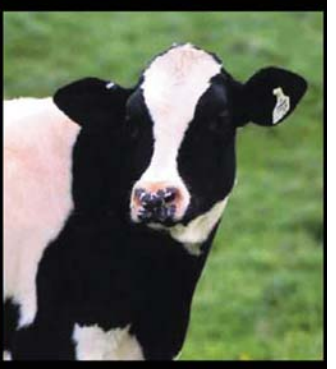
2011

Caring for Compromised Cattle: Assessing Animals at Risk

Caring for
COMPROMISED CATTLE

SECOND EDITION



BEEF

Beef Quality Assurance

IBC Iowa Beef Center

Caring for Compromised Cattle

ASSESSING ANIMALS AT RISK

Cattlemen have long recognized the need to properly care for their livestock. Sound animal husbandry practices – based on research and decades of practical experience – are known to impact the well-being of cattle, individual animal health and herd productivity. There is no doubt that producers work hard to ensure that their cattle are properly cared for throughout all stages of production. Unfortunately, it's a fact of raising cattle that some animals will become injured to the extent that they are unable to stand or walk without assistance.

Marketing Cattle

The overwhelming majority of cattle are marketed in good health and physical condition. Some at-risk cattle should not enter intermediate marketing channels because of animal welfare concerns. Instead, these cattle should be sold directly to a processing plant or euthanized, depending upon the severity of the condition, processing plant policy and state or USDA regulations.

Today, more than ever, public perception has a major affect on the demand for beef. Although most cows are harvested in good health and physical condition, there are exceptions. Some cows should not leave the farm because of animal welfare concerns. This would include cattle that are non-ambulatory, unable to stand without assistance or to move without being prodded, dragged or carried.

Decisions to treat cattle or to ship them to market are often difficult involving economic and animal welfare considerations. However, these decisions should be made as soon as possible to minimize pain, discomfort or further deterioration of the animal. Animals that have been medicated or treated must be withheld from sale until the proper withdrawal time for drug therapy has been met.

The majority of producers are unaware their animals may be subjected to extended journeys that might last days in either very warm or very cold temperatures. This will place a great deal of stress on them which may cause them to go down in transit. Therefore, at the farm of origin only animals healthy enough to be transported should be put on the stock trailer or truck for market.

Managing to decrease the number of non-ambulatory cows on the farm is the most efficient method to avoid dealing with them. Lame or injured cows, cows with calving

difficulties and extremely thin cows are most likely to become non-ambulatory. Lame and injured cows can become extremely thin because of their inability to frequent the feed bunk, stand for long periods of time, and/or compete with other cows for feed.

"Thin, weak cows are discounted much more today than pre-2003 and the BSE cases. We must cull our cows earlier and make our marketing of slaughter cows another opportunity to demonstrate our good sound management practices. Feeding cull cows 45-70 days after weaning calves generally pays the producer and certainly demonstrates that cattlemen are serious about our image."

- Phil Schooley, Bloomfield Livestock

Many cases of non-ambulatory cows can be prevented. The following are examples of management practices that could be followed to minimize the occurrence of non-ambulatory cows on the farm:

- Maintain your handling facilities to prevent the occurrence of downer-causing injuries.
- Handle cattle quietly and gently to prevent injury.
- Develop good health protocols and observe cows closely. This will allow for early detection of health problems and subsequent treatment during early stages of these problems when a successful outcome is more likely.
- Evaluate cows routinely for lameness.
- Reduce calving problems. Nerve damage during calving is one of the most common reasons cows become non-ambulatory. Select sires with appropriate genetics for calving ease and birth weight.
- Cull cows before they become extremely thin.
- Provide adequate nutrition to cows.
- Monitor body condition of cows. Cows with body condition scores of 2.5 or less (on a 1-9 scale) are more likely to go down during transport.

"As producers, we need to pay more attention not only to the marketing of cull cows, but also to their body condition, as they represent approximately 20% of a cow/calf operation's income."

- Randy Gibson, Lamoni Livestock

If a cow does go down and is unable to get back up without assistance the following are management suggestions for consideration:

- Consult with your veterinarian to determine whether the cow should be treated or humanely euthanized.
- Provide fresh feed and water to non-ambulatory cows twice daily.

- **Never Drag Cattle:** If it is necessary to move the cow use caretakers to humanely roll her onto a sled or low-boy trailer, or into the bucket of a large loader. Be careful to control the animal's head to prevent trauma during this process.
- If the cow is unable to sit up unaided or refuses to drink or eat 36 hours after becoming non-ambulatory she should be euthanized.
- Do not send non-ambulatory cows to an auction market or harvesting facility.
- Dispose of the carcass in an approved manner - bury, compost or render.

Transportation

The movement of cattle to and from farms, ranches, feedlots and marketing facilities is an important aspect of beef cattle production. Proper handling and transportation are important for the safety and welfare of the animals being moved. When loading and unloading cattle, personnel should move cattle as quietly and patiently as possible to prevent stress or injury.

Cattle should be separated by size or gender prior to shipping, and if possible, different groups loaded into separate compartments of the truck or trailer. If you have cattle with horns, they should be loaded together. Ideally their horns should be tipped prior to transport to reduce the possibly of injury to other cattle. To prevent livestock from falling while in transit, the ride should be as smooth as possible. Drivers should avoid sudden starts/stops and sharp turns. Moreover, the floors of trucks and trailers should be clean and slip resistant. While in transit, occasional stops should be made to ensure that cattle are well dispersed and still standing. Severe weather conditions must be considered when transporting livestock. As appropriate, adequate ventilation and protection should be provided during transit.

Handling Sick, Disabled or Deceased Livestock

It is the responsibility of cattlemen to humanely care for their animals and make every effort to obtain veterinary care for animals that are sick or injured. Livestock that are sick or injured and non-responsive to medical treatment for a reasonable period of convalescence should be humanely euthanized on the farm or ranch. Moreover, cattle exhibiting symptoms of advanced disease (such as cattle that are severely emaciated), cattle that are non-ambulatory, or cattle with advanced stages of ocular neoplasia should not be transported to market facilities. Cattle that are disabled or become injured during transportation should be euthanized or humanely transported to a processing facility. It is important to know the law when it comes to handling non-ambulatory cattle and understand they cannot be slaughtered.

This applies to:

- Federally-inspected plants
- State-inspected plants
- Custom-exempt plants
- Imports

This includes:

- Animals which became non-ambulatory on the way to the slaughter plant.
- Animals which became non-ambulatory on the plant premises, such as when they are being unloaded from the truck.

Euthanasia is defined as a humane death occurring without pain and suffering. Sick or injured cattle that will not respond to treatment should be euthanized. Techniques for euthanasia should follow guidelines established by the American Veterinary Medical Association and the American Association of Bovine Practitioners. Detailed information on proper euthanasia techniques is available on page 21 of this manual or refer to the guide titled "Practical Euthanasia of Cattle" www.aabp.org/resources/euth.pdf or producers may consult with their veterinarian concerning appropriate techniques.

Reasons to euthanize:

- Fractured leg (irreparable); severe trauma
- Inability to stand or walk
- Advanced cancer eye
- Debilitating or severe pain
- Severely thin or weak cows that are at risk of becoming a downer
- Multiple joint infections with chronic weight loss

Early recognition of problems and prompt, appropriate treatment are key factors in preventing the loss of an animal. Non-ambulatory animals must be treated or euthanized in a timely manner. It is ultimately up to the producer to ensure these animals receive proper veterinary care and/or are shipped locally for processing or humanely euthanized.

Producers should use proper methods of disposing of deceased livestock in accordance with federal, state and local regulations. If utilizing a rendering service, keep deceased livestock in a screened area away from public view.

Summary

Early recognition of problems and prompt, appropriate treatment are key factors in preventing the loss of an animal. Non-ambulatory animals must be treated or euthanized in a timely manner. It is ultimately the producer's responsibility to ensure these animals receive proper veterinary care and/or are shipped locally for processing or humanely euthanized.

The beef industry is often challenged to maintain a proactive position on issues of concern to individuals or special interest groups with little or no knowledge of animal agriculture. Years of practical experience have shaped the practices that provide humane care of livestock. Cattle producers wanting more specific information about proper care and handling of livestock should contact the Iowa Beef Industry Council, the Iowa Beef Center or your local veterinary practitioner.

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Decision Making Steps to Prevent Compromised Animals:

The following actions by producers will assist in early detection of problems and options to address them.

- Prevention: Biosecurity, herd health programs, equipment and stall designs, as well as early identification of herd or facility-related problems will help to prevent many animal health problems.
- Observation: Cattle should be observed several times a day, especially during milking or feeding. Early detection of illness and appropriate treatment are key elements in minimizing disease and discomfort.
- Treatment: Treatment should be determined and administered as soon as possible to prevent conditions from deteriorating. Consult with a veterinarian to develop treatment strategies and protocols for common ailments.
- Separation: Segregate compromised animals into designated 'hospital' pens or areas to permit close observation, treatment and easy access to feed and water.
- Transport: If animals are fit for transport, decide where and when to ship them, ensuring all medicine withdrawal times have been observed.
- Euthanize: All animals unfit for transport or unfit for human consumption must be euthanized on-farm. Do not send these cattle to auction markets or harvesting facilties.

BEEF QUALITY ASSURANCE MARKETING CODE OF ETHICS

1. **I will only participate in marketing cattle that:**
   - Do not pose a known public health threat
   - Have cleared proper withdrawal times
   - Do not have a terminal condition
   - Are not disabled
   - Are not severely emaciated
   - Do not have uterine/vaginal prolapses with visible fetal membrane
   - Do not have advanced eye lesions
   - Do not have advanced Lumpy Jaw

2. **Furthermore, I will:**
   - Do everything possible to humanely gather, handle and transport cattle in accordance with accepted animal husbandry practices.

3. **Finally, I will:**
   - Humanely euthanize cattle when necessary to prevent suffering and to protect public health.

Beef Quality Assurance programs require that animals be handled in a manner that will result in a high quality product for consumers. Taking care to follow the recommendations in this guide can result in higher quality beef, less trim out loss, fewer injuries and a more profitable operation.

If producers fail to adopt a proactive position concerning product quality and integrity:
- The availability of antimicrobials and the approval of new animal-health products could be jeopardized
- Higher costs associated with residue monitoring systems could be incurred
- The number of market outlets could decrease
- The beef industry could be forced to comply with a national identification system designed and mandated by regulatory agencies.

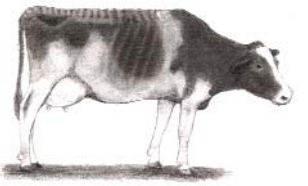
DO NOT LOAD OR TRANSPORT

Animals with any of the following conditions must not be loaded onto a vehicle for transport.

1 Extremely thin (emaciation)

The Body Condition Scoring system ranges from one to nine (1 – 9).

1 - emaciated
2 - poor condition
3 - thin condition
4 - borderline condition
5 - moderate, good overall appearance
6 - high moderate condition
7 - good, fleshy appearance
8 - fat, fleshy and overconditioned
9 - extremely fat, wasty and patchy



Importance of Body Condition Scoring to Cattle Producers

Body Condition Scoring of beef cattle can be an effective management tool for evaluating the energy reserves of cows and the whole nutritional program throughout the year. Adjusting the nutritional program to obtain desired body condition at different stages of production is necessary to enhance production efficiency. Females that are too thin or too fat can be an expensive investment. Thin cows can have difficulty rebreeding, while fat cows are prone to calving problems and excessive feed costs. Body condition scores (BCS) allow producers, extension personnel, and researchers to communicate more effectively regarding the herd's nutritional status.

What is Body Condition Scoring?

A common scoring system has been developed to estimate the average body condition of cows in a herd. This system provides producers a relative score based on an evaluation of fat deposits in relation to skeletal features.

The most widely used Body Condition Scoring system for beef cattle in the U.S. assigns scores from 1 (emaciated and carrying virtually no fat) to 9 (excessively fat).

Producer Actions:

Observe all animals regularly to assess body condition.

Monitor closely for early signs of weight loss.

Condition cows from a tie stall for a period of time to prepare them for transport (i.e. place dairy cows in a box stall for several days for exercise).

Euthanize emaciated cows or calves on-farm. Do NOT load.

Make the decision to treat or to ship animals to be culled promptly before they deteriorate to a Body Condition Score of 2.5 or less.

Body Condition Scoring for Beef Cattle

Body Condition Scoring is one tool producers can easily use to monitor nutritional programs in a cowherd. Body Condition Score at calving affects calf survival, calf vigor, and subsequent reproductive performance of the cow. Critical times to monitor Body Condition Score of the cowherd are 30 days prior to breeding, 90 days post-breeding, weaning, 100 days prior to calving, and at calving.

Body Condition Score 1: Emaciated
Emaciated with muscle atrophy and no detectable fat. Tail head and ribs project predominantly. Animal physically weak.

Body Condition Score 2: Poor condition
Poor condition with muscle atrophy and no detectable fat. Tail head and ribs prominent.

Body Condition Score 3: Thin condition
Slight muscle atrophy. All ribs visible. Very little detectable fat.

Body Condition Score 4: Borderline condition
Outline of spine slightly visible. Outline of 3 to 5 ribs visible. Some fat over ribs and hips.

Body Condition Score 5: Moderate, good overall appearance
The bone structure of topline, hook and pin bones and short ribs not visible. Obvious fat deposits around tailbone and over ribs. Thighs curve out, brisket and flanks heavy, chine very round.

Body Condition Score 6: High moderate condition
Ribs and spine no longer visible. Pressure applied to feel bone structure. Some fat in brisket and flanks

Body Condition Score 7: Good, fleshy appearance
Hips slightly visible but ribs and spine not visible. Fat in brisket and flanks with slight udder and tail head fat

Body Condition Score 8: Fat, fleshy and overconditioned
Bone structure not visible. Large patchy fat deposits over ribs, around tail head and brisket

Body Condition Score 9: Extremely fat, wasty and patchy
Mobility possibly impaired. Bone structure not visible. Extreme fat deposits over ribs, around tail head and brisket

References:
Author: Dan E. Eversole, Extension Animal Scientist; Milyssa F. Browne, Graduate Student; John B. Hall, Extension Animal Scientist; and Richard E. Dietz, Graduate Student; Virginia Tech

A. Manuel Encinias, Extension Associate, Co-Products Initiative
Greg Lardy, Beef Cattle Specialist, NDSU Extension Service
Department of Animal and Range Sciences

Body Condition Scoring for Dairy Cattle

Identifying cows that are too fat or too thin and taking immediate action helps with disease treatment, milk production, and fertility. It is critical for producers to identify cows with poor body condition scores early to make important treatment or culling decisions in a timely and responsible manner.

The Body Condition Scoring (BCS) system scores animals 1 through 5, from emaciated to fat. Body condition reflects the body fat reserves of the animal which are often not enough during early lactation, when cows get sick, or when feed quality or quantity is inadequate.

Ideally all dairy cows should be scored at the beginning and end of their dry period and at least 4 or 5 times during lactation. Cows should be scored both by looking at and handling the backbone, loin and rump areas.

Body Condition Score 1: Emaciated

The ends of the short ribs are sharp to the touch and together give a prominent shelf-like appearance to the loin. The individual vertebrae of the backbone are prominent. The hook and pin bones are sharply defined. The anal area has receded and the vulva is prominent.

Body Condition Score 2: Thin

The ends of the short ribs can be felt but they and the individual vertebrae are less visibly prominent. The short ribs do not form as obvious of a shelf effect. The hook and pin bones are prominent but the depression of the thurl region is less severe. The area around the anus is less sunken and the vulva less prominent.

Body Condition Score 3: Average

The short ribs can be felt by applying slight pressure. The overhanging shelf-like appearance of these bones is gone. The backbone is a rounded ridge and hook and pin bones are round and smoothed over. The anal area is filled out but there is no evidence of fat deposit.

Body Condition Score 4: Heavy

The individual short ribs can be felt only when firm pressure is applied. Together they are rounded over with no shelf effect. The ridge of the backbone is flattening over the loin and rump areas. The hook bones are smoothed over and the span between the hook bones over the backbone is flat. The area around the pin bones is beginning to show patches of fat deposit.

Body Condition Score 5: Fat

The bone structure of the topline, hook and pin bones and the short ribs is not visible. Fat deposits around the tailbone and over the ribs are obvious. The thighs curve out, the brisket and flanks are heavy and the chine very round.

Adapted from the OMAFRA Factsheet, "Body Condition Scoring of Dairy Cattle".

2 Lameness and Non-ambulatory animals

Lameness is defined as a disturbance of locomotion and can be a behavioral indication of pain and therefore of poor animal welfare. (Whey et. Al., 1997).

Non-ambulatory animals, commonly called “downers”, are those unable to get up, walk or remain standing without assistance.

Foot and leg problems can result in poor performance and substantial economic loss. Several factors might be responsible for causing problems:
- Nutrition and feeding practices
- Facility and physical environment
- Genetic predisposition
- Other on-going diseases

Ninety percent of lameness involves the feet, most commonly the back feet. Frequent causes of lameness include:
- Foot rot/warts
- Digital dermatitis
- Laminitis
- Claw disease (sole ulcers, white line disease)

Use the following lameness classes to determine the best approach when dealing with sick or injured cows or calves.

Class 1: visibly lame, but can keep up with the group; no evidence of pain
Class 2: unable to keep up; some difficulty climbing ramp
Class 3: requires assistance to rise, but can walk freely
Class 4: requires assistance to rise; reluctant to walk; halted movement
Class 5: unable to rise or remain standing; animal should not be moved

Producer Actions:

Identify lame animals early and treat promptly.

Keep accurate heath and treatment records for all animals.

Cull cows with persistent problems.

Hoof trim/evaluate feet at least once/year.

Evaluate nutrition programs.

Improve poor facility design; lying and walking surfaces.

Segregate and load Class 2 animals in the rear compartment when transporting.

Do not load or transport Class 3, 4 or 5 animals, except for veterinary treatment.

Class 3, 4, 5 animals must be treated or euthanized on-farm.

3 Bone Fractures

Fractures cause an animal immense pain and can result in severe lameness and impede normal movement. Animals with limb or spine fractures should not be loaded for transport except under the order of a veterinarian for treatment for the animal's benefit. Animals should be able to bear weight on all four limbs to be suitable for transport. Animals with non-limb fractures (i.e. tail or jaw) may be loaded and transported to the nearest suitable processor with due care. Due care could include special provisions such as using a low entry, well bedded or cushioned trailer or segregating if necessary.

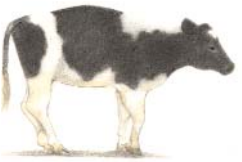
Producer Action:

Do not load or transport animals with fractures that limit movement due to intense pain.

Euthanize limb or spine fractures on farm if they are not treatable.

Immobilize limb fractures prior to transport to veterinary facilities.

4 Arthritis



Arthritis is an inflammation of the joint, characterized by progressive difficulty moving and increased time spent lying down with the affected joint flexed. Swollen joints can be a symptom of arthritis. Treatment is dependent on the degree of lameness. More than two joints affected can cause a cow to be condemned at slaughter.

Animals should be assessed according to the Lameness Classes 1 through 5. Those scoring 3, 4 or a 5 are considered to be 'at risk'to become downers. Any animal can be loaded and transported for veterinary treatment under the order of a veterinarian. Refer to the 'Producer Action' in the previous section (2) for direction on how to proceed with animals with varying lameness scores.

Producer Action:

Observe all cows and calves for swollen joints.

Detect and treat early or ship promptly if lameness score is greater than 2.

Determine the cause if several animals are affected.

Do not load if three or more joints are affected or animal is judged to be in Lameness Class 3, 4 or 5.

5 Fever

Fever is a symptom of an infectious disease. A continuing fever higher than 104°F (40°C) for three days or more is a sign of a serious health problem.

Producer Action:

- Seek veterinary advice.
- Do not load or transport, except for veterinary treatment.
- Euthanize on-farm.

6 Cancer Eye

Cancer eye (ocular squamous cell carcinoma) is the most common type of cancer in cattle and is characterized by pink, fleshy growth on the eyeball, the eyelids and/or the third eyelid. Older cattle (5 years and older) and those with un-pigmented skin around the eyes are more prone to contracting cancer eye. Untreated cancer eye progresses inwardly, invading deeper tissues behind the eye. It can then progress to the lymph nodes of the head and then to body organs such as lungs and liver.

There are four stages of development for cancer eye. These include plaques (stage 1); keratoma, or keratoacanthomas (stage 2); papillomas (stage 3); and carcinomas (stage 4). Plaques, keratomas, and papillomas (stages 1, 2, and 3) are benign. Carcinomas (stage 4) are malignant.

Plaques appear as small, white, elevated areas. Keratomas occur more frequently on the lower eyelid. They are skin growths coated with eye secretions and debris. Papillomas may have a wart-like appearance. Carcinomas are more irregular and nodular and may have a pink color due to an increased blood supply.

Cows with infections extending beyond the orbit of the eye and involving the bones and tissues are in stage 3 of this disease and should be euthanized on farm, as they will be partially or totally condemned at the processing plant. Stage 3 animals are not considered fit for human consumption.

Producer Action:

- Inspect animals regularly for the early signs of cancer eye.
- Recognize early symptoms of cancer eye and seek veterinary treatment.
- Consider culling animals with early symptoms.
- Euthanize animals with severe cancer eye.

7 Pregnancy/Calving

It is illegal to load or transport any animal for sale or processing if it is probable that the animal will give birth during the journey. Cows in later stages of pregnancy should be evaluated to determine if they can withstand the stress of the journey. Transportation is stressful, which can cause the early onset of labor or abortion.

Producer Action:

Do not ship any cows in late stages of pregnancy.

Animals that have given birth within 48 hours must not be loaded for transport.

8 Prolapse of the uterus

A prolapse is the protrusion of an organ or part of an organ from its normal position outside the body due to increased pressure in the abdominal cavity. If not treated, animals with prolapsed vaginas or rectums should be transported direct to the processor as soon as possible.

A uterine prolapse generally occurs directly after calving and appears as a large, elongated mass, deep red in color, covered with 'buttons' on which the placenta was attached. A uterine prolapse is life-threatening and producers should seek veterinary advice or euthanize the animal immediately. Under no circumstances may a cow with a prolapsed uterus be loaded for transport, except for veterinary treatment.

Producer Action:

Routinely observe and monitor all cows prior to and after calving.

Promptly seek veterinary advice for prolapse problems.

Cull cows that have pre-calving prolapses.

Euthanize cows with an untreatable prolapsed uterus.

9 Congestive Heart Failure

Congestive heart failure with brisket and abdominal fluid present is observed as an obviously swollen brisket (edema) and engorged jugular veins. Affected animals are reluctant to move.

Producer Action:

Do not load or transport.

Euthanize on-farm.

10 Exhaustion or Dehydration

This would include animals that appear to be exhausted and in a physically depressed state.

Producer Action:

Do not load or transport animals in this condition.

Delay transport until animal is rested and re-hydrated. Seek veterinary advice.

11 Blindness in Both Eyes

Animals afflicted with total blindness in both eyes must not be loaded for transport and should be euthanized on-farm.

12 Nervous Disorders or Suspected Poisoning

Animals suffering from a nervous disorder may show similar signs to animals that have been poisoned. Affected animals may exhibit symptoms including stumbling, hyper-excitability, agressiveness, bawling, staggering and be unresponsive to treatment. Animals may lie with neck fully extended backwards and one or more legs extended.

Animals infected with rabies may also act as if they were in heat. Rabies must be suspected in these cases and appropriate cautions exercised. Rabies is a reportable disease and producers must notify the state veterinarian if rabies is suspected.

Producer Action:

This could be a contagious and/or a reportable disease, so consult with a veterinarian before euthanizing.

Consult with a veterinarian regarding BSE or rabies testing. Minimize human contact with animal.

Do not load or transport.

Euthanize on-farm after clearance from a veterinarian.

TRANSPORT ONLY WITH SPECIAL PROVISIONS

Animals exhibiting symptoms of any of the following disorders should be given time for treatment and/or transported with special provisions.

Animals with these conditions may need to be transported with special provisions directly to a processor as soon as possible, or more severe conditions require transporting directly to emergency processing. These animals should not be transported to a livestock market. Special provisions can include extra bedding or segregating them on the truck to ensure their welfare and comfort during transit.

1 Lameness – Class 1 or 2

Leg problems in cattle can be caused by a variety of factors including fractures, abscesses, arthritis, laminitis and foot rot. The entire animal should be assessed, as a lame animal in poor body condition will likely be condemned at the processing plant. These animals should be euthanized on the farm. Cows in good body condition that are moderately lame (Class 1 or 2) can be transported with special provisions.

Producer Action:

Lameness Class 1 or 2 animals may be loaded for transport direct to processing.

Do NOT load Lameness Class 3, 4 or 5 animals. These animals are considered to be 'non-ambulatory' and unfit for loading and transport, except for veterinary treatment.

2 Lactating Cattle

Plan any culling of dairy cows in a responsible manner. Lactating cattle should be identified and shipped promptly to minimize pain and discomfort. Extended journeys for lactating animals is a distinct welfare concern, as they cannot be milked causing them extreme discomfort.

Lactating dairy cows should be properly dried off and conditioned to a maintenance ration well in advance of the shipping date to reduce discomfort or additional health problems. Cows that are still milking must not be shipped to the auction, but should be moved directly to the nearest suitable abattoir for immediate processing.

Producer Action:

Dairy animals to be shipped to market should be properly dried-off first.

Lactating dairy animals that are not properly dried off and conditioned for transport, should be moved directly to the nearest suitable harvesting facility without delay.

Do NOT ship lactating animals to a livestock market for further sale or transport to another auction or other dairy herd.

3 Cuts and Wounds with Associated Profuse Bleeding

Puncture wounds or cuts resulting in excessive bleeding and/or lameness is cause for concern and requires attention. It is key to observe animals daily to detect cuts and wounds. Assess the severity of the injury and treat accordingly.

Producer Action:

- Observe all animals daily.
- Assess and treat wounds and/or consult with veterinarian.
- Animals with larger wounds may be loaded for veterinary treatment or shipped for emergency processing.
- Euthanize on-farm if loading will cause unnecessary pain and suffering to load and transport.

4 Cancer Eye

Animals afflicted with mild cases of cancer eye (tumor restricted to the orbit of the eye), with the eye still intact can be shipped for processing. It's important to differentiate between cancer eye and pink eye, as pink eye is treatable.

Cancer eye: white/pink tissue growth; tumor on third eyelid, rarely on eyeball. Pink eye: general swelling, white of eye is red and lesions may be present on the eyeball.

Producer Action:

- Inspect animals regularly for early signs of cancer eye. There is no cure for cancer eye.
- Do not ship to an auction market.
- Mild cases of cancer eye can be transported directly to the nearest suitable processing facility.

5 Displaced Abomasum

A displaced abomasum (or twisted stomach) is a repositioning of the fourth stomach from its normal position on the right side of the abdominal wall to the left side in most cases. The abomasum may be filled with gas or fluid. Animals may show signs of decreased appetite with scanty bowel movements.

Producer Action:

- Seek veterinary advice to distinguish from ketosis or possible options for correction. If correction is not possible:
- Do not transport to an auction market.
- Arrange for prompt movement to the nearest processing facility.
- Load in separate compartment with adequate bedding.

6 Prolapse of the Vagina or Rectum

Vaginal prolapses generally occur before calving. They appear to be approximately the size of a large grapefruit or volleyball. The bladder can also become involved causing the cow to have difficulty urinating.

Rectal prolapses can also occur during the birthing process due to excessive straining. Steers can be affected with rectal prolapses as well.

Vaginal or rectal prolapses should be treated promptly, as infection can occur compromising the health of the animal. Some cows are genetically predisposed to this condition. This is more common in older cows, but can occur in first-calf heifers.

Producer Action

Routinely monitor herd for prolapses, particularly during calving season.

Seek veterinary advice for treating prolapses. Cull cows with pre-calving prolapses.

If not treated, animals with vaginal or rectal prolapses should be transported directly to the processor.

7 Bone Fractures (other than limb or spine)

Animals with a recent fracture should be transported directly to a veterinary clinic or an emergency processing facility without delay.

Producer Action

Handle these animals with care during loading and transport to minimize their pain and discomfort.

8 Pneumonia (without fever)

Animals with obvious signs of labored breathing may have pneumonia. This may involve the upper respiratory system (nostrils, throat, and trachea) or larynx or the lower respiratory tract (lungs). Pneumonia is an example of a lower respiratory tract infection. These animals should be carefully evaluated since they can be at risk to become downers due to shipping stress.

Producer Action:

Treat and delay transport.

Load with care into separate compartment of transport vehicle.

Ship directly to nearest processing facility.

9 Blindness

Producers should exercise caution when handling animals with limited sight to reduce the risk of injury to both the animal and handlers. Animals with impaired vision should not be sent to an auction market.

Producer Action:

Load with care in a separate compartment, preferably with one other quiet companion animal.

Transport these animals to the processing plant as soon as possible.

10 Bulls – Penis Injury

Bulls may suffer from a rupturing of the blood vessels in the penis causing severe bruising and swelling or a broken penis. A penis injury may be severe enough to cause a bull to go into shock.

Producer Action:

Load with care into a separate compartment.

Ship directly to nearest suitable processing facility.

11 Lumpy jaw

Bacteria can invade wounds in the mouth and gums and localizes in the upper or lower jaw resulting in a hard bony 'lump'. This lump may erupt and discharge granular pus that can interfere with normal eating and chewing.

Producer Action:

Transport affected animals directly to nearest suitable processing facility.

Summary:

In addition to all the cases cited above, producers must assess each animal based on its individual state of health prior to making a decision to load it or not, and whether it should go to an auction or directly to a processing plant. Animals must only be loaded if they are assessed to be fit at the farm and able to withstand the journey to their destination.

PROPER METHODS OF EUTHANASIA

Considerations for the Producer, Livestock Market Operator, Livestock Transporter and Veterinarian

Practical Euthanasia of Cattle as defined by the American Association of Bovine Practitioners and prepared by the Animal Welfare Committee of the AABP.

Most individuals who work with large domestic livestock will encounter situations where an animal is unlikely to respond favorably to treatment. The likelihood of treatment success, potential for animal suffering, and presence of drug residue are considerations that can make euthanasia of a patient the best available option.

> **Euthanasia is defined as "the intentional causing of a painless and easy death to a patient suffering from an incurable or painful disease."**
>
> **Webster's II University Dictionary, 1996**

Individuals who work with livestock should read this information, discuss the options with a veterinarian, and determine an action plan. The action plan should be reviewed annually.

Euthanasia requires that the animal be rendered unconscious without distress or suffering prior to cessation of vital life functions. There are three physiological mechanisms for inducing euthanasia in cattle. Although several techniques exist for inducing euthanasia, all techniques will fall into one of the following categories:

- Physical disruption of brain tissue caused by direct destruction of brain activity (gunshot, penetrating captive bolt).
- Drugs that directly depress the central nervous system (anesthetics, barbiturates) and induce death by hypoxia.
- Agents that induce unconsciousness followed by mechanisms that induce hypoxia (narcotics followed by exsanguination).

Some Indications for Euthanasia

- Fractured leg (irreparable); severe trauma
- Loss of production (severe mastitis, etc.)
- Inability to stand or walk (disabled livestock)
- Advanced ocular neoplasia (cancer eye)
- Debilitating or toxic condition
- Poor economic outlook
- Extended withdrawal time for sale of meat

Decision Making

Decisions involving debilitated, disabled, or injured cattle may fall into the following categories: treatment, slaughter, and euthanasia. Criteria to be considered in decision making should include:

1. Pain and distress of the animal.
2. Likelihood of recovery.
3. Ability to get to feed and water.
4. Medications used on the animal.
5. Drug withdrawal time.
6. Economics.

Considerations

When euthanasia is the most viable option, the following considerations must be made when choosing the appropriate method:

1. **Human Safety:** The first consideration in the choice of euthanasia method is human safety. Obviously, the use of a firearm would carry more danger. Some methods, such as a barbiturate overdose, usually result in a calm animal being euthanized quietly and easily.
2. **Animal Welfare:** All methods of euthanasia should produce a quick and painless death. However, certain environments and animal behaviors may prevent the use of a desired technique. Use the technique that is safest for humans and animals alike.
3. **Restraint:** Availability of cattle chutes or other forms of restraint may make certain forms of euthanasia more practical than others. For example, it may not be possible to euthanize an adult cow using barbiturates without a headgate. Several methods, such as use of the captive bolt, necessitate excellent restraint capabilities. In all cases, firm but gentle restraint should be exercised.

4. **Practicality:** An appropriate euthanasia technique must also be practical to use. Not all individuals working with cattle have legal access to drugs, such as barbiturates. Barbiturates require a federal license to store and use.
5. **Skill:** All techniques require skill and training to accomplish correctly. Designated individuals should be appropriately trained in proper euthanasia techniques wherever cattle are kept.
6. **Cost:** Some euthanasia techniques are more costly than others. However, other techniques, such as gunshot or captive bolt, require a larger initial investment, but are thereafter very inexpensive to use.
7. **Aesthetics:** Certain euthanasia techniques, such as use of a barbiturate overdose, may 'appear' more pleasing to the untrained eye than other techniques. Many techniques result in significant involuntary movements of the animal which may be misinterpreted as a voluntary painful response to those inexperienced in bovine euthanasia. Trained individuals should know how the animal responds to different euthanasia techniques.

Table of Bovine Euthanasia Methods

Method	Human Safety	Animal Welfare	Skill Required	Cost	Aesthetic
Gunshot	Moderate [a]	Good	Moderate [a]	Low	Fair: some blood and motion
Captive Bolt	Fair [b]	Good	Moderate [a]	Low	Fair: some blood and motion
Barbiturate Overdose	Good [c]	Excellent	Moderate [a]	High	Good
Exsanguination	Fair [b]	Good: animal must first be unconscious	Moderate [a]	Low	Poor: very bloody
Electrocution	Moderate [a]	Good: only if specialized equipment used	Moderate [a]	High	Poor: much motion

[a] **Moderate** - Operator training required; some risk of injury involved.

[b] **Fair** - Safe with training, appropriate equipment, and proper restraint.

[c] **Good** - Safe with good restraint.

Details of Table

1. **Gunshot:** The firearm should be held at least 2 inches from the intended point of impact, and the bullet should be directed perpendicular to the front of the skull to prevent ricochet. The point of entry should be at the intersection of two imaginary lines, each drawn from the inside corner of the eye to the base of the opposite horn (slightly above the ear in polled animals). A .22 caliber long rifle bullet is sufficient for most animals, but a .22 magnum or 9mm round should be used on bulls. Use of a hollow-point or soft-nose bullet increases tissue destruction. If performed skillfully, gunshot induces instantaneous unconsciousness, is inexpensive and does not require close contact with the animal. This method should only be attempted by individuals trained in the use of firearms and who understand the potential for ricochet. Care must be taken to minimize danger to the operator, to bystanders, and to other animals. In addition, since some cities have laws prohibiting the discharge of firearms in certain areas, the operator should be aware of local ordinances that may apply.

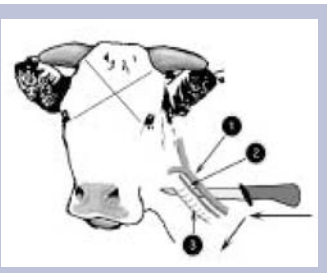
2. **Captive Bolt:** Captive bolt 'guns' are either penetrating or non-penetrating. When properly used penetrating captive bolt guns produce immediate brain tissue destruction that kills the animal (i.e. the animal is 'brain dead'). However, the concussive force of non-penetrating captive bolt guns only stuns the animal. A stunned animal or 'brain dead' will 'drop' but will still exhibit respiration and sudden quick limb movements. Use of the nonpenetrating captive bolt must be followed by an additional procedure to ensure death (exsanguination, chemical agents), and it is advisable to apply such procedure after penetrating captive bolt as well. The bolt gun must be placed firmly against the skull at the same entry point previously described for a gunshot. Since use of the captive bolt gun requires close proximity to the animal, good restraint and prior sedation or tranquilization may be required. Operator safety must be considered in the use of this technique. Maintenance and cleaning of the bolt gun as described by the manufacturer must be followed exactly. In addition, selection of cartridge strength may vary among manufacturers and the appropriate strength for the size of the animal must be used.

3. **Barbiturate:** When properly administered by the intravenous route, barbiturate overdose (60-80 mg/kg sodium pentobarbitol IV) produces rapid unconsciousness and anesthesia followed by respiratory depression, hypoxia, and cardiac arrest. The barbiturate selected should be potent, long acting, and stable in solution. The carcass of barbiturate treated animals is considered unfit for human or animal consumption. Ingestion by wildlife or other animals can prove very toxic. The rendering process, however, inactivates barbiturates so that carcasses can be sent to rendering facilities.

4. **Exsanguination:** This method can be used to ensure death subsequent to stunning, anesthesia, or unconsciousness. It must not be used as the sole method for euthanasia. There are several methods for exsanguination. The most common method in the bovine is to lacerate both the jugular and carotid veins. A long 6 inch sharp knife is fully inserted behind the point of jaw and directed upwards until blood is freely

flowing. Brachial vasculature can be lacerated by lifting a fore limb, inserting the knife deeply at the point of the elbow and cutting skin and vasculature until the limb can be laid back against the thorax of the animal. The aorta can be transected via the rectum, by a trained individual, so that blood pools within the abdominal cavity.

5. **Electrocution:** This method should only be attempted using specialized slaughter plant equipment that applies a minimum of 2.5 amp across the brain. A 120 volt electrical cord does not apply sufficient amperage to induce unconsciousness or euthanasia. Electrocution does involve current and violent involuntary reactions by the animals. Therefore, this method does involve some danger to the operator.



Location for exsanguination and correct site for captive bolt or gunshot euthanasia of cattle. The point of entry of the captive bolt or bullet should be at the intersection of two lines drawn from the inside border of the eye to the base of the opposite horn (slightly above the opposite ear in polled animals). Exsanguination should be done using a pointed, very sharp knife, with at least a 6-inch rigid blade. The knife is thrust into the neck just below the neck bones and drawn downward to sever the jugular vein, carotid artery and trachea: (1) external jugular vein; (2) common carotid artery; (3) trachea.

Confirmation of Death

Confirmation of death is absolutely critical regardless of what method of euthanasia is chosen. Keep personal safety in mind when confirming death because animals can make sudden involuntary limb movements. The following can be used to evaluate consciousness:

- Lack of a heartbeat
- Lack of respiration
- Lack of corneal reflex

The presence of a heartbeat can be best evaluated with a stethoscope placed under the left elbow. Movement of the chest indicates respiration. (Note: breathing can be very slow and erratic in unconscious animals.) The corneal reflex can be tested by touching the eyeball and noting whether the animal blinks. Lack of heartbeat and respiration for three to five minutes should be used to confirm death.

Euthanasia of Calves and Bulls

Calves and bulls require special consideration in selecting the proper method of euthanasia. Ethical considerations do not change for the calf because it is small or more easily handled. Calves can easily be euthanized with a penetrating captive bolt gun. Barbiturate overdosing also works well in calves but legal restrictions must be adhered to. Bulls require special considerations because of their size, attitude, and physical thickness of their skull. Operator safety is of primary concern in euthanasia of bulls, and for certain techniques, proper restraint is critical. Bulls may be euthanized with specialized heavy duty captive bolt guns, firearms using a 9mm ammunition, or by barbiturate overdose.

Unacceptable Methods of Bovine Euthanasia

Based on ethical and humane considerations, the AVMA **prohibits** the following methods of euthanasia in the bovine:

1. Manually applied blunt trauma to the head.
2. Injection of chemical agents into conscious animals (e.g. disinfectants, certain electrolytes such as KCl, non-anesthetic pharmaceutical agents).
3. Air embolism (e.g. injection of large amount of air into the vasculature).
4. Electrocution with a 120 volt electrical cord.

Carcass Disposal

When a decision to euthanize is made, then consideration for subsequent carcass disposal should figure into the chosen method of euthanasia. Decisions regarding carcass disposal should include provisions for environmental impact, potential impact on wildlife or other scavengers, biosecurity and aesthetics. Implementation of the Ruminant Feed Ban has resulted in some industry segments - primarily independent renderers - modifying their operations to comply with the new requirements contained in the final rule. The modifications have caused reduction or cessation of some rendering services such as dead stock pickup. For many farmers, ranchers, livestock auction markets, meat processors and others in our industry, the loss of rendering services has resulted in no viable means of carcass removal for animals that have died or been euthanized on their premises. If you intend to have a rendering company remove livestock carcasses from your premises and you are not familiar with their policies regarding pick up, it is strongly recommended that you contact them prior to euthanizing the animal to determine if the company has specific policies regarding methods of euthanasia. If the decision is made for livestock carcasses to

remain on your premises, care must be taken to dispose of them correctly, particularly those that have been chemically euthanized. If the carcass has a potential to be infectious, then care must be taken to dispose of the carcass and associated materials (if they cannot be cleaned or disinfected) in a manner that reduces the risk of animals or people being exposed to the agent.

Conclusions

Personnel at sites that routinely handle animals should at all times have the knowledge, facility and equipment to carry out emergency euthanasia. Penetrating captive bolt and gunshot are the only two methods available to non-veterinarians for emergency euthanasia. Animal transporters should also be appropriately trained and should have phone numbers to contact appropriate personnel in case of an emergency.

Market and sale yards should have a written procedure to follow in case of emergency and should have personnel trained in emergency euthanasia during all shifts. When practical, choose a location where the carcass can be easily reached by removal equipment. An action plan for routine and emergency euthanasia should be developed and followed wherever animals are handled.

Dead animals should be disposed of promptly by commercial rendering service or other appropriate means (on farm burial, incineration, direct hall to solid waste landfill or packing house refuse disposal plant). Disposal should be in accordance with all federal, state, and local regulations. The State Board of Animal Health will be able to provide further information if necessary.

DEFINITIONS

ANIMAL WELFARE:

Animals must be thriving and free from disease, injury and malnutrition. Welfare implies freedom from suffering in the sense of prolonged pain, fear, distress, discomfort, hunger, thirst and other negative experiences. Short-term negative states, such a short-term pain, hunger and anxiety, are virtually inevitable in animal life, and the difference between acceptable and unacceptable standards will remain a source of debate.

ANIMAL AT RISK OR COMPROMISED ANIMAL:

An animal with reduced capacity to withstand the stress of living or transportation due to injury, fatigue, infirmity, poor health, distress, very young or old age, impending birth or any other cause.

DISTRESS:

Distress may include: lack of food, water and shelter, lack of proper care of sick or injured animals, pain or suffering due to abuse or unnecessary hardship, deprivation or neglect.

EUTHANASIA:

A humane acceptable method of killing an animal with minimal fear or anxiety. The chosen method must be reliable, irreversible, simple, safe and rapid.

PAIN:

An unpleasant sensation occurring in varying degrees of severity as a result of injury or disease. Signs of pain and suffering may include one or more of the following:

- Unwillingness to rise to its feet
- Unwillingness to walk
- Reluctant to put a leg on the ground and bear weight
- Mouth open, breathing fast
- Arched back and abdomen tucked up
- Head down, ears drooping
- Unwilling to eat or drink
- Standing separate from group, not following group
- No response when touched or prodded

SUFFERING:

An unpleasant physical state associated with more-than-minimal pain or distress.

UNFIT:

An animal that is sick, injured, disabled or fatigued, is unfit and cannot be moved without avoidable suffering. This animal must not be loaded for transport, unless being shipped for veterinary evaluation and treatment.

ACKNOWLEDGEMENT
Original content provided by the Ontario Farm Animal Council