National Farm Animal Care Council

CODE OF PRACTICE FOR THE CARE AND HANDLING OF BEEF CATTLE

DRAFT VERSION

Table of Contents

Preface

The National Farm Animal Care Council (NFACC) Code development process was followed in the development of this Code of Practice. The *Code of Practice for the Care and Handling of Beef Cattle* replaces its predecessor developed in 2013 and published by the National Farm Animal Care Council.

The Codes of Practice provide critical guidance for the care and handling of farm animals. They serve as our national understanding of animal care requirements and recommended practices. Codes promote sound management and welfare practices for housing, care, transportation, and other animal husbandry practices.

Codes of Practice have been developed for virtually all farmed animal species in Canada. NFACC's website provides access to all currently available Codes (www.nfacc.ca).

The NFACC Code development process aims to:

a. link Codes with science
b. ensure transparency in the process
c. include broad representation from stakeholders
d. contribute to improvements in farm animal care
e. identify research priorities and encourage work in these priority areas
f. write clearly to ensure ease of reading, understanding and implementation
g. provide a document that is useful for all stakeholders.

The Codes of Practice are the result of a rigorous Code development process, taking into account the best science available for each species, compiled through an independent peer-reviewed process, along with stakeholder input, including a 60-day public comment period. The Code development process also takes into account the practical requirements for each species necessary to promote consistent application across Canada and ensure uptake by stakeholders resulting in beneficial animal outcomes. Given their broad use by numerous parties in Canada today, it is important for all to understand how they are intended to be interpreted.

Requirements - These refer to either a regulatory requirement or an industry-imposed expectation outlining acceptable and unacceptable practices and are fundamental obligations relating to the care of animals. Requirements represent a consensus position that these measures, at minimum, are to be implemented by all personnel responsible for farm animal care. When included as part of an assessment program, those who fail to implement Requirements may be encouraged by industry associations to undertake corrective measures or risk a loss of market options. Requirements also may be enforceable under federal and provincial regulation.

Recommended Practices - Code Recommended Practices may complement a Code's Requirements, promote producer education, and encourage adoption of practices for continual improvement in animal welfare outcomes. Recommended Practices are those that are generally expected to enhance animal welfare outcomes, but failure to implement them does not imply that acceptable standards of animal care are not met.

Broad representation and expertise on each Code Committee ensures collaborative Code development. Stakeholder commitment is key to ensure quality animal care standards are established and implemented.

This Code represents a consensus amongst diverse stakeholder groups. Consensus results in a decision that everyone agrees advances animal welfare but does not necessarily imply unanimous endorsement of every aspect of the Code. Codes play a central role in Canada's farm animal welfare system as part of a process of continual improvement. As a result, they need to be reviewed and updated regularly. Codes should be reviewed at least every five years following publication and updated at least every ten years.

A key feature of NFACC's Code development process is the Scientific Committee. It is widely accepted that animal welfare codes, guidelines, standards, or legislation should take advantage of the best available research. A Scientific Committee review of priority animal welfare issues for the species being addressed provided valuable information to the Code Committee in developing this Code of Practice.

The Scientific Committee report is peer reviewed and publicly available, enhancing the transparency and credibility of the Code.

The *Code of Practice for the Care and Handling of Beef Cattle: Review of Scientific Research on Priority Issues* developed by the beef cattle Code of Practice Scientific Committee is available on NFACC's website (www.nfacc.ca).

Introduction

Since 2005, the responsibility for developing and revising Canada's Codes of Practice has fallen under the mandate of the National Farm Animal Care Council (www.nfacc.ca). This revised *Code of Practice for the Care and Handling of Beef Cattle* was updated through a similar consultation and review process, by a committee representing a wide range of stakeholders (Appendix H), according to the Code development process developed by NFACC (www.nfacc.ca/code-development-process).

This Code of Practice has been updated from the 2013 Code to reflect meaningful and well considered revisions to improve the welfare of beef cattle, while being practically implemented on a variety of farms across Canada. The Code Development Committee has made a conscious effort to make improvements that are informed by science and that can be supported by producers, consumers, and the public.

This Code focuses on the animal. Where possible, it is outcome-based and is intended to achieve a workable balance between the best interests of cattle, producers, consumers, and the public. It recognizes the basic principle that the well-being of cattle is a primary consideration and that producers benefit from cattle that are treated well. This Code reflects scientifically valid and feasible approaches to meeting cattle health and welfare needs throughout the production system, contributing to a sustainable and internationally competitive Canadian beef industry. Veterinarians play a key role in safeguarding animal health. Having a valid Veterinary-Client-Patient-Relationship is an essential part of managing and caring for cattle.

The committee also recognizes the concept of One Welfare, which holds that animal welfare is interconnected with human well-being and the environment. The daily care and management of animals is a significant responsibility that may result in stress for producers, particularly when caring for sick or injured cattle. In addition to ensuring that animal health, care, and welfare are well managed, producer mental health and wellness should always be a priority. Resources to support producer mental health and well-being are included in Appendix A.

Throughout this Code, the term *personnel* refers to any on-farm worker (farm owner, family or non-family employee, etc.) that is responsible for handling and caring for cattle.

The selection and training of personnel are the most important factors in ensuring that cattle will be managed humanely. All personnel working with cattle or managing cattle facilities should be experienced or properly trained in humane and low stress handling, equipment use, and livestock care. They should understand their responsibilities and ensure that routine cattle management practices promote animal well-being and avoid unnecessary suffering of cattle. Calm, healthy cattle generally have higher productivity and economic value than stressed or ill cattle. All beef cattle deserve to be treated with compassion and respect. Farm personnel have an obligation to provide the same appropriate standard of care to all cattle on the farm irrespective of the animal's economic value.

The well-being of beef cattle can be safeguarded under a variety of husbandry and management systems. This Code is not intended to describe all production and management practices relevant to each stage of beef production. Instead, principles applicable to all sectors of the industry are presented along with some sector-

specific considerations. The beef cattle Code of Practice reflects current beef management practices. It identifies welfare hazards, opportunities, and methods to assure well-being. The authors recognize producers have more than one way to ensure welfare of their livestock.

Most husbandry systems impose restrictions on some freedoms of cattle. However, producers should consider the following:

- shelter for protection and comfort
- feed and water to maintain optimal health
- freedom of movement, exercise, and opportunity to express normal behaviours
- company of herd mates
- footing that reduces the risk of slipping or falling
- disease prevention and control
- veterinary care, diagnosis, and treatment
- freedom from unnecessary pain and discomfort
- emergency preparedness for natural disasters (e.g., fire, floods), mechanical breakdowns, and the disruption of feed supplies.

Anyone building new, modifying, or assuming management of existing cattle facilities will need to be familiar with local, provincial, and federal requirements for construction, environmental management, and other areas outside the scope of this document. Individuals requiring further details should refer to local sources of information.

This Code is a guideline for the care and handling of beef cattle. All provincial and federal acts and regulations must always take precedence. Causing animals unnecessary pain or suffering or willful neglect is illegal under the Criminal Code of Canada and under most provincial statutes. It is of benefit to the whole Canadian cattle industry that anyone witnessing animal neglect or cruelty takes some action to remedy the situation by helping to educate the producer or by contacting the appropriate cattle producers' organization or animal welfare authorities.

On-farm slaughter of beef cattle for personal consumption is not condoned unless it aligns with the requirements set forth in *Section 6: On-Farm Euthanasia*. Methods that do not render an animal immediately unconscious with minimal pain or distress prior to cessation of vital life functions are not consistent with the Code's expectations of animal welfare.

New and emerging technologies are continually being introduced into the beef cattle industry, with virtual fencing (1) being a current example. While new technologies typically have limited research, many have the potential to positively support animal welfare. Producers should be mindful of animal welfare, training, and facility design when introducing new technologies and use of new products on their animals.

In 2023, the World Organization for Animal Health (WOAH, formerly known as the OIE) approved guidelines for beef cattle production aimed at improving the health and welfare of beef cattle globally (Chapter 7.9 of the WOAH Terrestrial Animal Health Code; 2). As a member of WOAH, Canada is

committed to these guidelines, and the Code Development Committee has kept them in mind during the revision of this Code of Practice.

Scope:
While cattle care is practiced all along the production chain, the beef cattle Code of Practice is focused on ensuring the best possible animal welfare outcomes at the farm level. This Code pertains to cattle of all ages in beef production. Where special provisions for cattle under six months of age apply, the word *calf* has been used. This Code applies to male and female cattle being raised for their meat. It does not apply to associated industries (e.g., veal, dairy). However, cattle from other sectors are subject to this Code when brought into a beef production operation.

Biosecurity practices are an important way to safeguard animal health, and farm-level biosecurity considerations are included in this Code. The Canadian Food Inspection Agency (CFIA) is the regulatory body responsible for overseeing disease control and provides direction in the case of an outbreak of reportable disease. The scope of this Code does not include biosecurity practices outlined by the CFIA (3).

The beef cattle Code of Practice focuses on the care of animals before and after transit and does not encompass the care of animals while they are in transit. Therefore, this Code includes pre-transport Requirements and Recommended Practices. However, ensuring cattle are transported humanely is a shared responsibility between producers and transporters, and the welfare of animals transported for any reason must be prioritized by all personnel involved. Producers who transport animals should particularly be aware that care and responsibility for cattle is not transferred from the transporter until the receiver acknowledges receipt of a Transfer of Care (4).

Glossary

The following terms are defined based on their use in this document.

Abortion: premature birth of a dead fetus between 42 and 280 days of gestation (5).

Abscess: collection of pus in a cavity or capsule resulting from the disintegration of the infected tissue.

Acute: short term or short duration.

Afterbirth (Placenta): fetal membranes that are expelled after the birth of a calf.

Atypical interstitial pneumonia (AIP): a sudden-onset, multifactorial disease that damages the connective tissue within the lungs and causes severe breathing difficulty.

Backgrounding: a management and feeding program for weaned calves before they enter a feedlot for finishing. The main goal is to promote muscle and frame development (growth, not fat) using forages to prepare the calves for the feedlot environment. Cattle may be grown on grass or fed harvested feed.

Barbiturate: a class of drugs that depress the central nervous system (brain and spinal cord).

Biosecurity: measures taken to protect a population from the introduction and spread of disease.

Bleeding out (Exsanguination): a secondary kill step intended to ensure that an animal dies promptly following humane stunning. This is conducted by letting most of the animal's blood drain out through a deliberate incision, usually by severing the major blood vessels in the neck.

Bloat: abnormal distension of part of the gastrointestinal tract, most often the rumen, as a result of accumulated gases that cannot escape.

Body condition score (BCS): a subjective score of the amount of fat an animal has. In Canada, a 5-point scale is commonly used (there is also a 9-point scale). An important tool for monitoring feeding programs. (See Appendix B.)

Botulism: a neurologic disease caused by a toxin produced by *Clostridium botulinum* that leads to weakness, drooling, and, in severe cases, paralysis and death.

Bovine respiratory disease (when presenting in calves, also called **calfhood pneumonia**): disease of the respiratory tract of cattle, often caused by a combination of viruses and bacteria. Most often seen around weaning time.

Branding: creating a permanent mark on the skin of an animal for the purposes of identification. See also *freeze branding*, *hot-iron branding*.

Buller-steer syndrome (BSS): behavioural problem where a steer is repeatedly mounted by other steers in the group. Can result in poor performance or injury to the ridden (buller) steers.

Bunk (Feed bunk): trough or container used to feed cattle.

Burdizzo castrator: tool used to perform castration by crushing the spermatic cord and severing the blood supply to the testicles through external pressure, without using an incision.

Caesarean section: a veterinary surgery to deliver a calf through an incision in the abdominal and uterine walls.

Calf: male or female bovine animal under six months of age.

Calfhood pneumonia: see *bovine respiratory disease*.

Calving difficulty: see *dystocia*.

Captive bolt: hand-held device used when euthanizing livestock. Captive bolt devices may stun or kill, depending on their design and power. Penetrating captive bolt devices pierce the animal's skull, whereas non-penetrating captive bolt devices simply deliver a powerful blow that does not penetrate the skull. A secondary kill step with either is required to ensure death.

Castrate: to remove or incapacitate the testicles of a male animal.

Chronic: long term or long duration.

Coccidiosis: diarrhea caused by infection with a protozoa (*Eimeria* spp.) that typically impacts newly arrived feedlot cattle and young calves. See also *nervous coccidiosis*.

Colostrum: the first milk produced by a cow after calving. It is highly nutritious and contains antibodies that protect the calf from infection.

Compromised animal: an animal that has signs of infirmity, illness, injury or condition that indicates it has a reduced capacity to withstand transport, including (but not limited to) several conditions described in CFIA interpretive guidance for the *Health of Animals Regulations*, Part XII – Transport of Animals (6). Compromised animals can only be transported directly to the nearest suitable place, with special provisions, where they can receive care or be humanely killed, except an assembly centre. Compare with *unfit for transport*.

Convalescent care: actions aimed at improving cattle comfort and promoting faster recovery from illness, injury, or medical intervention.

Cow: sexually mature female bovine that has given birth to a calf.

Dam: female parent.

Dehorning: to remove the horns of an animal after the horn buds have attached to the skull (at approximately two months of age). Compare with *disbudding*.

Digital dermatitis (Strawberry heel wart): a skin infection affecting the heel bulbs, causing pain and characteristic wart-like inflammation, with skin erosion occurring in some stages of the disease.

Disbudding (Tipping): to remove the horn buds of an animal before they have attached to the skull (at approximately two months of age). Compare with *dehorning*.

Dystocia (Calving difficulty): abnormal or difficult birth.

Effective particle length: refers to the consistent, or uniform, physical properties (i.e., particle size, length, surface area) of ingredients in a ration, which promote consistent dry matter intake, maintenance of proper rumen pH, and improved digestion. This is achieved through feed processing, including total mixed ration (TMR), tub grinding, and bale processing. See also *particle length*.

Emaciation: being severely thin, as associated with starvation or illness.

Embolic pneumonia: a bacterial infection in the liver or other area of the body that spreads to the lung, causing pulmonary abscesses.

Ergot: a fungal disease of cereal grains, especially rye, that is toxic to cattle. Feeding ergot-contaminated grain can reduce cattle growth and feed intake, increase susceptibility to heat stress, and reduce blood flow to the extremities (ear, tail, hooves), which may cause gangrene.

Esophageal feeder (Tube feeder): a device that allows safe delivery of milk or fluids directly into a newborn animal's stomach (via the esophagus).

Euthanasia: the humane termination of an animal's life for a variety of reasons, including instances when treatment is not feasible or humane.

Exsanguination: see *bleeding out*.

Feed efficiency: ratio of feed required to produce a unit of weight gain.

Feedlot: cattle operation where cattle are typically housed in pens and fed stored feeds. Feedlots range in size from a few to thousands of cattle.

Feral: a domesticated animal that has become wild.

Flight zone: the distance between an animal and a perceived threat at which the animal will move away.

Footrot: bacterial infection of interdigital skin of the foot, characterized by swelling of the foot.

Freeze branding: the permanent identification of animals using super-cooled instruments to destroy the pigment-producing cells of the skin, resulting in white hair regrowth. See also *branding*, *hot-iron branding*.

Gestation: the period from conception to birth of a calf; typically 285 days in cattle.

Heifer: a young female bovine that has not yet given birth to a calf.

High energy feeding: a feeding regimen that includes a higher proportion of processed grains, premixes, and supplements and a lower proportion of forages such as hay or silage. Such diets are typically used to finish cattle prior to slaughter.

Homozygous polled genetics: cattle carrying uniform genetics (two identical alleles) for the absence of horns, meaning that they are always polled and their progeny will also be polled.

Hot-iron branding: the permanent identification of animals using super-heated instruments to create a specific mark on the hide indicating ownership. See also *branding*, *freeze branding*.

***H. somni* septicemia (*Histophilus somni* septicemia)**: a bloodstream infection caused by *Histophilus somni* that can affect the lungs, brain, or heart and cause fever and other symptoms.

Humidex: a measure of effective environmental conditions that combines both temperature and relative humidity.

Immunoglobulin (Ig): a blood protein produced by an animal's immune system in response to foreign substances (antigens). Adult animals develop immunoglobulins normally as they are continually exposed to new antigens (active immunity). Calves are born without such immunoglobulins and must receive them through colostrum in the first 24 hours of life, after which time the calf's gastrointestinal tract is no longer able to absorb them. See also *colostrum*, *passive immunity*.

Infectious arthritis: joint inflammation resulting from infection.

Johne's disease: a diarrheal disease of adult cattle caused by long-term bacterial infection with *Mycobacterium avium* subspecies *paratuberculosis* that leads to weight loss and overall health decline.

Laminitis: foot disease in which the sensitive tissues of the hoof or claw become inflamed and painful. May be a result of ruminal acidosis.

Lead poisoning: a toxic condition caused by lead ingestion, often from old batteries, that can cause incoordination and convulsions, gastrointestinal upset, and, in severe cases, death.

Listeriosis: a neurologic disease in cattle caused by ingestion of the bacteria *Listeria monocytogenes,* usually from contaminated feed, that causes circling, paralysis, and, in severe cases, abortion or death.

Local anesthesia: a drug that causes loss of feeling only in a limited area of the body. Compare with *systemic analgesia*.

Maternal antibodies: antibodies passed from the dam to her offspring, which occurs when the calf drinks colostrum in the first hours of life. See also *colostrum*, *immunoglobulin*, *passive immunity*.

Micronutrient: a component of the diet that is required only in a very small amount.

Mis-mothering: failure of a cow to bond with her newborn calf.

Morbidity rate: a measure of the level of illness, typically expressed as the percentage of animals that become sick in a period of time. Compare with *mortality rate*.

Mortality rate: the percentage of animals that die within a period of time. Compare with *morbidity rate*.

Necrotic laryngitis (Calf diphtheria): a bacterial infection of the larynx (throat) that causes difficulty breathing and a characteristic "honking" cough.

Nervous coccidiosis: severe infection with *Eimeria* spp. that is believed to allow toxins to enter the circulation and causes tremors, convulsions, and, in severe cases, death. Often occurs alongside diarrhea. See also *coccidiosis*.

Nitrates/nitrites: compounds that can accumulate in plants, especially under conditions of drought, frost, or heavy fertilization. High dietary nitrates can interfere with oxygen transport in the blood and cause death.

Non-ambulatory: cattle that are disabled or compromised and unable to rise, stand, and/or walk without human assistance. They are considered unfit. See also *unfit for transport*.

Non-steroidal anti-inflammatory drug (NSAID): a drug that provides pain-killing, fever-reducing, and anti-inflammatory effects but is not a steroid or narcotic.

Outcome-based measures of animal welfare: direct indicators of an animal's well-being, such as body condition score, morbidity and mortality rates, growth rate, and reproductive performance.

Particle length: the length of forage particles in a feed ration. See also *effective particle length*.

Passive immunity: the acquisition of immunity from a donor animal; in the context of this Code, via the dam's colostrum. See also *colostrum*, *immunoglobulin*, *maternal antibodies*.

Personnel: any on-farm worker that is responsible for handling and caring for cattle.

Pithing: the destruction of the brain and brain stem by inserting a pithing tool or alternative device into the skull. A secondary kill step in euthanasia. (See Appendix F.)

Placenta: see *afterbirth*.

Point of balance: a term used when handling cattle referring to a point on the animal's body (usually the shoulder) where the animal perceives a person to be standing in front of them (causing it to back up) or behind them (causing the animal to move forward).

Polioencephalomalacia (PEM): inflammation of the brain caused by deficiency in thiamine (which can be secondary to excess sulfur or other factors) that results in neurologic symptoms like tremors, convulsions, and, in severe cases, death.

Polled: born naturally hornless. Polled animals can carry one gene (heterozygous polled) or two genes (homozygous polled) for the trait.

Prussic acid poisoning: a poisoning that occurs when cattle eat plants that release cyanide in the rumen (e.g., sorghum, arrowgrass, chokecherry, flax), which can cause breathing problems and, in severe cases, death.

Rabies: a viral disease that affects mammals and causes behaviour changes, salivation, paralysis, and eventually death and is typically spread through the bite of an infected animal. This is a zoonotic disease.

Rumen: the largest of the ruminant stomachs and the site of fermentation of fibrous feeds.

Ruminal acidosis: an abnormally acidic condition of the rumen (pH <5.5). Typically due to rapid or over-consumption of highly digestible feeds. Can cause digestive upset or even death.

Salmonellosis: bacterial infection with a *Salmonella* species that can cause diarrhea, respiratory disease, dehydration, fever, and, in severe cases, death.

Salt toxicity: a condition that occurs when salt builds up in the bloodstream, often as a result of a sharp drop in water intake, which can lead to brain swelling when water is reintroduced, resulting in nervous signs (e.g., incoordination, circling) and death.

Sandhills Calving System: a cattle movement strategy where cows that have calved stay in the pasture where their calves were born, while pregnant cattle are moved to fresh pasture. This separation helps protect calves born later in the calving season from exposure to pathogens.

Scours: diarrhea.

Sire: male parent.

Sole abscess: an accumulation of pus underneath the hard outer layer of the hoof that causes pain and tissue destruction.

Spaying: to remove the ovaries to prevent pregnancy.

Special provisions for transport: measures taken to ensure the safety and comfort and to prevent further injury or suffering of a compromised animal during transport to slaughter or for veterinary diagnosis or treatment. These may include local and direct transport only; providing extra bedding or absorbent material; loading the animal last and unloading it first; separating it from other animals in the shipment; or transporting it with a familiar animal to help it remain calm (see Appendix D).

Spinous vertebral processes: projections of bone that emerge from the vertebral column (backbone). Used as landmarks when body condition scoring; see Appendix B. Compare with *transverse vertebral processes*.

Steer: a castrated male bovine.

Stray voltage (Tingle voltage): the accumulation of low levels of electricity in the metalwork of a barn or other farm infrastructure, such as watering devices. Usually, a result of poor wiring or improper grounding of the electrical system. Can result in cattle receiving shocks or fatal electrocution when they drink or enter handling equipment.

Stunning: rendering an animal unconscious prior to euthanasia or slaughter, usually with a captive bolt device, which requires a secondary step to ensure death.

Supplement: an addition to a livestock ration intended to make up for any nutritional deficiencies in the base ingredients.

Systemic analgesia: a drug that relieves pain throughout the whole body. Usually given by mouth or injection. Compare with *local anesthesia*.

Tail docking: the removal of part or all of an animal's tail.

Tetanus: a disease caused by the *Clostridium tetani* bacteria, which can spread quickly in bruised or cut tissue, that results in stiffness, spasms, and, in severe cases, death.

Tethered: an animal confined by the neck, using a halter, collar, or stanchion.

Tingle voltage: see *stray voltage*.

Toe-tip necrosis: damage to and infection of the smallest toe bones in the foot, typically of the hind limb.

Transfer of Care: a document that contains (a) the condition of the animal(s) on arrival, (b) the date, time, and place where the animal(s) were last fed, watered, and rested, and (c) the date, time, and place of the animal(s) arrival at the slaughter establishment or assembly centre. The responsibility for the care of the animal is transferred from the person who transports the animal to the consignee as soon as the consignee acknowledges receipt of the document along with written or electronic notice that the animal has arrived at the slaughter establishment or assembly centre (4). The documentation must be retrievable and unalterable and should be kept for two years.

Transverse vertebral processes: projections of bone that emerge from the side of the vertebral column. Used as a landmark when body condition scoring; see Appendix B. Compare with *spinous vertebral processes*.

Tube feeder: see *esophageal feeder*.

Unconscious: a state in which an animal is unaware of its surroundings and does not feel pain or distress, typically due to loss of brain function or sensory perception.

Unfit for transport: an animal that is likely to suffer during transport. Unfit animals must not be loaded or transported except on the advice of a veterinarian for care or treatment, or during seizure of animals following enforcement actions. When transporting unfit animals, special provisions must be taken to prevent additional unnecessary suffering; see Appendix D. Compare with *compromised animal*.

Urea toxicity: caused by excessive urea consumption that promotes ammonia buildup in the rumen and can result in tremors, gut pain, and, in severe cases, death.

Vitamin A deficiency: occurs when cattle do not get enough dietary Vitamin A, leading to reduced growth, weakened immunity, and impaired reproductive performance along with poor vision, especially at night.

Vitamin E/selenium deficiency (White muscle disease): occurs when cattle do not get enough dietary Vitamin E or selenium, leading to pale discolouration and weakness of the muscles, including the heart.

Weaning: the process by which calves become nutritionally and socially independent from their dam. It is generally considered complete when calves can no longer nurse and cows are physically separated.

Winter dysentery: diarrheal disease of adult cattle that often occurs in winter and is typically triggered by coronavirus and other predisposing factors.

Winter or summer tetany: a nutritional disorder caused by low magnesium and/or calcium levels, leading to muscle tremors, weakness, and convulsions.

Zoonotic: a disease that animals can pass to people.

1. Animal Environment

Desired Outcomes:

- All cattle are kept under conditions conducive to their safety, health and well-being, comfort, nourishment, productivity, and humane handling
- Cattle can express natural behaviour
- Cattle are protected from extremes in weather, such as cold, precipitation, storms, and heat waves.

1.1 Protection from Extreme Weather

Beef cattle in Canada are raised in a variety of ways depending on age, size, and reproductive state. Systems may include range, fields, corrals or yards, and indoor pens or stalls. Regardless of production system, cattle must be protected from adverse weather conditions. Cattle raised in extensive systems have a greater ability to roam, forage, and seek natural protection from the elements. In intensive or confined systems, cattle are reliant on the protections and provisions within their given area.

Both natural and man-made elements can protect cattle from weather extremes. In particular, protection from wind in cold temperatures, extreme heat, and mud is important. Treed areas or geographical features can provide shelter from wind and sun. Access to high, dry ground and elevated areas can allow cattle protection from excessive mud or moisture. Dry resting surfaces are important for cattle, particularly in colder temperatures. In systems where relief from adverse weather is not available from natural elements, man-made solutions must be provided.

Animals' ability to cope with sudden changes in weather or adverse weather events varies with many factors, such as:

- age (especially newborn calves)
- body condition score
- access to feed, water, and shelter
- degree of acclimation with respect to geographical areas/local climate
- wet cattle (particularly newborn calves in colder temperatures)
- sick or injured cattle
- diet
- stress.

REQUIREMENTS

Cattle must have access to areas, either natural or man-made, that provide relief from weather that is likely to create a serious risk to their welfare.

Cattle at risk of, or showing signs of, not coping with adverse weather must be promptly assisted.

1.1.1 High Temperature and Humidity

Cattle are generally able to tolerate low temperatures better than high temperatures. Cattle are at risk of heat stress when heat load, accumulated both metabolically and from the environment, exceeds the animal's ability to dissipate this heat. The humidex index (which combines the effects of temperature and humidity) helps assess the risk of heat stress. However, there is no single humidex value at which heat stress occurs, because the impact of heat and humidity depends on factors such as shade, wind, duration of exposure, and previous acclimation (2, 7). Diet composition is also important, as even small amounts of ergot can increase heat stress in cattle by reducing blood flow to the skin, limiting their ability to dissipate heat (8). Extreme heat is generally more stressful to cattle early in the season before they have acclimatized to the increased temperatures or when overnight temperatures remain high (7).

Risk of heat stress in cattle can be greater for (9):

- dark-hided cattle
- animals with the highest growth rate or those that are lactating
- animals nearing slaughter weight
- confined animals
- cattle fed ergot-contaminated feed (8).

Signs of heat stress in cattle can include (9, 10, 11, 12):

- increased respiratory rate or laboured breathing
- reduced appetite
- huddling to seek shade from others
- open-mouth panting with tongue protruding
- drooling or froth around the mouth.

Heat stress can lead to reductions in feed intake, weight gain, reproductive efficiency, and milk production. Severe heat stress may result in illness and death (9).

REQUIREMENTS

Cattle must be monitored more frequently during heat waves and/or periods of high humidity to ensure prompt assistance is provided to cattle not coping.

RECOMMENDED PRACTICES

a. provide access to adequate water to support greater water requirements in hot weather
b. consider the following strategies to support cattle in hot weather (2, 7):
    - provide shade where practically possible
    - handle cattle during the coolest part of the day
    - feed cattle during the coolest part of day
    - increase ventilation/fans in indoor systems
    - provide bedding to reduce heat load from the ground

- feed bunk management (13).

1.1.2 Extreme Cold

Healthy cattle fed an appropriate diet can generally tolerate colder temperatures if acclimatized and appropriately bedded or sheltered. Cattle that are in poor body condition, wet, sick, or fed inadequate protein and energy are less able to cope with cold temperatures (7, 14, 15, 16, 17). Compared with older cattle, preweaning calves have a larger body surface-to-mass ratio, which leads to greater heat loss, and an undeveloped rumen, which does not produce the body heat associated with ruminal fermentation (18). Cattle require additional feed during cold weather for growth, maintenance, and to maintain body temperature (7). For additional information on feed and water Requirements for cattle, see *Section 2: Feed and Water*.

Signs of cold stress can include:

- shivering (cattle may stop shivering if cold stress worsens)
- low core body temperature (less than 37.5ºC and life threatening below 35ºC; 19)
- cold mouth
- inability to get up
- no suckling reflex (in calves)
- frostbite (especially newborn calves).

REQUIREMENTS

Feed provided must meet animals' increased energy requirements during cold weather.

Shelter (natural or man-made) from high winds during cold weather must be provided.

Cattle must be monitored more frequently during adverse cold weather and prompt assistance must be provided to cattle not coping.

RECOMMENDED PRACTICES

a. provide bedding to insulate against bare ground and maintain manure packs to reduce mud and manure build-up on hides (7).

1.1.3 Mud and Moisture

Excessive mud is a risk factor for lameness and injury, not only because it creates slippery conditions but also because ongoing exposure to moisture compromises skin and claw health. This makes animals more susceptible to foot-related diseases, such as footrot, and can result in pain and decreased performance (7, 5). Wet or muddy hair coats have a lower insulation capacity, which negatively impacts an animal's ability to keep warm in cold weather (7). Muddy conditions also reduce performance by reducing lying time and increasing the energy it takes to walk (5).

REQUIREMENTS

Cattle must have access to a dry, well-drained, or bedded resting area.

1.2 Facilities for All Cattle

The Canadian beef industry comprises the cow–calf, backgrounder, and feedlot sectors. Production practices for all sectors have developed in response to Canada's diverse climatic and geographical conditions. Even though the areas involved may be large, facilities for pastured or range cattle still require monitoring and maintenance. It is beyond the scope of this Code to describe all shelter and housing facilities used in beef cattle production. Individuals requiring further details should refer to local sources of information, such as universities, agricultural and environmental ministries, producer organizations, agrologists, and experienced beef producers (see Appendix A).

Outcome-based measures of animal welfare that can be used for assessing the suitability of housing and stocking density include mortality and morbidity rates, cattle behaviour, performance, and physical appearance (2).

Handling facilities should be appropriate to the size of the animal and designed to handle all classes of cattle on the premise. Low-stress handling and restraint is important. See *Section 4: Animal Husbandry* for additional information on cattle handling.

REQUIREMENTS

All operations must have access to equipment or facilities for the safe handling, restraint, treatment, segregation, loading, and unloading of cattle.

Handling facilities must promote animal and handler safety and facilitate movement of cattle with minimal stress.

Handling areas must provide traction to minimize cattle slips and falls.

Cattle in groups must have sufficient space to adopt normal resting postures at the same time, move freely around the pen, exhibit normal cattle behaviour, and access feed and water.

Air quality in barns must be maintained to prevent the buildup of noxious gases, dust, and moisture.

Cattle housed indoors without access to natural light must be provided supplementary lighting to allow natural behaviour patterns and monitoring of the cattle.

A separate area with dry bedding must be available for the recovery of severely sick or injured cattle.

RECOMMENDED PRACTICES

a. consider biosecurity and segregation measures when designing facilities and managing cattle

b. design and maintain handling facilities to minimize noise and contrasts due to abrupt changes in light or surfaces
c. provide daily exercise for any cattle that are tethered. Tethering devices should be safe for the animals and should not interfere with the actions of standing up or lying down. Tethering devices should be regularly inspected for proper function and safety.

1.3 Additional Considerations for Calving Areas

If calving occurs during periods of extremely cold weather, sheltered, bedded calving areas (natural or constructed) can protect the cow and calf during this vulnerable time (7). Cows typically separate themselves from the rest of the herd as calving approaches. Isolating a calving cow or a cow–calf pair in an individual pen may benefit the cow and the calf if intervention is required.

Newborn calves are susceptible to disease. Calving areas should be clean and designed and maintained to minimize disease transmission. Biosecurity and pest control should also be considered. In particular, calf scours can be a problem, especially in confined calving areas, which can become progressively more contaminated as the calving season progresses. The risk of scours is reduced by maintaining dry conditions and preventing contact with infected cattle.

REQUIREMENTS

Areas used for calving must be safe, clean, and promote calf survival and well-being.

RECOMMENDED PRACTICES

a. keep calving areas free of cattle until just prior to calving to minimize manure contamination and help reduce calf diseases
b. have separate calving areas for heifers and cows
c. ensure calving areas are appropriate to the season and region and minimize risks to maternal and calf health
d. ensure calving areas are dry and/or well bedded and facilitate nursing and bonding between calf and cow
e. maintain areas housing cow–calf pairs to reduce the exposure of young calves to manure.

2. Feed and Water

Desired Outcome: Cattle are in optimum health and body condition.

2.1 Nutrition and Feed Management

Cattle need to be monitored on a regular basis, and feed resources must be well managed and readily available according to the animals' changing needs and environmental conditions. Cattle that are not fed adequately will lose body condition, not perform to their capacity, and are more likely to have reduced immune function (20, 21, 22). Signs that cattle are not able to access sufficient feed or water include increased vocalizing, roaming, and breaking through fences.

Body condition scoring (BCS) is an important tool for determining the amount of fat cover cattle have (refer to Appendix B). Body condition scoring also allows producers to optimize the utilization of feed resources and animal productivity.

Body condition scoring is useful for mature breeding stock, and ideal scores vary depending upon stage of reproduction (see Recommended Practices below). Cows that are maintained at an ideal body condition (3 out of 5) have fewer calving problems, improved milk production, and better performing calves (23).

Cattle at a BCS of 2 or less (out of 5) may be experiencing inadequate nutrient intake, have an underlying health condition (the cause of poor body condition is not always nutritional), or not have enough body fat reserves to maintain good health. Low body condition takes time to correct. If cattle are underconditioned or have unintentional declines in body condition, increased monitoring and corrective actions must be taken. The advice of a veterinarian, ruminant nutritionist, or extension agrologist may be useful.

Required feeding space depends on type of feed, feeding frequency, amount of feed, presence of horned cattle, animal size, and group size. Increased animal density in the pen increases competition among cattle for access to feed, water, and resting areas. Reduced space per animal at the feed bunk also increases competitive interactions among cattle, reduces bunk attendance times, and increases the time cattle spend waiting for access to feed. This might not cause problems for dominant cattle, but it does directly affect subordinate animals and can result in uneven feed intakes and reduced growth. Increasing feeding frequency and bunk space, as well as use of physical barriers, can provide a less competitive feeding environment for sick, injured, weak, or convalescing cattle.

Cattle can safely eat a variety of feeds. In some cases, feedstuffs that are safe at an established level may become toxic when included at higher rates. An example of this is ergot. Ergot is a fungus found in grains and is becoming more common. Exposure can lead to reduced blood flow to extremities, which may cause reduced growth and feed intake, increased susceptibility to heat stress, lameness, and, in extreme cases, gangrene of the ears, tail, or hooves that is more severe in cold weather. When using feed ingredients with potentially toxic properties, nutritionists can be a valuable resource to help formulate diets that prevent such nutritional disorders. Feed testing, working closely with a ruminant nutritionist, and close monitoring of cattle are key factors to mitigate welfare threats from potentially toxic feedstuffs.

Guidance on minimizing diseases associated with high-energy feeding is provided in *Section 3.3.3.1: Nutritional Disorders.*

REQUIREMENTS

Cattle behaviour, performance, body condition score, and health must be monitored on a regular basis and the feeding program adjusted accordingly.

Cattle must have access to feed of adequate quality and quantity to fulfill their physiological needs and stage of production.

Corrective action must be taken to improve the body condition of thin cattle (BCS 2 or lower out of 5) and prevent declining body condition in cattle with a score of 2.5 out of 5.

Steps must be taken to prevent exposure to poisons and toxins, immediately rectify unintentional exposures, and manage risk of feeds with known adverse qualities.

RECOMMENDED PRACTICES

a. test nutrient content of all feed ingredients used and balance rations to achieve desired production outcomes in consultation with a ruminant nutritionist
b. become familiar with potential micronutrient deficiencies or excesses in your geographic area and use appropriately formulated supplementation in consultation with a veterinarian or ruminant nutritionist
c. manage stored feedstuffs in ways that maintain quality and minimize spoilage
d. keep feed bunks clean
e. avoid sudden or extreme ration changes
f. minimize competition by providing adequate linear feed bunk space or increasing feed frequency
g. provide a less competitive feeding environment for sick, injured, weak, or convalescing cattle
h. aim for the following ideal body condition scores (20, 23):

30 days before start of breeding	heifers 3.0 cows 2.5–3.0 bulls 3.0–3.5
Start of winter feeding program	heifers and cows 3.0 bulls 3.0–3.5
Calving	first-calf heifers 3.0 cows 3.0

i. have a third party periodically assess body condition for subtle changes that may not be apparent to on-farm personnel routinely assessing cattle
j. be prepared to wean earlier if pasture resources are limited and cow body condition scores are below target levels.

2.2 Water

Cattle need access to water of adequate quality and quantity to fulfill their physiological needs. Water availability and quality are extremely important for cattle health and productivity (24, 25). Beef cattle will

drink between 20–78 L per day (26). Water consumption varies based on factors such as water quality and palatability, flowrates, water temperature, air temperature, trough space, diet, animal activity, and reproductive status (lactating and pregnant cattle have much higher water needs) (27). Cattle may limit their water intake to the point of dehydration if the quality of drinking water is compromised (25).

Snow is used as a water source in many extensive Canadian beef operations. There is scientific evidence that cattle can maintain body condition using loose snow for water under certain specific conditions (28). These conditions can be highly variable and can result in risks to cattle welfare if they are not carefully monitored. These variables include snow conditions and quality, feed quality, and weather conditions.

It is extremely important to ensure there is a sufficient supply of clean, loose snow—cattle avoid dirty snow and cannot easily consume snow that is compacted or ice-crusted (28, 29). Cattle with higher energy requirements (such as growing, lactating, or in poor condition) risk losing excess energy when accessing and melting snow. It can take inexperienced cattle several days to learn to consume snow as a primary water source (30). Attentive monitoring is particularly important during the acclimation period, and inexperienced cattle may adapt more quickly if they are with cattle who are accustomed to consuming snow (31). Using snow as a sole winter water source is not appropriate in all geographic areas, even within the same province.

REQUIREMENTS

Cattle must have access to water in sufficient quality, quantity, and availability to meet their physiological needs.

Water sources must be monitored throughout the year.

Cattle behaviour, performance, and health must be monitored on a regular basis and the watering source adjusted accordingly.

Producers must have a contingency plan to provide water if the primary water source becomes unavailable.

Snow may only be used as a sole winter water source when there are sufficient quantities of clean, loose snow to meet the animals' physiological needs.

Snow must not be used as a sole water source for cattle that

- ***are lactating,***
- ***are newly weaned,***
- ***have a body condition score of less than 2.5 out of 5,***
- ***do not have access to adequate feed resources, or***
- ***are not acclimating to snow consumption.***

RECOMMENDED PRACTICES

a. ensure that water sources are easy for cattle to locate and access
b. increase linear trough space, add a watering point, or reduce group size if signs of competition are observed

c. ensure the number of watering points and flow rate are designed to accommodate group or herd size
d. when designing facilities, consult the most recent information on water space
e. check automated water sources daily to ensure they are dispensing properly
f. test water quality in high-risk periods (e.g., drought) and if reluctance to drink, a health concern, and/or reduced feed consumption are observed
g. consider the following when evaluating water quality (27):
    - salinity
    - nitrates
    - alkalinity
    - pesticides
    - bacterial contamination
    - blue-green algae
    - sulphates
h. if utilizing natural water sources, provide water in troughs or bowls wherever possible to ensure cleanliness of water supply and safe animal access
i. be aware of the signs of stray (tingle) voltage around water sources, such as reluctance to drink or reduced feed consumption
j. if using a frozen-over natural water source in winter, regularly ensure there is an area of open water and restrict cattle from areas of thin ice
k. if considering snow as a new source of water, seek advice from a local cattle specialist, veterinarian, or an experienced producer.

3. Animal Health

Desired Outcomes: Optimum health and welfare are maintained through a combination of appropriate disease prevention and control measures, as well as prompt treatment of illness, injury, and disease.

3.1 Herd Health Management

Health problems that cause pain and discomfort compromise animal welfare (25). Therefore, disease prevention is extremely important and can be supported through good herd health management and biosecurity practices (see Appendix A for additional resources and self-assessment tools). Producers need to be able to promptly recognize and treat animal health issues in order to optimize animal welfare.

Measuring health outcomes, such as morbidity and mortality rate, reproductive efficiency, behaviour, physical appearance, and body condition, can help producers assess their health management programs (2). Benchmarking cattle health allows producers to compare their current and past results and see how they compare to other local operations (32). This can support continuous improvement in health management.

Veterinarians play a key role in helping producers maintain animal health. Although the specific details of the regulations vary among provinces, it is consistent across Canada that veterinarians cannot prescribe medications for producers to use on their cattle without a valid Veterinarian-Client-Patient Relationship (VCPR).

A Veterinarian-Client-Patient Relationship exists when all of the following conditions have been met (33):

- the client has given responsibility of medical care to the veterinarian and agreed to follow the veterinarian's instructions
- the veterinarian has assumed the responsibility for making clinical judgments regarding the health of the cattle, the need for medical treatment, and for ensuring the provision of ongoing medical care for the animal(s)
- the veterinarian has sufficient knowledge of the health status of the animal(s) and the care received or to be received. This means that the veterinarian is personally acquainted with care of the animal(s) by virtue of a recent examination of the animal(s) and the premises where they are kept, or by a history of medically appropriate and timely examinations
- the veterinarian is readily available, or has made the necessary arrangements with another veterinarian, for ongoing medical care in case of adverse reactions or failure of the treatment.

An effective herd health management program contributes to cattle well-being by providing a strategy for disease prevention, rapid diagnosis, and implementation of effective treatment protocols.

REQUIREMENTS

A Veterinary-Client-Patient Relationship (VCPR) must be established and maintained with a licensed practicing veterinarian.

In collaboration with a veterinarian, a herd health program must be developed and regularly updated.

RECOMMENDED PRACTICES

a. maintain accurate animal management and health records
b. use benchmarking to support continuous improvement in herd health outcomes
c. complete training in animal health management through a national, provincial, or regional beef quality assurance program
d. establish a risk-based vaccine program within your herd health program.

3.2 Sick and Injured Cattle

Adequate monitoring ensures timely detection and treatment of sick or injured cattle. Treatment may vary from therapeutic interventions to convalescent care. Some examples of convalescent care may include (but are not limited to) segregation, easier access to feed and water, reduced competition, and increased monitoring.

Cattle may hide their expression of illness or pain. Personnel should be aware of this, as it can influence prompt identification of problems and may influence decision-making about treatment (34).

The Canadian Food Inspection Agency (CFIA) outlines several reportable diseases that must be reported by animal owners, veterinarians, and laboratories to ensure animal and public health. Reportable diseases, as outlined in the *Health of Animals Act*[1] and *Reportable Diseases Regulations*[2] are diseases that can impact human health, animal health, and the Canadian economy. Provinces may also have their own list of reportable or notifiable diseases.

[1] Government of Canada (2020) Health of Animals Regulations C.R.C., c296. https://laws-lois.justice.gc.ca/eng/acts/H-3.3/
[2] Government of Canada (2014) Reportable Disease Regulations SOR/91-2. https://laws-lois.justice.gc.ca/eng/regulations/SOR-91-2/

REQUIREMENTS

Cattle health must be monitored regularly, taking into account production system, environmental conditions, and disease risk to identify animals in need of prompt treatment or care.

Sick, injured, or lame cattle must receive appropriate care without delay. Their response to treatment must be monitored and, if the established treatment protocol fails, alternative options must be considered or veterinary advice obtained.

Cattle must be euthanized without delay when they have a condition that compromises their welfare and any of the following apply:

- ***they fail to respond to treatment or care,***
- ***they have severe or debilitating pain or distress that cannot be alleviated,***
- ***they are unable to access or consume available feed and water,***
- ***they are non-ambulatory with poor prognosis, or***
- ***they show continuous weight loss or emaciation.***

The CFIA district veterinarian must be notified of any known or suspected cases of a reportable disease, either directly or through your herd veterinarian.

RECOMMENDED PRACTICES

a. consult your veterinarian to address new, unknown, or suspicious illness or mortality
b. consult your veterinarian if the occurrence or severity of an illness suddenly increases.

3.3 Health Conditions of Beef Cattle

Production stage, management decisions, and environmental conditions affect disease risk. Diarrhea (scours), respiratory disease (pneumonia), and navel disease are common illnesses in young calves. Feedlot cattle are particularly susceptible to bovine respiratory disease (BRD, pneumonia) within the first weeks after arrival. Growing and mature cattle are at risk for lameness and eye infections (35). At certain times of the year, there is an increased risk of disease due to multiple stressors, such as weaning and transportation. Considering the relevant risks, beef producers should be proactive in the prevention, early detection, and treatment of illness.

3.3.1 Disorders of the Respiratory Tract

Respiratory disease risk in cattle is influenced by multiple management factors, and both viral and bacterial pathogens play important roles in disease development. A list of common, though not exhaustive, conditions includes:

- bovine respiratory disease, commonly called calfhood pneumonia in the cow–calf sector
- necrotic laryngitis or calf diphtheria
- atypical interstitial pneumonia
- embolic pneumonia.

3.3.1.1 Bovine Respiratory Disease

Bovine respiratory disease (BRD) is the leading cause of illness and mortality in the beef feedlot (36), and the disease can also occur in cow–calf herds. A variety of management steps can be taken, including daily monitoring, to minimize the risk of BRD.

Some risk factors for bovine respiratory diseases are (37):

- non-vaccinated cattle
- transportation and handling
- sudden or extreme changes in weather
- stressful events (e.g., castration, dehorning, weaning)
- commingling.

Early detection and prompt treatment can improve outcomes and reduce mortality due to BRD and other diseases (36).

REQUIREMENTS

The behaviour of cattle, particularly recently-weaned calves and newly-arrived feedlot cattle, must be monitored to facilitate the early detection of respiratory disease.

RECOMMENDED PRACTICES

a. use a risk-based receiving protocol for backgrounding and feedlot cattle (36)
b. whenever possible, buy cattle of known source, vaccination history, and health status (36)
c. establish a risk-based bovine respiratory disease prevention strategy as part of your herd health program.

3.3.2 Lameness

There are multiple causes of lameness in cattle, including injury, nutrition, and infection. Accurate diagnosis of the cause of lameness is critical for applying the appropriate treatment and prevention. Some common, though not exhaustive, causes of lameness in cow–calf and feedlot operations are provided in Table 3.1.

Table 3.1 – Examples of common causes of lameness in cow–calf and feedlot operations

Cow–Calf	Cow–Calf and Feedlots	Feedlots
Joint infections[1]	Footrot	Digital dermatitis
Sole abscesses	Injuries	Laminitis
		Mycoplasma arthritis
		Toe-tip necrosis

[1] Often secondary to infected sandcracks or chronic footrot

A common cause of infectious arthritis is the bacterium *Mycoplasma bovis,* which is also associated with BRD. Therefore, preventive measures for BRD may also help to reduce lameness caused by arthritis (38). Lameness

due to injury can be reduced through good facility design and maintenance, including proper footing and flooring, and low-stress handling techniques, both of which help reduce slips, falls, and foot/limb injuries (see *Section 1: Animal Environment* and *Section 4: Animal Husbandry*).

RECOMMENDED PRACTICES

a. complete training on causes, prevention, and treatment of lameness
b. minimize cattle exposure to mud and standing water (see *Section 1.1.3: Mud and Moisture)*
c. incorporate risk-based strategies to minimize lameness within your herd health program.

3.3.3 Disorders of the Digestive Tract

Digestive tract health is critical for cattle welfare and productivity and may be compromised by nutritional disorders or infectious diseases. A list of common, though not exhaustive, conditions is provided in Table 3.2.

Table 3.2 – Examples of digestive tract diseases that are common in cow–calf and feedlot operations

	Cow–Calf	Cow–Calf and Feedlots	Feedlots
Nutritional Disorders	Vitamin/mineral imbalances: • Vitamin A deficiency • Vitamin E/selenium deficiency • Calcium, phosphorous and magnesium imbalances	Dietary toxicities: • Ergot • Nitrates/nitrites • Sulfur Ruminal bloat[1]	Ruminal acidosis
Infectious Disorders	Neonatal calf diarrhea[2] Johne's Disease Winter Dysentery	Bovine Viral Diarrhea Coccidiosis	Salmonellosis

[1] Often associated with excessive grain ingestion, rapid dietary change, or legume grazing

[2] Associated with various pathogens (Coronavirus, Rotavirus, *Cryptosporidium*, Coccidia, *Salmonella*, *E. coli*)

3.3.3.1 Nutritional Disorders

In feedlots, nutritional disorders are most often associated with improper high-energy feeding strategies and include acidosis (grain overload), liver abscesses, and laminitis. In most cases, acidosis is the predisposing factor to liver abscesses and laminitis (36, 39, 40, 41).

Acidosis can happen when several factors interact, including how much and how often cattle eat, how the grain is processed, the microbes in the rumen, and how the animal removes acid from its body (36). Variability in feed intake can increase the risk of acidosis. For example, when feed intake is temporarily reduced, such as during poor weather, cattle are at increased risk of overeating afterwards and developing acidosis. Acute acidosis makes cattle seriously ill and is potentially fatal, whereas cattle with subacute acidosis may not appear sick but have reduced or variable feed intake and weight gain (36). Gradually transitioning cattle to a high-energy ration can help prevent acidosis-related health issues.

Nutritional problems can occur due to issues with pasture or fed rations. These problems may include toxicities, mineral imbalances, or bloat. The risk is higher when cattle graze sparse pastures and consume less palatable or harmful plants, during times of low feed availability, when moving to new pastures, or when introducing novel feed ingredients. Checking pastures and testing feed can help find possible toxins and prevent nutrient imbalances (see *Section 2: Feed and Water*).

REQUIREMENTS

A feeding program must be implemented and adjusted as needed to reduce the risk of nutrition-related disorders.

RECOMMENDED PRACTICES

a. test nutrient content of all feed ingredients and test water quality in high-risk periods (e.g., drought), and use this information to provide balanced rations
b. consult a veterinarian and/or ruminant nutritionist as needed on your feeding program
c. monitor feed consumption and adjust feeding accordingly (38)
d. include forage of effective particle length in all diets to reduce subacute ruminal acidosis (36)
e. adjust rations to prevent digestive disorders when cattle feed intake is interrupted (due to storm, power outage, machinery breakdown, etc.) (38)
f. monitor cattle more closely when providing novel ingredients
g. understand the risk of nutritional disorders associated with abrupt dietary or forage composition changes (e.g., transitioning pastures or forage to grain-based diets) and employ appropriate mitigation strategies.

3.3.3.2 Diarrhea

Diarrhea is a key health concern in beef cattle, with calves under one month of age being especially vulnerable. Newborn calf diarrhea is more common in herds that have prolonged or winter calving seasons, or more intensive use of calving areas (36). Cattle movement strategies (e.g., the Sandhills Calving System; 42) can minimize exposure of calves to diarrhea pathogens. In older cattle, Johne's disease is a notable concern as it is associated with significant weight loss and watery manure. In feedlots, diarrhea generally occurs early in the feeding period due to dietary change. Given the range of potential causes, risk factors, and treatment options, veterinarians are a good resource for prevention, diagnosis, and control of diarrhea.

RECOMMENDED PRACTICES

a. plan breeding for a short calving season to better manage neonatal diarrhea risk
b. consider cattle movement strategies to reduce newborn calf exposure to manure
c. support gut health with good calving husbandry practices (see *Section 4: Animal Husbandry*) and by promoting ample milk production with high quality dam nutrition (see *Section 2: Feed and Water)*
d. use proper hygiene and dedicated equipment for treating sick calves.

3.3.4 Reproductive Disease

Reproductive disease in bulls and cows may be caused by viruses, bacteria, or protozoa and can lead to pain, inflammation, and reproductive losses, such as open cows and abortion. Communal grazing systems may increase the risk of sexually transmitted reproductive diseases like trichomoniasis. Some reproductive diseases are spread through wildlife (e.g., *Leptospira* spp.) and domestic animals (e.g., *Neospora caninum*). Placental tissues (afterbirth) can be a source of infection for reproductive disease. In the case of *Neospora caninum,* preventing dogs and other canines from ingesting placentas helps disrupt the parasite's life cycle and reduce ongoing risk. Identifying and managing these different risks is important for maintaining herd health and welfare.

RECOMMENDED PRACTICES

a. consider additional precautions against reproductive disease when using communal breeding systems
b. consider risk-based vaccination and testing for reproductive pathogens in consultation with your veterinarian
c. in areas with known risk of leptospirosis, limit wildlife interactions with stored feed sources if possible.

3.3.5 Neurologic Disease

Neurologic disease can result from infections, nutritional imbalances, and toxins and can cause cattle to become non-ambulatory (see *Section 4: Animal Husbandry*). Table 3.3 provides several examples of neurologic diseases that can occur in beef cattle. Depending on the cause, neurologic disease can be difficult or impossible to treat successfully, so prevention is key to safeguarding cattle welfare. Certain zoonotic and/or reportable diseases may also present with neurologic signs, so monitoring cattle for neurologic disease is especially important. See *Section 3.2: Sick and Injured Cattle* for additional information on reportable diseases and S*ection 2: Feed and Water* for information on preventing nutritional disorders.

Table 3.3 – Examples of common causes of neurologic disease in cow–calf and feedlot operations

	Cow–Calf	Cow–Calf and Feedlots	Feedlots
Nutritional Disorders	Prussic acid poisoning[1] Winter or summer tetany[2]	Lead poisoning Urea toxicity Salt toxicity	Polioencephalomalacia
Infectious Disorders		Botulism Listeriosis Rabies Tetanus	*H. Somni* septicemia Nervous coccidiosis

[1] From various plants including sorghum, arrowgrass, chokecherry, and flax

[2] Caused by hypomagnesemia/hypocalcemia

RECOMMENDED PRACTICES

a. be aware of your local or regional risks for neurologic disease
b. provide balanced nutrition that considers the risks of infectious agents and toxins and test feed and water accordingly (see *Section 2: Feed and Water*).

3.3.6 Miscellaneous Health Conditions

3.3.6.1 Buller-Steer Syndrome

Buller-steer syndrome is an occasional behavioural problem among feedlot steers, where one steer (buller) is repeatedly mounted by a group of other steers (riders). If not promptly removed from the pen, the buller steer can become exhausted, have reduced feed and water intake, and develop traumatic injuries (38). The specific triggers for the syndrome can vary but submissive behaviour, pheromones, warm weather, large group sizes, stressful handling or mixing, and exogenous estrogen may increase the risk of the behaviour (43).

REQUIREMENTS

Bullers must be promptly removed from their pen and separated from incompatible cattle.

RECOMMENDED PRACTICES

a. monitor closely for relapse if bullers are reintroduced to their home pen (44)
b. investigate and address potential causes of high incidence of bullers.

3.3.6.2 Managing Pregnant Heifers in the Feedlot

Pregnant heifers may end up in the feedlot. The feedlot environment and management are not well-suited to deal with calving heifers. This may result in significant animal welfare problems for the heifers themselves and the resulting calves. Some feedlot operators may choose, in consultation with their veterinarian, to implement a strategy to terminate unwanted pregnancies in feedlot heifers. Other operators may elect to calve heifers or to remove them from their operation.

Cow–calf operators can reduce the chance of feedlot heifer pregnancies by avoiding housing intact bulls and sexually mature heifer calves together. Communication between feedlot operators and cow–calf producers about bull exposure can help feedlot operators determine their arrival protocols.

REQUIREMENTS

In consultation with your veterinarian, a strategy for managing pregnant heifers in a feedlot must be developed.

Feedlots must have appropriate equipment and facilities to manage calving.

RECOMMENDED PRACTICES

a. prevent pregnancy in heifers destined for feedlots by avoiding bull exposure to heifer calves older than five months that aren't intended to be bred and ensuring bull calves are properly castrated (see *Section 4: Animal Husbandry)*
b. if possible, inform feedlot buyers if there is a chance that heifers have been exposed to a bull.

3.3.6.3 Pinkeye

Infectious bovine keratitis, or pinkeye, is a painful disease of beef cattle that can impair vision and affect welfare. It is frequently spread by flies or other insects, particularly during warm weather. Reducing fly exposure is important. Methods include:

- minimizing manure buildup around watering sites or other high-use land areas
- rotating pastures
- cleaning pens in confined feeding situations
- using insecticide tags, sprays, or feed additives
- introducing biological controls such as parasitic wasps.

RECOMMENDED PRACTICES

a. limit cattle exposure to flies through appropriate manure management and/or other chemical or biological control strategies.

3.4 Safety and Emergencies

Emergencies may arise that can affect cattle welfare. Environmental disasters including fires, flooding, and extreme weather can pose an immediate risk to life, disrupt feed and water supplies, and result in uncontained cattle. Logistical constraints, such as equipment malfunction or disruptions to supply chains, can also disrupt feed and water availability. Emergency preparedness planning will assist producers in responding to such events in a timely and effective manner.

Developing an emergency preparedness plan begins with identifying risks specific to the region and type of operation. Plans should outline the resources needed, such as feed, water, and shelter, as well as protocols for animal handling, transportation, and communication during an emergency. Maintaining a readily available list of relevant emergency contacts (e.g., CFIA offices, veterinarians, transporters, and fellow producers) is beneficial. Keeping an up-to-date record of animal numbers and locations helps return animals to owners after emergencies. Locations can be communicated in different ways, so it is useful to know your premises ID, civic address, and legal land descriptions or GPS locations in the event that these details are needed for an emergency.

REQUIREMENTS

A current emergency preparedness plan to provide feed, water, transport, and care for cattle in case of emergencies must be established and updated regularly.

All personnel with animal care responsibilities must be familiar with the emergency preparedness plan so it can be implemented when required.

RECOMMENDED PRACTICES

a. keep your premises ID up to date
b. emergency contact numbers should be readily accessible and current.

4. Animal Husbandry

Desired Outcomes: Cattle experience minimal stress and discomfort, while necessary husbandry tasks are carried out properly, safely, and in a timely fashion.

4.1 Handling and Moving Cattle

In addition to appropriate handling facilities and restraint devices as referred to in *Section 1.2: Facilities for All Cattle*, good handling techniques are essential for cattle welfare and handler safety. Humane handling prioritizes animal welfare with the goal of minimizing fear, pain, and suffering anytime cattle are moved, treated for illness, or managed for routine practices, such as weaning, transport, or vaccination.

Using low-stress techniques that complement the natural behaviour of cattle is encouraged, including (45):

- using their herding instinct and field of vision
- applying the principles of flight zone and point of balance
- using the least stressful visual aids and as few handling tools as possible
- using the minimum number of handlers needed
- avoiding the use of loud noises or yelling
- refraining from fast, unpredictable movements.

During restraint, slow steady pressure that avoids pain should be used to reduce excitement and support safe, calm handling. Calm animals are easier to handle, which poses lower risk of injury to both animals and handlers.

Accounting for external conditions, such as wind, noise, and lighting, is important, as noise, shadows, and changes in flooring can cause cattle to balk. Similarly, cattle are averse to bright light, but they will tend to move from darker areas to a more brightly lit area (46). Signs of poor handling in cattle include increased behavioural cues, such as tail flicking, aggression, jumping, stampeding, and vocalizing. Producers should use changes in normal levels of these behaviours as an indicator of distress during handling (2).

Various tools, such as flags or paddles can assist with low-stress cattle movement when used correctly. When needed, electric prods should be applied thoughtfully and only as necessary to support low-stress handling practices. The Canadian Feedlot Animal Care Assessment Program targets ≤10% prod use during cattle handling at the chute (47).

Willful mistreatment or intentional harm of cattle is unacceptable. This includes, but is not limited to, beating, forcefully pulling, slamming gates on cattle, or pressuring/prodding cattle that have nowhere to move.

Training in cattle behaviour and low-stress handling techniques can be beneficial and support moving cattle more smoothly. Additional resources on low-stress handling are provided in Appendix A.

REQUIREMENTS

Personnel must be familiar with cattle behaviour (through training, experience, or mentorship) and use low-stress handling and restraint techniques.

Electric prods must not be used:

- ***as the primary method of moving cattle,***
- ***when other humane alternatives are available and effective,***
- ***repeatedly on the same animal,***
- ***on sensitive areas (belly, genitals, face, udder, or anal areas),***
- ***on an animal that has demonstrated that it cannot get up and move on its own,***
- ***on an animal that has no clear path to move, or***
- ***on calves less than three months of age.***

Willful mistreatment or intentional harm of cattle is unacceptable and must be reported to proper authorities.

RECOMMENDED PRACTICES

a. pursue continuing education in low-stress cattle handling techniques
b. gradually acclimate cattle to different handling techniques, including on-foot handling and the use of horses and appropriately trained herding dogs
c. aim for continuous improvement in the number of animals that exit the chute calmly, are handled without falling, slipping, or injury, and are restrained without vocalizing as a direct result of restraint (2).

4.1.1 Additional Considerations when Handling, Moving, and Caring for Non-Ambulatory Cattle

Non-ambulatory cattle are those that are disabled or compromised and unable to rise, stand, and/or walk without human assistance (48). Beef cattle may become non-ambulatory for a variety of reasons, including injury, metabolic issues, infection, and nutrition. Non-ambulatory cattle are a welfare concern, as they can experience pain, as well as muscle and nerve damage, either from the primary cause of becoming recumbent or from prolonged periods being down (49). Therefore, prompt action and special care and consideration should be taken when handling or moving non-ambulatory cattle to protect animal welfare and improve the prognosis for recovery.

Firstly, it is important to complete an evaluation of the circumstances of the non-ambulatory animal. Based on this evaluation, consultation with your veterinarian and/or ruminant nutritionist may be needed to determine the underlying cause. Once a diagnosis and prognosis are established, a care plan can be developed and implemented. Timely euthanasia may be necessary to avoid suffering (see *Section 6: On-Farm Euthanasia*).

When developing a care plan, the three things to be addressed are:

- prevention of additional nerve and muscle damage due to long duration of being down
- prevention of suffering should the animal's prognosis change

- correcting the primary reason the animal is non-ambulatory.

To aid in a diagnosis, lifting an animal may be necessary to assess the status of the animal's limbs and its ability to bear weight. A hip lifter or thoracic sling may be used to carefully lift a non-ambulatory animal for initial diagnosis. Great care must be taken when using lifting tools to avoid any unnecessary pain or distress. Considering the context of the animal and the most appropriate care plan, short periods of rising and standing unsupported or with assistance from appropriate aids, such as a hip lifter or thoracic sling, can be helpful for recovery. These aids must only be used for assistance in rising and only if the animal can bear weight once standing.

If necessary for animal safety and comfort, the animal may be carefully moved to another area where the animal can be readily supervised for care and recovery. If the animal must be moved, caution must be taken to avoid any undue pain, distress, or additional injury. Animals in active labour should not be moved unless necessary for welfare and safety.

REQUIREMENTS

Non-ambulatory cattle must be promptly assessed to determine prognosis and treatment, which may require consultation with a veterinarian.

Feed and water that can be easily accessed and consumed must be provided to non-ambulatory cattle.

Non-ambulatory cattle must not be dragged.

Hip lifters must only be used for the shortest amount of time possible to aid in diagnosis or to assist an animal to stand that can bear weight and must not be used to move an animal to another location.

Apparatuses that are designed to lift and support non-ambulatory cattle must only be used by experienced personnel.

Animals must not be left unattended when using lifting aids.

RECOMMENDED PRACTICES

a. monitor animals that may be at an increased risk of becoming non-ambulatory
b. provide adequate bedding to allow for cushioning and footing
c. provide shelter from extreme elements and protection from potential predators
d. carefully and frequently roll the animal to avoid compression of nerves and promote circulation
e. ensure the animal is laying in a sternal position with its hind legs tucked
f. provide support when needed to help the animal maintain an upright position.

4.2 Reproduction and Calving Management

The majority of beef cows and heifers calve without assistance. However, careful monitoring of calving cows and heifers ensures that when assistance is needed, it can be provided in a timely fashion. Knowing when and how to provide calving assistance is an important management skill that will protect both the dam and calf in the event of problems. To learn more about how a normal calving should proceed and when and how to assist, see Figure 4.1 and resources developed by the Beef Cattle Research Council (50).

Following the birth of the calf, both the newborn and the cow may require immediate additional care. Calves are sometimes weak and might initially struggle to breathe. Breathing can be stimulated by placing the calf on its sternum with the back legs pulled up towards the ears, rubbing the calf vigorously, poking the nasal septum with a long piece of straw up the nose, or placing a few drops of water in the ear. Hanging the calf upside down is not recommended. Various types of postpartum care for cows may also be necessary, and relevant resources have been developed by the Beef Cattle Research Council (50). Pain control may be beneficial for both calves and cows following a difficult birth (dystocia).

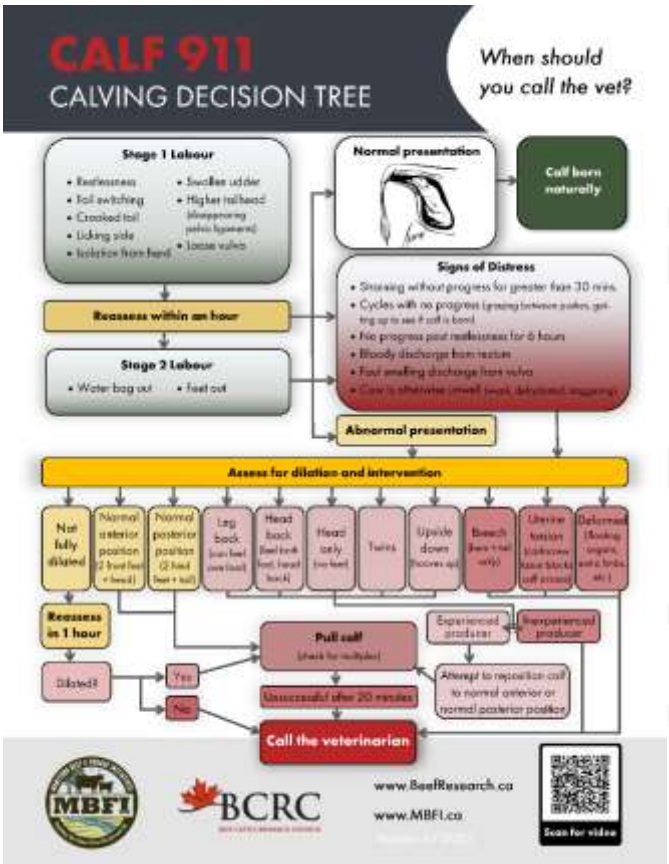


Figure 4.1 - Calving decision tree (51). Reprinted with permission from Beef Cattle Research Council (2025) *Calf 911: Colostrum Management.* Available at: www.beefresearch.ca/content/uploads/2020/09/Colostrum-Management-Letter-updated2025.jpg. Accessed: April 17, 2025.

REQUIREMENTS

Calving cows and heifers must be monitored to identify calving difficulties and ensure prompt assistance when required.

Calves and recently-calved cows must be monitored and promptly assisted if showing signs of distress.

Caesarean sections must be conducted by a veterinarian, or where not prohibited by law, by a trained individual with an active VCPR using accepted surgical techniques, appropriate restraint, and appropriate local anesthesia and post-operative pain control.

When assisting with a difficult calving, well-maintained equipment and appropriate techniques must be used, and pain control in consultation with a veterinarian must be provided for the cow and calf.

RECOMMENDED PRACTICES

a. plan a breeding period to facilitate monitoring calving cows and newborn calves
b. select sires with consideration for calving ease or birth weight to reduce the likelihood of calving difficulties. Sire selection should also take into account the breed, size, age, and previous calving record of the females
c. time the first breeding of heifers according to their overall physical development in order to prevent dystocia and other health problems. Heifers should be approximately 55–65% of estimated mature body weight at first breeding, and 85% of mature body weight by calving (52)
d. ensure that cows and heifers are in suitable body condition at the time of calving (suggested target: body condition score of 3 out of 5; see *Section 2: Feed and Water*)
e. observe young calves regularly (preferably daily) to ensure that they are adequately nourished and are healthy
f. complete training or educational events, such as a workshop, on reproduction and calving management.

4.2.1 Colostrum Management

Colostrum has an important influence on the health and welfare of calves. The newborn calf is born with no maternal antibodies and must rely on intake of colostrum to receive passive immunity. The timing of first colostrum is particularly important since calves' ability to absorb colostrum is substantially reduced by four hours after birth (51, 53).

The ability of the calf to defend itself against infectious diseases is directly related to the quantity, quality (immunoglobulin concentration, cleanliness), and timing of colostrum intake. The result of inadequate colostrum intake is a low concentration of circulating immunoglobulin in the blood of the calf, a condition known as "failure of passive transfer." Calves with failure of passive transfer are 1.6 times more likely to die and 1.2 times more likely to become sick before weaning than calves with adequate serum immunoglobulin levels (54).

Certain cases require special attention, as the calves are at a greater risk of not receiving adequate colostrum by suckling. Assume all abandoned or mis-mothered calves have not suckled. Situations to consider include:

- difficult calvings
- mis-mothering incidents
- chilled calves
- dams with udder conformation issues or udder disease
- twin births
- weak or compromised calves
- poor suckling reflex
- calves that have not suckled within four hours of birth.

Successful passive transfer of immunity is achieved by calves receiving two litres of colostrum within the first four hours of life and another two litres in the next 8–12 hours. Replacement should provide approximately 100 g of IgG per feeding. Calves should be provided an opportunity to suckle colostrum (51). Provide colostrum using an esophageal (tube) feeder for calves with a weak suckling reflex. A tube feeder should be designated exclusively for use on healthy newborn calves (i.e., not used on older or sick calves) and should be washed and disinfected between uses.

REQUIREMENTS

Newborn calves must be monitored for signs of suckling, with particular attention given to high-risk cases.

Colostrum, or a high-quality colostrum substitute, must be administered to any newborn calf showing signs of not having received it.

RECOMMENDED PRACTICES

a. support colostrum production (quality and volume) through good nutrition and vaccination strategies
b. administer two litres of colostrum to calves that have not suckled within four hours of birth
c. know how to properly use an esophageal (tube) feeder
d. ensure proper hygiene when using esophageal feeders, including washing and disinfecting between uses, as well as having a dedicated tube feeder for colostrum that is not used for sick calves
e. obtain supplemental colostrum milked from the calf's dam or a high-quality commercial colostrum substitute (not from another beef or dairy herd, given the associated biosecurity risk)
f. ensure proper hygiene when collecting, storing, and feeding colostrum (bacterial contamination impedes absorption of immunoglobulins).

4.3 Identification

In Canada, all cattle must be identified by an approved indicator (generally, an RFID ear tag) when they leave the farm of origin (or earlier in some provinces). Tattoos may be used to identify cattle in some instances, such as for breed association registration and export.

In some instances, branding remains a necessary form of permanent identification and ownership. Brands provide the additional benefit of being readable at a distance, making them a useful management tool in remote or comingled situations. Brands may be required by lenders providing security on animals and branding may be needed for exporting cattle.

Until practical, reliable alternatives to branding are available, producers can reduce the impact of branding on the animal by using correct techniques and providing pain relief. Both freeze branding and hot-iron branding cause significant short- and long-term pain in cattle (36). Providing a non-steroidal anti-inflammatory drug (NSAID) has been shown to mitigate some of the acute pain during and immediately after branding but does not address longer lasting pain (36). Practical and effective methods to promote healing and mitigate the longer lasting pain associated with branding are lacking (36).

REQUIREMENTS

Cattle must be identified using an approved indicator as stipulated by the* Health of Animals Regulations, *Part XV – Animal Identification (4).

When branding is necessary for permanent proof of ownership, export, or policy, it must be performed by competent personnel using proper, well-maintained equipment and accepted techniques, including effective restraint.

Cattle must not be branded on the face or other sensitive areas.

Given the risk of scalding, wet cattle must not be hot branded.

When branding cattle less than six months of age, pain control must be provided in consultation with a veterinarian.

Effective January 1, 2032: When branding cattle of any age, pain control must be provided in consultation with a veterinarian.

RECOMMENDED PRACTICES

a. ensure brand size is appropriate to the size of the animal
b. avoid re-branding cattle on the same anatomical site
c. replace rarely used surgical identification methods (e.g., wattling, ear-splitting) with less invasive practices
d. maintain all cattle identification equipment in good working order
e. provide pain control, in consultation with your veterinarian, when branding cattle six months of age or older. *Note: As of January 1, 2032, this Recommended Practice becomes a Requirement.*

4.4 Disbudding and Dehorning

The use of polled (hornless) genetics is an effective alternative to disbudding and dehorning now commonly used in the Canadian beef industry (36). All common breeds of beef cattle have polled lines available, and

their use effectively eliminates the need for horn management with no observed negative effects on productivity (36). The vast majority of beef cattle in Canada are polled (55).

When polled genetics are not used, disbudding and dehorning are done for the safety of people and cattle (36). All methods of disbudding and dehorning are painful at any age or stage of horn development (36). Disbudding (removal of horn bud tissue before it has attached to the skull) is less invasive and painful than dehorning (horn removal after attachment) (36). Horns typically attach to the skull at approximately two months of age (36, 56, 57). Cattle heal more quickly and show lower declines in growth rate when the procedure is performed at a younger age (36).

Research consistently demonstrates that regardless of age or method, both a local anesthesia and systemic analgesia effectively mitigate acute pain at the time of the procedure, as well as some post-procedure pain (36). Proper procedures and techniques are important to prevent post-procedure complications and horn regrowth (and associated need for a repeat procedure).

REQUIREMENTS

Disbudding and dehorning must be done as early as practically possible, ideally while horn development is still at the horn bud stage (before two months of age) (34).

Disbudding and dehorning must only be performed by competent personnel using proper, clean, and well-maintained equipment and accepted techniques (36).

Pain control must be provided when disbudding or dehorning cattle, in consultation with a veterinarian.

RECOMMENDED PRACTICES

a. breed females to homozygous polled sires to eliminate the need for disbudding (36)
b. select a method and specific timing of disbudding in consultation with a veterinarian
c. monitor calves after disbudding or dehorning to ensure that they are nursing/eating and that there are no signs of infection or other post-procedure complications.

4.5 Castration

Castration prevents unwanted reproduction, improves meat quality, and reduces aggression towards humans and other cattle, thereby lowering injury risk and facilitating easier handling (36). While there are clear benefits to this procedure, all methods of castration cause pain and distress (36). Research demonstrates an overall benefit of using both local anesthesia (to reduce acute pain at the time of the procedure) and an NSAID (to reduce post-procedure pain and inflammation) (36). Cattle have lower pain and stress responses, better post-procedure growth recovery, and heal more quickly when castrated at a younger age (36).

There are important trade-offs between castration methods (banding, surgical), emphasizing the need to balance welfare concerns with practical considerations when selecting a castration method (36). Factors to consider when selecting a method include rate of wound healing, stress associated with restraint or handling, and the timing and duration of pain. Acute pain is often easier to mitigate than longer-lasting pain, particularly

when frequent handling for repeated treatment may not be practical (36). Band castration causes less immediate pain but results in prolonged swelling and delayed healing, while surgical castration leads to greater acute pain but faster recovery (36). Veterinary consultation can help ensure pain control strategies are effective and appropriate for the castration method.

Improper technique can result in incomplete castration (58) and may predispose cattle to painful infections. Improper castration can occur if the spermatic cord is incompletely crushed when using a Burdizzo castrator, or if one or both testicles are trapped against the abdomen during banding. These cattle will still exhibit bull-like characteristics, and the remaining testicles will require more complicated surgical removal.

REQUIREMENTS

Castration must only be performed by competent personnel using proper, clean, and well-maintained equipment and accepted techniques.

Cattle must be castrated as young as practically possible and pain control must be provided in consultation with a veterinarian.

RECOMMENDED PRACTICES

a. select a method and specific timing of castration in consultation with a veterinarian
b. avoid castrating physiologically mature bulls
c. ensure that tetanus vaccinations are current when castrating bulls (38)
d. monitor calves after castration to ensure that they are nursing/eating and that there are no signs of infection or other post-procedure complications (38)
e. identify and record improperly castrated cattle, or those with undescended testicles, for appropriate further management (38).

4.5.1 Spaying

Spaying is a surgical procedure that removes ovaries in female cattle. Spaying is not a common practice in Canada; however, it is used more frequently in some regions of the country, particularly in extensive rangeland production systems. Spaying prevents unwanted pregnancies, reduces estrus-related behaviours, such as riding and aggression, and can improve feed efficiency.

REQUIREMENTS

Spaying must be carried out by a veterinarian and using pain control.

4.6 Weaning Management

Weaning is the process by which calves become nutritionally and socially independent from their dam. It is generally considered complete when calves can no longer nurse and calves and cows are physically separated (59). Calves are weaned to allow cows to adequately recover their body condition post-calving and prior to

winter. Weaning also allows calves to be fed a more specialized diet. Under natural conditions, a cow's milk output decreases gradually over several months. Under conventional beef production, calves are typically weaned at five to eight months of age when they have a relatively well-developed rumen. Weaning calves after six months old can decrease weaning stress and ensuring they are accustomed to feed delivery systems can reduce the risk of developing nutritional deficiency (36, 60). The loss of contact between cow and calf is stressful for both, and the loss of milk is additionally stressful for the calf (36). Mitigating stress around weaning can reduce the risk of calves developing disease. Stress-mitigating strategies can be used in the pre-weaning, weaning, and post-weaning stages.

4.6.1 Pre-Weaning

Weaning-associated stress is influenced by many factors, including calf age, nutrition, health, and operational contexts, such as available facilities, herd size, and marketing strategies. Supporting calf immune response to infectious disease is important and can be done by:

- vaccination to boost resistance to targeted pathogens
- appropriate parasite control
- avoiding concurrent stressors, such as castration or dehorning, as this can be associated with a dampened immune response.

RECOMMENDED PRACTICES

a. develop a low-stress weaning strategy, such as two-stage or fence-line weaning
b. evaluate weaning practices over time and aim for continuous improvement in weaning strategy
c. manage the breeding period to promote consistency in calf age
d. consult a veterinarian on strategies to support robust calf health at weaning and prepare for potential disease challenges
e. acclimate calves to human handling and feed delivery methods that they will be exposed to after weaning
f. consider sharing information with calf buyers about the products used and procedures calves undergo.

4.6.2 Weaning

Low-stress weaning methods can make separation easier on both calves and dams. Fence-line weaning is a variation of weaning where calves are separated from their dams and placed in an adjacent pen or pasture so that auditory and visual contact is maintained. Two-stage weaning first prevents nursing by placing a nose flap on the calf while still with the cow. In the second stage, the nose flap is removed, and the cow and calf are separated (36). Pheromone-based products, like bovine appeasing substance, can also reduce calf stress around weaning (61, 62, 63, 64). Veterinarians and nutritionists are a valuable resource when considering products and practices to reduce weaning stress.

RECOMMENDED PRACTICES

a. implement a low-stress weaning strategy, such as two-stage or fence-line weaning

b. consider emerging evidence-based technologies and products to support calves during weaning (e.g., pheromone-based products)
c. avoid weaning alongside concurrent stressors like adverse weather, comingling, marketing, and long-distance transport
d. avoid branding, dehorning, and castration at the time of weaning (see above subsections of this section for more information on these practices).

4.6.3 Post-Weaning

Infrastructure, feed availability, market conditions, and other factors can influence how weaned calves are managed in the beef industry (36). In the first few weeks after weaning, calves are at an increased risk for getting sick, in particular when other stressors are added, such as transportation and commingling with unfamiliar calves (65). Delaying transport of calves until they are well adapted to maternal separation and consistently consuming feed and water can improve their future health outcomes. Given the variability in weaning management, decisions around transport, comingling, and marketing should be made based on risk to calf health.

REQUIREMENTS

Calf health and behaviour must be monitored more frequently during the post-weaning period for signs of disease or failure to adapt, and appropriate care must be provided without delay.

RECOMMENDED PRACTICES

a. use specifically-formulated post-weaning diets
b. decisions around transport, comingling, and marketing should be made based on risk to calf health during the post-weaning period.

4.7 Predator Control

Predation of livestock by wild or feral animals can have a serious impact on cattle welfare, causing stress, injury, or death. While it is not always possible to fully eliminate predation risk, several effective prevention and management strategies can be implemented. Resources on predator control have been developed separately from this Code of Practice. Predator control is also regulated by some local and provincial authorities.

RECOMMENDED PRACTICES

a. be aware of regional predation risks and tailor control measures accordingly
b. evaluate predation risks prior to calving and other high-risk periods to ensure proactive measures are in place
c. ensure predator control measures are safe for the livestock being protected.

4.8 Tail Docking

Tail docking is not generally practiced in the beef cattle industry.

REQUIREMENTS

Cattle must not be tail docked unless medically necessary, in consultation with a veterinarian.

5. Preparations for Transport

Desired Outcome: Cattle arrive at their destination in good condition.

Humane transport is important for the welfare of cattle and is expected by beef producers, processors, and consumers alike. Transporting healthy, sound cattle is an important goal of all beef producers and the welfare of animals being transported must be prioritized by everyone involved in the transport process. Several on-farm management strategies influence cattle welfare during transport—cattle that are in good health prior to transport are more likely to arrive at their destination in good condition. Transportation of animals requires specialized skills and knowledge; therefore, training is required and comprehensive educational resources have been developed (see Appendix A).

The federal requirements for animal transport are covered under the *Health of Animals Regulations*, Part XII – Transport of Animals (4). These regulations are enforced by the Canadian Food Inspection Agency (CFIA) with the assistance of other federal, provincial, and territorial authorities. Some provinces have additional animal transport regulations. Producers may take on the role of a transporter, not just loading or receiving cattle. Anyone with responsibilities during any part of the transport process (i.e., loading, confinement, transport, or unloading) must be familiar with, and follow, all applicable regulations. Comprehensive resources to support compliance with the regulations have been developed by the CFIA and other organizations (see Appendix A).

Producers who transport animals should particularly be aware that care and responsibility for cattle is not transferred from the transporter until the receiver acknowledges receipt of required documentation (i.e., a Transfer of Care; 4). This is to ensure continuity of care and clarity on who is responsible for cattle at any time (6). Producers transporting livestock are subject to the Transfer of Care requirements as the shipper and the transporter. They are subject to the transfer of care until responsibility is transferred to the consignee by either a written or electronic confirmation.

This Code of Practice focuses on the care of animals before and after transit and does not encompass the care of animals while they are in transit. Overall, ensuring cattle are transported humanely is a shared responsibility between producers and transporters.

REQUIREMENTS

Personnel involved in loading, unloading, or transporting cattle must comply with provincial and federal animal transport regulations (including Part XII of the Health of Animals Regulations).

5.1 Evaluating and Preparing Cattle for Transport

Preparing cattle for transport starts long before the trip begins; in particular, nutritional and health management can impact fitness for transport. Since animal condition is dynamic, ongoing evaluation and judgement is needed when considering fitness for transport, which falls into three broad categories: fit, compromised, and unfit.

During pre-transport evaluations, consult *Section 3: Animal Health* for information on treating and caring for sick and injured cattle and *Section 6: On-Farm Euthanasia* for key guidance on euthanasia, including criteria for euthanasia.

REQUIREMENTS

Every animal's fitness for transport must be assessed before they are loaded, taking into consideration their condition and risk factors that may impact the animal's capacity to withstand loading, transport, and unloading (4).

Unfit animals must not be transported except for veterinary care on the advice of a veterinarian and with special provisions (refer to the regulatory guidance in Appendix D).

Compromised animals must only be transported with special provisions and directly to the nearest suitable place where they can receive care or be promptly slaughtered (not through an auction or assembly yard; refer to the regulatory guidance in Appendix D).

The right of the transporter to refuse to load cattle deemed compromised or unfit for transport must be respected, and the reason for refusal must be addressed.

RECOMMENDED PRACTICES

a. provide all farm personnel ready access to CFIA guidance and protocols developed in consultation with a veterinarian to facilitate decisions on fitness to transport
b. increase the frequency of health and body condition monitoring as the shipping date approaches to ensure timely detection of a condition that may warrant treatment or changes to transport plans
c. have two people independently evaluate animals with questionable fitness for transport
d. consult a veterinarian if unsure about an animal's fitness for transport
e. for cattle that are not fit for transport, consider emergency slaughter or licensed mobile slaughter where permitted and appropriate to the condition.

5.2 Planning and Scheduling Transport

Anyone who transports cattle, or arranges their transport, needs to know how long the cattle will be in transit, including intermediate stops, and whether feed, water, or rest are required during transit. When in doubt, assume cattle will take the longest possible trip.

While an animal's condition can change at any time, research consistently demonstrates that cattle are more likely to become lame, non-ambulatory, and lose body condition the longer they are transported (66). Cattle may be more at risk of becoming non-ambulatory when transported during extreme weather (66).

Emergencies or unforeseen issues can arise during any part of the transportation process that may impact on the welfare of cattle. Having a transport plan that is communicated to everyone involved in the transport process helps ensure personnel can respond in a timely and effective manner (4).

RECOMMENDED PRACTICES

a. where possible, ensure that all documentation is completed prior to loading to avoid unnecessary delays at inspection stations, borders, or other checkpoints
b. ensure the anticipated arrival time is communicated to the receiver
c. plan transport to minimize the time animals remain loaded in parked vehicles, whether at the farm, during transit, or at the destination
d. schedule loading and transport such that delays in transit or at the destination are minimized
e. plan transport to account for forecasted weather conditions.

5.3 Loading and Receiving Cattle

When planning loads, sort cattle based on factors such as size, age, sex and reproductive status, and temperament to ensure compatibility.

Loading Density

Appropriate loading density depends on many factors, notably environmental conditions at the time of transport, available floor space, size of cattle, and whether any have horns. In extreme weather, cattle may be at risk of stress if loading density prevents them from repositioning themselves to adapt to extreme conditions.

Absorbent Material

Having sufficient absorbent material (e.g., sand, straw, wood shavings) in the trailer improves footing, protects cattle from the elements (wet animals are more susceptible to cold stress), and enhances biosecurity (by preventing pooling and the escape of urine or other wastes).

Handling and Loading/Unloading Facilities

General principles of good cattle handling apply during loading and unloading. Consistent use of low-stress handling techniques and well-designed handling systems will facilitate animal movement and reduce stress and injury. Refer to *Section 4.1: Handling and Moving Cattle* and *Section 1.2: Facilities for All Cattle*.

Ventilation

Proper ventilation during transport helps cattle remain comfortable through mitigating adverse conditions caused by heat, cold, and moisture, and can often be optimized through simple adjustments.

RECOMMENDED PRACTICES

a. adjust loading densities and absorbent material to accommodate current weather conditions
b. have absorbent material available in loading areas in case the transporter does not have enough
c. use a ramp if the vertical distance between the loading surface and vehicle floor causes balking
d. assess cattle behaviour and condition on arrival to help evaluate handling and overall transport procedures
e. remove manure and soiled absorbent material between trips.

6. On-Farm Euthanasia

Desired Outcome: When necessary, cattle are euthanized in a timely and effective manner.

Euthanasia is the humane termination of an animal's life for a variety of reasons, including instances when treatment is not feasible or humane. When assessing cattle for potential euthanasia, it is important to consider their natural tendency to hide pain and suffering (34).

The process of deciding on and carrying out euthanasia for sick or injured cattle can cause emotional distress. Similarly, providing ongoing care for ailing cattle can be taxing, and measures to protect mental health should be taken (67). The impacts on mental health may be more significant for those who have been directly involved in the care of the animals or when several animals need to be euthanized. Where feasible, it may be beneficial to arrange for euthanasia to be performed by someone other than the person who cared for the animal(s). For more support and information on mental health, please see Appendix A.

Having a euthanasia decision-making process and participating in training in the techniques of euthanasia can help reduce uncertainty and ensure that euthanasia is carried out in a timely manner. Appropriate euthanasia of cattle ensures they are rendered unconscious with minimal pain or distress prior to the cessation of vital life functions. Depending on the method used, these steps may result from a single action (e.g., gunshot application). In all cases, however, operators must be prepared to apply a second application if the first application does not rapidly render the animal unconscious. This requires that all personnel responsible for euthanasia be knowledgeable and competent in the techniques and equipment being used.

6.1 Euthanasia Decisions

Determining when an animal needs to be euthanized can be a difficult decision (68). Timely recognition of euthanasia as the most humane and responsible course of action for the animal's well-being is necessary. Once the decision is made to euthanize an animal, it must be carried out as soon as possible to reduce its pain and suffering.

Being prepared for on-farm euthanasia includes having (69):

- competent personnel (through training, experience, or mentorship)
- access to proper equipment
- clear decision points for euthanasia (see Requirements).

REQUIREMENTS

Cattle must be euthanized without delay when they have a condition that compromises their welfare and any of the following apply:

- ***they fail to respond to treatment or care,***
- ***they have severe or debilitating pain or distress that cannot be alleviated,***
- ***they are unable to access or consume available feed and water,***
- ***they are non-ambulatory with poor prognosis, or***
- ***they show continuous weight loss or emaciation.***

6.2 Methods of On-Farm Euthanasia

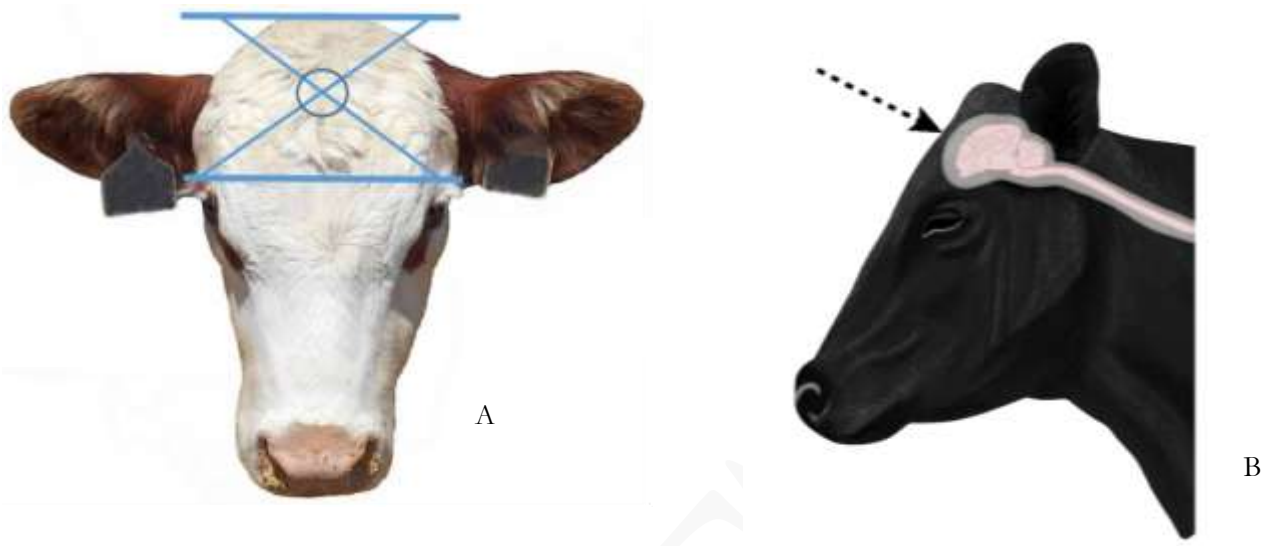
Animal welfare and human safety are of paramount importance when selecting a euthanasia method and carrying out the procedure (34). Other important considerations when choosing a euthanasia method include (34):

- skill and competence of the person performing euthanasia
- carcass disposal
- potential need for brain tissue for diagnostic purposes.

A list of **acceptable euthanasia methods** is available in Table 6.1. Below are some **examples of methods that are unacceptable because they cause suffering** (69):

- use of penetrating captive bolt without a secondary kill step (bleeding out or pithing)
- manually applied blunt trauma to the head (does not consistently cause immediate loss of consciousness)
- injection of chemical agents not approved for euthanasia into conscious cattle (does not cause immediate loss of consciousness)
- air embolism (causes pain associated with cardiac arrest)
- electrocution (causes pain associated with cardiac arrest after ineffective stunning)
- exsanguination (bleeding out) without proper stunning first (causes pain and distress prior to loss of consciousness).

Non-ambulatory cattle may need to be repositioned to ensure appropriate access to body landmarks for safe and humane euthanasia. Additional guidance on handling and care of non-ambulatory cattle can be found in *Section 4.1.1*: *Additional Considerations when Handling, Moving, and Caring for Non-Ambulatory Cattle.*



A B

Figure 6.1 – Anatomical landmarks for mature cattle

Figure 6.1 A and caption reprinted with permission: J.K. Shearer, College of Veterinary Medicine, Iowa State University, doi.org/10.3390/ani8040057 (2018). Figure 6.1 B illustrated by: Carlee Wright, ACER Consulting

Anatomic sites for conducting method using the physical methods of gunshot and captive bolt. The proper anatomical site is on the intersection of the 2 lines, each drawn from the outside corner of the eye to the base or top of the opposite horn (70). Halfway-between 2 parallel lines drawn laterally; one across the poll and the other from the outside corner of each eye (71).

Proper positioning of the firearm or penetrating captive bolt is necessary to achieve the desired results. The frontal target area is high up on the head of the animal, not between the eyes. An X can be made on the animal's head by drawing imaginary lines between the outside corner of the eye to the opposite horn (or equivalent site in polled or dehorned cattle), as shown in Figure 6.1 A. The firearm or penetrating captive bolt should be positioned so that the muzzle is perpendicular to the skull, as shown in Figure 6.1 B.

REQUIREMENTS

An acceptable method for euthanizing cattle must be used (see Table 6.1).

Euthanasia must be performed by competent personnel (through training, experience, or mentorship).

Equipment used for euthanasia must be maintained according to manufacturers' instructions to ensure proper function.

Non-ambulatory cattle must not be moved prior to euthanasia except in situations where repositioning is necessary to ensure safe and humane euthanasia and/or animal and handler safety.

Table 6.1 – Acceptable euthanasia methods for cattle (adapted from 34, 70, 72, 73, 74***)***

Method	Calves (<181 kg [400lb])	Cattle* (>181 kg [400lb])	Notes
Gunshot. Appropriate firearms:			
• Standard .22 calibre long rifle with solid point bullet	✓		
• Centrefire rifle, such as .22 Magnum or higher, with solid point bullet	✓	✓	• **A standard .22 calibre long rifle is not sufficient to humanely kill mature cattle and must not be used.**
• Shotgun. Must be 20 gauge or greater, from 0.6-0.9m [2-3ft], using number 6 or larger birdshot or slugs	✓	✓	
Penetrating captive bolt + secondary kill step	✓	✓	• choose appropriate calibre, charge, and bolt length • use restraint if needed. • a secondary method (bleeding out or pithing) is required (see Appendix F).
Approved euthanasia drugs	✓	✓	• must be administered by a veterinarian. • restraint is needed. • safe disposal of carcass when barbiturates are used.

*Includes yearlings, cows, and mature bulls

RECOMMENDED PRACTICES

a. participate in hands-on euthanasia training
b. avoid handling cattle more than necessary prior to euthanasia
c. restrain cattle as necessary for euthanasia, choosing the safest and least stressful method of restraint possible
d. consider, in consultation with your veterinarian, using sedation to facilitate euthanasia for unmanageable or aggressive cattle (67).

6.3 Confirming Unconsciousness and Death

Confirming the success of a euthanasia method is essential towards ensuring humane treatment and preventing suffering (68). When properly conducted, euthanasia results in a rapid unconsciousness followed by cardiac and respiratory arrest and death (70).

Signs of unconsciousness include (70):

- no eye movement or blinking when the surface of the eye is touched
- absence of vocalization
- absence of a gag reflex (no voluntary tongue movements or swallowing)
- lack of rhythmic breathing
- no coordinated attempt to rise or right itself.

Convulsions, such as uncoordinated kicking of the legs following the application of any euthanasia method are not a sign of consciousness but can bring a risk of injury. Use caution when confirming unconsciousness and approach the animal from a safe angle.

All of the following indicators should be used to confirm death in the three to five minutes after the euthanasia method is applied (68, 70):

- lack of heartbeat (evaluated by palpation or stethoscope)
- lack of rhythmic breathing
- no blinking when the eyeball is touched.

REQUIREMENTS

Cattle must be confirmed to be unconscious immediately after the application of the euthanasia method. A second application must be immediately delivered if the first attempt does not render the animal unconscious.

Death must be confirmed before moving or leaving the animal.

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Appendix A – Informational Resources

Part 1: Organizations and Groups

More information on beef cattle production and welfare is available through federal and provincial ministries of agriculture, national or provincial cattle organizations, universities and colleges, animal welfare organizations, and veterinary organizations.

The Beef Cattle Research Council website (www.beefresearch.ca) is a searchable resource with information on many of the topics addressed in this Code.

Producer Organizations

- Canadian Cattle Association – (403)275-8558 www.cattle.ca
- National Cattle Feeders' Association – (403)769-1519 www.nationalcattlefeeders.ca
- Alberta Beef Producers – (403)275-4400 www.albertabeef.org
- Alberta Cattle Feeders' Association – (800)363-8598 www.cattlefeeders.ca
- Beef Farmers of Ontario – (519)824-0334 www.ontariobeef.com
- British Columbia Cattlemen's Association – (250)573-3611 www.cattlemen.bc.ca
- Les Producteurs de bovins du Québec – (450)679-0540 www.bovin.qc.ca
- Manitoba Beef Producers – (204)772-4542 www.mbbeef.ca
- Nova Scotia Cattle Producers – (902)893-7455 www.nscattle.ca
- New Brunswick Cattle Producers – (506)458-8534 www.bovinsnbcattle.ca
- Newfoundland Cattle Producers – NLCA2017@outlook.com www.nlcattleproducers.ca
- Ontario Corn Fed Beef – (519)686-6226 www.ontariocornfedbeef.com
- Prince Edward Island Cattle Producers – (902)368-2229 www.peicattleproducers.com
- Saskatchewan Cattle Association – (306)585-2333 www.saskbeef.com
- Saskatchewan Cattle Feeders Association – (306)969-2666 www.saskcattle.com
- Saskatchewan Stock Growers Association – (306)757-8523 www.skstockgrowers.com
- Western Stock Growers' Association – www.wsga.ca

Government

- Agriculture and Agri-Food Canada – www.agr.gc.ca
- Canadian Food Inspection Agency – www.inspection.ca
- Veterinary Drugs Directorate (Health Canada) – www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hpfb-dgpsa/vdd-dmv/index-eng.php
- Alberta Ministry of Agriculture and Irrigation – www.agric.gov.ab.ca
- British Columbia Ministry of Agriculture and Food – www.gov.bc.ca/agri
- Manitoba Agriculture – www.gov.mb.ca/agriculture
- New Brunswick Ministry of Agriculture, Aquaculture and Fisheries – www.gnb.ca/0027
- Newfoundland and Labrador Department of Forestry, Agriculture, and Lands – www.gov.nl.ca/fal

- Nova Scotia Department of Agriculture – www.gov.ns.ca/agri
- Ontario Ministry of Agriculture, Food, and Agribusiness – www.omafra.gov.on.ca
- Prince Edward Island Ministry of Agriculture – www.princeedwardisland.ca/en/topic/agriculture
- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation – www.quebec.ca/gouvernement/ministeres-organismes/agriculture-pecheries-alimentation
- Saskatchewan Ministry of Agriculture – www.saskatchewan.ca/government/government-structure/ministries/agriculture

Agricultural Colleges and Universities

- Dalhousie University, Faculty of Agriculture – Truro, NS – www.dal.ca/faculty/agriculture.html
- Lakeland College, Agricultural Sciences – Vermilion, AB – www.lakelandcollege.ca
- Laval Université, Faculté des sciences de l'agriculture et de l'alimentation – Québec, QC – www.fsaa.ulaval.ca
- McGill University, Faculty of Agricultural and Environmental Sciences – Sainte-Anne-de-Bellevue, QC – www.mcgill.ca/macdonald
- Olds College of Agriculture and Technology – Olds, AB – www.oldscollege.ca
- University of Guelph, Ontario Agricultural College – Guelph, ON - www.uoguelph.ca/oac/oac
- University of Alberta, Faculty of Agricultural, Life and Environmental Sciences – Edmonton, AB – www.ales.ualberta.ca
- University of British Columbia, Faculty of Land and Food Systems – Vancouver, BC – www.landfood.ubc.ca
- University of Manitoba, Faculty of Agricultural and Food Sciences – Winnipeg, MB – www.umanitoba.ca/afs/
- University of Saskatchewan, College of Agriculture and Bioresources – Saskatoon, SK – agbio.usask.ca

Colleges of Veterinary Medicine

- University of Prince Edward Island, Atlantic Veterinary College – Charlottetown, PEI – www.avc.upei.ca
- Université de Montréal, Faculté de médecine vétérinaire – Montreal, QC – fmv.umontreal.ca/fmv
- University of Calgary, Faculty of Veterinary Medicine – Calgary, AB – vet.ucalgary.ca
- University of Guelph, Ontario Veterinary College – Guelph, ON – www.ovc.uoguelph.ca
- University of Saskatchewan, Western College of Veterinary Medicine – Saskatoon, SK – wcvm.usask.ca

Animal Welfare Organizations

- Humane Canada – (888)754-5105 humanecanada.ca
- Alberta Society for the Prevention of Cruelty to Animals – (780)447-3600 www.albertaspca.org
- British Columbia Society for the Prevention of Cruelty to Animals – (604)681-7271 www.spca.bc.ca
- New Brunswick Society for the Prevention of Cruelty to Animals – (506)458-8208 nbspca.ca
- Nova Scotia Society for the Prevention of Cruelty to Animals – (888)703-7722 www.spcans.ca

- Ontario Society for the Prevention of Cruelty to Animals – (905)898-7122 www.ontariospca.ca
- Saskatchewan Society for the Prevention of Cruelty to Animals – (306)382-7722 www.sspca.ca

Veterinary Associations

- Canadian Veterinary Medical Association – (613)236-1162 – www.cvma-acmv.org
- College of Veterinarians of British Columbia – (604)929-7090 – www.cvbc.ca
- Alberta Veterinary Medical Association – (780)489-5007 – www.abvma.ca
- Saskatchewan Veterinary Medical Association – (306)955-7862 – svma.sk.ca
- Manitoba Veterinary Medical Association – (204)832-1276 – www.mvma.ca
- Ontario Veterinary Medical Association – (905)875-0756 – www.ovma.org
- Association des Médecins Vétérinaires Praticiens du Québec – (800)567-7477 – www.amvpq.ca
- Prince Edward Island Veterinary Medical Association – (902)367-3757 – peivma.ca
- New Brunswick Veterinary Medical Association – (506)693-9994 – nbvma-amvnb.ca
- Nova Scotia Veterinary Medical Association – (902)865-1876 – nsvma.ca
- Newfoundland and Labrador Veterinary Medical Association – nalvmacouncil@gmail.com - www.nalvma.com/cpages/home

Other

- World Organization for Animal Health (WOAH) – www.woah.org/en/home
- Farm & Food Care – (519)837-1326 (Ontario division), (306)477-3663 (Saskatchewan division), (902)368-7289 (Prince Edward Island division) – www.farmfoodcare.org
- Verified Beef Production Plus (VBP+) – (587)328-5980 – verifiedbeef.ca
- Professional Animal Auditor Certification Organization (PAACO) – (833)839-1823 – animalauditor.org

Part 2: Topic-Specific Resources

Producer Mental Health Supports

- Canadian Centre for Agricultural Wellbeing – ccaw.ca – Call (866)327-6701 to reach the national farmer crisis line for support
- Canadian Mental Health Association – www.cmha.ca
- The Do More Agriculture Foundation – www.domore.ag
- Au Coeur des Familles Agricoles (ACFA) – acfareseaux.qc.ca
- Manitoba Farmer Wellness Program – (204)232-0574 – manitobafarmerwellness.ca
- Farmer Wellness Initiative – (866)267-6255 – farmerwellnessinitiative.ca
- AgKnow Alberta Farm Mental Health Network – (587)200-2552 – www.agknow.ca

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Appendix B – Body Condition Scoring

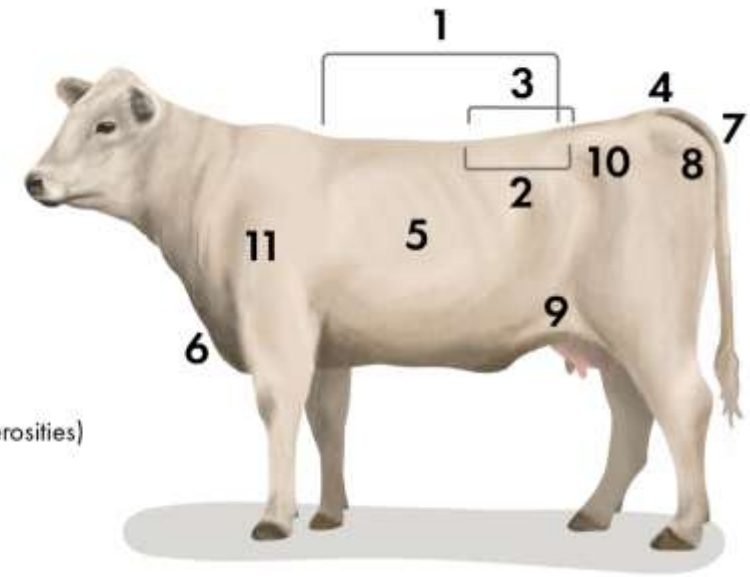
Body condition scoring (BCS) is a hands-on method of assessing the amount of fat cover on an animal and is an important tool in managing beef cattle and optimizing the use of feed resources. In Canada, a 5-point BCS system is used that was originally developed in Scotland. American beef producers typically use a 9-point system. Body condition scores are most applicable to mature cattle and may be of little use for cattle under one year of age.

BCS is determined by assessing the degree of muscle and fat cover at specific landmarks on an animal's body, specifically over the spinous (vertical) and transverse (horizontal) processes of the short ribs (loin) and (in fatter cattle) the tail head and ribs. Additional guidance is provided in Appendix A.

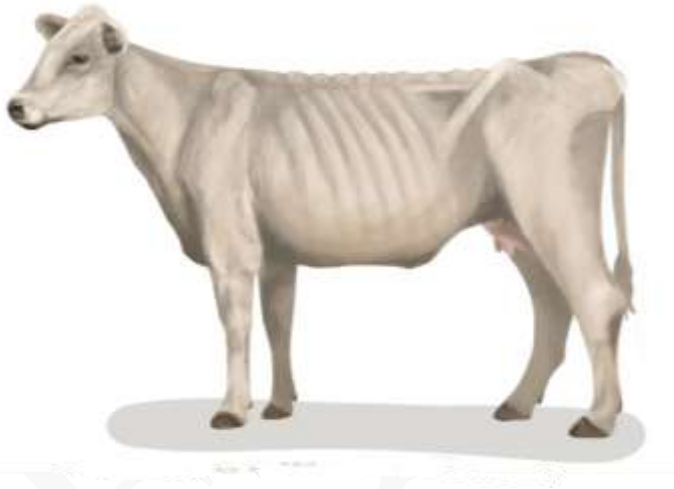
Labelled Illustration of a Beef Cow

Label legend

1. Backbone (spinous [vertical] processes of the vertebra)
2. Short ribs (transverse [horizontal] processes of the vertebrae)
3. Loin
4. Tail head
5. Ribs
6. Brisket
7. Tail docks
8. Pin bones (part of hips; ischial tuberosities)
9. Flank
10. Hooks (part of hips; iliac crest)
11. Shoulder



BCS 1:



ENTIRE ANIMAL

- Extremely thin
- No fat in brisket or tail docks
- All skeletal structures are visible
- No muscle tissue evident
- No external fat present
- Dull hair

BACK BONE

- Individual vertebrae well defined, sharp
- Can place fingers between each vertebrae

SHORT RIBS

- Visually prominent
- No fat present
- Very sharp to the touch

BCS 2:

ENTIRE ANIMAL

- Thin
- Upper skeleton prominent (vertebra, hips, pin bones)
- Muscle tissue evident, but not abundant
- Some tissue cover around the tail dock, over the hip bones and the flank

BACK BONE

- Individual vertebrae can be felt, but not as sharp
- Can't place fingers between vertebrae

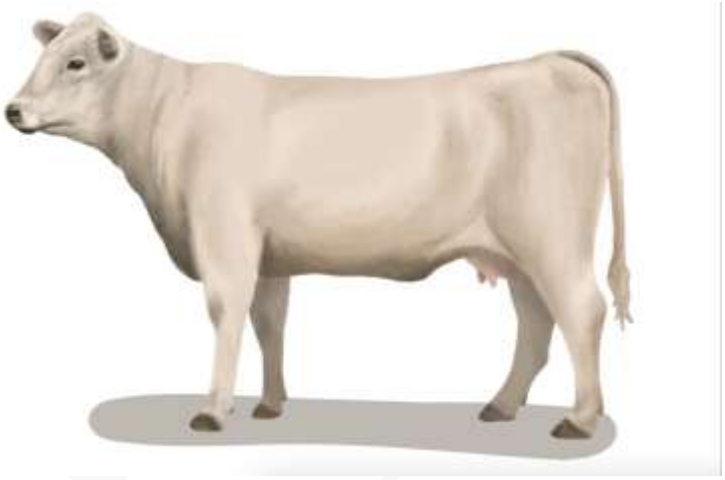
SHORT RIBS

- Feel individual ribs, sharp rather than very sharp
- Identify individual ribs visually

BCS 3:

ENTIRE ANIMAL

- Ribcage only slightly visible
- Hooks and pins visible, but not prominent
- Muscle tissue nearing maximum
- Fat deposit behind shoulder obvious
- Fat in brisket area
- Tail docks easily felt



BACK BONE

- Somewhat defined
- Difficult to feel top of vertebrae

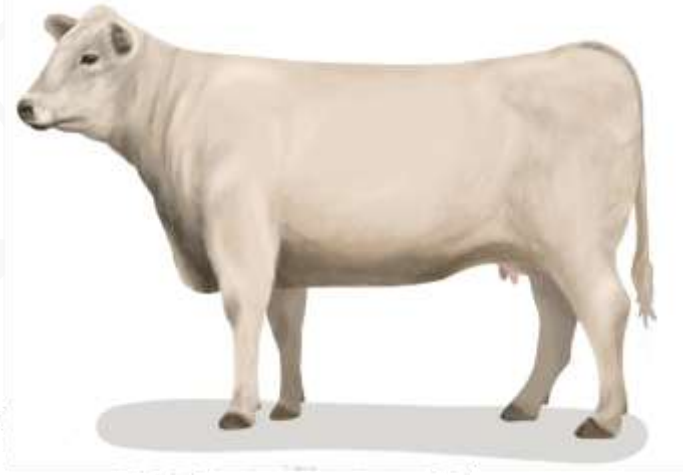
SHORT RIBS

- Completely covered with fat, beginning to spread over rump
- Individual ribs only felt with firm pressure

BCS 4:

ENTIRE ANIMAL

- Skeletal structure difficult to identify
- Obvious fat deposits behind shoulder, and at tail head
- Fat on brisket and over shoulder



BACK BONE

- Flat appearance to the top line
- Can't feel individual vertebrae

SHORT RIBS

- Folds of fat beginning to develop over the ribs and thighs
- Can't feel individual ribs, even with firm pressure

BCS 5:

ENTIRE ANIMAL

- Obese
- Flat appearance dominates
- Brisket heavy
- Bone structure not noticeable, "blocky" appearance
- Tail head and hips bones almost completely buried in fat and folds of fat

BACKBONE

- Flat back
- Can't feel backbone

SHORT RIBS

- Completely covered by fat
- Mobility impaired by large amounts of fat

Appendix C – Nutrient Requirement Guidelines for Beef Cows and Growing Beef Cattle

Table C.1 – Nutritional requirement guidelines for beef cows (544 kg [1,200 lbs] body weight)

Class	TDN%	CP%	Ca%	P%
Dry Cow, Early to Mid-Gestation	48–52	7	0.26	0.16
Dry Cow, Late-Gestation	58	9	0.27	0.17
Lactating Cow	60–65	11–12	0.36	0.26
Nutritional requirements vary with body weight and stage of production. All rations should be balanced for energy, protein, vitamins, and minerals *TDN – Total Digestible Nutrients* *CP – Crude Protein* *Ca – Calcium* *P – Phosphorus*				

Table C.2 – Nutritional requirement guidelines for growing beef cattle

Class	TDN%	CP%	Ca%	P%
Growth (226 kg [500 lbs] BW)	70	13	0.49	0.24
Finishing (362 kg [800 lbs] BW)	80	11	0.42	0.22
Nutritional requirements vary with body weight and stage of production. All rations should be balanced for energy, protein, vitamins, and minerals.				

Source: Adapted from National Research Council (2000) *Nutrient Requirements of Beef Cattle: Seventh Revised Edition*. Washington, DC: The National Academies Press. Available at: www.nap.edu/catalog.php?record_id=9791.

Appendix D – Transporting Unfit or Compromised Animals

TRANSPORTING UNFIT OR COMPROMISED ANIMALS

The Canadian Food Inspection Agency (CFIA) regulates the humane treatment of all animals being transported into, within, and out of Canada by enforcing the *Health of Animals Regulations (Part XII) Transport of Animals*.

All persons involved in the transport of animals must ensure that every animal being transported is assessed as being fit for the intended trip and that all provisions of the regulations are met.

Unfit animals (as described in the Regulations) are not to be transported unless it is to receive care recommended by a veterinarian. If transported, they must be loaded, confined, transported and unloaded in accordance with the provisions of the Regulations (refer to section 139(2)) to prevent suffering, injury or death. **Compromised animals** (as described in the Regulations) are not to be transported to assembly centres, including auction markets. They may be transported if they are isolated from other animals, are loaded and unloaded individually without having to negotiate any ramps within the conveyance, and transported to the nearest suitable place where they can receive care or be humanely killed. They must also be provided with feed, water and rest at a maximum, every 12 hours (fewer if needed to meet required outcomes). They must be loaded, confined, transported and unloaded in accordance with the provisions of the Regulations (refer to section 140(1)) to prevent suffering, injury and death.

If an animal **becomes unfit or compromised during transport**, reasonable measures must be taken to prevent unnecessary suffering. The animal must be transported to the nearest suitable place where it can receive care, be humanely killed, or humanely kill in place.

Signs of an unfit animal

- is non-ambulatory;
- has a fracture that impedes mobility or causes signs of pain;
- presents with lameness including signs of pain and halted movement, or cannot walk on all of its legs;
- is in shock or is dying;
- has a prolapsed uterus;
- has a severe rectal or severe vaginal prolapse;
- has nervous system disorder;
- is a porcine that is trembling, discolored and has difficulty breathing;
- has laboured breathing;
- has severe open wound or severe laceration;
- is hobbled to aid in treatment;
- is extremely thin;
- exhibits signs of dehydration;
- is hypothermic or hyperthermic;
- exhibits signs of a fever;
- has a significant hernia that impedes movement, causes signs of pain, touches the ground when standing, or that has an open wound or infection;
- is in the last 10% of its gestation period or has given birth during the preceding 48 hours;
- has an unhealed infected navel;
- has a gangrenous udder;
- has severe cancer eye;
- is bloated with signs of discomfort or weakness;
- is exhausted;
- exhibits any other signs of infirmity, illness, injury or a condition that indicates that it cannot be transported without suffering.

Signs of a compromised animal

- is bloated but does not demonstrate signs of discomfort or weakness;
- has acute frostbite;
- is blind in both eyes;
- has not healed after any procedure, including dehorning, castration, and detusking;
- lameness other than what is described in the regulation as unfit;
- has a deformity or a fully healed amputation that does not cause pain;
- is in a period of peak lactation and will not be milked to prevent mammary engorgement;
- has an unhealed or acutely injured penis;
- has a minor rectal or minor vaginal prolapse;
- has its mobility limited by a device, other than for treatment;
- is a wet bird; or
- exhibits any other signs of infirmity, illness, injury or of a condition that indicates that it has a reduced capacity to withstand transport.

NOTE

- **Calves 8 days and under** are prohibited from being transported to assembly centres, including auction markets.
- **Lactating animals that cannot be milked to prevent engorgement** must reach a destination where they can be milked or slaughtered before becoming engorged.
- Animals with mammary engorgement will be considered unfit.

All regulated parties are required to be aware of all applicable provisions in Part XII of the regulations. For more information about humane transport and animal welfare, visit **inspection.gc.ca/humane.**

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Source: Canadian Food Inspection Agency. *Transporting Unfit and Compromised Animals*. Available at: inspection.canada.ca/sites/default/files/legacy/DAM/DAM-aboutcfia-sujetacia/STAGING/text-texte/transporting_unfit_compromised_animals_fs_1647608419894_eng.pdf. Accessed: November 11, 2025.

Appendix E – Checklist for Animal Transport

Checklist for animal transport

- ☐ Knowledge about humane transport of animals
- ☐ Knowledge of the species
- ☐ Knowledge of animal handling
- ☐ Contingency plan
- ☐ Clean equipment/biosecurity
- ☐ Animals assessed prior to transport
- ☐ Assess if special handling is required
- ☐ Consider factors that affect transport:
  - condition of the animal
  - space requirements
  - ventilation
  - secure footing
  - compatibility with others
  - expected time in transport
  - foreseeable delays
  - weather conditions and changes
  - driving conditions
  - type and condition of transport equipment
  - optimal animal handling
- ☐ Plan for animal monitoring during transport
- ☐ Records:
  - animal transport record
  - feed, water and rest information
  - transfer of care

Source: Canadian Food Inspection Agency. *Livestock Transport in Canada. Are you sure that animal is fit for the trip?* Available at: publications.gc.ca/collections/collection_2020/acia-cfia/A104-195-2020-eng.pdf. Accessed: June 27, 2025.

Appendix F – Euthanasia Secondary Kill Steps: Bleeding Out and Pithing

Bleeding out (Exsanguination)

Figure F.1 – Exsanguination of an unconscious animal (previously stunned with a penetrating captive bolt device or gunshot)
Illustration by: Juliane Deubner, Medical Illustrator, Western College of Veterinary Medicine

Bleeding out should be performed using a pointed, very sharp knife with a rigid blade at least 15 cm (6 in) in length. Insert the knife through the skin of an already unconscious animal just behind the point of the jaw and below the bones of the neck. Draw the blade forward to sever the major blood vessels (jugular vein and carotid artery) of the neck and the windpipe (trachea). Blood should begin to flow freely, and death occurs within minutes.

Pithing

Figure F.2 – Pithing of a previously stunned animal
Illustration by: Carlee Wright, ACER Consulting

Pithing is the process of mechanically destroying the brain of a stunned, unconscious animal to prevent return to consciousness. It can also help reduce the involuntary reflex kicking that can occur after an animal is rendered unconscious. The line perpendicular to the animal's forehead shows the location for application of the captive bolt device. Pithing is performed by inserting a pithing tool or alternative device (e.g., a stiff piece of wire or uterine infusion pipette) that is 30–38 cm [12–15 in] long through the hole in the skull created by gunshot or the penetrating captive bolt device and advancing it forward and manipulating it to ensure maximum brain damage including the brainstem and upper spinal cord. Human safety is critical during pithing, as a recently-stunned animal can move or thrash involuntarily.