

September 2009

DRAFT CHAPTER 7.X.X.

ANIMAL WELFARE AND BEEF CATTLE PRODUCTION SYSTEMS

Article 7.X.1

Definitions

The *ad hoc* Group discussed the application of the OIE recommendations and decided that these should be designed with application to commercial beef production. Beef cattle production systems are defined as all commercial cattle production systems where the purpose of the operation includes some or all of the breeding, rearing and finishing of cattle intended for beef consumption.

Article 7.X. 2

Scope

The first priority is to address the on farm aspects of the production systems, from birth through to finishing. The areas of emphasis are cow- calf, stockers and finishing beef production.

Article 7.X.3

Commercial beef cattle production systems

Commercial beef cattle production systems include:

1. Intensive (stocker and finishing)

Would include cattle that are placed on confinement. Animals are dependent on the daily animal husbandry for provision of feed, shelter and water.

2. Extensive (all areas)

Would include from a wide range grazing habitat

3. Semi Intensive (mixed)

Would include a combination of intensive and extensive systems

Article 7.X.4

Criteria or measurables for the welfare of beef cattle

The following outcome (animal) based measurables can be useful indicators of welfare:

1. behaviour;
2. morbidity rates
3. mortality rates
4. weight gain and body condition score
5. reproductive rates
6. physical appearance
7. handling responses
8. rate of post-procedures complications
9. post-mortem pathology
10. survivability.

Article 7.X.5

Recommendations

1. Biosecurity and Animal Health

a) Biosecurity and disease prevention

Biosecurity means a set of measures designed to protect a herd from the entry of infectious agents.

Biosecurity programmes should be implemented, commensurate with the risk of disease and in accordance with relevant recommendations found in Terrestrial Code chapters on OIE listed diseases.

These programmes should address the control of the major routes for disease and pathogen transmission:

- Cattle
- Other animals
- People
- Equipment
- Vehicles
- Air
- Water supply
- Feed

Outcome based measurables: morbidity rate, mortality rate, reproductive efficiency.

b) Animal health management

Animal health management is a mean to prevent diseases occurring in cattle herds and also providing treatments for animals when disease occurs. There should be an effective programme for the prevention and treatment of diseases consistent with the programs established by the Veterinary Services as appropriate.

Those responsible for the care of cattle should be aware of the signs of ill-health, such as reduced food and water intake, weight gain and body condition, changes in behaviour or abnormal physical appearance.

Cattle with higher risk for disease will require more frequent inspection by animal *animal handlers*. If *animal handlers* are not able to determine the causes of ill-health or distress or to correct these or suspect the presence of a listed reportable disease. they should seek advice from those having training and experience, such as bovine veterinarians or other qualified advisers. Veterinary treatments should be prescribed by a qualified veterinarian.

Vaccinations and other treatments administered to cattle should be undertaken by people skilled in the procedures and on the basis of veterinary or other expert advice.

Animal handlers should have experience in caring for downer cattle. They should also have experience in managing chronically ill or injured animals. Euthanasia on non-responding cattle should be done as soon as recovery is deemed not possible.

Outcome based measurables: morbidity rate, mortality rate, reproductive efficiency, behaviour, physical appearance and body condition score.

2. Environment

a) Thermal environment

Although cattle can adapt to a wide range of thermal environment particularly if appropriate breeds are used for the anticipated conditions, sudden fluctuations in weather can cause heat or cold stress.

i) Heat stress

The Thermal Heat Index (THI) is influenced by air temperature, relative humidity and wind speed. As the THI increases the risk of hyperthermia increases. Also as cattle are fed longer and become fatter are more susceptible to heat stress.

Animal handlers should be aware of the critical THI threshold for their animals. When the THI is expected to reach this threshold routine daily processes that include cattle movement should cease. As the THI moves into emergency levels the *animal handlers* should institute an emergency action plan that could include shade, drinking water, sprinkling water to penetrate the hair coat.

ii) Cold stress

Protection from wind and rain should be provided where possible, particularly for young stock outdoors for the first time. This could be provided by natural or man made shelter structures.

Animal handlers should also ensure that cattle have access to adequate feed and water during cold stress. During time of heavy snow fall or blizzard animal handlers should institute an emergency action plan to provide cattle with shelter, feed and water.

Outcome based measurables : Mortality rates, physical appearance, behaviour

b) Lighting

Confined cattle that do not have access to natural light should be provided with sufficient supplementary lighting for their health and welfare, to facilitate natural behaviour patterns and to allow adequate inspection of the animals.

Outcome based measurables: Behaviour, morbidity, physical appearance

c) Air quality

Good air quality is an important factor for the health and welfare of cattle in intensive and confined production systems. It is a composite variable of air constituents such as gases, dust and micro-organisms that is strongly influenced by the management of the beef producer. The air composition is influenced by the stocking density, the size of the cattle, flooring, bedding, waste management, building design and ventilation system.

Proper ventilation is important for effective heat dissipation in cattle and preventing the build up of CO₂, NH₃ and effluent gases in the confinement unit. Poor air quality and ventilation are risk factors for respiratory diseases.

Outcome based measurables: Morbidity rate, behaviour, mortality rate, weight gain, post-mortem pathologies

d) Acoustic environment

Cattle are adaptable to different acoustics environments. However, exposure of cattle to sudden or loud noises should be minimized where possible to prevent stress and fear reactions (e.g. stampede). Ventilation fans, feeding machinery or other equipment should be constructed, placed, operated and maintained in such a way that they cause the least possible amount of noise.

Outcome based measurables: Behaviour.

e) Nutrition

The nutrient requirements of beef cattle have been well defined. Energy, protein, amino acid, mineral and vitamin contents of the diet are major factors determining the growth, feed efficiency, reproductive efficiency, and body composition.

Animal handlers should provide cattle a level of nutrition that meets or exceeds their maintenance requirements from the previously reference materials. It should be noted that cattle in certain climates and production systems may experience short term periods of below maintenance nutrition without compromise their welfare. Animal handlers should have adequate knowledge of

appropriate body condition score for their cattle and should not allow body condition score to drop below these critical thresholds. In times of severe drought steps should be taken to avoid starvation of animals wherever possible.

In intensive production systems cattle should have access to adequate feed and water supply to meet their physiological needs.

Feedstuffs and feed ingredients should be of satisfactory quality to meet nutritional need and under certain circumstances (e.g. drought, frost, and flood), should be tested for the presence of substances (e.g. mycotoxins and nitrates) that can be detrimental to cattle health and welfare,

Cattle in intensive production systems typically consume diets that contain a high proportion of grain(s) (corn, milo, barley, grain by-products) and a smaller proportion of roughages (hay, straw, silage, hulls, etc.). As the proportion of grain increases in the diet, the relative risk of digestive upset in cattle increase. Animal handlers should understand the impact of cattle size, age, weather patterns, diet composition and sudden diet changes in respect to digestive upsets and their sequelae (acidosis, bloat, liver abscess, laminitis). Where appropriate beef producers should consult a nutritionist (private consultant, university or feed company employee) for advice on ration formulation and feeding programs.

Beef producers should become familiar with potential micronutrient deficiencies or excesses for intensive and extensive production systems in their respective geographical areas and use appropriately formulated supplements where necessary.

The water quality and the method of supply can affect welfare. All cattle need adequate supply and access to palatable water that also meets their physiological requirements and free from contaminants potentially hazardous to cattle health.

Outcome based measurables: Mortality rates, morbidity rates, behaviour, weight gain, body condition scoring, reproductive rates.

f) Flooring, bedding, resting surfaces (litter quality)

In all production systems cattle need a comfortable place to rest.

Pen floor management in intensive production systems can have a significant impact on cattle welfare.

Mud depth should not consistently be deeper than the ankles of cattle in pens.

Slopes of pens should be maintained to allow water to run off away from the feed bunks and not pool excessively in the pens.

If slope is not sufficient to allow for proper drainage, a mound should be constructed in each pen to allow cattle to have a dry place to lie down.

Pens should be thoroughly cleaned after each production cycle as conditions warrant.

If animals are housed in a slatted floor shed, the slat width should be appropriate to the hoof size of the animals to prevent injuries.

In straw or other bedding systems the bedding should be maintained to allow animals a dry and comfortable place in which to lie.

Outcome based measurables: Morbidity rates (lameness), behaviour, weight gain, physical appearance.

g) Social environment

Management of cattle in outdoor and indoor intensive production systems methods should take into account the social environment of cattle as it relates to animal welfare. Problem areas include: buller activity, mixing of heifers and steers, feeding cattle of different size and age in same pens, insufficient space at the feeder, insufficient water access and mixing of bulls.

In the case of buller animals, they should be identified and removed from the pen immediately. Beef producers should utilize management practices to reintroduce these animals. If reintroduction fails these animals will have to housed separately from the pen mates. Animal handlers should work to feed cattle of the same size and age in the same pens. Depending on feeding systems, health status of the animals and size of the animals beef producer will need to allow adequate feeder space and water access for the cattle.

Adequate fencing should be provided to minimize any animal welfare problems that may be caused by mixing of inappropriate groups of cattle.

Outcome based measurables: Behavior, physical appearance, weight gain, morbidity and mortality rate

h) Stocking density

High stocking densities may have an adverse effect on growth rate, feed efficiency, survivability, carcass quality and behaviour (locomotion, resting, feeding and drinking).

In extensive outdoors systems stocking density should be managed to ensure an adequate feed supply for the cattle.

Stocking density should be managed such that crowding does not adverse impact key components of normal behaviour of cattle. These include the ability to lie down freely without the risk of injuries, move freely around the pen and access feed and water. Stocking density should also be managed such that weight gain is not adversely affected by crowding. Excessive tongue rolling can be associated with overcrowding of confined cattle.

Outcome based measurables: Behavior, Morbidity rate, mortality rate, weight gain, physical appearance.

i) Outdoor areas

Not applicable.

j) Protection from predators

Where practical, cattle should be protected from predators.

Outcome based measurables: Mortality, behaviour, physical appearance.

3. Management

a) Genetic selection

Welfare and health considerations, in addition to productivity, should be taken into account when choosing a breed for a particular location or production system. Examples of these include nutritional maintenance requirement, ectoparasite resistance and heat tolerance.

Individual animals within breed can be genetically selected to propagate offspring that exhibit the following traits beneficial to animal health and welfare: Maternal ability, birth weight, milking ability, body conformation and temperament.

Outcome based measurables: Morbidity rate, mortality rate, behaviour, physical appearance, reproductive efficiency.

b) Weaning

Weaning for the purposes of this document is the term to describe transfer of the calf to a fibrous diet from nursing the dam or being fed with milk or milk replacer. In beef cattle production systems, weaning can be a stressful time in the calf's life.

Calves should be weaned only when their ruminant digestive systems have developed sufficiently to enable them to maintain growth and welfare.

The practice of creep feeding is sometimes utilised prior to weaning to help the calf more easily adapt to a solid diet.

There are different weaning strategies utilised in the beef cattle production systems. These could include abrupt separation, fence line separation and the use of devices placed in the nose of the calf to discourage suckling.

Special care should be taken if abrupt weaning is immediately followed by transportation off farm as research has shown that calves are at risk of increased morbidity under these circumstances.

Beef cattle producers should seek expert advice on the most appropriate time and method of weaning for their type of cattle and production system.

Outcome based measurables: Morbidity rate, mortality rate, behaviour, physical appearance, weight gain.

c) Painful husbandry procedures

Surgical husbandry practices that have the potential to cause pain are routinely practiced on cattle for reasons of production efficiency, animal health and welfare and human safety. Where possible, these procedures should be performed in such a way as to minimize any pain and stress on the animal. Options to consider including the performing the procedure at as early an age as possible or where appropriate use of analgesia.

Future options for enhancing animal welfare in relation to these procedures include: 1) ceasing the procedure and addressing the current need for the operation through management strategies; 2) breeding animals that do not require the procedure; 3) replacing the current procedure with a non-surgical alternative that has been shown to enhance animal welfare; or 4) performing the procedure in a way that minimises pain.

Example of such interventions include: castration, dehorning, (spaying), tail docking, identification.

i) Castration

Castration of beef cattle is performed in many production systems to reduce inter-animal aggression, improve human safety, remove the risk of unwanted pregnancies in the herd, and enhance production efficiency by producing beef that better meets market requirements.

Where it is necessary to castrate beef cattle, producers should seek guidance from veterinarians as to the optimum method and timing for their type of cattle and production system.

Methods of castration used in beef cattle include surgical (knife) removal of the testes, ischaemic methods (banding or ringing), and crushing of the spermatic cord (burdizzo operation).

Where practical, cattle should be castrated before the age of 3 months, or at the first available handling opportunity beyond this age.

Producers should seek guidance from veterinarians on the availability and advisability of analgesia/anaesthesia for castration of beef cattle, particularly in older animals.

Operators performing castration of beef cattle should be trained and competent in the procedure used, and be able to recognise the signs of complications.

ii) Dehorning

Beef cattle which are naturally horned are commonly dehorned in order to reduce animal injuries and hide damage, improve human safety, and facilitate transport and handling. Where practical and appropriate for the production system, the selection of polled cattle can remove the need for dehorning.

Where it is necessary to dehorn beef cattle, producers should seek guidance from veterinary advisers as to the optimum method and timing for their type of cattle and production system.

Where practical, cattle should be dehorned while horn development is still at the horn bud stage, or at the first available handling opportunity beyond this age. This is because the procedure involves less tissue trauma when horn development is still at the horn bud stage, and there is no attachment of horn to the skull of the animal.

Methods of dehorning at the horn bud stage include removal of the horn buds with a knife, thermal cautery of the horn buds, or the application of chemical paste to cauterise the horn buds. Methods of dehorning when horn development has commenced involve the removal through of the horn cutting or sawing at the base of the horn close to the skull.

Producers should seek guidance from veterinarians on the availability and advisability of analgesia/anaesthesia for dehorning of beef cattle, particularly in older animals.

Operators performing dehorning of beef cattle should be trained and competent in the procedure used, and be able to recognise the signs of complications.

iii) Spaying (ovariectomy)

Spaying of heifers is sometimes required for international trade or to prevent unwanted pregnancies under extensive rangeland conditions. Surgical spaying should be performed by veterinarians or by highly trained operators. Producers should seek guidance from veterinarians on the availability and advisability of analgesia/anaesthesia for spaying of beef cattle.

iv) Tail docking

Tail docking has been performed in beef cattle to prevent tail tip necrosis in confinement operations. Research shows that increasing space per animal and proper bedding are effective means in preventing tail tip necrosis. Therefore it is not recommended for producers to dock the tails of beef cattle.

v) Identification

Ear-tagging, ear-notching, tattooing, freeze branding and radio frequency identification devices (RFID) are preferred methods of permanently identifying beef cattle from an animal welfare stand point. In some situations however hot iron branding may be required or be the only practical method of permanent identifying beef cattle. If cattle are branded, it should be accomplished quickly, expertly and with the proper equipment. Identification systems should be established also according to the Chapter 4.1. of the *Terrestrial Code* on General principles on identification and traceability of live animals.

Outcome based measures: Rate of post-procedures complications, mortality rate, behaviour, physical appearance, weight gain.

d) Handling and inspection

Beef cattle should be inspected at intervals appropriate to the production systems and the risks to the health and welfare of the animals.

Some animals may benefit from more frequent inspection for example: neonatal calves, cows in late gestation, newly weaned calves, and cattle experiencing environmental stress and after painful husbandry or veterinary surgical procedures.

Animal handlers need to be competent in recognising the clinical signs of health, disease and welfare of beef cattle.

Beef cattle identified as sick or injured should be given appropriate treatment at the first available opportunity. If animal handlers are unable to provide appropriate treatment, then the service of veterinarians should be enlisted.

If prognosis of the animal condition is poor with little chance of recovery, humane euthanasia of the animal should be considered. For a description of methods for the humane killing of beef cattle see Chapter 7.6.5. of the OIE *Terrestrial Code*

Recommendations on the handling of cattle are also found in Chapter 7.5. and in Articles 7.5.1. and 7.5.2. of the OIE *Terrestrial Code*.

Where beef cattle are herded into a handling facility from extensive conditions, they should be moved quietly. Weather conditions should be taken into account and cattle should not be herded in excessively hot or cold conditions. Cattle should not be driven to the point of collapse. Properly trained dogs can be effective tools for cattle herding.

Outcome based measurables: Handling response, morbidity rate, mortality rate, behaviour, reproductive efficiency, weight gain.

e) Personnel training

All people responsible for beef cattle should be competent according to their responsibilities and should understand cattle husbandry, behaviour, biosecurity, general signs of disease, and indicators of poor animal welfare such as stress, pain and discomfort, and their alleviation.

Competence may be gained through formal training and/or practical experience.

Outcome based measurables: Handling response, morbidity rate, mortality rate, behaviour, reproductive efficiency, weight gain.

f) Emergency plans

Beef producers should have contingency plans to cover the failure of power, water and feed supply. These plans may include the provision of fail safe alarm devices to detect malfunctions, back up generators, access to maintenance providers, ability to store water on farm, access to water cartage services, adequate on farm storage of feed and alternative feed supply.

Plans should be in place to minimise and mitigate the effects of natural disasters or extreme climatic conditions e.g. heat stress, drought, blizzard and flooding. Emergency plans should also cover the management of the farm in the face of an emergency disease outbreak, consistent with national programs and recommendations of *Veterinary Services* as appropriate.

g) Location, construction and equipment of farms

Farms for beef cattle should be situated in an appropriate geographical location for the health, welfare and productivity of the animals while considering environmental sustainability.

All facilities for beef cattle should be constructed, maintained and operated to minimise the risk to the welfare of the animals and human safety.

Equipment for handling and restraining beef cattle should only be used in a way that minimises the risk of injury, pain or distress.

Cattle in intensive or extensive production systems must be offered adequate space for comfort, socialization and environmental management.

In intensive production systems the feeder should be sufficiently large so that animals have adequate access to feed and they should be clean and free of spoiled, moldy, sour, packed or unpalatable feed. Also cattle should have access to clean and clear water at all times.

Floors in housing facilities should be properly drained, and barns and handling alleys should provide traction to prevent injuries to animals and handlers.

Handling alleys and housing pens must be free of sharp edges and protrusions to prevent injury to animals and handlers.

Design and operate alleys and gates to avoid impeding cattle movement. Avoid slippery surfaces, especially where cattle enter a single file alley leading to a chute or where they exit the chute. Grooved concrete, metal grating (not sharp), rubber mats or deep sand can be used to minimize slipping and falling. Quiet handling is essential to minimize slipping. When operating gates and catches, reduce excessive noise, which may cause distress to the animals.

Adjust hydraulic or manual restraining chutes to the appropriate size of cattle to be handled. Regular cleaning and maintenance of working parts is imperative to ensure the system functions properly and is safe for the cattle and handlers.

Mechanical and electrical devices used in housing facilities must be safe for animals and humans.

Dipping baths are sometimes used in beef cattle production for ectoparasite control. Where these are used, they should be design and operated to minimise the risk of crowding, injury or drowning.

The loading of the animals at the farms should be conducting accordingly to Chapter 7.2., 7.3 and 7.4. (Transport of animals by sea, land and air respectively)

Outcome based measurables: Handling response, morbidity rate, mortality rate, behaviour, weight gain, physical appearance, lameness.

h) On farm harvesting

Refer to Section 5.3.3.

i) Humane killing

A prompt diagnosis should be made to determine whether the animal should be humanely killed or receive additional care.

Animal handlers should provide feed and water to non-ambulatory cattle at least once daily.

Non-ambulatory animals should be moved very carefully and dragging non-ambulatory animals is unacceptable.

Likewise, animals should not be lifted with chains onto transportation conveyances. Acceptable methods of transporting non-ambulatory animals include a sled, low-boy trailer or in the bucket of a loader.

When treatment is attempted, cattle that are unable to sit up unaided and refuse to eat or drink should be humanely euthanized as soon as recovery is deemed not possible.

Cattle that are non-ambulatory must not be sent to a livestock market or to a processing facility.

Humane killing should occur without pain or suffering.

The decision to humanely kill an animal and the procedure itself should be undertaken by a competent person.

Reasons for euthanasia may include:

- severe emaciation, weak cattle that are non-ambulatory or at risk of becoming downers;
- non-ambulatory cattle that will not sit up, refuse to eat or drink, have not responded to therapy;
- rapid deterioration of a medical condition for which therapies have been unsuccessful;
- severe, debilitating pain;
- compound (open) fracture;
- spinal injury;
- central nervous system disease; and
- multiple joint infections with chronic weight loss.

For a description of other methods for the humane killing of beef cattle see Chapter 7.6.5 of the *Terrestrial Code*.