. In case of the latter, the procedure must be performed by an experienced, practicing veterinarian using the appropriate pain medications and sedation.
- e) For major surgeries not listed in this section (e.g. caesarian section), consult your veterinarian prior to performing the procedure or have the vet perform the procedure. Pre- and post-operative pain medication, anesthesia / sedation and bleeding control are required. (Code requirement, pg. 20)

Recommendations and Guidance

The use of either (or a combination of) an anesthetic and/or an analgesic for teat removal is acceptable.

5.7 Handling

- a) Animal handlers must be familiar with cattle behaviour and quiet handling techniques either through training, experience or mentorship.
 - b) Animals must be handled with care and in a manner that imposes the minimum possible stress. When moving cattle, facility design and the surrounding environment must be considered. Handlers must move cattle at a slow walk and must refrain from using loud noises or hitting to move cattle. Plastic paddles and flags work well as moving aids.
 - c) Electric cattle prods must only be used in extreme situations, such as when animal or human safety is at risk, and must never be used on the face, anus, udder or reproductive organs of cattle. The animal must have a clear path to move. Electric prods must not be used on calves that can be moved manually. Do not use a prod repeatedly on the same animal. (Code requirements, pg. 19)
 - d) Farms must be equipped for the safe restraint and handling of animals. When necessary for husbandry or health management procedures, restraint must be as brief as possible and must be performed using equipment that is designed and maintained to prevent pain or injury.
 - e) Squeeze chutes or cattle crushes must be operated in a manner that does not cause injury or distress to the animal. The chute must not be so tight that it affects the animal's breathing. For hydraulic chutes, the relief valve must be set so the sides automatically stop squeezing before it is too tight for the animal to be able to breathe normally.
 - f) Excessive tail twisting or jacking can cause tails to break, particularly in young animals, and must not be performed.
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- g) Some breeds of herding dogs that work by nipping and biting can pose a serious welfare issue for cattle. Herding dogs must be properly trained and must respond to voice, hand or whistle commands.
- h) Cattle producers must immediately report instances of inhumane handling to proper authorities (Code requirement, pg. 27).

Recommendations and Guidance

Handlers should be specifically trained in humane handling techniques, including the concepts of “field of vision”, “flight zone” and “point of balance.” Members are encouraged to take a livestock handling course and obtain a copy of the American Meat Institute’s Good Management Practices for Animal Handling and Stunning. Producers can contact the Certification Body for information about these and other resources and courses on cattle handling.

Monitoring animal behaviour, such as vocalizations, the number of slips and falls, etc. is a good indicator of whether handling is appropriate. Aim for:

- No more than 2% of animals that fall (belly, torso or head contacts floor) during handling
- No more than 10% of animals stumble or trip (knee contacts the ground) during handling
- No more than 25% of animals run or jump when exiting a chute
- No more than 5% of animals vocalize as a result of being restrained

Source: The Beef Quality Assurance (BQA) Manual available at www.bqa.org/manuals.aspx (accessed September 4, 2012).

5.8 Cow and Heifer Management

- a) Heifers must not be bred before they reach, at minimum, 2/3 of their expected mature body weight.
- b) Heifers, in particular, must be bred to ensure calving ease either through the use of breeds of known calving ease or bulls with a proven record of calving ease.
- c) Producers must be familiar with the signs of approaching parturition and be ready to provide assistance if required, particularly with heifers. Promptly assist calves and recently-calved cows showing signs of distress (Code requirement, pg. 20).
- d) Calving aids must only be used to assist a delivery and not to deliver a calf as quickly as possible.
- e) When calving assistance is required, acceptable veterinary practices must be observed.

Recommendations and Guidance

Also see the Beef Code (pg. 46-47) for additional information on when and how to help a cow or heifer with calving.

5.9 Bull Management

- a) Restraining facilities built to handle bulls must be available when needed.

5.10 Cull Animal Management

- a) Cull animals must be cared for right up until shipping or euthanasia.
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- b) Calves must not be transported until 7 days of age.
- c) Calves must receive at least one full meal the day they are being shipped. See Section 2.3 – Calves.
- d) Cull cows still in production must be milked out prior to shipping. Also see Section 7.3 – Fitness of Cattle for Transport.
- e) Animals too sick or injured to be transported must be treated immediately or euthanized on site (See Section 8.0 – Euthanasia and Slaughter).
- f) Drug withdrawal times must be observed for cull animals.

5.11 Animal Identification

- a) Ear-tags (metal and plastic), and microchips are acceptable methods of identification. All cattle must be identified using an approved ear tag as stipulated by applicable regulations (Code requirement, pg. 22).
- b) Ear notching, splitting and wattling are prohibited.
- c) Face branding and hot iron branding are prohibited.
- d) Freeze branding is permitted if temporary methods of identification have proven insufficient to identify animals on range, or if branding is required for export, by policy, or as permanent proof of ownership. In such cases, branding must be performed with the proper equipment, restraint and by personnel with training or a sufficient combination of knowledge and experience to minimize pain to the animal (Code requirement, pg. 22).
- e) If temporary identification is used (e.g. paints, dyes, wax markers), they must be designed as livestock markers and must be non-toxic.

Recommendations and Guidance

Both freeze and hot iron branding are painful. Research shows that freeze branding is less painful and equally effective, particularly for dark coated breeds. Producers are urged to give pain medication during freeze branding.

5.12 Equipment and Emergency Preparedness

- a) Equipment and facilities must be inspected at regular intervals and any defect or malfunction corrected.
 - b) Emergency back-up systems and plans must be maintained and tested, especially for ventilation, feeding and watering equipment.
 - Emergency back-up systems: Backup generators and any other equipment used in the event of a power failure.
 - Emergency back-up plans: Procedures to be followed in the event of a natural disaster, power or other mechanical failure to ensure that animals can be cared for, housed, fed and watered. Include protocols for moving animals from their existing housing to alternative temporary housing in the case of flood, fire, or other natural disaster.
 - c) All fire prevention and detection devices and plans must be maintained, tested and up to date.
 - d) Emergency provisions for suitable drinking water and feed must be available in case of natural disaster or power failure.
 - e) Maintenance of waste storage facilities (includes mortality disposal) is essential to prevent groundwater, stream contamination and other such environmental disasters in the event of a natural disaster.
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- f) Review any and all emergency plans with all responsible personnel so the plan can be implemented. Ensure emergency contact numbers are readily accessible and current. (Code requirements, pg. 18)

Recommendations and Guidance

Producers are urged to contact the Certification Body prior to purchasing new equipment if they are concerned about its compliance to the Program standards.

5.13 Nuisance Animal Control

- a) Management techniques must be used to control fly populations in indoor and outdoor settings. Fly paper and zap traps are acceptable.
 - b) Cattle must be protected from predators on pasture, ideally by methods that do not cause death to the predator (e.g. use of guard dogs and/or electric fencing).
 - For permitted predation thresholds, see Section 4.4 – Monitoring Mortality Rates.
 - c) If guardian animals are used to protect the herd from predators, they must also meet high animal welfare standards for care and handling. This includes access to feed and water, grooming for the purpose of maintaining good health (e.g. hoof/claw or hair trimming when necessary), parasite control and treatment of diseases/illnesses, among other things.
 - Note: The grooming requirement is meant to be for practical purposes only (i.e. to maintain good health) and is not meant to be for aesthetic purposes.
 - d) Humane methods of rodent control must be used. This includes include devices or systems that minimize suffering and/or cause a quick death.
 - Quick-kill snap traps are preferred over rodenticides.
 - Rodenticides may only be used to control severe outbreaks. When used, rodenticides must only be applied using bait stations, which must be closely monitored to ensure prompt removal of dead rodents.
 - Methods of control that prolong suffering (by causing starvation, hypothermia or excessive discomfort) are unacceptable, as are those that endanger other animals.
 - The use of glue boards, electrocution, drowning, live freezing and ineffective traps for controlling rodent populations are strictly prohibited.
 - e) Methods of control for other nuisance animals (e.g. non-predatory birds like starlings and swallows) must also be humane. Traps/nets must be checked frequently. Prevention of entry to the barn is key.
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6.0 FEEDLOT MANAGEMENT

6.1 General

- a) All animals to be marketed as SPCA Certified must be purchased from SPCA Certified farms before finishing at the feedlot. **Producers who do not source animals from SPCA Certified farms at the time of certification may phase in this requirement over no more than 2 years.**
- b) Feedlots must adhere to the complete *SPCA Certified Standard for the Raising and Handling of Beef Cattle*, including space allowances listed in Sections 2.1 (Feed), 2.2 (Water) and 3.2 (Space Allowances).
- c) Feedlots must adhere to the following additional requirements:
 - The Herd Health Plan must place particular emphasis on controlling the increased disease risks associated with mixing animals. Monitor the behavior of newly-arrived cattle to facilitate early detection of illness and have a disease prevention strategy in place for new arrivals (Code requirement, pg. 16). For example, the plan may include isolating new arrivals or purchasing animals with a health and vaccination status that is similar to the main herd in the lot.
 - Cattle must have access to a diet that is nutritionally complete and provided in a quantity to maintain their health and vigour. This includes feeding quality fibre to promote rumination and prevent illness (e.g. acidosis, bloat, laminitis; Refer to Table 2 in the SPCA Certified Herd Health Plan for Beef Cattle for additional examples). See *Recommendations and Guidance*, below.
 - Cattle must be gradually introduced to grain-based rations over a period of at least five weeks.
 - Bullers must be promptly removed from their pen (Code requirement, pg. 17). Monitor closely for relapse if bullers are re-introduced into the home pen.
 - Consult with your vet to develop a program for managing pregnant heifers in the feedlot (Code requirement, pg. 17).

Recommendations and Guidance

Cattle require fibre in the diet to promote rumination and a healthy rumen. If the diet lacks quality fibre, or if there is a sudden change in the diet, cattle are prone to developing rumen acidosis or other illnesses. Consult with your vet or ruminant nutritionist for additional guidance.

Open feedlots should be sloped (unpaved lot slopes: 4-8%; paved lot slopes 2-4%) to promote proper drainage away from resting/loafing areas and water and feed supply.

7.0 TRANSPORT AND HANDLING

7.1 General

- a) Transporters/haulers must have a Standard Operating Procedure (SOP) and Emergency Protocol for transportation. It must be provided to the Validator upon request. At a minimum, the SOP and Emergency Protocol must outline how the requirements in Section 7.5 – ‘Transport Conditions’ are met.
- b) Personnel involved in transport and handling of animals are expected to adhere to:
 - Health of Animals Act, which regulates humane handling and transport of animals
 - The Recommended Codes of Practice for the Care and Handling of Farm Animals – Transportation (2001)
 - The SPCA Certified Standards for the Raising and Handling of Beef Cattle
 - The Transporter’s Standard Operating Procedure and Emergency Protocol, as approved by the Certification Body
 - Any other current federal and provincial animal transport regulatory requirements
- c) Farm managers, staff and haulers must have access to and be familiar with each of these documents.

7.2 Holding, Loading and Unloading

- a) Cattle must have access to water and feed until they are loaded for transport.
- b) Animals must be collected and handled with care and in a manner that imposes the minimum possible stress. See Section 5.7 – Handling.
- c) When moving cattle, facility design and the surrounding environment, as well as the use of other aids must be considered. The loading / unloading areas must be free of hazards that may pose a risk of injury to cattle.
- d) Precautions must be made to minimize noise levels from personnel or equipment during the loading and unloading process.
- e) All injuries and deaths occurring during loading and unloading must be recorded. A copy of this record must be kept on the farm and made available to the Validator.
- f) Maximum slope of loading/unloading ramps (Code of Practice – Transportation, 2001) is 25 degrees.
- g) Electric cattle prods must only be used in extreme situations, such as when animal or human safety is at risk, and must never be used on the face, anus, udder or reproductive organs of cattle. The animal must have a clear path to move. Electric prods must not be used on calves that can be moved manually. Do not use a prod repeatedly on the same animal. (Code requirements, pg. 19)
- h) Cattle producers and haulers must immediately report instances of inhumane handling to proper authorities (Code requirement, pg. 27).

7.3 Fitness of Cattle for Transport

- a) Unfit animals must not be transported unless to a veterinarian for diagnosis or treatment, under the advice of a veterinarian. Such animals must be treated immediately or euthanized. See Section 8.0 – Euthanasia and Slaughter.
 - b) Animals deemed unfit for transport include those that:
 - Score 2 or lower for BCS on a 1-5 scale (see Appendix B for body condition scoring)
 - Score 4 or 5 for lameness on a 1-5 scale (some exceptions apply; see Appendix C)
 - Are likely to give birth during the journey
-

- Are under 7 days of age
- Fall within any of the descriptions listed on the “Should this Animal be Loaded?” decision tree (Appendix D)
- c) Lactating animals (and their offspring) or animals in the last 10% of gestation must not be transported to a sale or to slaughter, but may be transported for short durations between properties that are part of the same farm operation.
- d) Lactating cows must be milked out immediately before transport and again within 12 hours of leaving the farm if transferred to another facility under the same ownership. This may be accomplished by allowing a calf to nurse.
- e) If at all possible, when not harmful to the cow or calf, dry off heavy lactating cows destined for slaughter prior to shipping, or ship directly to an abattoir if they cannot be dried off (see Appendix D).
- f) If an animal becomes unfit for transport during transit, it must be treated immediately, humanely slaughtered at the nearest possible location or euthanized immediately on site. See Section 8.0 – Euthanasia and Slaughter.
- g) The right of the hauler to refuse to load cattle deemed unfit for transport must be respected. The reason for refusal must be addressed. (Code requirement, pg. 27)

Recommendations and Guidance

It is strongly recommended that animals be scored for health and fitness before leaving the origin farm and at staging points such as auction yards, ports and borders (provincial and national). Body condition and lameness scores should be assessed.

7.4 Hauler Qualifications

- a) Cattle must be transported by haulers/staff who have completed the cattle module of the Canadian Livestock Transport (CLT) Certification Program (formerly the Certified Livestock Transport Training Program), or who have completed another approved training program. **A requirement for completion of the cattle module of the CLT program will be phased in as it becomes available across Canada and a reasonable representative sample of certified transporters are available in the area.**

7.5 Transport Conditions

- a) Time from beginning of loading until slaughter must not exceed 24 hours when within the farmer’s control.
- b) Loading density must not exceed the following:

Beef Cattle					
METRIC			IMPERIAL		
Body Weight (kg)	Deck Space / Animal (m ²)	Loading Density (kg / m ²)	Body Weight (lb)	Deck Space / Animal (ft ²)	Loading Density (lb / ft ²)
100	0.39	256	200	3.8	53
200	0.61	327	400	6.2	65
300	0.83	360	600	8.3	72
400	1.0	388	800	10	77

Beef Cattle (cont.)					
METRIC			IMPERIAL		
Body Weight (kg)	Deck Space / Animal (m ²)	Loading Density (kg / m ²)	Body Weight (lb)	Deck Space / Animal (ft ²)	Loading Density (lb / ft ²)
500	1.2	411	1,000	12	82
600	1.4	431	1,200	14	86
700	1.6	444	1,400	16	89
800	1.7	463	1,600	17	92
900	1.9	475	1,800	19	96
1,000	2.0	488	2,000	20	99

Veal Calves					
METRIC			IMPERIAL		
Body Weight (kg)	Deck Space / Calf (m ²)	Loading Density (kg / m ²)	Body Weight (lb)	Deck Space / Calf (ft ²)	Loading Density (lb / ft ²)
70	0.26	270	125	2.3	54
80	0.28	285	150	2.7	55
90	0.32	285	200	3.4	58
115	0.38	300	250	4.1	61
135	0.43	315	300	4.6	65
160	0.50	320	350	5.3	66
180	0.55	328	400	6.0	67
200	0.60	339	450	6.4	70
225	0.65	346	500	7.0	71
250	0.70	357	550	7.6	72
270	0.74	365	600	8.0	75
295	0.80	369	650	8.6	76

Adapted from: Recommended Code of Practice for the Care and Handling of Farm Animals – Transportation (2001).

- c) Provide additional space on the transport vehicle to accommodate horned cattle.
- d) During hot weather (see Appendix E), cattle must be transported at night, during the coolest part of the day, or with 10% more floor space than the loading density figures listed in the table in Section 7.5 b).
- e) Cattle must be able to stand in a normal posture without their body touching with the roof or upper deck of the transport vehicle.
- f) Cross gates (partitions) are required in order to separate incompatible cattle within the same vehicle. This may include separation of mature bulls or cattle of different sizes, weights, ages, genders or temperament.

- g) Measures must be taken to shelter cattle from unfavourable environmental conditions (i.e. excessive wind, rain, heat or cold) during transport and before slaughter.
- h) If vehicles are required to remain stationary for substantial periods of time during hot weather, measures must be taken to ensure sufficient ventilation to avoid heat stress.
- i) Provide secure footing or bedding to prevent slips and falls in the transport vehicle.
- j) All injuries and deaths occurring during transport must be recorded. A copy of this record must be kept on the farm and made available to the Validator. Haulers must take corrective action to prevent identified causes of injury and/or death.
- k) Electric prods are only permitted as per Section 7.2 g).
- l) Allow for proper drainage and absorption of urine in the transport vehicle.

Recommendations and Guidance

Cattle should only be transported in vehicles specifically designed for their transport in order to provide species-specific care during the journey.

Where possible, cattle should be transported directly from farm to final destination (slaughterhouse or other farm) rather than through sales yards, auctions or collecting stations. Schedule loading and transport to best avoid long delays in transit or at the unloading destination.

During hot weather periods, efforts should be made to transport cattle at night or during the coolest part of the day, instead of during peak temperature periods. The use of actively ventilated transport vehicles and on-board equipment for monitoring temperature and humidity is strongly recommended. Parking the vehicle in a shaded area during rest stops will help control any abrupt rises in temperature during hot weather.

A temperature-humidity index is available in Appendix E.

7.6 Purchase and Sale of Animals

The program discourages the use of auctions/sale barns for purchasing and selling cattle.

- a) When the use of auctions/sale barns is unavoidable, the following documentation is required for each animal purchased (breeding animals exempt – see Section 7.6 b):
 - Signed affidavit from the seller confirming that cattle are raised under the SPCA Certified program
 - Farm of origin documentation
 - History including movement and transportation records, documenting previous owners/farms
- b) Cattle purchased for breeding purposes that are not certified in the program shall be managed to the SPCA Certified Standard for one month in order to be included under the farm's Certificate of Registration (as per the SPCA Certified Operations Manual).

8.0 EUTHANASIA AND SLAUGHTER

8.1 Euthanasia

- Cattle with untreatable conditions, not responding to treatment, or not fit for transport must be euthanized. Non-ambulatory animals must not be forced to move or dragged before being euthanized. (Code requirements, pg. 29, 30)
- Euthanasia must be performed by competent (trained, experienced and/or mentored) personnel (Code requirement, pg. 30).
- An acceptable method for euthanizing cattle on-farm or during transport must be used in combination with the safest, least stressful method of restraint possible. Sedation is considered an acceptable method of restraint for unmanageable or aggressive animals.
- Acceptable methods of cattle euthanasia, as per Code requirements (pg. 30) are:

Method	Animal Type	Application and Further Guidance
Barbiturate (approved euthanasia drug) overdose	All cattle	To be administered by a licensed veterinarian only. Restraining the animal may be necessary. Carcass must be safely disposed of and inaccessible by any animal or scavenger.
Gunshot ^{a,b}	Calves under 181 kg (under 400 lbs)	Equipment: Gun must possess a minimum of 407 joules (300ft-lb) muzzle energy Examples: Centrefire high powered rifle or shotgun (20 gauge or greater from no more than 10m (32ft) Note: A standard .22 calibre long rifle only produces 119-138 joules (116-135 ft-lb) of muzzle energy and is not sufficient to humanely kill cattle.
	Yearling cattle, cows, mature bulls	Equipment: Gun must possess a minimum of 1356 joules (1000 ft-lb) muzzle energy Examples: Centrefire high powered rifle or shotgun (20 gauge or greater from no more than 10m (32ft) Note: A standard .22 calibre long rifle only produces 119-138 joules (116-135 ft-lb) of muzzle energy and is not sufficient to humanely kill cattle.
Penetrating captive bolt device ^b AND pithing or bleeding out ^c	All cattle	Animal restraint required. Use appropriate calibre, charge and bolt length for animal size / weight (refer to manufacturer's guide). Positioning: Device placed firmly against the skull. Requires bleeding out or pithing as a secondary kill step.
Non-penetrating captive bolt device ^b AND bleeding out ^c	Young calves only	Animal restraint required. Positioning: Device placed firmly against the skull. Requires bleeding out as a secondary kill step.

^a Must only be carried out by persons well versed in handling firearms and licensed to use them, when required by law.

^b See siting guidelines in Section 8.1 f).

^c See *Recommendations and Guidance*.

- e) The following methods of euthanasia for cattle are unacceptable due to the pain, distress and suffering they cause in addition to the potential for performing them incorrectly:
- Drowning
 - Strangulation
 - Air embolism
 - Manually applied blunt trauma to the head (e.g. hammer)
 - Bleeding out as a stand-alone kill step (i.e. without stunning first)
 - Electrocution
 - Injection of chemical agents not approved for euthanasia into conscious animals
- f) For cattle, the point of entry of the bullet or placement of the captive bolt device should be at the intersection of two lines, each drawn from the rear corner (outside corner) of the eye to the base of the opposite horn (see diagram below).
- When euthanasia is performed by gunshot, the firearm should be held at a distance from the intended target (see table in Section 8.1 d). Ricochet may be prevented if the barrel of the firearm is positioned perpendicular to the skull.
 - When euthanasia is performed by captive bolt device, it should be held in complete contact with, and perpendicular to the skull, as indicated in the diagram below.

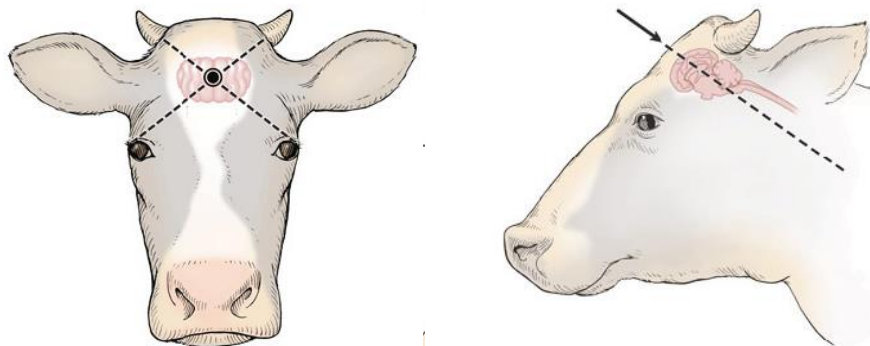


Diagram source: Shearer and Nicoletti (2011)

According to the Humane Slaughter Association, the site of impact for calves is slightly lower than for adult cattle. Mature bulls may have a hard, thick frontal bone; therefore, a shotgun may be more effective than a penetrating captive bolt device.

- g) After applying the euthanasia method, immediately evaluate the animal's consciousness (see *Recommendations and Guidance*). (Code requirement, pg. 32)
- h) Regardless of the method chosen, have a secondary method of euthanasia on hand should the first attempt prove unsuccessful (Code requirement, pg. 32). The secondary method can be repetition of the first attempt or use of an alternate method altogether, unless directly specified in Section 8.1 d).
- i) Confirm the animal is insensible after stunning. Confirm death immediately after administering the kill step, and before moving or leaving the animal (see *Recommendations and Guidance*). (Code requirements, pg. 32)
- j) Equipment used in on-farm euthanasia (e.g. guns, captive bolt devices) must be maintained according to the manufacturers' instructions to ensure they continue to function properly (see *Recommendations and Guidance*). (Code requirement, pg. 30)

Recommendations and Guidance

Captive bolt devices should be frequently cleaned (daily, when fired) and maintained to ensure they are in good working condition so they will not jam or stick in the animal's head when used.

Bleeding out:

- To be performed as a secondary kill step, not as the primary method of euthanasia.
- Use a pointed, very sharp knife with a strong blade a minimum of 15.2 cm (6 inches) long.
- Insert the knife through the skin just behind the point of the jaw and below the bones of the neck of an animal that has been stunned and is already insensible. Bring the knife forward to sever the jugular vein, carotid artery, and windpipe.
- When properly performed, blood will flow freely and death will occur over several minutes.

Pithing:

- A method of killing animals that have been stunned by gunshot or a penetrating captive bolt device.
- Causes physical destruction of the brain and upper regions of the spinal cord and can be performed as a secondary kill step when bleeding out is undesirable for aesthetic or sanitary reasons.
- To pith an animal, insert a rod or similar long, slender tool (approximately 1m (3ft) long by 5-10cm (0.2-0.4in) in diameter) through the hole in the skull left by a bullet or captive bolt. Move the rod/tool around to destroy the brain and spinal cord. This will result in death.
- Pithing rods are commercially available, but can also be made from a variety of materials (e.g. a high tensile wire, steel rod, a discarded cattle insemination rod, etc.).

Confirming insensibility (loss of consciousness):

- See if the animal blinks if you touch its eyelashes. If it does not blink, try touching its eyeball. Insensible animals will not blink.
- An animal has NOT been successfully rendered insensible if it vocalizes (e.g. bellows), attempts to get up, lifts its head up, blinks like an animal that is alive and conscious, moves its eyes around or responds to something painful, like pinching its nose.

Confirming death:

- Check for a heartbeat. In a live animal, the pulse would be found at the left lower side of the animal's chest, just behind the elbow.
- Check for breathing. Observe the chest for movement. Note: Breathing may be slow or erratic in an unconscious animal.
- Death is confirmed by a lack of heartbeat and breathing for more than 5 minutes.

Adapted from: Woods et al. (2010)

8.2 Slaughter of Animals for Meat

The Certification Body will be phasing in a requirement that slaughter plants and farms that slaughter animals on site be assessed using standards such as the American Meat Institute's *Recommended Animal Handling Guidelines and Audit Guide*.

APPENDIX A: HERD RECORDS

Herd records must illustrate:

- a) The Farm System Design Plan – a map of the farm illustrating all areas (indoor and outdoor), exits, emergency equipment and evacuation routes for workers.
- b) Herd Health Plan and the following related records:
 - Animal production and health information
 - All vaccines, drugs and treatments used and purchased (receipts kept) – a record of drug serial numbers, withdrawal dates, dosages, expiry date on bottle, reason for use and location of administration.
 - Disease outbreaks (including cause, if known)
 - Treatment log with reasons, medication used, animal identification, withdrawal times
 - Mortalities (including cause, if known)
 - Euthanized and culled animals (and reasons)
 - Lab testing or other diagnostics
- c) Biosecurity Plan
- d) Breed and number of all animals
- e) Sources of all purchases and sales of animals – a complete audit trail from farm to final sale
- f) Year-end inventories of animals
- g) Record of all deaths and injuries occurring during loading and transport
- h) Condemnations and dead-on-arrival records from the processor
- i) Feed suppliers, feed ingredients and supplement records
- j) Water additives, if any
- k) Monthly ammonia levels assessed at cattle head height
- l) Standard Operating Procedure (SOP) and Emergency Protocol for transportation

Using the record keeping forms that are provided with this manual is optional. It is acceptable to use records from industry programs and/or any record keeping forms that have already been developed for the operation. Applicants that do not have a consistent record keeping system are encouraged to use and implement the Certification Program forms upon receiving them in the application package.

Upon obtaining certification, Members will be expected to retain all records between one Annual Assessment and the next (minimum one year).

APPENDIX B: BODY CONDITION SCORING GUIDE

Body condition scoring (BCS) is a hands-on way of assessing muscle and fat cover on cattle at specific landmarks on the animal's body. Note: BCS is most applicable to mature cattle and may be of little use for cattle under one year of age. Also see Beef Code, pgs. 42-44.

Score	Appearance	Condition
1	Severe underconditioning (emaciated)	Hips, back bones, ribs and tail head are visually prominent (bones are sharp looking). No fat cover, deep cavity around tail head, deep depression in loin.
2	Frame obvious (thin)	Hips, back bones and short ribs are prominent but smooth with slight fat cover. Shallow cavity around tail head with some fatty tissue lining.
3	Moderate frame and covering well balanced (good condition)	Hips and back bones rounded, muscle development full, no cavity around tail head, slight depression in loin area. Short ribs only felt with firm pressure.
4	Frame not visible (fat)	Back bones evident only as a line, fat cover considerable but firm, hip bones and short ribs cannot be felt. Tail head rounded with fat, no depression in loin area, folds of fat beginning to develop.
5	Severe overconditioning (obese)	Hips and back bones not detectable, fat cover dense and soft, tail head buried under thick layer of fatty tissue. Fat folds are obvious. Fat accumulates in the brisket area.

Targets:

Stage of Production	Target BCS	Animal group
30 days before start of breeding	2.5	Cows
	3.0	Heifers
	3.0-3.5	Bulls
Start of winter feeding program	3.0	All females
	3.0-3.5	Bulls
Calving	2.5	Mature cows
	3.0	First-calf heifers

Adapted from: Alberta Agriculture and Food (2008)

APPENDIX C: LAMENESS SCORING GUIDE

Lameness Scoring Protocol for Beef Cattle

1. Choose a point where each animal can be observed walking in a straight line on a flat, even, and dry surface. The observer should keep sufficient distance from the animals so as not to startle them.
2. Watch cattle walk at their own pace. Assess lameness from the side to be able to see the back arch, head movement, length of the stride, and evenness of the steps.
3. It is difficult to observe individual animals if a large group is moved at once. Try to create a narrow passageway using a gate or a rope to let one animal pass at a time. Alternatively, a second person could help slow down the traffic.
4. Tally the number of animals scored as 3, 4 or 5 and record the total number of animals that are in the group assessed. Determine the percentage of cattle at each lameness score to calculate the prevalence of lameness.

Creating a Good Lameness Scoring Environment

Creating an environment where the animal feels comfortable walking will optimize your lameness scoring ability. Scoring cattle during their familiar routine minimizes stress and allows for the most accurate assessment. Cattle may alter their gait if they are put in a new situation or see an unfamiliar person. Scoring can be done most accurately when cattle walk at a consistent pace in a straight line.

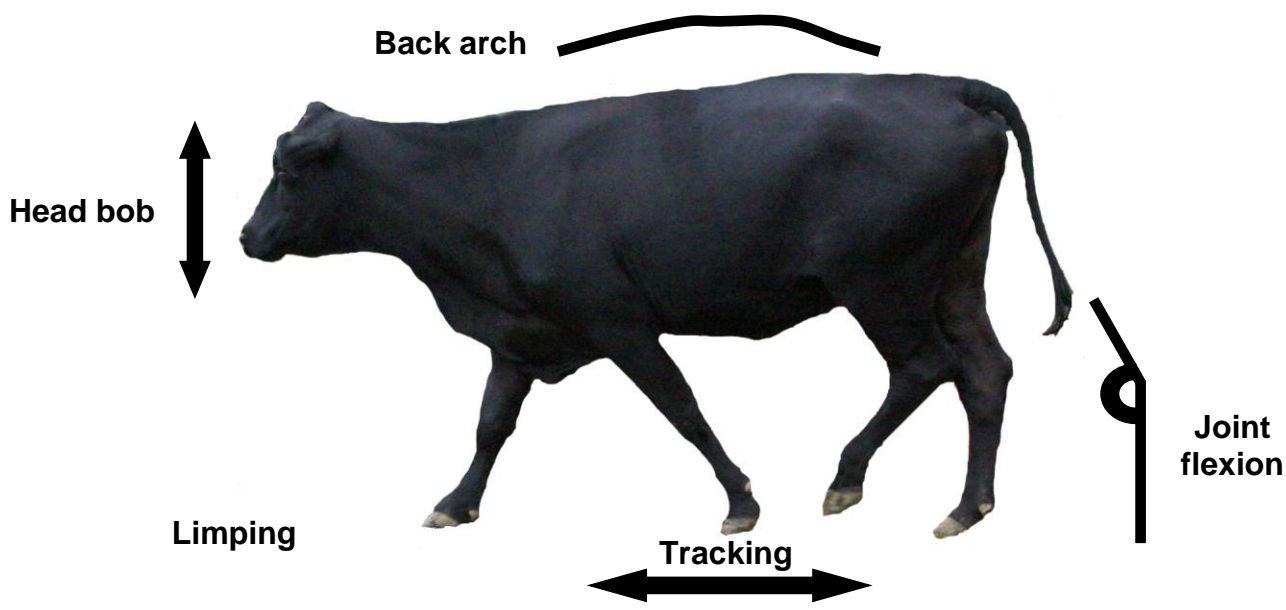
Interpreting Lameness Scores

- Score 1: Fit for transport.
- Score 2: Assess to determine course of action (e.g. medical treatment, cull). Fit for transport.
- Score 3: Requires medical treatment or send directly to slaughter/euthanize.
- Score 4: Requires medical treatment or send directly to slaughter/euthanize. Haul only a short distance for slaughter or for veterinary treatment.
- Score 5: If untreatable, euthanize animal or slaughter on-farm.

Score 3 may become worse during transport. Animals with a score of 4 or 5 are more likely to fall down and/or get trampled during transport. This may result in worsened lameness upon arrival at the final destination, or increased incidence of dead-on-arrivals.

Refer to the following two pages for behavioural signs of lameness and a scoring sheet.

Score	Description	Behavioural Signs
1	Not Lamé	Normal walking Smooth and fluid movement
2	Slight to Mild Lameness Imperfect movement but ability to walk not compromised	No limp Flat back Steady head carriage Smooth strides (tracking of front and back feet) Even steps Joints flex freely
3	Mild to Moderate Lameness Capable of movement but ability to walk is compromised Still able to keep up with a walking herd	Slight limp Arched back Steady head carriage Shortened strides Uneven steps Joints show signs of stiffness
4	Moderate to Severe Lameness Ability to walk is obviously diminished Unable to keep up with a walking herd	Obvious limp that is immediately identifiable Obviously arched back Head bob (jerky head movement up or down) Short and hesitant strides Uneven steps Stiff joints May stand with bent leg (avoids weight bearing)
5	Severe Lameness Ability to walk is severely restricted; must be vigorously encouraged to move	Inability to bear weight on one or more limbs Extremely arched back Obvious head bob Hesitant and deliberate strides Extremely uneven steps Obvious joint stiffness



SPCA Certified Lameness Scoring Form

Farm: _____ **Herd Size:** _____ **Breed:** _____

Score	Number (Tally) of Cattle	Total
1		
2		
3		
4		
5		
Total number of cattle observed (group size):		

Lameness Prevalence

Score →	1	2	3	4	5
Number of cattle					
% of cattle					

APPENDIX D: DECISION TREE - SHOULD THIS ANIMAL BE LOADED?

Updated 05/10

SHOULD THIS ANIMAL BE LOADED?
Guidelines for Transporting Cattle, Sheep & Goats



Load Healthy Animals

**Do Not Load
Do Not Transport**




**Do Not Transport
to a Sale**



Delay Transportation and Reassess

- Exhaustion
- Calving/lambing/kidding
- Dehydration
- Weakness/unstable
- Acute mastitis
- Ketosis
- Fever:
 - cattle > 102.5°F
39.1°C
 - sheep/goats > 103.3°F
39.6°C



Euthanize

- **Non-ambulatory (see box below)**
- Fractures of limb or spine
- Arthritis in multiple joints
- Cancer eye (severe)
- Cancer/leukosis (extensive)
- Extremely thin
- Pneumonia (unresponsive with fever)
- Prolapsed uterus
- Water belly
- Nervous disorders, such as rabies must be reported to CFIA
- Hernia that impedes movement

**Transport With Special Provisions
Direct to Slaughter**



As Soon As Possible

- Abscess
- Blind
- Frost bite
- Cancer eye (eye intact)
- Lameness Class 1, 2
- Left/right displaced abomasum (without weakness, toxicity)
- Lumpy jaw
- Penis injuries
- Pneumonia (without fever)
- Prolapsed vagina or rectum
- Animals that have given birth within 48 hours

Within 12 Hours

**Seek advise from your veterinarian
Advise inspector at the destination plant.**

- Bloat*
- Hardware with localized signs
- Intestinal accidents
- Recent injury*
- Urethral blockage (acute)*
- Broken tail or jaw
- Smoke inhalation

**Animals must travel in a small compartment, either individually or with one quiet animal.*

Animals with multiple conditions may not be fit to transport.

Non-ambulatory animals: Unable to stand without assistance, or unable to move without being dragged or carried (downers). **Do not load or transport.**

Lame animals:

- Animals should not be loaded if at risk of going down in transit.
- Animals that can't bear weight on all four legs may be in pain and are at risk of going down during transit. These animals are often euthanized at sales and plants.

Lactating animals: Dry off heavy lactating cows before shipping when possible or ship directly to an abattoir.

Emergency On-Farm Slaughter

If an animal is fit for human consumption but not fit for transport (i.e. injured but not sick) emergency on-farm slaughter may be an option. Please consult with your provincial government for more information on the availability of emergency on-farm slaughter in your province.

The diagram on this page was originally published in *Should This Animal Be Loaded? Guidelines for Transporting Cattle, Sheep and Goats* (2010). Permission to republish has been granted from Farm & Food Care Ontario.

Guidelines for Dealing with Compromised Cattle, Sheep & Goats

Federal Transportation Regulations (2010)

Health of Animals Regulations www.inspection.gc.ca

DO

- Segregate animals of different species, or substantially different weights and ages, or if incompatible by nature.
- Provide proper ventilation, drainage and absorption of urine.
- Have sufficient headroom for animals to stand in a natural position.
- Spread sand in the vehicle or have vehicle fitted with safe footholds, in addition to appropriate bedding.
- Ensure that animals unloaded for feed, water and rest remain at least five hours and longer, if necessary, for all animals to receive food and water.
- Ensure that calves too young to exist on hay and grain are provided with suitable food and water at intervals of no more than 18 hours.*
- Ensure that animals segregated in trucks receive extra protection from cold and wind chill; supply ample bedding.
- Euthanize animals promptly when you identify conditions outlined in the "Should this Animal be Loaded?" chart.

*Note: The Recommended Code of Practice for the Care and Handling of Farm Animals - Transportation suggests no more than 12 hours between intervals for calves.

DO NOT

- Transport a sick or injured animal where undue suffering may result.
- Transport when the animal is liable to give birth during the journey, unless under the advice of a veterinarian for medical care.
- Continue to transport an animal that is injured, becomes ill, or is otherwise unfit to travel beyond the nearest place it can be treated.
- Use goads or prods on the face, anal, udder or genital area.
- Load or unload animals in a way that would cause injury or undue suffering.
- Crowd animals to such an extent as to cause injury or undue suffering.
- Transport livestock in trailers not designed for safe handling of that species or class of livestock.

Source: *Transporting Livestock by Truck (CFIA)*

Lameness Classes

These categories can be used to determine the status of an animal's mobility, from normal to non-ambulatory.

Transport as soon as possible

Class 1

Visibly lame but can keep up with the group: no evidence of pain.

Class 2

Unable to keep up; some difficulty climbing ramps. *Load in rear compartment.*

Do Not Load or Transport*

Class 3

Requires assistance to rise, but can walk freely.

Class 4

Requires assistance to rise; reluctant to walk; halted movement.

Class 5

Unable to rise or remain standing.

*** Any animal, including Lameness Classes 3, 4 or 5 may be transported for veterinary treatment, on the advice of a veterinarian.**

**CFIA Livestock
Emergency
Transport Line
1-877-814-2342
(Ontario only)**

Special thanks to the Ontario Humane Transport Working Group for their leadership on this resource. Funding for this project was provided in part through Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-Food Program and the Ontario Ministry of Agriculture, Food and Rural Affairs.



www.bcfacc.ca
(604) 287-3276



www.afac.ab.ca
(403) 932-8052



Farm Animal Council of Saskatchewan Inc.
www.facs.sk.ca
(306) 249-3227



www.mbfac.ca
(204) 632-9047



www.ofac.org
(519) 837-1326

APPENDIX F: MEASUREMENT CONVERSION TABLE

Multiply an imperial number by the conversion factor shown to get its equivalent in metric units.
Divide a metric number by the conversion factor shown to get its equivalent in imperial units.

Imperial Units	Approximate conversion factor	Metric Units
Length		
inch	25	millimetre (mm)
foot	30	centimetre (cm)
yard	0.9	metre (m)
mile	1.6	kilometre (km)
Area		
square inch	6.5	square centimetre (cm ²)
square foot	0.09	square metre (m ²)
square yard	0.836	square metre (m ²)
square mile	259	hectare (ha)
acre	0.4	hectare (ha)
Volume		
cubic inch	16	cubic centimetre (cm ³ , mL, cc)
cubic foot	28	cubic decimetre (dm ³)
cubic yard	0.57	cubic metre (m ³)
fluid ounce	28	millilitre (mL)
pint	0.57	litre (L)
quart	1.1	litre (L)
gallon (Imp.)	4.5	litre (L)
gallon (U.S.)	3.8	litre (L)
Weight		
ounce	28	gram (g)
pound	0.45	kilogram (kg)
short ton (2000 lb)	0.9	tonne (t)

APPENDIX G: REFERENCE MATERIAL

The following publications can be obtained from national commodity group and/or specialized provincial organizations. The *SPCA Certified Standards for the Raising and Handling of Beef Cattle* were developed based on the information contained in these documents:

Alberta Agriculture and Rural Development. **What's the Score: Beef Cow. Body Condition Scoring Guide.** Publication Office at 7000 - 113 Street, Edmonton, Alberta T6H 5T6. Phone: 1-800-292-5697. Website: <http://www1.agric.gov.ab.ca>

Alberta Agriculture and Rural Development. 2008. **The Beef Cow-Calf Manual.** Agdex 420/10.

American Association of Bovine Practitioners (AABP). **Practical Euthanasia of Cattle: Considerations for the producer, livestock operator, livestock transporter, and veterinarian.** Website: <http://www.aabp.org/resources/euth.pdf>. Accessed: August 2012.

American Meat Institute. 2010. **Recommended Animal Handling Guidelines and Audit Guide.** June 2010 Edition. Website: www.animalhandling.org

Beef Quality Assurance (BQA). 9110 E. Nichols Ave., Suite 300, Centennial, Colorado, USA 80112. Telephone: 303-694-0305. Website: www.BQA.org. E-mail: BQA@beef.org.

Canadian Food Inspection Agency. **Health of Animals Act.** Website: inspection.gc.ca/english/anima/trans/transpoe.shtml

Canadian Livestock Transport (CLT) Certification Program (formerly the Certified Livestock Transport Training Program). **Should this Animal be Loaded?** Email: info@livestocktransport.ca. Website: livestocktransport.ca

Dylan Biggs Livestock Handling Clinics. Humane handling clinics approved by the Canadian Agricultural Skills Service (CASS). Website: cattle-handling.com

National Farm Animal Care Council. 2009. **Canadian Code of Practice for the Care and Handling of Dairy Cattle.** Email: nfacc@xplornet.com. Website: nfacc.ca/codes-of-practice

National Farm Animal Care Council. 2013. **Code of Practice for the Care and Handling of Beef Cattle.** Email: nfacc@xplornet.com. Website: nfacc.ca/codes-of-practice

National Farm Animal Care Council. 2001. **Recommended Codes of Practice for the Care and Handling of Farm Animals – Transportation.** Email: nfacc@xplornet.com. Website: nfacc.ca/codes-of-practice

OIE / World Organization for Animal Health. 2010. Glossary. **Terrestrial Animal Health Code 1 (Sec. 7.5, 7.6).** Available: http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.7.6.htm. Accessed: September 2012.

Shearer, J. K. and Nicoletti, P. 2011. **Procedures for the Humane Euthanasia of Sick, Injured and/or Debilitated Livestock.** Iowa State University, College of Veterinary Medicine, Ames, IA 50011. Email: jks@iastate.edu. Phone: 515-294-2836. Website: <http://vetmed.iastate.edu/HumaneEuthanasia>

Woods, J., Shearer, J. K. and Hill, J. 2010. **Recommended on-farm euthanasia practices.** Chapter 10 in *Improving Animal Welfare: A Practical Approach*. Editor: T. Grandin. CAB International, Oxfordshire UK.
