APPLICATIONS FOR METHODS OF ON-FARM WELFARE ASSESSMENT

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Abstract *Animal Welfare 2003, **12**: 523-528*

Animal welfare assessment at group level is a scientific discipline that is rapidly developing. The interest in welfare assessment systems is based on an ethical concern for the welfare of farm animals. The scientific community plays an important role in delivering an appropriate repeatable, valid and feasible framework for these assessments. Consideration of the potential applications of these techniques is important for deciding upon the requirements of specific assessment systems. This paper provides a brief overview of the different types of applications, which can be categorised broadly into research, legislative requirements (non-voluntary), certification systems (voluntary) and advisory/management tools. These applications may have various goals: quantification of welfare, provision of welfare assurance or welfare management. Assessment systems vary in many characteristics, such as whether they are animal- or resource-based, and whether they are based on single or integrated scores. Different applications will require different elements of these features.

Keywords: *advisory, animal welfare, applications, certification, legislation, welfare assessment*

Introduction

Welfare is an attribute of an individual animal and there have been many studies examining the validity of various welfare indicators for individual animals. However, group assessment of welfare is relevant in examining the effect of the management system of individual farms. It is the policies, investments and attitudes of staff at the farm level that have a key effect on animal welfare.

This paper examines the existing and potential applications of welfare assessment systems that operate at a farm level. There is much work currently underway in developing these systems. For example, the COST 846 action (an intergovernmental framework for European

Co-operation in the field of Scientific and Technical Research) is providing a collaborative framework for European researchers to examine the validity, reliability and feasibility of the components of welfare assessment systems for the major livestock systems. Other systems have been reviewed by Johnsen *et al* (2001) and Spoolder *et al* (2003; see pp 529–534, this issue). There is an ongoing debate about the definition of welfare (Fraser *et al* 1997); however, welfare assessment systems can be broadly categorised into animal-based or resource-based measures. Different applications for welfare tend to draw from one or both of these types of measure.

Animal-based welfare measures, such as body condition, disease state, level of injury and flight distance, give an indication of the performance/outcome of a husbandry system (see eg Whay *et al* 2003; Capdeville & Veissier 2001). Some production-related measures, such as a sudden reduction in productivity and fertility, might also be used if they are often closely linked to more obvious welfare concerns such as disease or fear. Confidence in the validity of the measure is increased if fundamental studies have been carried out to demonstrate the welfare relevance. However, it may not be appropriate to exclude these measures in the absence of experimental data. A reasonable approach is to assume welfare relevance based on analogous examples and expert opinion.

Resource-based influencing factors may also be part of a welfare assessment system and they can often be assessed reliably (Amon *et al* 2001). Resource factors such as stockperson, environmental and genetic attributes are valid if they have been shown to have a clear link with welfare. Assessment of these influencing factors is particularly important for the provision of advice on the prevention or treatment of a welfare problem. It is difficult to compare the welfare effect of husbandry systems if they use totally different resources, as comparison of resources will not be in a similar 'currency' (ie unit of measurement). Comparison of systems using an animal-based assessment would be in the same 'currency'.

The potential applications for these systems are discussed with reference to broad categories of applications. The categories of the applications will be illustrated with examples of potential and existing systems. The features of the welfare assessment systems that are required for each category of application are then discussed. Other important aspects are the complexity of the components, the cost implications of each application, the format of the results and the ability to bring about change in farming practices.

Categories of application

There are four broad categories of application:

1. Research tool
2. Legislative requirements (non-voluntary)
3. Certification systems (voluntary)
4. Advisory/management tool

There is a large degree of interrelationship between these categories. For example, legislative and certification standards are based upon research findings. Each of these applications may have quantification, assurance or improvement goals for the assessment system. Welfare assessment in basic research is often designed to quantify the welfare of animals in certain husbandry systems. Certification or legislative systems usually aim to deliver an assurance that the welfare of the animals achieves a certain standard. However, some applications may also have a goal of improving welfare.

For a welfare assessment system to achieve an improvement, farmers need to be motivated to change their systems. Broadly speaking, farmers can be motivated to improve by

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education, encouragement and enforcement. Clearly, certification and legislation have an enforcement element. Advisory systems are important for educating farmers on their own welfare performance (animal-based measures) or on suitable prevention and solution strategies (resource-based welfare factors). Information on a farm's performance relative to its peers ('benchmarking') is an important encouragement effect as many farmers are motivated to compete with their colleagues. In addition, welfare assessment can be used in incentive systems that reward greater welfare performance with productivity benefits. For example, the Swedish broiler industry rewards reductions in foot lesions by allowing a greater stocking density (Ekstrand *et al* 1997).

Research tool

On-farm welfare assessment is a useful research tool that can be used to quantify the welfare impact. For example, it can be used to examine the following:

- different husbandry systems (eg outdoor vs indoor)
- influence of individual resources (eg diet, housing)
- welfare assurance of certification schemes (eg a marketing scheme)
- influence of new legislation

and to:

- quantify range in 'normal' farms
- cross-validate other welfare assessment systems
- identify welfare risk factors

Research assessments are likely to use a combination of animal-based measures and resource-based measures. The welfare assessment system can be complex, extensive and time-consuming. An example of complexity would be that severity (in addition to prevalence) of a condition such as lameness may be assessed and analysed. By comparing the results of different assessment methods in research it can be guaranteed that assessment systems feasible for legislative requirements, certification and advice are valid measures of animal welfare (see Ofner *et al* 2003, pp 571–578, this issue). The protocol needs to be sufficiently transparent for peer review in publications but it does not necessarily need to be understood by individual farmers. Research methods may or may not integrate the individual components (such as disease, lameness or fearfulness) into a single composite score. Although formal integration into a single score is unusual, it is common practice for authors of scientific papers to comment on the overall welfare impact of their findings. These types of conclusion are essentially an informal integration of all of the results into a single opinion.

Legislative requirements

On-farm welfare assessment can be used to assess compliance with national or EU legislation. Legislation is often written in terms of what should be provided to the animal (ie resource-based standards). The legislative process followed during the drafting of such legislation should draw upon research findings using welfare assessment. These requirements should be based on research showing clear connections with animal welfare.

Enforcement of legislation usually requires welfare assessment by the appropriate authorities. This assessment may be solely resource-based. For example, assessing compliance with the supply of a 'well-drained lying area' does not require assessment of the effect of the animal on the individual farm, merely observation of the lying area itself. In this case 'means-orientated' legislation requires a certain resource because of the previously established close link between the resource and the animal so a further animal-based assessment on that farm is not required.

However, some 'goal-orientated' legislation is phrased in terms that require enforcement authorities to make an assessment of the effect on the animals of that farm. For example, provision of a diet 'sufficient to maintain health' requires quantification of the relevant animal-based health measures. Similarly, assessment of compliance with cruelty legislation (eg 'unnecessary suffering') requires an assessment of the animal's welfare. To date, these assessments have relied upon expert opinion whereas they could be performed in a systematic fashion according to a credible welfare assessment system. It is necessary to find out the preconditions of these effects on the animals in research, so that enforcement authorities only have to assess these preconditions.

An assessment of animal welfare for legislative requirements can be performed either by using simple checklists or by using more complex index systems. Checklists are easily understandable and verifiable, but only an index system can consider the complex interactions between animals and housing conditions. For legislative requirements, an assessment system must be clear, unambiguous, flexible and feasible to use by experienced persons.

Formal welfare assessment techniques have been applied in a legislative framework in some countries during the assessment of novel husbandry systems. For example, the Swiss Animal Welfare Law (Article 5) ensures that a husbandry system is evaluated by an independent research institute against a wide range of criteria prior to its sale (Oester & Troxler 1998).

Voluntary/certification systems

There has been a large increase in voluntary certification schemes in many countries (Wood *et al* 1998; Bartussek 1999). Membership of these schemes is not a legal requirement and is often associated with a marketing claim. However, where these schemes have become a precondition for the sale of products to retailers, this voluntary system effectively becomes mandatory for farmers wishing to sell their produce. Certification schemes often include a basic requirement to comply with relevant welfare legislation but there are often additional welfare standards that have to be assessed in a similar fashion (Main *et al* 2001).

The system needs to be sufficiently transparent for the controlling agency to defend the assessment decision. The system would, therefore, need sufficient descriptions or guidance notes for each welfare measure for a trained and experienced assessor to make consistent assessments. Some schemes have used accreditation of the certification scheme to provide evidence of impartiality and competence of the certification decisions. This accreditation process operated by national accreditation bodies demonstrates compliance with a generic quality assurance standard EN 45011/ISO Guide 65.

Where certification schemes are linked to commercial marketing schemes there may be significant time and cost restraints. So, the feasibility of the assessment system is an important aspect in this category of application. The result of an assessment may be a pass/fail result or a graded result. For example, UK farm assurance schemes and legislation operate a pass/fail system, whereas the Austrian TGI 35 L system (Bartussek 1999) grades the components and overall result. Grading of results for each component is likely to be more effective in motivating farmers to improve their result.

Organic farming systems are also voluntary schemes although these systems work within legislative frameworks (EU regulation 2092/91). In addition, some countries require formal assessment and a certain minimum score of the TGI 35 L (ANI) system (Bartussek 1999).

Another voluntary system is the requirement associated with subsidy schemes. For example, if a farmer wishes to receive a certain subsidy such as the UK Hill scheme then the farmer is required to become a member of a recognised farm assurance scheme. Some certification schemes also require farms to be involved in advisory/management systems (see below).

Advisory/management

Welfare assessment can be used in a non-controlling framework where farmers use welfare assessment to monitor welfare over time and receive advice about suggested actions to prevent or solve observed welfare problems. Some welfare assessment systems used for other legislation or certification purposes may also be used as an advisory/management tool. For example, farmers and advisors may wish to use TGI assessment to identify areas of potential improvement in welfare. For advisory or management purposes the extent and complexity of the assessment system would vary greatly according to the time and resources available. The relative priority of welfare with respect to production, food safety and environmental concerns would be a critical factor.

Welfare assessment results may be reported back to farmers as a comparison of their performance with other farmers in similar systems (benchmarking). This educates farmers on their own performance and encourages them to improve in areas of specific weakness.

Although these advisory/management uses of welfare assessment are often voluntary, active involvement in such initiatives may be a requirement of a certification or even legislative framework. For example, the health plan is now required by most UK farm assurance schemes (Main & Cartledge 2000). Health plans are a management process, usually with external advice, which ensure that preventive and treatment regimes are planned, the health performance is recorded and reviewed and appropriate action plans developed. In addition, benchmarking systems are being introduced into the RSPCA Freedom Food scheme (Main *et al* 2003).

The welfare assessment system needs to be sufficiently simple and transparent to be understood in full by the farmer. This is especially important if the management system (eg health plan) requires the farmer to monitor certain welfare measures directly in order to evaluate the effect of husbandry changes. So, for most circumstances, the system needs to be transparent and clearly understood with clear guidance notes, visual material and possibly training systems. Detailed severity information may be less important where prevalence of a condition (with a certain predefined minimum severity) gives an indication of the farm's own performance. In addition, a graded result of the individual components (and possibly an integrated overall score) is essential to allow monitoring of changes.

Conclusions

Welfare assessment is an important tool for quantifying welfare, providing assurance of welfare standards and improving welfare. The features of the required welfare assessment system will depend upon the particular application. Although there will be many common elements between systems there is unlikely ever to be a single assessment system that will work in all situations. In particular, time available and costs will have to be considered. However, cross-validation of assessment systems should ensure that all systems aspire to the same aim. Despite these difficulties, welfare assessment systems are developing rapidly and they will be widely used in many applications.

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