

Assessing the Welfare of Farm Animals

Part 1. Review

Part 2. Development and Implementation of a Unified field Index (UFI)

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Executive Summary – Part 1

As with the treatment of domesticated animals in other settings, there is increasing societal concern about the treatment of livestock on farms and their quality of life within production environments. Viable livestock farming requires practices that are not only productive, profitable and sustainable but that also fit with society's expectations on ethical dimensions such as animal welfare. Transparent demonstration of how these expectations have been met will be paramount in the future.

To establish whether an animal's physical and emotional needs are being met requires a detailed assessment of its welfare. Welfare assessment is a major challenge as the utility of any assessment methodology depends on the specific situation under examination and the ethical views held by the stakeholder group seeking the assessment. The purpose of this review is to explore the subject of welfare assessment further by examining the conceptual frameworks, complexities and methodologies applied to the task.

The specific aims of Part 1 of the review are to:

1. undertake a comprehensive analysis of the scientific literature on welfare measures and assessment methods to identify the most credible scientific measures that could be developed into a uniform field index and,
2. recommend where further research to validate welfare concepts and methodologies is required.

The review describes the historical and current contexts of animal welfare and the commonly used conceptual frameworks for its assessment. The broad categories of measures used in science and in welfare assessment and assurance systems used on-farm are then reviewed.

The key conclusions are:

- The pre-eminent concepts of good welfare employed today encompass biological functioning, affective states and naturalness.
- There is ongoing need to demonstrate the validity of welfare measures (i.e. show that measures accurately reflect an animal's welfare state or the definition of a good animal welfare state held by the stakeholder group(s) seeking the assessment).
- Welfare assessment is an evaluative process in which values influence the choice of the conceptual framework and consequently the measures, their interpretation and their weighting when the measures are combined in any legislative standard, QA assessment system, welfare management tool or research methodology.
- A better understanding of the emotional range and valence in livestock species is required, as is a better understanding of the consequences of injury and illness for animal emotions. To that end, the ongoing development and validation of behavioural and cognitive methodologies is essential. This goal could be greatly enhanced through the application of neuroscience disciplines to studies of livestock behaviour and emotions.
- There is no one comprehensive, fully-validated system for on-farm welfare assessment that accommodates the diversity of species, production environments and animal management systems practiced in Australia. However, research has shown that assessments based on combinations of health and production data together with observation of behaviour and physical appearance of animals within a group offer reliable and feasible tools for the assessment of welfare. The strategic combination of input or resource-based and outcome or animal-based measures will also be important, particularly in the context of welfare risk assessment and risk management (e.g. assessments of pasture/forage availability and body condition score in cattle and sheep).
- Efforts should be directed at improving the practicability of welfare assessment systems within the various livestock enterprises. Specifically, further effort is needed to find ways to improve the reliability whilst reducing the complexity and invasiveness of methodologies. The development and application of remote automated data capture systems could be valuable in both extensive and intensive animal production systems.

In conclusion, the development of appropriate welfare assessment methodologies that are credible to all stakeholders will be built on a better understanding of:

- changes in biological functioning and fitness including changes in physical health that correspond with different levels of welfare;
- the capacities of livestock to experience negative and positive mental states and associated levels of welfare;
- the ways that separate measures and welfare attributes can be weighted and integrated to give an overall index of welfare; and
- how these can be practically and reliably implemented in the production environment.

Part 2 of the review describes in detail current welfare assessment schemes and looks at the challenges faced in devising a comprehensive assessment program suitable for cross-sectional application. It proposes a new unified field index for implementation through a process of risk assessment, risk management and benchmarking to provide a welfare management and assessment tool for use across Australia's livestock industries.

Executive Summary - Part 2

Part 1 of the Review described the three principle conceptual frameworks for assessing animal welfare: biological functioning, mental functioning and naturalness.

The design of a welfare assessment scheme is influenced by the purpose of the scheme, the method of the scheme's implementation including whether it is to be compulsory or voluntary, the processes for ongoing external verification of the scheme, how the scheme is to be funded and managed.

Challenges in designing a scheme include validation of welfare measures, weighting and scaling of different measures if a single score is to be generated, and whether trade-offs between different measures should be accommodated. For efficient implementation, the scheme should be parsimonious in the number and complexity of measures yet these measures need to be sufficient to address the scope of welfare concerns under assessment.

The three principal purposes for welfare assessment are: regulatory compliance, market assurance and welfare management. It may be difficult or impossible for a single assessment scheme to serve all three purposes.

From consideration of this background and the welfare assessment schemes in use around the world, we propose a Unified Field Index (UFI) for assessing welfare in commercial livestock enterprises. The UFI incorporates measurement domains that address key areas across the conceptual frameworks of biological functioning, mental functioning and naturalness. The UFI is a generic scaffold for application across livestock species and production systems. We have also considered and discussed how the UFI could be implemented within the Australian livestock industries. This was perhaps outside the original project brief but the proposed implementation process is important to consider because the overall utility of the UFI will be ultimately underpinned by the manner in which it is applied in practice. Moreover, there are some novel aspects associated with the implementation process such as welfare performance benchmarking.

The combination of the UFI and the proposed implementation process will create a tool for livestock owners and managers to monitor and manage welfare on their livestock enterprise. The implementation process will generate records for internal and external audits that provide evidence of the welfare performance achieved within the enterprise, and through external audit can ensure integrity of the welfare assessment process. The UFI together with the implementation process provide the basis for a new national livestock welfare performance program. It is recommended that the program also adopt risk management features that have proved successful for product quality assurance schemes used in other agricultural sectors in Australia.

The proposed Unified Field Index is comprised of 4 modules that address:

1. Animal based measures
2. Resource based measures
3. Management based measures
4. Other ethical criteria.

It is proposed that the UFI is implemented through a cyclical process operating at two levels:

Level 1 – Within the enterprise – conducted by the livestock manager

- Risk identification and assessment
- Intervention or corrective actions
- Monitoring of key variables
- Self audit (internal)
- Review

Level 2 – external processes – conducted by auditors and analysts

- External auditing
- Across enterprise benchmarking

A staged or incremental process of implementation may be preferred by livestock sectors where the initial effort is directed towards the development and implementation of Level 1 components on-farm. The Level 2 external processes could then be developed and introduced at a subsequent stage.

Insufficient data are currently available to set welfare performance benchmarks for Australia's commercial livestock industries. Therefore, across enterprise analysis of data acquired through the program is proposed as the basis for establishing benchmarks of good welfare management.

Oversight of the program could occur through an agency tasked with ensuring consistency in implementation of the program across livestock industries and consistency in data analysis and interpretation. The proposal aligns with the cross sectoral goals of the National Animal Welfare RD&E Strategy and the objectives of the Australian Animal Welfare Strategy (AAWS).

The UFI is a framework only. Specific details of measurements within each measurement class and subclass need to be developed. We suggest that this task be undertaken by each industry through consultation with relevant stakeholders in a process facilitated by a new oversight agency.

Strengths of the proposed UFI implemented through a national livestock welfare performance program include:

- Consistency of language for describing and interpreting welfare performance across livestock sectors.
- Integrity of welfare assessment provided through external audit and cross-sectoral oversight.
- Creation of welfare management tool for use on farm by livestock managers.
- The program is based on continuous improvement where refinements are incorporated through on-going scientific and industry validation of welfare standards.
- The program is suitable for generating knowledge about welfare standards through industry data then evolving into a product assurance or standards compliance scheme that are acceptable to government and society.
- Unlike previous welfare assessment schemes/indexes, extends the concept of good animal welfare to encompass a broader concept of good livestock management.
- Feedback through benchmarking enables establishment of attainable goals for ongoing improvements in welfare performance.
- Treats welfare as a continuous performance attribute like growth rate or milk production rather than a pass / fail judgement of an enterprise. In doing so, creates a culture for continual improvement of welfare performance.
- The assessment module addressing "Other Ethical Criteria" separates welfare performance as assessed through the first 3 modules from claims made about the ethical practices used in food production (e.g. organic, free of added growth hormones) that are currently conflated in the market place with animal welfare. Generation of this module is an ambitious goal that might be suitable for a later stage development of the UFI.

Weaknesses of the UFI include:

- Potential lack of confidence by consumers in a scheme based on self-assessment of welfare performance by industry.
- Reframing welfare in terms of performance rather than standards may face resistance from welfare advocacy groups. Clarification of the difference between the two concepts will be important.
- Might not adequately address some aspects of community concern about farm animal welfare.