INTRODUCTION

THE UNIVERSITY *of* EDINBURGH
The Royal (Dick) School
of Veterinary Studies

**The Jeanne Marchig International Centre
for Animal Welfare Education**

Summary

What is animal welfare and its importance

Benefits of animal welfare

Introduction to the Five Domains model

What is animal welfare?

Animal welfare is the mental and physical state of an individual as it experiences and engages with its environment, based on the knowledge that animals can suffer, feel pain and discomfort, and experience positive emotions. An animal's welfare is impacted by its environment, the resources it has available to it and human attitudes and behaviours. Animal welfare exists on a continuum from very poor to very good. Depending on the experiences that animals have during their lives, they can have 'a life not worth living' if most of their experiences are negative or cause negative emotions.

On the other hand, they can have 'a good life' if they experience mostly positive mental states.

Animal welfare can be considered from three different components: the need for a natural life (such as fresh air and the ability to express natural and innate behaviours), affective needs (free from negative states such as pain and fear and being able of feel positive emotions) and the normal biological functioning (growth, health) of the animal.

Animal Welfare

Very poor — Poor — Neutral — Good — Very good

A life not worth living (mainly suffering)

A life worth living (minimal suffering)

A good life (mainly positive experiences and emotions)

Basic health and functioning

Affective states

Natural living

(Adapted from Fraser et al., 1997)

Animal sentience

Animal sentience refers to the ability of animals to feel and experience emotions such as joy, pleasure, contentment, pain, fear, boredom, and distress. The ability for animals to experience emotion is the foundation for our concern for their welfare. Animals can feel, and so we need to consider how the way we treat animals affects what they feel.

Understanding and recognising animal sentience is important to help identify the needs of animals and to assess their welfare in different circumstances, and to address the legislation and practices affecting them.

It is challenging to measure feelings in animals directly, but it is also possible to get some indication of what an animal is feeling by indirect methods including autonomic, behavioural and cognitive responses, such as preference tests, motivational tests and understanding of animal communication. For instance, cows show behavioural responses indicative of excitement when they discover how to open a gate leading to something they are highly motivated for, such as a food reward.

Chickens also show vocal responses indicative of anticipation and frustration when accessing, or prevented from reaching, very desirable food rewards.

An animal's awareness of what is happening (also known as perception), and their ability to remember, process and assess information to meet their needs (also known as cognition) are crucial for its welfare, and investigations into welfare should aim to give some indication of how positive or negative the animal feels.

Attitudes to animal sentience

The way that people think about sentience and welfare for farm animals is influenced by their age, gender, education (access to information), familiarity with animals, social norms and cultural factors. Recognising objectively what animals are capable of feeling and experiencing can be key to achieving a positive change in attitudes and behaviours towards animals, which can contribute to a real, sustainable difference for animal welfare.

Animal welfare benefits

Public health, One Health

One Health describes the relationship between human, animal and environmental health. Alongside the health component of animal welfare, other aspects of animal welfare can negatively affect the One Health paradigm.

Poor animal welfare can negatively affect food safety through different mechanisms. Continued exposure to challenging conditions can increase release of glucocorticoids, lower animals' immunity, and consequently increase their vulnerability to infections from pathogens. These pathogens, or the diseases they cause, may be zoonotic and, therefore transmissible to the humans that handle them, or through the food chain. An increased frequency of disease also leads to an increased use of antibiotics, which contributes to increased antimicrobial resistance.

Pre-slaughter stress can cause vasoconstriction, which can lead to poor bleed-out during slaughter and consequent presence of zoonotic pathogens in processed or raw meats for human consumption.

On the other hand, animals kept in enriched environments have greater resilience to disease, need less medicines and are better able to cope with other challenges. Improving farm animal welfare is one of the strategies that can reduce the use of antimicrobials in farm animals and hence may have long-term benefits for human health by reducing the development of antimicrobial resistance.

One Welfare

There is agreement that the welfare of animals and the welfare of humans are closely linked. One Welfare is a concept that builds on One Health. One Welfare recognises that the wellbeing of animals is positively and negatively impacted by people and the environment, and animals can also affect the wellbeing of people and the environment as well.

One Welfare has particular relevance to better understand the positive two-way inter-relationship and inter-dependency between animals and their owners/keepers where, if these break down, very negative health and welfare outcomes can result for both animals and humans.

Examples of positive interactions for One Welfare for farm animals include how animals can strategically graze grasslands and forests to control undergrowth and weeds, which provides the grazing animals with nutritional and behavioural benefits; and, the human-animal bond that can exist between animals and their carers.

Meat quality

Animal welfare is an essential component of meat quality and safety. Meat quality can be improved if livestock production, transport and slaughtering systems are managed in a way that ensures high animal welfare standards. Slaughter techniques and transportation, if not effectively and efficiently applied, can compromise animal welfare and operators' safety and can reduce meat quality and safety. For instance, poor pre-slaughter animal handling and inhumane slaughter practices will trigger a physiological stress response that changes the physiochemical and sensory characteristics of the meats (such as tenderness, juiciness, flavour, taste and colour). These meat quality issues can be avoided by reducing stress, fatigue, exhaustion and improving overall animal welfare pre and during slaughter. Good animal welfare therefore prevents economic losses due to poor carcass conditions and food wastage.

Productivity and profitability

In general, enhancing the welfare of farm animals may positively affect their productivity. In addition, there may be a cost associated with not improving animal welfare.

The activation of the immune system and/or of a physiological stress response requires metabolic energy, and body resources may be limited and diverted into immune function rather than milk production, growth or reproduction. Short-term changes in animal performance (such as poor productivity and reproductive performance) can be used as indicators of poor welfare in combination with other indicators and in specific conditions.

In some cases, a premium may be paid for the farm's production when higher levels of animal welfare are achieved or a general improvement in farm productivity and profitability can be as a direct result of improved animal welfare.

Human-animal relationships

The quality of the interactions between humans and animals can impact on the welfare of farmed animals in many ways. Regular positive contact with humans may result in positive alterations in the animals' physiology, behaviour, health and productivity. In contrast, animals subjected to aversive human contact can be highly fearful of humans, which can compromise their growth, and reproductive performance, and consequently their welfare (see more in Understanding the Five Domains module: **Behavioural interactions**).

Benefits from habituating farm animals to humans and good handling practices include reduced fear, improved docility, and decreases in working time, discomfort, and risk of injuries for both humans and animals. A closer relationship between animal carers (farmers, stockpeople, handlers) and their animals can contribute to the prevention of disease, and improved production and product quality. It can also greatly improve job satisfaction for the animal carer.

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DDI Data-Driven Innovation

SRUC

CAWSE CENTRE FOR ANIMAL WELFARE SCIENCE EXCELLENCE