

Ethical stockmanship and management of animals

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Introduction

The last three decades has witnessed a dramatic increase in society's interest in the welfare of farm and other domesticated animals (Fraser, 2001; Levy, 2004), with the welfare of farm animals high on the political and societal agendas. As a consequence of this interest in animal welfare, there is increasing scrutiny of society's use of animals. This review will consider the ethics of stockmanship and for the purpose of this paper, the terms animal carers, farmers and stockpeople will be used interchangeably and stockmanship will refer to the stockperson's capability to effectively care and manage livestock in relation to animal welfare and performance.

Ethics is concerned with the principles of right conduct, that is, the moral aspect of our behaviour. Thus when we reflect upon ethical standards for animals, we ask how people ought to behave towards animals, in general or in relation to a specific domain (Levy, 2004). It is obvious to most that the relationships that develop between humans and domestic animals are inevitably unequal, involving human management and the control and use of animals. The asymmetrical nature of these human-domestic animal relationships has been examined (e.g. Cock Buning, 2005; Clutton-Brock, 1994) and for modern livestock production, the ethical dilemma is the choice between profitable animal production with higher moral costs rather than non-profitable animal production with lower moral costs (Cock Buning, 2005). Modern industrialised societies have chosen the former option, a choice that Cock Buning (2005) considers fair on the basis of ethical theory since this choice has been made in a democratic and legitimate manner. Furthermore, the consequences of a choice for a modern industrialised society also include dilemmas over food production, energy sources, transport, pollution and a plethora of other issues. This present review will examine the duties of stockpeople and the context for this examination

will be in modern livestock production systems.

Impact of stockpeople on farm animal welfare

Effects of handling on farm animal welfare

Research has shown that the behaviour of the stockperson can directly affect farm animal welfare (see reviews by Hemsworth and Coleman, 1998; Hemsworth, 2004; Waiblinger et al., 2006). Furthermore, the attitude of the stockperson towards interacting with farm animals is an important determinant of the stockperson's behaviour and thus the animal's fear of humans (see reviews by Hemsworth and Coleman, 1998; Hemsworth, 2004; Waiblinger et al., 2006).

Laboratory studies have shown that negative or aversive handling of pigs, imposed briefly but regularly, will increase their fear of humans and reduce their growth and feed conversion efficiency (Barnett et al., 1983; Gonyou *et al.*, 1986; Hemsworth *et al.*, 1981a, 1996; Hemsworth and Barnett, 1991). There are also reports of fear of humans affecting reproduction: negative handling reduced pregnancy rate but not sexual receptivity in gilts (Hemsworth *et al.*, 1986), fear of humans in oestrous sows reduced their attraction to boars when in the presence of humans (Pedersen *et al.*, 2003) and fear of humans in sows has been reported by Hemsworth *et al.* (1999) but not by Andersen *et al.* (2006) to be positively associated with percentage of stillborn piglets. A chronic stress response is the likely mechanism responsible for adverse effects of high fear on the productivity in pigs. In many of the handling studies by Hemsworth and colleagues (see above reviews), handling treatments which resulted in high fear levels, also produced either a sustained elevation in the basal free cortisol concentrations or an enlargement of the adrenal glands, together with depressions in growth and reproductive performance. During stress, the growth and reproductive axes may be inhibited at several levels (Clarke *et al.*, 1992; Moberg, 2000; Kaltas and Chrousos, 2007).

Barnett *et al.* (1994) found that regular and positive human contact, in comparison to reduced and unexpected human contact, increased fear of humans, increased plasma corticosterone concentrations in response to the presence of humans and reduced egg production in laying hens. Other studies in which positive handling was utilised, have also shown that additional positive handling is associated with increased growth performance in chickens (Thompson, 1976; Jones and Hughes, 1981; Collins and Siegel, 1987). In contrast, Reichmann *et al.*

(1978) found no effects of handling on the growth performance of either young broiler or layer chickens, whereas Freeman and Manning (1979) suggested that regular handling decreased growth performance in layer chickens.

Handling studies in dairy cattle have shown that aversive handling may increase fear of humans and depress milk yield in cows (Rushen *et al.*, 1999; Breuer, 2000; Breuer *et al.*, 2003). The results of the study by Rushen *et al.* (1999) implicate the secretion of catecholamines under the influence of the autonomic nervous system affecting milk letdown while the study by Breuer *et al.* (2003) found evidence of chronic stress in negatively-handled heifers. Stressors that result in an acute stress response may depress milk yield due to inhibition of milk letdown (Bruckmaier *et al.*, 1993, 1997; Bruckmaier and Blum, 1998). Dam-reared goats, which showed increased avoidance of humans, were found to have greater milk ejection impairment than human-reared goats, suggesting reduced inhibition of milk let-down (Lyons, 1989).

In addition to these studies in laboratory settings, studies on commercial farms have shown relationships between handling and animal fear. Observations in the Dutch and Australian pig industries have revealed significant negative correlations, based on farm averages, between fear of humans and reproductive performance of sows in terms of piglets produced per sow per year (Hemsworth *et al.*, 1981b, 1989). Similar negative fear-productivity relationships have been found in the dairy and poultry industries. Significant correlations, based on farm averages, have been found between fear of humans and milk yield in dairy cows (Breuer *et al.*, 2000; Hemsworth *et al.*, 2000; Waiblinger *et al.*, 2002). Negative handling and high fear of humans have also been associated with injuries and poor meat quality in dairy calves (Lensink *et al.*, 2001). Studies by Barnett *et al.* (1992), Hemsworth *et al.* (1994, 1996) and Cransberg *et al.* (2000) have found significant negative correlations, based on farm averages, between the level of fear of humans and egg production in laying hens and feed conversion efficiency in meat chickens. Similarly, in an experiment examining the effects of cage position on fear and egg production in laying hens, level of fear of humans was significantly and negatively related to egg production and feed conversion efficiency (Hemsworth and Barnett, 1989). In observations on the behavioural response of laying hens to an experimenter, Bredbacka (1988) reported that egg mass production was lower in hens that showed increased avoidance of humans. In poultry,

inappropriate fear reactions, like panic or violent escape attempts, can result in injuries which can lead to infection, chronic pain and debilitation (Jones, 1996, 1997).

Fear is generally considered an undesirable emotional state of suffering in both humans and animals (Jones and Waddington, 1992) and one of the key recommendations proposed to the United Kingdom Parliament by the Brambell Committee in 1965 (Brambell *et al.*, 1965) was that intensive-housed livestock should be free from fear. Clearly, fear in farm animals can impact on farm animal welfare and thus this topic of how farm animals are handled is a legitimate welfare consideration.

Effects of other stockperson characteristics on farm animal welfare

There is a number of other important human characteristics that are likely to affect animal welfare and productivity of livestock, such as technical skills and knowledge, job motivation and commitment and job satisfaction of the stockperson (Hemsworth and Coleman, 1998). While the impact of these other characteristics may be more obvious, they have been less researched in the livestock industries than the impact of the stockperson's attitudes and behaviour.

The single most important factor in job performance is the technical skills and knowledge that the person brings to the job (Hemsworth and Coleman, 1998). Knowing and being skilled at the techniques that must be used to accomplish the task are clearly prerequisites to being able to perform that task. There are little empirical data on this topic in the livestock industries, however this basic premise is universally accepted. These job-related characteristics are therefore likely to be the most limiting factors to job performance in the livestock industries in situations where specific technical skills and knowledge are required to perform the tasks.

Work motivation in the livestock industries generally refers to the extent to which a person applies his or her skills and knowledge to the management of the animals under his or her care (Hemsworth and Coleman, 1998). In other words, work motivation is the degree to which the stockperson is reliable, thorough and conscientious in managing his or her animals. High job performance in any industry relies on a combination of motivation, technical knowledge and skills and an opportunity to perform the job and clearly low motivation will limit job performance regardless of technical skills and knowledge of the

individual. That is, the stockperson must be motivated in order to achieve high standards of animal welfare and productivity in his or her animals.

Job satisfaction refers to the extent to which a person reacts favourably or unfavourably to his or her work and is thought to derive from the extent to which a person's needs or expectations are being met by the job (Hemsworth and Coleman, 1998). Job satisfaction of the stockperson is likely to affect animal welfare and productivity because of its direct effects on other job-related characteristics such as job motivation and commitment, motivation to learn new skills and knowledge and thus, in turn, technical skills and knowledge. Hemsworth and Coleman (1998) and Coleman (2004) have reviewed some of the personal and job factors that affect both work motivation and job satisfaction, but there are little empirical data to either demonstrate their impact on work performance or the effectiveness of strategies to improve these job-related characteristics in stockpeople.

Some authors have reported relationships between personality traits and animal productivity (Ravel et al., 1996; Seabrook, 1972, 1991; Waiblinger et al., 2002), while Coleman et al. (2000a) and Coleman (2001) found no consistent relationships between personality and stockperson performance. Hemsworth and Coleman (1998) and, more recently, Coleman (2004) have argued that, while there is little evidence in the livestock industries relating personality directly to work performance of the stockperson, these characteristics may indirectly affect animal welfare and productivity by influencing the development of the attitudes of the stockpeople to their animals. As discussed in detail by Hemsworth and Coleman (1998), the antecedents of attitudes are many and varied. Demographic variables, various general attitudes and personality traits may indirectly affect behaviour through their influence on attitudes and, while the important dispositional factor in predicting the behaviour of the stockperson is attitude, other dispositional factors, including personality and empathy, may operate indirectly through attitudes. However, personality factors may be useful in matching people to some kinds of jobs in the livestock industries (Coleman, 2004). For instance, independence, introversion and self-motivation may be important factors in which the tasks are more problematic and where the individual may at times work alone.

The duties of stockpeople to their farm animals

Ethics is concerned with the principles of right conduct and thus in an ethical analysis of stockmanship, we ask how stockpeople ought to behave towards their animals. However, it is not entirely clear how individuals make decisions about the acceptability of specific animal uses. In an ethical discussion of a particular animal use, a range of considerations may affect this decision. An individual's attitude to the animal in question as well as an individual's attitudes to society's obligations to animals together with what science may tell us about the impacts of the use on the animal are all likely to be influential. Furthermore, broader risks and harms, such as environmental, economic and social, may also be utilized. Religious and cultural beliefs about a particular animal use may also affect the individual's decision on this animal use. Thus how we view the duties of stockpeople in livestock production will be affected by such considerations and these will be discussed here.

An individual's attitudes to both the animals and society's obligations to these animals are important features this ethical analysis. Fraser (2001) suggests that our views on farm animals are influenced by pastoralist and agrarian ideals that respect diligent animal care and family farming involving wholesome living in harmony with the land and livestock. In addition to such general views on farm animals, Serpell (2004) suggest that our attitudes to the specific species may be affected by our affective or emotional responses to the animal, as well as our perception of utility or instrumental value of the animal. Furthermore, individuals may judge the behaviour of stockpeople on the basis of its adherence to reasons or moral principles such as: enhancement of personal character (virtue ethics); support for self-interest (egoism); consequences of the behaviour for the animals, not just the stockperson or others (equal consideration or utilitarianism); or that good results do not justify using evil means to violate an animal's right (rights-based justifications of equal consideration). Thus, these moral principles may also provide us with guidance on the nature and extent of the duties of stockpeople.

The relationships that develop between humans and most domestic animals in our society are inevitably unequal, involving human management and control of animals. Thus, the management of animals by humans is basically governed by two important principles and applies to a range of animal uses from individual pets to livestock production. These principles are on the one hand, management to comply with the objectives of human profit, benefits or pleasure, and on the other hand, management responsibilities under a duty of

humane care of animals. In relation to livestock production and specifically stockmanship, animal productivity is a key objective and consequently stockpeople have an explicit responsibility to care and manage their livestock to achieve efficient animal performance. The latter principle of management responsibilities under a duty of humane care of animals is based on the widely-held view in many societies that the use of animals by humans is acceptable provided that such use is humane (Mellor and Littin, 2004). Implicit in this view is that stockpeople have a responsibility to handle and care for their livestock in a humane manner.

The preceding sections on the effects of human-animal interactions in livestock production have shown that stockpeople can markedly affect the welfare of their animals and thus in an ethical analysis of stockmanship, how stockpeople ought to behave towards their animals in relation to animal welfare is a prime deliberation. A basic and common tenet in most conclusions on human-domestic animal relationships is that humans who buy or receive an animal are obliged to take proper care of the animal (Cock Buning, 2005). For example, Anthony (2003) considers that the human-animal bond in agriculture is a form of implicit contract in which the raising and slaughter of animals is legitimised by acknowledging the reciprocal convention: "If we farm animals then we have a responsibility to care for their needs by ensuring commensurate husbandry conditions." However, what is at question for many is the extent of this obligation and in relation to this discussion, particularly the standards of welfare that should be provided. As science has been used to identify housing and husbandry practices that achieve particular welfare standards, so can science be used to achieve specific welfare standards that are based on stockperson competency and that are at least acceptable to the community (Hemsworth, 2007).

Research has shown that human-animal interactions can impose some substantial limitations on animal welfare in the livestock industries and that there is a strong case for using stockperson training courses that not only target technical knowledge and skills but also target the attitudes and behaviour of the stockperson (see reviews by Hemsworth and Coleman, 1998; Hemsworth, 2007). Furthermore, Anthony (2003) recommends that the careful consideration by stockpeople of the human-animal bond will promote increased understanding and appreciation of animals, to bring in focus the needs of the animals in balance with other considerations rather than automatically concentrating on the animal's final form or its utility or economic value.

In addition to the moral responsibility on the part of stockpeople to take proper care of their animals, there are often legal requirements that stockpeople protect the welfare of their animals. First, cruelty legislation is in place in many countries, although it can legitimately be argued that cruelty is an extreme case of the broad spectrum of animal welfare concerns. However legislation, such as the Prevention of Cruelty to Animals Act in Victoria, Australia (Anonymous, 2007), includes statements in the purpose of the Act such as 'to encourage the considerate treatment of animals', in addition to 'prevent cruelty to animals.' Second, codes of practice for animal welfare may be in place in some countries but these are generally voluntary, although occasionally they are incorporated into legislation, but in both instances can be used to describe industry standards in legal prosecutions. Third, there are industry and company quality assurance programs that include animal welfare. While these programs are generally voluntary, they may be a requirement of supplying specific retailers or markets.

Conclusion

Thus by farming animals, it can be argued that stockpeople have an obligation to care for the needs of their livestock by providing them with at least community-acceptable animal housing and husbandry standards. Research has shown that the stockperson has a major impact on farm animal welfare. Thus training and acknowledgement of the importance of the relationships that develop between stockpeople and their animals have the potential to improve animal welfare as well as animal productivity.

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