

# The place of quality assurance in managing animal welfare during long distance transport

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## Summary

The authors describe the development of an animal welfare component of a quality assurance (QA) programme for the land transportation of livestock in Australia. Relationships among animal welfare practices on farms, during transport and at destinations require an approach that covers the entire production chain. The need for QA programmes includes increased awareness in the transport industry that animal welfare is an issue that engages the broader community and recognition that contentious welfare standards are discussed in the public domain and that public attitudes influence animal welfare standards. Three booklets have been produced that cover animal welfare issues in transport for the major commercial livestock species. Strategies for implementation of QA in industry have also been developed. The welfare standards have been incorporated into the transport industry's QA programme. QA programmes need to be acceptable to the community, be able to meet all customers' requirements and demonstrate to government authorities that they provide appropriate confidence that animal welfare standards have been met. The full impact of QA programmes will be fully appreciated when their ability to deliver comprehensive benefits and continual improvements in animal welfare has been evaluated.

## Keywords

Animal welfare, Australia, Land transport, Livestock, Quality assurance, Supply chain, Transportation, Welfare.

## Il ruolo dell'assicurazione di qualità nella gestione del benessere animale durante i trasporti a lunga distanza

### Riassunto

*Gli autori presentano l'importanza dello sviluppo del programma di assicurazione di qualità (AQ) come componente fondamentale del benessere animale nel trasporto a lunga distanza di bestiame in Australia. La relazione tra le pratiche per il benessere animale negli allevamenti, durante il trasporto e nelle destinazioni richiede un approccio che copra l'intera catena di produzione. La necessità di programmi di assicurazione di qualità proviene dall'accresciuta consapevolezza dell'industria del trasporto che il benessere animale è un tema che coinvolge l'intera comunità e che le discussioni sui controversi standard di benessere sono ormai di pubblico dominio, oltre al fatto che l'opinione pubblica influenza gli standard sul benessere animale. Sono stati stampati tre opuscoli che trattano del benessere animale durante il trasporto delle principali specie commerciali di bestiame. Sono state inoltre sviluppate strategie per l'implementazione dell'assicurazione di qualità nel commercio. Gli standard riguardanti il benessere*

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*animale sono stati inclusi nel programma per l' AQ nel trasporto di bestiame. I programmi per l' AQ devono essere soddisfacenti per la comunità, incontrare le richieste dei clienti e dimostrare alle autorità governative che abbiano un livello appropriato di sicurezza nel rispetto degli standard di benessere animale. L'effetto prodotto dai programmi di AQ sarà apprezzabile quando verranno valutati i benefici che comportano e il continuo miglioramento degli standard del benessere animale.*

#### **Parole chiave**

Assicurazione di qualità, Australia, Benessere, Benessere animale, Bestiame, Catena di approvvigionamento, Trasporto.

## **Introduction**

The authors describe the incorporation of animal welfare standards and provisions into quality assurance (QA) programmes for livestock transport. Such QA programmes provide mechanisms for monitoring animal welfare, stimulating ongoing improvement, assuring the quality of animal care practices and minimising risks to the sustainability of the transport industry and associated livestock industries. They draw on previous work undertaken with other livestock and associated industries, including chicken meat (2), pork (4), dairy (12) and meat processing (13).

Work on the projects mentioned made it apparent that the value of integrating animal welfare provisions into existing business or quality systems could be greatly enhanced by a commitment extending across the entire production chain. A number of similar issues are shared across production chains, regardless of the sector and species involved. Examples are the role of the stockperson, provision of appropriate facilities and the need for good husbandry practices and communication. By providing and implementing similar standards on common issues for the industry sectors and then requiring effective feedback across the chain, all sectors can more easily fulfil their responsibilities to animal welfare. The result is an integrated whole of chain approach from birth to slaughter, irrespective

of particular management systems or business practices.

The benefits of incorporating animal welfare into QA come with some risks, which are described. In addition, the process used to reach consensus in developing animal welfare standards for the livestock transport industry is explained, along with some likely future developments. As the project for QA in the livestock transport industry is recent, experiences and results from other projects on QA for livestock industries are drawn upon.

## **Background to quality assurance programmes for animal welfare**

The land transport of livestock is the focus here. However, there are interactions with other components of the supply chain that involve livestock suppliers and producers, agents, buyers, saleyard and feedlot operators and processors. The animal management activities and factors within the transport chain include mustering, preparation and selection of animals on-farm, handling (including the use of dogs, goads or other implements for loading and unloading animals), the method of sale (direct consignment or via a saleyard), the adequacy of the destination facilities and the time taken to recover from transport. All have the potential to affect animal welfare. Indeed, the term 'supply chain' implies a series of interactions between on-farm rearing and management practices that can impact through transport *per se* and affect practices at the destination, which may be an abattoir, another farm or a feedlot. Most livestock are transported for slaughter. For example, a total of 46.8 million cattle, calves, sheep, lambs and pigs were slaughtered in Australia in 2006 and required transport (1). Animals are also relocated by transport for rearing, resale or the management of pastures and fodder.

Some livestock industries place a premium on products where there may be a perceived welfare benefit (for example, free-range eggs and meat or other products from organic production systems) but there is little hard evidence that animal welfare concerns greatly influence the buying behaviour of consumers.

Nevertheless, the importance of public attitudes on animal welfare is probably seriously underestimated and extends to livestock transport. For example, a survey in Australia in 2005 on behalf of the pork and egg industries in Australia indicated a moderate to high level of consumer awareness based on both attitudes and stated behaviours by participants in relation to animal welfare.

Animal industries in Australia are aware of consumer attitudes and their possible influences on product acceptability, market sustainability and growth. In other words, the welfare of the animal within the food supply chain should be of an acceptable standard and considered a credence value of food in a similar manner to food safety. As a result, an increasing number of livestock industries and companies and businesses that use livestock products are integrating animal welfare check points into daily management and business systems in a similar way to food safety practices.

Many existing QA programmes have been developed for food safety but may also be appropriate vehicles for issues such as biosecurity, animal welfare, occupational health and safety and environmental protection. QA programmes in Australia that now incorporate food safety, animal welfare and biosecurity are those for pork and egg production (Australian Pork Industry Quality or APIQ and EggCorp Assured) and livestock transport, Truckcare (30).

Considerable effort has been devoted to the development of welfare standards and QA programmes that incorporate animal welfare (6, 26) but concomitant improvements to animal welfare have not been formally evaluated. Improvements to animal welfare from QA programmes have been demonstrated for livestock at processing plants (18) with fewer animals slipping and falling and fewer vocalisations in response to handling and management practices. The same holds for meat chickens (5) with reduced mortality in early life. In dairy cows, a comparison of farms on the Royal Society for the Prevention of Cruelty to Animals (RSPCA) welfare QA programme 'freedom foods' and

farms not on the RSPCA's programme showed that freedom foods farms were better for 12 measures, including mastitis, cleanliness and body condition and worse for 8 measures, mostly disorders of the limbs and locomotion (25). QA programmes currently provide a means for ensuring to customers, consumers and the community that animal welfare standards are being met. Nevertheless, their contribution to improved animal welfare deserves formal demonstration.

A key issue for transport is the responsibility for livestock welfare during exchange of ownership or when livestock are sold through a livestock exchange facility. Other issues are livestock handling during loading and unloading, loading density, journey duration and environmental conditions. The common measures of welfare that have been applied to transport include mortality rates, weight loss and dehydration, meat quality and physiological and behavioural responses.

The literature on the animal welfare issues and the measures in Europe (21, 22, 31) and Australia (reports held by the Meat Research Corporation in Sydney) shows the range of issues that apply to different environments. Ultimately, however, land transport journeys are stressful for animals wherever it occurs, especially when combined with confinement in yards, handling, mixing and loading, etc. The stressors brought into play may have a cumulative and sustained effect. For example, heart rate and blood biochemistry changes generally diminish after several hours into a journey, whereas food and water deprivation continue their impact on animals.

## The development of quality assurance programmes for animal welfare

Two major considerations apply to animal welfare standards and associated QA programmes. The first is their development. The second is their subsequent implementation and evaluation. Development is often easier than implementation which is predominantly an industry responsibility, with assistance

from a range of experts. Governments, customers and other stakeholders have an undeniable interest in ensuring the successful implementation of QA programmes.

The QA documents for the transport industry in Australia described here were developed by a national management group representing commercial transport operators, other industry stakeholders, such as processors and producer groups (pig, cattle, sheep and dairy), animal welfare groups, State and Commonwealth governments, commercial auditing companies and teaching and research organisations. The documents were the *Animal welfare standards*, a *Working manual* and *Background information and rationale* directed at training and ongoing industry education.

As for previous projects with other livestock industries and sectors, a single set of national standards for animal welfare was developed, which could be integrated into an array of existing systems. A small steering committee, representing industry and researchers, was established to develop strategies for and to facilitate the implementation of the QA programme across the livestock transport industry.

It was appreciated from the outset that successful uptake and implementation of the QA programme depended on effective ownership by the livestock transport industry. Measures to achieve this industry ownership included terms of reference for the project with clear objectives, dispute resolution procedures with provision for executive decisions from the project managers, fully reported meetings every 3-4 months and documented actions provided within a few days of each meeting, regular provision of updated documentation, ample opportunity for input by members and opportunities for members to seek input from relevant colleagues not actively participating in the management group. It was understood by all participants that details of meetings were confidential. A confidentiality agreement was prepared but none of the participants in any of the projects required its enactment. It was understood at the outset that the aim of the project was to identify and encourage good industry practices and not to provide for quick

and perhaps unsustainable changes. Another aim was to identify and characterise but not necessarily resolve controversial issues in the current Australian *Model codes of practice for the transport of animals*; for example, that on pigs (29).

The inability to reach consensus was identified as a major risk in the development of the QA programme and was managed through the terms of reference. These stated that efforts would be made to reach consensus but if consensus could not be reached, the programme managers would take a final decision. The purpose was to allow completion of the projects on schedule. Systematically organised science was used when available. Where the science was equivocal or lacking, decisions were based upon frank and open discussion on what was achievable by producers or transporters recognised as highly competent.

Food safety is often managed through a systematic preventive approach, the hazard analysis critical control point (HACCP) system, which defines control points (targets) and the associated corrective actions that need to be taken when the targets are exceeded. HACCP systems also include preventive actions which are taken to minimise the risk of exceeding the critical control points and the associated monitoring and recording requirements which must be undertaken (20). HACCP-inspired approaches have been employed in the quality management of animal welfare (19, 28, 32) but difficulties exist in the application of the concept of critical control points. The key difficulty is that animal welfare requires a holistic management approach and needs to include a number of variables in management options, animal characteristics and interactions with livestock facilities and environmental conditions (social and climatic). Traditional HACCP is based on strict measures and known consequences for the risks identified (for example refrigeration targets), where changing refrigeration temperature by 5°C would result in the outcome of a known change in product temperature. Therefore, while HACCP can be applied for known and agreed targets for

animal welfare, it must be accompanied by these other management- and system-related activities to ensure the desired outcome. This is due to the lack of agreed numeric measures for animal welfare for the wide variety of systems, facilities, procedures, species and class of livestock, although this is an area of increasing focus in science. The lack of an agreed definition and methods for assessing animal welfare (3) have restricted the ability to agree on numeric targets for animal welfare in a variety of livestock production systems.

The HACCP approach was used in the present project where key targets (in the language of HACCP, these equate to critical control points) for animal-based measures were identified, such as use of electric prodders, mortalities and stocking densities. Additionally, the present project included management-related requirements, such as identifying competent staff, determining signs of insensibility following humane destruction or stunning and procedures for managing livestock, such as checking water availability and identifying ill or weak livestock that mirror the approach taken in HACCP for preventive and monitoring activities. Key corrective actions are also specified when deviations from the targets occur or where management problems are identified. The approach utilised in the present project included both HACCP for targets and procedures, together with additional information for a more comprehensive approach that includes the range of variables that together constitute good animal welfare.

Thus, our approach is to manage QA for animal welfare within broad programmes that contain information on general management practices and on the knowledge, competency, behaviours, skills and practices of stockpersons. Accordingly, the project combined a HACCP-type approach with one based on personal attributes of the personnel involved in order to provide a comprehensive set of animal care provisions for the transport of livestock.

## Output – the quality assurance documentation

Three booklets were produced to cover the transport of the major commercial livestock species (cattle, sheep, pigs, calves, lambs, goats, deer and horses) from the point of assembly and selection of livestock for loading, to the point of unloading at the destination. Transport requirements for poultry were developed previously (2).

The *Standards* (14), the first booklet, contains five outcome-based standards on planning and contingencies, facilities and equipment, staff competency, selection of livestock for transport and, lastly, a standard on handling, loading, transporting and unloading livestock. All standards contain common requirements for general management aimed at continual improvement of animal welfare, for example, feedback from suppliers and customers on animal welfare outcomes following each transport journey.

Standard 1: *Planning and contingencies*, specifies several performance criteria including 'that there be a system in place that includes animal welfare considerations for transport of livestock' and as part of this system, 'responsibilities for the welfare of livestock are identified and contingencies for delay, breakdown, humane destruction and provision of feed and water are developed'. In addition, Standard 1 requires that 'scheduling is conducted with consideration of the class and condition of the livestock, prevailing weather and available personnel'. Scheduling refers to when and for how long animals travel.

Standard 2: *Facilities and equipment*, covers specifications for vehicles and associated loading facilities and requires that facilities are 'appropriately designed and constructed to ensure the welfare of livestock'. Standard 3: *Staff competency*, specifies that personnel transporting livestock be competent in livestock handling, including the appropriate use of handling aids and electric prodders and other key elements such as humane destruction. Standards 4 and 5 (*Selection of livestock and Handling, loading, transporting and*

*unloading of livestock*) cover provisions on fitness for loading, management of weak, ill or injured livestock, handling during loading and unloading and management of livestock during the transport journey itself.

The second booklet, the *Working manual* (15), is a guide to implementation of the standards and contains checklist questions that mirror details in the *Standards manual*. The *Working manual* contains targets for some of the checklist questions, for use in monitoring and internal or external audit. The targets reflect the content of relevant Australian *Model codes of practice for the welfare of animals* and are designed to meet other commercial and legislative requirements. Targets include those for the appropriate use of electric prodders during the handling of livestock, animal fitness prior to loading for transport, actions and procedures to follow when identifying weak, ill or injured livestock, stocking densities, water deprivation limits, duration of transport, management of the journey and the duration of rest stops for each species of livestock.

Examples of checklist questions in the *Working manual* are as follows:

- 'Have all personnel handling, loading and unloading livestock been assessed as competent in the careful and appropriate use of goading implements and dogs?'
- 'Is the use of goading implements and dogs for livestock handling appropriate?'

In this regard, electric prodders are only used on cattle over three months of age, dogs are not used on any animal younger than three months of age and dogs are to be well trained and muzzled at all times while working with or in the vicinity of animals.

The *Working manual* contains targets for matters such as the use of goads ('fewer than 25% of animals should be prodded during loading or unloading') and recommended practice information such as: 'Communication should be carried out with suppliers of livestock where handling difficulties are identified, or handling is increased to load and unload livestock. Any factors that cause baulking or other facility design issues may need to be re-examined and action taken to

eliminate the problem. Examples of items that can cause baulking and increase prodder use and the need for physical handling include noise, poor design, people movement, lighting and shadows'.

The purpose of the third booklet, *Background information and rationale* (16), is training. This booklet contains information on the intent of the standards, the checklist questions, current practices and recommended actions. It refers to scientific support for the standards and provides explanatory material on the impact of various practices and procedures on animal welfare.

## **Benefits from the development and implementation of quality assurance programmes for animal welfare**

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Australia's livestock industries generally acknowledge that QA programmes for animal welfare can assure customers that their requirements are being met and can demonstrate compliance with relevant legislation and the Australian *Model codes of practice for the welfare of animals*, which have a unique role in managing animal welfare. To explain, animal welfare, particularly that for land transport, is the responsibility of Australia's eight different State and Territory governments and model codes of practice are directed at national consistency and harmonisation. These codes can be modified for the circumstances of a State or Territory. For instance, the State of South Australia incorporates them into legislation.

Australian *Model codes of practice for the welfare of animals* are important instruments of public policy. They contain recommendations and ambitions that were not meant for and do not convert easily to legislation. The codes cover matters that pose difficulties for quantitative measurement and where circumstances can influence the best course of action for animal welfare. Animal welfare differs markedly from animal disease management or animal traceability, where systems can be mandated more specifically.

The Australian *Model codes of practice for animal welfare* are similar to those applied in Canada, New Zealand, the United Kingdom and other European countries. In this regard, codes of practice are generally not legislated themselves but can be referred to in legislation. For instance, successful prosecutions over animal welfare in Australia generally require proof of cruelty or neglect. On the other hand, it can be necessary for defendants to justify non-compliance with a code that results in poor animal welfare. Furthermore, non-compliance with a code of practice can be used as supporting evidence in prosecutions.

The situation is evolving and relevant components of existing model codes of practice and associated State codes are now being translated, in a new process under the auspices of the Australian Animal Welfare Strategy (AAWS), into legislated standards. Land transport of livestock has been the first initiative where the current codes of practice for individual species are being consolidated into a single document of Australian standards and guidelines for all major livestock species. It is intended that the resulting standards will be integrated into legislation in a consistent manner across jurisdictions and, although implementation is under discussion, the projects undertaken to incorporate animal welfare into current industry QA programmes provide a clear pathway to verify these new legislative standards. Such welfare QA programmes will enable national and international benchmarking against other agreed standards and trading partner requirements, such as those of the World Organisation for Animal Health (Office International des Épizooties: OIE), directives of the European Union and other key international customers and food service providers.

While there is current effort being devoted to the content of legislated standards for transport, there appears to be less discussion on how best to implement the legislation, firstly in terms of how to integrate key standards into the legislation and, secondly, the methodology for verifying the standards once legislated. There is greater clarity around

verification of standards that are more prescriptive and measurable. However, other key components that are important to welfare are more difficult to audit, such as fear, pain and skill of stockpeople. There are several options for such legislation in Australia, namely: firstly, to legislate the complete set of standards in detail, secondly, to reference the standards under the Act(s), for example, Australian *Model codes of practice* have been incorporated in their entirety into legislation in South Australia (17). Thirdly, to legislate for specific issues only, as has occurred with space allowance for hens in cages in Victoria (9). Fourthly, to legislate for a QA programme that contains the key requirements of the standards as seen in the licensing arrangements to supply food in the poultry, dairy and meat industries. To obtain a licence to supply, QA provisions must be fulfilled and demonstrated through an audit by the controlling authority (for example, 'PrimeSafe' for meat, poultry and seafood in Victoria and 'Safe Food Queensland' for all livestock industries in Queensland) comprised of government and industry. Lastly, to legislate only those standards that can be measured.

Considering these options in the context of the earlier discussion on a holistic approach to welfare, utilising elements of both HACCP and management practices, our preferred option is a requirement in legislation for a comprehensive QA programme to be in place as occurs for food safety and biosecurity. While this would mean that some standards may be neither measurable nor enforceable and would probably be an anathema to legislators, this would seem to be the only way to have comprehensive standards that cover all aspects of animal welfare from birth to slaughter. Thus, the simplest option may be to legislate for industry or industry sector QA programmes that include comprehensive details of animal welfare, similar to the way in which the codes of practice have been legislated. One question still to be answered for any of the options mentioned above is the role of government in verifying the standards in practice and collecting data to demonstrate continual improvement. Options include a

government bureaucracy to take on this role, a designated auditing authority, comprised of both industry and government, or a commercial audit system. Any system should be coupled with government oversight of the quality of auditors as detailed in the recent review of auditor competency frameworks (8). Finally, the authority responsible for deciding whether the welfare component of the QA programmes is both comprehensive and acceptable and how any auditing would be conducted is unresolved. In Australia, this may be a task for the Primary Industries Standing Committee which is comprised of representatives responsible for animal health and welfare in all States and Territories.

The main aim in developing the QA documentation was to demonstrate an industry's commitment to animal welfare. However, other subsidiary aims included improving the awareness of producers and industry personnel of the interactions between production and welfare, improving the ability of industry participants to be spokespersons for their industry on welfare and other QA issues, improving product quality and heightening the recognition that welfare is not static and can be continually upgraded. The development process highlighted the benefits of training to underpin the standards for animal welfare. A focus on practical welfare issues and improvements to the competencies of stockpersons has a potential to increase job satisfaction and enhance productivity.

The projects to develop animal welfare documentation for industry QA programmes provided a regular occasion for interactions between industry and welfare groups, an opportunity to increase the understanding of all viewpoints and to change the perception that livestock industries comply only with minimum welfare standards and do not strive to achieve high standards. Our experience during these projects was that all stakeholders were aiming for the same or similar objectives and were able to achieve consensus on what was required for animal welfare, what the legislative responsibilities and recommended practice should be and what was achievable within practical limitations.

## Risks related to the development of quality assurance programmes for animal welfare

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A number of risks accompany the potential benefits of QA programmes for animal welfare. Firstly, the welfare standards for a range of industries have been developed with broad stakeholder consensus but the general acceptability by consumers and the wider community remains to be tested. Secondly, the effectiveness of the system depends on sufficient numbers of competent quality auditors. Some industries, particularly those that supply export markets, have a system of third-party independent auditing. Other industries have trained second-party auditors as part of an industry-managed auditing system.

Another risk for the development of QA programmes is the absence of a unanimously accepted definition of animal welfare. The common concepts of animal welfare in the scientific literature promulgate one or more principles necessary to protect animal welfare, such as reducing stress, minimising negative emotions, maximising positive emotions, ensuring adaptation, providing opportunity for 'normal' or 'natural' behaviours and providing 'natural' environments (11). The implications of such divergence in definitions is illustrated by an increasingly common view, supported by many welfare groups worldwide, that places more weight on the importance of 'normal' or 'natural' behaviour than the normal biological functioning of the animal in assessing animal welfare. Similarly, measuring preferences of animals, using preferences and related methodologies, such as preference tests and operant conditioning, has been employed to study an animal's perceptions of its requirements or the adequacy of its environment (7, 23). Nevertheless, a major challenge in using animal preferences to study animal welfare is clarifying the link between preferences and welfare. Indeed, animals may not necessarily prefer, or be motivated to obtain, resources



that are truly in their best interests (10). Nevertheless, while specific definitions and standards of animal welfare vary, few would disagree that animal suffering embodies prolonged adverse physiological and mental states in the animal (27).

### **Ethics and community involvement in the development of animal welfare standards**

Another difficulty is that the establishment of animal welfare standards, at least the most contentious standards, should be underpinned by ethical discussion. Ethics is concerned with the principles of right conduct: by engaging in ethical reflection, the aim is to improve the behaviour of ourselves or other people by showing that we or they presently act in ways that are not as ethical as they might be (24). In any ethical analysis, science can provide us with facts, but to remain rational we need to utilise these facts in our thinking. Thus, when combined with our other beliefs and principles, facts can yield behavioural guidance (24).

Animal welfare is a social issue and it is appropriate that such an issue is discussed in the public domain and that public attitudes are influential in determining animal welfare standards in the community, including standards for farm animals. We think that most people are willing to embrace the findings of science as they impact upon our use of animals. The fact that debates on a range of social issues are present in our media: debates to which a wide variety of experts and the general public (through letters in newspapers and interviews) contribute, demonstrate the public's interest in good arguments and facts. Science is routinely invoked in these arguments. There is every reason to think that if scientific information on animal welfare is clearly presented to the public and if this information is combined with reasoned ethical debate, progress in achieving consensus on the most contentious animal practices will be achieved. While the attitudes of individuals to the use of and obligations to

domestic animals are extremely disparate, rational ethical discussion in the public domain may assist in accommodating such diversity.

### **Uptake of quality assurance programmes for animal welfare**

The documentation we have produced is not to be confused with the QA programme *per se*. In the series of projects for the different industries and industry sectors, it was always intended to produce national documents from which either all or some standards could be incorporated into industry or company QA programmes, depending on the structure of the industry. For example, the pork industry has developed a single national QA programme utilised by a number of companies, while the chicken meat industry and the processing industry have company programmes. Nevertheless, it is intended that any standards incorporated into QA programmes will be the same on a national basis.

To date, the transport QA project has had some success in that the three documents have been integrated into the industry's main QA programme, 'Truckcare' (30). Truckcare is an accreditation programme aimed at providing the key standards and templates for transport operators to fulfil the requirements for biosecurity, food safety, traceability, management and animal welfare. Currently, approximately 35% of transport drivers are involved in the programme, with a plan, following the release of the revised programme in 2007 that includes the animal welfare standards developed in this project, to achieve 90% uptake across the industry. As the welfare component of the revised Truckcare programme was developed using a similar methodology to that used for other industries/sectors, it links to the key animal welfare requirements already developed for processing plants and for some species on-farm as well as to feedlots and saleyards, providing for a 'whole of chain' approach towards assurance in animal welfare practice.

## Concluding remarks

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QA programmes that include a comprehensive animal welfare component have developed, in part, because of the changing industry awareness that animal welfare is an issue that engages the broader community. Decisions on at least contentious welfare standards need to be discussed in the public domain since public attitudes are and should be influential in determining animal welfare standards. In any ethical discussion, science can provide the facts and, for such discussions to remain rational, these facts should be utilised in this thinking. However, there is only limited evidence to date that such QA programmes improve specific elements of animal welfare. The impact of these QA programmes will only be fully realised by better demonstrating their ability to deliver positive and comprehensive benefits and continual improvements in animal welfare and their acceptability by the

broad community, ability to meet customer requirements and ability to provide regulatory authorities with sufficient data to demonstrate they are the appropriate vehicle for meeting agreed standards of animal welfare. To date, such QA programmes have only made a start towards meeting all these needs.

## Acknowledgements

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The project on land transport reported in this paper was funded by the Naturally Victorian Initiative within the Department of Primary Industries (DPI), Victoria. We thank the many stakeholders who participated in the management and steering groups. The discussion presented on welfare assessment and ethics was developed with funding from Our Rural Landscapes programme of DPI, Victoria. We also thank David Adams for his generous and erudite efforts in improving the manuscript.

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