

INFLUENCE OF BEEF TECHNOLOGY ON PRODUCTIVE PERFORMANCE IN BEEF CATTLE

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Abstract: Attention paid to behavioural principles and supporting livestock in showing normal behaviour and in removing abnormal behaviour can improve animal welfare through best management practices. Some management procedures-such as weaning or transport-are extremely stressing. Hence, the importance of these management aspects in the raising of beef cattle.

Keywords: beef, cattle, performance, production

INTRODUCTION

Effective cattle management needs substantial knowledge of behaviour, nutrition, reproduction and health. [2,7] Beef cattle have special needs in each of the categories mentioned above and disrespecting them can lead to a state of discomfort.

Cows are isolated upon farrowing to allow the calf to establish a maternal relationship during the first 24-48 after birth. When cows are kept in limited areas where isolation is impossible, it often occurs that a calf becomes orphaned or establishes an incomplete bond with its mother. This has obvious effects on calves' welfare since calves that do not establish a good mother-calf relationship cannot get the milk necessary to their development and risk starving to death. Ensuring an isolated area for each pregnant cow prevents such problems. Another problem is the syndrome of the weak calf, and only careful monitoring of newly born calves allows its proper identification. If the calves are helped to suck in the first days after birth, they learn how to do it and regain force. [3,6]

In their first week of life and after that, calves are separated from the herd-this is the hiding behaviour. A good management tells cattle raisers to make sure the calves are in good health and rely on proper nutrition. Cows join their calves when the farmer makes his/her appearance. It also happens that calves make up small "nurseries" where they gather under the supervision of a cow while their mothers graze. If the calves are disturbed, the "nurse" alarms the other cows, its calf joins her and the other cows join their calves. Making up "nurseries" is something normal and it should not be taken as a sign of abandonment of the calves by their mothers[1,4,5].

As for maternal care, we need to make a distinction between protecting mothers and aggressive mothers. The latter can be a threat to the carers and they should be removed to prevent body damage. Selecting passive cows also should be avoided because they might neglect their offspring.

Weaning is the next important step in a calf's life. Weaning deprives the calf of the nutrients in the milk sucked but separation from its mother is even more stressing. Research on wild cattle and on feral cattle shows that in natural conditions a calf will stay with its mother for an entire year. Weaning a six-month calf is premature and it can affect calves psychologically. The stress of the calf is obvious in the way it moves along the fence, mooing. This behaviour and the stress state disappear after only a few weeks. Researchers use a few methods to reduce post-weaning stress: separating the calf from its mother and placing them in separate boxes separated by a fence allowing visual and smell

contact reduce stress and weight loss; piercing the calf's nose to prevent it from suckling for 14 days before weaning.

MATERIAL AND METHOD

For this study, we have used information regarding the way beef technology influences beef cattle productivity from printed media and literature (see the References).

RESULTS AND DISCUSSION

Influence of transport on weight loss and beef quality

Transporting the cattle to the slaughterhouse is common: cattle are usually transported on roads or railways if the distance is over 800 km. In general, transport is stressing for the cattle as shown by the studies carried out with physiological and behavioural techniques. Reducing stress caused by transport is very important for beef cattle raisers, for governments and consumers because the stress induced by transport can alter beef quality, carcass quality and induce suffering in the cattle. Stress caused by loading the cattle in transport means and the effort made to keep their equilibrium is obvious in the irregular social interaction and physical tiresome. Cattle's inability to face stress needs a lot of attention for their behaviour.

Cattle are social animals: they rank some cows above or below others. When cows are confined in a truck or train wagon and cannot keep a distance, aggression takes the form of head and body hitting and of kicking the other cows. Animals with no social ranking also interact. Higher animal density during transport results in lower interaction of this kind (because the cattle do not have enough space to face each other), which is also a benefit for the producers-less ways and more cattle to carry. However, in high-density cattle transport, inability to move results in physical tiresome: eventually, the cattle fall down, they cannot stand up and they are wounded or run over by the others. Loosing equilibrium is one of the great disadvantages of transporting. Other researchers claim that small densities do not ensure the physical space necessary for the cattle during transport, which can result in other losses.

Optimum density upon cattle loading for slaughtering is 1.4-1.6 m² in bulls and oxen, 1.3-1.4 m² in adult cows and 0.9-1.3 m² in young cattle. The way cattle are transported suggests that it is stressing, hence the rise of the cortisone level, of heat rate and of urinating rate. Once the animals have adapted to the transport stress, these responses decrease in intensity. Previous positive experiences in cattle transport and related events can reduce transport-associated stress.

Influence of raising technology on cattle performance

Cattle raised in boxes are subjected to a wide range of stressors, including abnormal behaviours such as bull being mounted by other bull syndrome, difficulties in adapting to a certain diet and in finding the feed and resistance to extreme temperatures.

The mounting syndrome has been known for a long time. It seems, however, that the incidence of this syndrome has increased after cattle started to be raised in confined areas. This can be a serious problem because the young bulls that cannot escape and that loses in most cases its back hair gets tired and eventually falls down. Though we do not know for sure the causes of this syndrome, it seems that high cattle density, hormone implants and specific social interaction, among other factors, can be correlated with this syndrome.

When the cattle are brought to the farm, transition is usually stressing and it coincides with the decrease of the feed ingested, with weight loss and with decrease of response to antibiotics. Stressors can be numerous, but it seems that the most important are the difficulty to adapt to the new environment, regrouping the cattle and routine of feeding. Since most animals are fed previously on the pasture, the new feeding type is completely strange to them. Exploiting gregarious behaviour and socially induced feeding behaviour helps animals feed according to the new system. Putting together the new incoming animals and the cattle already adapted to the new environment and feeding type facilitates the adaptation of the former.

Another issue is the management of temperature. If they can make a choice, the cattle will look for an environment where they can maintain their homeostasis – in the shadow, if possible. The covers and the climate systems in the shelters through water spraying are often used in warm climates. We need to avoid excessive cooling of the body surface to avoid outer blood vessel cooling and the spreading of inner warmth. Para-winds (used to reduce exposure to wind during winter times) should be placed strategically to avoid reducing evaporation during summer months. Feeding the cattle late in the afternoon causes the peak of metabolic activity to occur during the coolest part of the day, which reduces heat-induced stress.

Influence of animal welfare on production performance

Proper cattle care is the responsibility of all those involved in the beef production chain.

An interesting point of view regarding cattle welfare has been stated by Gold in a report regarding the global benefits of reduced meat consumption. According to Gold, if part of the beef comes from beef cattle (a case in which calves spend at least a season sucking milk from their mothers and grazing naturally together with the rest of the herd until they are 1-2 years of age), most beef cattle are “by-products” of the dairy industry. In Great Britain, for instance, about 50% of the beef comes from the calves of dairy cows which, to produce milk, need to deliver each year, so that calves’ destiny is settled from the very beginning:

- A small number of calves replace their mothers in the dairy cow herd;
- The weakest calves are slaughtered almost immediately to prepare feed for livestock;
- Other calves are finished to produce veal.

The major change in South Africa approach where they switched from wide range dairy cattle raising to wide range beef cattle raising accelerated the worsening of calf welfare.]

However, illegal in Great Britain, raising calves in crowded boxes with grills and feeding the calves with roughage instead of milk is still practiced in many countries, including the European Union.

Many calves, however, are intensively raised for their meat. After separating them from their mothers, the calves are usually kept in barns or yards during the finishing period for one year. At the beginning, they are fed milk surrogates before the basic diet based on intensively energetic grains. These calves rarely graze because they are raised on concrete or gridded pavements. Body damage and diseases are predictable in this case – crippling and abnormal posture. Routine mutilation includes ironing, ear tagging, and neutering, sterilising and horn shortening.

CONCLUSIONS

Beef cattle welfare can be ensured by paying the proper attention to their health state and stress reduction. Exposure to certain environments and management techniques can cause both physical and psychological stress, particularly in intensive cattle raising.

Animal stress has negative impacts on their immune system, causing animals to get sick.

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