



# Animal Welfare Issues in the Deer Industry

394

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## Summary

- The welfare of animals in traditional and new farming ventures is the subject of increasing public concern.
- Deer farming attracts particular attention, most probably because it is easier to influence less well-established practices and because the public have particular empathy for certain animals, including deer, horses and dolphins.
- Some common farm management practices have the potential to be detrimental to the welfare of animals. In assessing the acceptability of such procedures, the amount of pain or stress caused must be weighed against the long term benefits for the animal and, to a lesser degree, for humans.
- Two controversial practices are velvet harvesting and transport of animals to slaughter. Our initial studies suggest that the benefits of velvet removal, both to animals and farmers, outweigh the relatively small welfare costs. Transport is potentially more harmful than velvetting and more work is required to identify and reduce stress in the pre-slaughter process.
- Other potential areas of welfare concern include cross-breeding using large-breed sires, confinement of animals in small barren paddocks, yarding and restraint, and electro-ejaculation.

## Introduction

The increased intensification of egg, pork and veal production systems has been associated with heightened public concern for the welfare of the animals involved (Brambell 1965). Until recently, outdoor dairy, cattle and sheep farming systems have been subjected to less scrutiny. This is now changing and there is increasing criticism of surgical operations such as dehorning, docking and castration and the farming of non-traditional animals such as deer. Deer farming most likely attracts particular concern for three main reasons:

- it is easier to alter or influence the direction of new farming practices than those with a long history;
- the public have particular empathy for certain animals like deer, horses and dolphins; and
- in some countries Red deer are regarded as a superior, wild trophy animal which should not be confined behind fences.

## Animal Rights and Animal Welfare?

The concept of animal rights is very different from that of animal welfare, and yet the two are often confused. Those people that argue for *animal rights* claim that humans and animals have equal rights, emotions, and other mental experiences, and that there is no justification for animal use whatsoever. Thus, the main goal of the animal rights movement is to abolish the use of animals in farming, research, sport, hunting and trapping (Regan 1985, Singer 1980). A relatively small, but committed, segment of the population hold to the animal rights viewpoint.

The basic philosophy behind *animal welfare* is that it would be immoral not to use animals for the "greater good", but that animal use must be responsible and humane. This philosophy recognises that:

- animals have interests in that they have the capacity to experience pain and/or suffering;
- some uses may impose a cost (eg. distress) on animals;
- the potential costs must be *balanced* against the benefits to other animals and humans; and
- human control over animals imposes a moral obligation to treat them with respect and care at all times (National Animal Ethics Committee, NZ).

Welfare is regarded as optimal when the physical and psychological requirements of animals have been met. That is, when animals are free from:

- hunger and thirst;
- physical discomfort and pain;
- injury and disease;
- fear and distress;
- are free to show important behaviours, such as contact with other similar animals, and to exercise (World Veterinary Association, 1989).

Any farm management practice has the potential to cause animal welfare to deviate from this ideal. If a practice is thought to adversely affect animal welfare, then the use of the procedure has to be weighed against the benefits derived. In general, unduly painful, stressful or damaging routines should be avoided. In certain cases, the use of such procedures may be justified where the distress is brief or minimised and there are benefits. These benefits fall into three categories and are listed in *order of importance*:

- Present or future benefits to the animal itself, others of its group or other animals (eg. develvetted stags are less likely to damage themselves if transported in velvet, or to damage others during the rut).
- Benefits in terms of the safety or welfare of humans or the physical environment (eg. deantlered stags are less likely to injure handlers).
- Benefit to humans in terms of practicality of use or economic viability (eg. antler removal is performed most easily and safely during the velvet stage of growth, and is also most valuable at that time).

Decisions, then, about the acceptability or otherwise of various practices require objective assessment of both the amount of pain and/or stress perceived

by the animal and the benefits accruing from those procedures.

## Assessing Stress and Pain

The scientific assessment of animal stress and pain is based on measures of life expectancy, incidence of disease and injury, rates of growth and reproduction, changes in physiology (eg. stress hormone levels, heart rates or disease resistance), and changes in behaviour (Broom 1988). Behavioural reactions are particularly important as they can be used to assess those farming practices that harm the animal as well as those practices that provide for good welfare. Ill-health is indicated by postural changes, pain by avoidance responses or postural changes, and general stress by increased aggression, repetitive pacing or other abnormal behaviours. The preferences expressed by animals indicate those practices that are likely to lead to good welfare.

Pacing the fencelines, disruption to grazing activity and an increase in plasma stress hormones (cortisol and progesterone) appear to be the best measures of more severe stress in deer, while avoidance responses and increased heart rates are the best measures of less severe stress or acute pain (Matthews et al 1990, Matthews and Cook, 1991).

## Rating the Acceptability of Deer Farming Practices

It is possible to make predictions of the relative acceptability of various contentious farming practices by comparing the welfare costs with the likely benefits. The following table (Table 1) outlines this procedure for several common deer farming handling routines. In many instances, precise details of the costs and benefits are not available. In these cases, estimates based on similar manipulations in other species have been used.

Harvesting of velvet and the transport of deer to slaughter are two of the most contentious welfare issues in the deer industry. Velvet removal is banned by law in the UK, even though no scientific experiments had been undertaken to determine the relative costs and benefits of the procedure. Recent experiments conducted at Ruakura (Matthews et al., 1990) have shown that stags experience some stress in the process of being yarded, drafted and restrained, but there does not appear to be any additional stress due to the administration of local anaesthetic or velvet removal. We have also shown that velvet harvesting under local anaesthesia is less stressful than the insertion of an ear tag

**Table 1:** Estimated welfare costs and benefits and acceptability ratings of various deer farming practices.

Practice	Welfare cost	Benefits			Acceptability Rating
		to animals	to human safety	to human economics	
Yarding, drafting, restraint	moderate	moderate-high	moderate-high	moderate-high	high
Velvet removal	low-moderate	moderate	high	high	high
Transport to slaughter	moderate-high	zero-low	moderate	high	moderate
Melatonin administration	low-moderate	low	low	moderate	moderate
Confinement in small paddocks, especially at mating and birth	moderate	low	low	moderate	low
Cross-breeding (large breed sires, small females)	high	low	low	moderate-high	low

(Matthews and Cook, 1991). Therefore, the costs to the animal appear to be low. As stress is increased slightly when no anaesthetic is used, application of an analgesic prior to velvet removal is to be recommended.

As outlined above, the benefit to the animal from velvet removal is moderate, and the benefit to farmer safety and farm economics is high. On balance, then, the advantages of velvetting would appear to outweigh any short term welfare costs to the animal.

Transporting animals involves a moderate to high cost to the animal from the stress associated with herding and trucking (Smith and Dobson, 1990), from the bruising and other physical injuries received en route to slaughter (Selwyn and Hathaway, 1990), and from confinement in unfamiliar surroundings (Kay et al., 1981). The benefit to the animal is low or zero. The benefit to human safety may be moderate to high (from improved quality control of meat products in a slaughter plant, as opposed to slaughter in the field) and the benefit to human economics is likely to be moderate to high (from centralised slaughter operations). Overall, the benefits of transporting deer probably outweigh the welfare costs, but the benefit-cost ratio (and acceptability) of this practice is lower than for velvet removal.

The benefit-cost approach indicates that the acceptability of a practice, such as transport, can be increased by reducing the welfare costs to the animal. Studies of aggressive behaviour, and changes in heart rate and stress hormones in cattle, have shown that significant stress occurs during yarding, loading and unloading, movement through narrow raceways, mixing with strangers and irregular truck movements (Eldridge et al., 1989). Modifications to handling and trucking procedures have led to improvements in animal welfare. Similar research with deer would undoubtedly lead to improved handling practices and acceptability of transporting operations with deer. Video marketing of animals could also lead to improved welfare by reducing the need for handling and transport of animals.

Similar analyses of other common deer farming practices would provide early warning of additional contentious issues and areas for research. Table 1 gives some examples. Practices which appear to have low acceptability ratings include electro-ejaculation, cross-breeding, confinement in barren paddocks, and administration of melatonin. These ratings must be regarded as tentative for two reasons. One, precise details of the degree of pain or stress experienced and of the associated benefits are not available for each management practice. Two, the acceptable balance between

welfare costs and benefits remains a matter of ethical judgement, which varies between individuals, cultures and nations. For example, farming of Red deer is acceptable in most countries, but not Germany. Velvet harvesting is permissible in NZ, but not the UK.

New Zealand experience with humane slaughter regulations in slaughter plants has demonstrated that the ethical values of our trading partners have a significant influence on farming and processing practices in this country. Failure to recognise this when making judgements about the acceptability of various deer farming practices could well jeopardise markets for deer and other animal products.

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