

# **RELEVANCE OF ANIMAL WELFARE AND ENVIRONMENTAL EFFECTS OF AND ON ANIMALS IN BEEF CATTLE PRODUCTION**

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## **BEEF CATTLE WELFARE AND ENVIRONMENTAL ISSUES IN GENERAL**

Beef cattle production has two distinct components, 1) cattle ranching, which part is often called cow-calf unit and 2) cattle fattening. It is very often the case that same animals are involved in both sectors. The ranching part is generally as extensive as it was one hundred years ago, where animals live their lives in accordance with their nature. Cow-calf operations generally prevail in areas where land is best suited for grazing. Most ranchers prefer a breeding season of about 60-80 days in summer period; thus the calving season begins about 285 days later in late winter or spring and extends to another 60-80 days. Then, some 200-240 days later, the calf crop will be weaned and properly managed to ensure that they are healthy, consume proper amounts of feed and water. Some of weaned calves sooner or later placed on fattening unit to finish them to the desired body condition and weight desired by the beef processing plants. The fattening units in the overseas countries are generally open air pens, so called feedlots, while in Europe housing systems are applied for fattening. The housing can be both tied housing and loose housing system. Fattening part of beef production is intensive production but less problematic as for the welfare issue than dairy, poultry and swine production.

Despite the mentioned facts, beef has received a considerable drubbing in the press over issues of environmental despoliation, food safety, health, and animal welfare, most notably „downer” animals. The beef industry has often been blamed for misuse of public lands, ozon depletion and greenhouse effect, wasting of grain that could allegedly be fed to people, cardiovascular disease and cancer.

Because ranch animals live their lives in accordance with their natures, and feedlots provide an environment that is not as radically removed from those natures as that of other confinement industries, beef could be marketed as the „ethical product” or „humane product” if certain practices were abolished or reformed.

However, climate and climatic changes, global warming has impact on ranching animals with changing their living space. Drought and the lack of water result in the drop of underground water-level, the change and thinning in pasture vegetation, due to which fodder supply becomes less favourable, and the animals' drinking water supply becomes hampered as well. Hot environment affects animal also directly. The adaptation of cattle to heat is more difficult than to cold. The respiratory and pulse rate of the animals increases at high temperature, in consequence of which their stress increases and their vital process change. Heat stress has an unfavourable effect on cattle: the evaporation, temperature and water consumption rise, their feed intake, gain in weight and activity drop. High temperature decreases the fecundity of breeding bulls and the prolificacy of cows. Warm climate is also favourable for the spread of certain infectious diseases. All the above effects decrease the results of beef cattle farming and have environmental and welfare issues.

### **Welfare issues in ranching**

Some may expect, given the traditional, extensive nature of cattle ranching, it has essentially no welfare problems growing out of the industrialization of agriculture. Many of the welfare problems in ranching are therefore of long duration and reflect solutions to management problems that have been sanctified by time, custom, and culture. There are special events such as calving, weaning and many activities associated with cattle management as branding, sorting, moving animals, weighing, loading, transporting, heat detection, artificial insemination, pregnancy examination, stomach, tubing, treatment of bloat, dehorning, control of internal and external parasites, hoof trimming e.g. that the animals do feel pain during this process.

### **Welfare issues in cattle fattening**

Fattening units and feedlots are quite animal-friendly of confinement systems, since they allow the animals significant room to move as well as social opportunities. Barn or shelter from wind, dust, sun, cool animals keep down dust. However, some welfare problems, can surface in an amplified way. Late castration, branding, dehorning of animals in the feedlot create some issues. Proper handling and equipment is also a relevant. One major issue is feedlot design. Poorly designed drainage systems compromise both welfare and productivity. According to our findings sometimes design of chutes, ramps, and loading docks can be improved.

## Welfare issues in cattle management

### Branding

There are some methods for branding of animals. *Hot-iron branding* as a management tool goes back 4,500 years to ancient Egypt; pictures from an Egyptian tomb plainly demonstrate the practice. This procedure is still used in some countries which has welfare problems. The animal welfare problem with hot iron branding is, that it creates third-degree burn on animals. This burn is not only painful; it is significant stressor that can cause weight loss, or shrink, due to animals going off feed. Due to tissue destruction the loss of hide value is caused by this method. *Freeze-branding*, now performed using an iron cooled with liquid nitrogen, is in overseas counties on cattle and horses. Though freeze branding is certainly not painless, as some have suggested; research indicates that it is probably not as painful as hot-iron branding. We know from human cryosurgery that some pain is involved. Less tissue destruction occurs than with heat branding, and the hair than grows out white permanently. The *tattooing of the ears* is the most widely used method. This method is a little bit painful. The main disadvantages of this method are that time-consuming and does not allow for visual identification from a distance. *Ear-tagging* is one of the most popular methods of animal identification. Tagging is a little bit painful. The problem with tags is that it can be lost by cattle. The situation is similar with neck chain which can present the additional problem of snagging and hurting or even choking the animals. Some new methods such as *microchips*, or *genetic fingerprinting* have less welfare problems, however such methods should be pursued, along with attempts to make it economically feasible.

### Castration

In some countries intact male animals are fattened, however castration is a world wide practice. Castration represents another welfare problem, for it is accomplished with no anaesthesia or analgesia. Castration is done both for tenderness of meat and for manageability of the animals, castrates being easier to handle than bulls. It is widely believed that castration at a young age results in a painless experience for the animal. So, early castration, from two weeks of age to two months is suggested. There are two more reasons for early castration: It is safer for the person doing the procedure, and controlling bleeding is easier since there is less vascularization and less testicular development at this age. Although most range castration is done *with knife*, there are variety of other methods: the *use of emasculators*, which are essentially pincers or pliers that crush or sever the spermatic cord and the blood vessels that

supply the testicle. A similar mechanism underlies the *use of the elastrator*, which stretches a rubber ring over the testes, thereby shutting off blood supply and creating necrosis, eventuating in sloughing off the testicles. Using emasculator or elastrator, according to some veterinarians, are more humane than the knife in young animals because of the lack of blood supply. However, in some cases animals are castrated at a relatively advanced age of seven, eight months or later. There are more ethical, welfare and safety issues relating to late castration than the early one.

### **Dehorning**

The presence of horns on commercial cattle is considered a problem because horns inevitably lead to damaged hides and bruising of cattle under range and feedlot conditions, especially during transportation. Cattle with horns also require more space in tucks and in feed bunks, furthermore horned cattle are generally more aggressive, than polled ones. Horns have been managed in a variety of ways, and it is obviously best to deal with them when the calf is young and the horn bud or button is very small. Probably the least invasive and traumatic method for removing horns is *chemical method*, which should be done as early as possible in the calf's life. Another method, also feasible only when calf is relatively young (under 5 months of age) is the *use of hot iron* to burn the horn button. This procedure is not painless, since the interior of the horn is innervated. In an animal that is relatively mature, such horn removal is, in the words of a veterinarian "a bloody mess" with using devices such as the *dehorning spoon, ore tube*, which gouge or lever the horn out of the skull. Dehorning inevitably causes some pain and distress to the animal, ranging from irritation if chemicals are used to significant pain and trauma if mature animals are dehorned. The best solution to dehorning is the introduction of the poll (horn-free) gene into cattle, which eliminates the need for dehorning.

### **Cattle handling**

Cattle handling from cow-calf to slaughter have major implications both for animal welfare and for profit. Poor handling can result in significant stress, pain and injury, leading to animal suffering and distress and too loss income from bruising, greater susceptibility, to disease by way of immunosuppression, increase in prevalence of dark cutters, and lower reproductive rates. One source of poor handling, especially in case of new beef cattle ranchers and fatteners, is lack of knowledge of cattle behaviour. Many people in the cattle business have no idea of flight distance, balance point, reasons for balking, or stampeding, and other

fundamentals of animal behaviour. Also, poor equipments or improper use of equipments can be a source of poor handling. Some equipment may have sharp edges or hazards that bruise or startle the animals.

## **Transportation**

The welfare problems associated with transportation pervade the entire process of beef production chain. Loading and unloading are often accomplished with unnecessary roughness, hotshotting, and ballyhoo, which is frightening and stressful of the animals and can cause bruising. The actual transit conditions can expose the animals to extremes of temperature, depending on the season. The ride rough, especially on rural roads, subjecting the animals to loss balance, bruising, stress, shrink, difficulty of subsequent weight gain, and fair.

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