Cattle Welfare, Science and Policy

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Abstract

This paper summarizes welfare problems in cattle. Behavioural as well as health problems are discussed for veal, beef and milk production systems. In particular in veal calves there are major welfare problems related to small space allowance, individual housing and denial of roughage. In the intensive beef production system there are welfare problems as well (some behavioural problems and leg disorders). Welfare problems in dairy cows are mainly caused by health problems such as claw disorders and mastitis. Welfare problems related to the transport of cattle are briefly described. Finally, potential threats are presented. In selecting programmes for increased meat or milk production, and in further developments of the milking robot and of biotechnology, the possible negative consequences for animal welfare (behaviour and health) need to be taken into account.

Key Words: cattle, animal welfare, animal behaviour, animal health, housing and management, transport

Introduction

The aim of this paper is to describe in general the current and lacking knowledge of welfare in cattle and - given new developments in cattle production - potential welfare problems. This paper is mainly based on recent reports by Hopster (1995) and of the Scientific Veterinary Committee (Animal Welfare Section) of the European Commission (1995).

Animal welfare and health

In recent years ample scientific knowledge has been gathered about the effects of housing factors on behaviour and physiology of farm animals. General theories, relating observational data to the welfare state of the animals, are developed. A common starting point of these theories is that in the course of evolution every animal species has been adapted to a specific environment in which it is able to survive and to reproduce. Animals possess a variety of physiological and behavioural mechanisms to cope with demands from their environment. When these coping responses are not successful or when they are thwarted, specific stress symptoms like disturbed behaviour, organ damage, increased susceptibility for diseases, expressions of fear and pain and impaired fertility may occur. Finally, chronic activation of stress related neuro-endocrine regulatory systems may result in pre-pathological or even pathological states through both neuro-endocrine as well as sympathetic nervous system induced modulation of the immune system. Clearly, this threatens the animal's welfare.

Thus, welfare of an individual animal is good when the individual is coping successfully with its environment and is free of pathologies and pain (e.g. from injury or disease). Welfare problems can then be measured in terms of the effects of lack of control (behaviour, physiology) and the biological costs of the coping response (immunosuppression, pathology, infertility).

Cattle, various housing and management systems

The various housing and management systems for cattle can roughly be divided in systems for veal production, for beef production and for milk production. These three systems will be discussed separately. From the viewpoint of animal welfare it is also important to discuss the transport of animals and breeding and biotechnology. These items will also be dealt with separately.

Consumers, general public, producers and government

Various European countries have been discussing animal welfare for a long period of time. Particular attention is paid to the behavioural problems the animals have in adapting themselves to the environment in which they are kept. However, more and more health problems as a result of the production system are included in the discussions about animal welfare. **More recently, due to rapid developments in breeding and biotechnology, the question has come up as to what extent human beings are allowed to influence the characteristics of animals and species.**

Developments in animal welfare are not just influenced by the consumers who buy certain products and

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refuse others. In many European countries the welfare discussion is also a political issue and in several countries governmental committees have been installed to inquire into the welfare of intensively kept livestock (Brambell Committee - 1965 - in the UK and the Husbandry and Animal Welfare Committee - 1975 - in The Netherlands). Some governments developed policies and regulations in this field. In addition, welfare policy and regulations are developed at the level of the European Union.

Biological characteristics of cattle

Our European cattle originate from the aurochs (Bos primigenius). The domestication of these animals started about 6,000 before Christ. Cattle are very social animals, living in stable groups with a clear dominance hierarchy. They have a rich social behaviour, including agonistic as well as affiliative behaviour and a clear tendency to synchronize feeding and resting behaviour to ensure that the animals of a group will stay together. Around birth, the mother temporarily leaves the group. The young calves at first keep separate from the group in a so called "kindergarten". The mother-cows most of the time stay in the herd of the adult animals but regularly visit the kindergarten to suckle their calves. Cattle spent a lot of time grazing (8-12 hours) and ruminating (4-8 hours). About 8-14 hours per day is spent lying.

Of course domestication and intensive - more recent - breeding have affected the appearance and some other features of the animals, including some elements of fear related and social behaviour. However, in general their behaviour appears to be influenced only on a very limited scale.

Veal production

The specialized intensive production of veal in Europe is mainly practiced in France, the Netherlands and Italy. In the standard system, the calves are kept in crates and fed with milk replacer only. There are also alternative systems with small groups of calves being kept on slatted floors or with large groups of calves on slatted floors or on straw and automated feeders. In the group-housing systems the calves generally receive some roughage. In all systems calves are used which originate from other - mostly dairy - farms. These animals arrive within a short period in large groups at the veal unit. Disease incidence is very high, in particular in the first weeks. In this period, diarrhoea and respiratory disorders are most common.

In particular veal production in crates is heavily criticized in various European countries.

In a recent report of the Scientific Veterinary Committee (Animal Welfare Section) of the European Commission the welfare problems are described. The Committee concluded that welfare is best in groups with a bedded area and an adequate space allowance. Welfare of calves is very poor when they are kept in small individual pens with insufficient room for comfortable lying, no direct social contact and no bedding or other material to manipulate. Furthermore calves must receive sufficient iron. The animals can have serious health problems and can show abnormalities of behavior when they are not provided with adequate roughage in the diet. Young calves have a strong preference to suck a teat or a teat-like object, therefore it is preferable for them to be fed milk or a milk substitute from a teat during the first four weeks of life.

Beef production

Suckler herds, extensive systems

Beef production is partly practiced under rather extensive conditions, sometimes with outdoor keeping. Under such conditions the housing and management system itself will not cause serious welfare problems. Consumers and the general public will appreciate such systems because of the similarities to natural conditions and the possibilities for the animals to adapt to these systems, resulting in normal behaviour and limited disease problems.

Fattening bulls or steers, intensive systems

Partly, beef production takes place in rather intensive systems. In a typical example of such an intensive system, the calves are introduced at a specialized farm in large groups at the same time (= within one week). Similar to the veal production system these calves come from many different farms. During the first weeks they are generally kept individually in crates and fed with milk replacer and gradually some roughage. From an age of about 6 months, the animals are kept in the fattening house, generally on concrete slatted floors, fed with maize silage and receiving water via drinking nipples.

The welfare problems of these animals have not been very well investigated until now. It is clear that - again similar to the veal calves - the whole procedure around transport, mixing and treatment at the fattening farm in the first months results in respiratory disorders and diarrhoea. The welfare problems of the calves during the first months are also similar to those of veal calves. During the "real" fattening period problems may arise related to the barren environment, lack of space, lack of roughage, besides incidental problems with drinking from nipples.

The best described and investigated problem is osteochondrosis. Heavy animals develop damages of the cartilage of the carpal joints. They also have problems with standing up and lying down. It is thought that the fast growth of the animals and the lack of exercise - in combination with the concrete slippery floor - causes the development of this leg disorder. Although rubber on

top of the concrete slats reduces the behavioural problems, it does not take away the cause of osteochondrosis.

Selection

Cattle used for beef production partly are a "by product" of milk production or originate from special beef breeds. In all systems the potential negative consequences of breeding for beef production have to be considered. Selection for high meat production means selection for fast growth and low feed conversion (and high birth weight and muscular hypertrophy). Negative consequences for the welfare of the animals are lameness and sometimes the need for caesarean section (in some breeds even as a standard procedure). For the future of the beef production it is essential for breeders to pay attention to potential welfare problems to prevent that beef production or related practices that are not accepted by the public.

Milk production

Current practice

Dairy cows in the winter period are generally kept in a tying stall or in a cubicle house. In the summer period - at least part of the day - most of the cows are kept at pasture. Rearing calves and young cows are mostly kept at the same farm, probably for a short period individually and then in groups, indoors in straw or in a cubicle house, or outdoors.

Generally the current practice of keeping the animals does not cause serious behavioural problems. Dimensions, floors and feeding generally meet the requirements of the animals. Welfare problems in dairy cows are mainly related to health problems of the animals. In particular, mastitis and claw disorders (and also reproduction disorders) occur too frequently on too many farms. Knowledge of the prevention of these health problems is not applied enough by the farmers.

Future risks

For the future, the increased levels of milk production may affect the welfare of dairy cows negatively. Experimental evidence already exists showing that current levels of milk production are realized at the expense of vital functions of the organism related to immunocompetence, fertility and longevity. This urges for an ethical discussion about what biological costs we are willing to accept in order to realize a further increase in production. Also the application of the milking robot and increased indoor keeping of the animals has to be analyzed in view of its pros and cons for the welfare of the cows (behaviour and health). Furthermore, developments in biotechnology have to be evaluated in view of the welfare of cattle and related ethical questions. The introduction of growth promoters, BST and of genetic manipulation are well known examples.

Transport

The welfare problems of cattle described so far are mainly related to the housing and management system. Another topic needs to be mentioned as well: the transport of cattle. Transport - as well short as long distance - is a potential risk for animal welfare. Loading density, drinking and feeding facilities and the quality of the driver are all important factors. At a European level minimum standards for the transport of cattle have been set and also further developed. These regulations will safeguard a necessary minimum level.

Conclusion; solutions, alternatives

This paper describes current and potential welfare problems in cattle. At this moment in particular the important welfare problems concerning veal calves are known. Also in the intensive beef production system welfare problems are known. Currently, the welfare problems in dairy cows are mainly caused by health problems such as claw disorders and mastitis.

With the current knowledge it is possible to solve most of these problems. To some extent this may result in increased production costs, which means that the consumer must accept a higher price for the products. When the "market" itself is not able to really introduce the necessary improvements, the government will have to develop regulations to guarantee minimum welfare standards.

In addition to changes in current production systems, it is also possible to develop new alternative systems in which the animals can cope more easily and in which the risk of diseases is much lower than in current systems.

Anyhow, the whole cattle industry has to realize that the consumer as well as the general public are increasingly aware of the needs of the animals and the risks of diseases. More and more guarantees that the production systems are animal friendly, healthy and safe in general will be demanded. Recent discussions about BST and BSE show how people respond when there is reason for doubts. The production system itself and the whole production chain from farmer to consumer needs to be "safe". The industry has to accept these demands and may also expect that consumers are increasingly unpredictable and flexible and will easily change from beef or milk to other products.

References

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