Risk assessment principles in evaluation of animal welfare

MW Paton*,†, PAJ Martin† and AD Fisher‡§

† Department of Agriculture and Food, Western Australia, 3 Baron-Hay Court, Perth, WA 6151, Australia
‡ Faculty of Veterinary Science and Animal Welfare Science Centre, 250 Princes Highway, Werribee, VIC 3030, Australia
§ CSIRO Livestock Industries, Locked Bag 1, Armidale, NSW 2350, Australia

* Contact for correspondence and requests for reprints: mpaton@agric.wa.gov.au

Abstract

Science forms a vital part of animal welfare assessment. However, many animal welfare issues are more influenced by public perception and political pressure than they are by science. The discipline of epidemiology has had an important role to play in examining the effects that management, environment and infrastructure have on animal-based measures of welfare. Standard multifactorial analyses have been used to investigate the effects of these various inputs on outcomes such as lameness. Such research has thereby established estimates of the probability of occurrence of these adverse welfare outcomes (AWOs) and given exposure to particular management inputs (welfare challenges). Welfare science has established various measures of the consequences of challenges to welfare. In this paper, a method is proposed for comparing the likely impact of different welfare challenges, incorporating both the probability of AWOs resulting from that welfare challenge, and their impacts or consequences if they do, using risk assessment principles. The rationale of this framework is explained. Its scope lies within a science-based risk assessment framework. This method does not provide objective measures or score of welfare without some context of comparison and does not provide new welfare measures but only provides a framework enabling objective comparison. Possible applications of this method include comparing the effects of specific management inputs, assigning priority to welfare challenges in order to inform allocation of resources for addressing those challenges, and comparisons of the lifetime welfare effects of management inputs or systems. The use of risk assessment methods in the animal welfare field can facilitate objective comparisons of situations that are currently assessed with some level of subjectivity. This methodology will require significant validation to determine its most productive use. The risk assessment approach could have a productive role in advancing quantitative assessment in animal welfare science.

Keywords: animal welfare, epidemiology, impact, probability, risk assessment, welfare challenge

Introduction

The science of animal welfare is in a rapidly developing phase. However, critics of animal welfare research and assessment have, with some justification, alluded to the lack of rigour and transparency in evaluation of animal welfare. This situation has been exacerbated by some groups promoting improvements in animal welfare which are easily labelled (for example, ‘Barn-laid eggs’) on the basis of emotive or anthropomorphic arguments rather than science.

There has been a proliferation of so-called welfare-friendly systems for production animals so that consumers might be assured that specific minimum standards are met, such as the provision of straw for confined dairy cattle to lie on. There is no doubt that welfare-friendly production systems have improved the welfare of many production animals. However, there are welfare challenges which are difficult or impossible to assess merely from an animal’s surroundings. ‘Animal-based measures’ are now becoming an important aspect of the assessment of the overall welfare of animals (Whay et al 2003).

In spite of the acknowledged importance of using animal-based measures to assess welfare, a number of current methods for the assessment of welfare use a combination of animal-based and other indicators. Attempts to develop indices for measuring of welfare have often resulted in ad hoc collections of ‘inputs’ (infrastructure, management systems, genetics and management skills) mixed with animal-based measures or outcomes of poor welfare such as foot lesions, skin damage or displaying stereotypic behaviour (Scott et al 2003). Combining inputs and animal-based outcomes in welfare indices can confuse the measurement of welfare. Indices of welfare are also prone to biases arising from the personal views of experts, on whose opinions the indices are often based.

The Welfare Quality® project in Europe (Blokhuis et al 2003) is using some animal-based measures to develop a series of indices including welfare criteria like ‘resting comfort’, ‘thermal comfort’, ‘ease of locomotion’ and others, which are combined using non-additive methods into an overall index of welfare.

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