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Two incidents that changed quality management in the Australian livestock export industry

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Summary

Quality assurance in Australia's livestock export industry arose from a need to address animal welfare concerns. It was initially instigated by industry in the form of an accreditation scheme which contained standards, auditing requirements and training requirements. Two major incidents in long haul shipping of livestock demonstrated that risk management in the industry cannot be achieved through compliance with standards alone. A thorough investigation of the first incident recommended the introduction of formal risk management to complement a standards regime. This approach is applicable to the management of major risks, such as heat stress and disease. It is also especially suited to commercial risks, such as the rejection of cargo and where voyage or market specific treatments are needed and depend upon the expertise of the exporter. However, before these recommendations on risk management could be fully implemented, a significant public incident occurred which altered the direction of quality assurance in industry. The Australian response was to transfer authority to government regulators with a tightening of standards. This focuses on the need to ensure ownership of quality assurance programmes by the exporter. Formal risk management has been a casualty of the second incident and, unfortunately, has not been introduced.

Keywords

Australia, Export, Livestock, Management, Quality assurance, Risk management, Standards, Transport, Vessel, Welfare.

Due incidenti che hanno cambiato la gestione della qualità nell'industria dell'esportazione di bestiame in Australia

Riassunto

L'assicurazione della qualità nell'industria per l'esportazione del bestiame in Australia deriva dalla necessità di indirizzare i temi inerenti il benessere animale, inizialmente scaturiti dalle esigenze dell'industria sotto forma di schema di accreditamento contenente standard, requisiti di auditing e requisiti di formazione. Due importanti incidenti verificatisi nel corso di una spedizione a lunga distanza hanno dimostrato che la gestione dei rischi nel commercio del bestiame non è realizzabile conformandosi semplicemente agli standard. Uno scrupoloso esame del primo incidente ha suggerito l'introduzione di una gestione formale del rischio che integri il sistema degli standard. Questo approccio è utilizzabile nella gestione dei rischi più ricorrenti come lo stress da calore e le patologie. Tale criterio si adatta perfettamente anche al rischio commerciale, come nel caso di un carico respinto o quando il trasporto o il mercato richiedono attenzioni particolari nonché la competenza dell'esportatore. In ogni caso, prima che queste indicazioni per il controllo dei rischi fossero pienamente applicate, si verificò un incidente di grande risonanza che cambiò l'indirizzò dell' AQ nell'industria. La reazione dell'Australia fu di conferire l'autorità ai legislatori per accrescere gli standard. Tutto ciò concentra l'attenzione sulla necessità che si assicuri una completa padronanza dei programmi di assicurazione di qualità da parte

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degli esportatori. Nonostante la gravità del secondo incidente, la gestione formale del rischio non è stata introdotta.

Parole chiave
Assicurazione di qualità, Australia, Benessere, Bestiame, Esportazione, Gestione, Gestione del rischio, Nave, Standard, Trasporto.

Background

The livestock export industry, particularly the long distance sea and air transport sector, is a growing and maturing industry in Australia. The industry has always been one of high risk and this has been the focus for major efforts to protect the welfare of livestock, especially in quality assurance and inspection. Two major and public incidents changed the nature of these efforts. In 2002, on the maiden voyage of a purpose-built vessel, the *MV Becrux*, 614 head of cattle died due to heat stress in the waters of the Persian Gulf. In 2003, the *MV Cormo Express* sailed in to the port of Jeddah only to be prohibited from unloading its cargo of 57 973 head of sheep. The repercussions of these two incidents changed the face of quality management within the livestock export industry in regard to ensuring the welfare of livestock.

The export and often long distance transport of livestock has been an integral part of the Australian rural scene since the end of the 19th century. Australia was exporting to 12 countries by 1903 (T. Johnston, unpublished findings). The trade steadily grew through the 1980s when Australian companies exported approximately 70 000 head of cattle and over 6 million head of sheep, with a peak in figures recorded during the 1990s. This rapid growth was accompanied by problems that included both greater mortalities and difficulties in maintaining the supply of animals that suited long haul transport. At the same time, the awareness of animal welfare emerged as a priority.

Several government departments had legislative control of the livestock export industry including the Australian Department of Transport, Australian Department of Agriculture and State Primary Industry Departments. The instruments used were Customs (Prohibited Export) Regulations, Marine Orders, a variety of Prevention of Cruelty to Animal Acts, in unison with a variety of guidelines and Codes of Practice. The vast bulk of this legislative control operated through inspection of livestock at the appropriate place in the export chain, a process that was recognised as inadequate. By the late 1980s and early 1990s, the industry and government came to realise that a more rigorous and centralised approach needed to be taken and the concept of a self regulated quality assurance scheme originated.

A project was commissioned to develop a set of operational standards derived from all the available standards and guidelines that would deliver good animal welfare and commercial outcomes. These standards – the Australian Livestock Export Standards (ALES) – were released in 1997and were complemented by an accreditation scheme which involved basic quality assurance principles. This new accreditation system, called the Livestock Export Accreditation Programme (LEAP), was launched in 1998.

The Livestock Export Accreditation Programme

LEAP was a major innovation in quality assurance in Australia's livestock export industry and its development was driven by the industry's peak body, the Australian Livestock Export Council (ALEC). Motive forces were recognition that animal welfare was beginning to play an important part in the Australian community and an increasing practical need to rationalise the many standards directly or indirectly impinging on the industry to ensure good animal welfare outcomes. The LEAP included the following:

- a set of standards (ALES)
- a set of 'rules' that an exporter had to meet which defined the accreditation process
- an independent auditing regime
- an industry and government review team
- legislative backing.

LEAP was administered by the newly formed Australian Livestock Export Corporation

Limited or 'LiveCorp' with AUSMEAT Limited, the organisation responsible for establishing and maintaining Australia's industry standards for meat production and processing, supplying independent auditing facilities.

Australian Livestock Export Standards

This set of standards covered the following:

- reporting
- selection and preparation of livestock
- use of veterinary chemicals
- management and design of livestock pre-shipment assembly
- land transport
- inspection
- loading and on board management for sea and air.

ALES were a detailed and pragmatic set of standards that had a mixture of prescriptive and process requirements. The standards were divided into various sections, such as long haul shipments (duration of 10 days or longer), geographic considerations, such as tropical or temperate, species and requirements for sea and air freight. It attempted with some success to combine in a single document the requirements present in the many and various codes of practice and legislation.

Rules

The rules were the requirements of the LEAP. They stipulated the obligations of a participant exporter and mapped out the quality system the exporter required, the characteristics of the auditing regime, what could be expected from an audit and the interactions with other quality assurance systems, such as those of the International Organization for Standardization (ISO). The rules explained the unique auditing system, including performance categorisation and when remedial and punitive action was required. Most importantly, LEAP elicited from the participant a commitment to follow the rules of the system.

Audit

Auditing was assigned to an independent auditing body that, with the industry, designed a formal regime. A new entrant was required under the 'rules' to construct a written manual that was desk audited and the new entrant was interviewed face-to-face. On approval, the exporter was allowed to proceed on a 'provisional' basis and each shipment was audited. With successful audits, and at the discretion of the review team, an exporter was permanently 'accredited'.

An ongoing regime of two audits per annum was then initiated. The auditing process consisted of the assessment by the auditor of over 150 compliance observations. Participants were classified by the results of the audit, as follows:

- 'A' was the default satisfactory level
- 'A–' was the level requiring immediate corrective action
- 'B' indicated that extensive work and monitoring were required
- 'C' signalled the prelude to losing accreditation status.

The audit regime had strict and prescriptive rules for changes to an exporter's category.

Ongoing review

A weekly process of monitoring was established to handle approximately 100 accredited enterprises in the system. This process examined each audit that was performed and validated any corrective action recommended by the auditor. Larger review meetings were held by the LiveCorp Board, as well as by a specific group established to monitor trends in exporter performance, to communicate with stakeholders, including government, and to approve alterations to ALES.

Legislative backing

It is a requirement of Australian legislation that any individual or company that wishes to export livestock from Australia has to be licensed. Licensing is based on the three following criteria:

- financial position
- good character as assessed by police records
- competence to meet legislative requirements.

Until 2004, the government accepted accreditation to LEAP as meeting the

requirements for competence. Consequently, withdrawal of LEAP accreditation could lead to licence withdrawal, which meant a cessation of the business of the enterprise. There was a good incentive, therefore, for compliance with LEAP. Government and stakeholders were satisfied that LEAP was a robust system on which future development could be based.

The years before the incidents

The years from 2000 to 2002 saw a maturing of the LEAP as the members gained experience with the system. As a snapshot, in January 2002, there were 46 active participants in the scheme with a further 42 provisional members of the scheme. Punitive action, mostly minor, had been successfully addressed with participants. Two major punitive actions had been undertaken with one withdrawal of accreditation and one downgrading to 'C' category and threatened withdrawal. The latter company instituted recommended corrective actions and succeeded in re-gaining 'A' status after extensive monitoring and auditing.

A review of LEAP was commissioned by industry. The reviewers made a number of recommendations which included changes to the standards and a widening of the scope of LEAP. One of the conclusions was 'the LEAP was generally regarded as a very positive initiative, which had both enhanced the performance of the trade and its standing with government and the community' (Industry LEAP Review, 2000, unpublished).

The results of a wider review by an independent reference group (IRG) were released in February 2000 (H. Wirth, G. Murray, I. Caple and M. Foster entitled *Australian livestock exports: a report on the industry and welfare of animals*, unpublished). The IRG, which reported to parliament, was sponsored by government and consisted of representatives from government, major animal welfare groups and the wider livestock industry. This group recognised the value and contribution of LEAP to the advancement of quality assurance within Australia's livestock export industry: 'we are of the view that there has been significant improvement to the welfare of animals that are transported for export by the industry. The industry has taken leadership in introducing programmes and procedures that are mainly responsible for this improvement'.

LEAP, the initiative of industry, seemed to place the livestock export industry on a sound footing for improvement. It would be wrong, however, to say that the industry as a whole was well versed with quality assurance. Corrective action reports from audits, although mostly related to minor concerns, showed that many companies were struggling with the concept of quality assurance. In the opinion of the author who administered the scheme and had day-to-day management responsibilities for the programme, this was due to the complexity of the process chain with many of its facets being beyond the control of the exporter. The consequent uncertainties tended to foster ad hoc procedures and processes, with priority being given to meeting strict time demands and the requirements of the government inspection process, which were only two of the many quality attributes required. An initial attempt to cope with these complexities employed so-called quality assurance manual templates. These introduced the concept of standardised procedures, which sought to support predictable outcomes that could conform with the ALES.

Review meetings noted that some companies responding to corrective actions arising from audit grasped the quality assurance concept and placed increasing emphasis on the delivery of quality desired by customers. In some cases, this was difficult because the customer was not a clear-cut entity. Customers could consist of many stakeholders, such as the importer, the end-user, the government of the importing country, the Australian government, animal welfare groups in Australia, etc. As this became evident, an increasing number of companies moved away from the template and produced their own company-specific manuals that enabled them to demonstrate a superior level of compliance to the ALES. In 2002, the quality assurance systems of the Australian livestock export

industry were demonstrably improving, but were concerned for the most part with compliance to the ALES.

However, some worrying trends were developing. The number of mortalities above the reportable levels of 2% for sheep and goats and 1% for cattle were rising. This was due to incidents of poor weather in the tropical seas and the emergence of salmonellosis in sheep shipments from ports in the south of Australia.

The first major incident

The *MV Becrux* is a vessel of 30 000 tonnes with a deck capacity of approximately 23 000 m² for cattle and sheep (Fig. 1). The Australian Maritime Safety authority (AMSA) issued the 'Australian Certificate for the Carriage of Livestock' in June 2002 (Australian Maritime Safety Authority, 2002) and the *MV Becrux* berthed at Portland in Victoria to load livestock for its maiden voyage. The maiden voyage generated some publicity in Australia as the *MV Becrux* represented a new era in modern livestock shipping from Australia.

Figure 1
MV Becrux
A livestock vessel that was custom built between 2000 and 2002

The ship sailed from Portland with 1 752 cattle and 46 055 sheep to Fremantle to load an additional 243 head of cattle and 17 379 sheep. It is not the intention to describe the details of the incident as these have been covered extensively in investigations authored by AMSA, the Australian Quarantine and Inspection Service (AQIS) and the livestock export industry through the LiveCorp agency (2). In summary, 569 head of cattle died with symptoms of severe heat stress following what appeared to be high ambient temperatures and humidity.

This incident received a large amount of publicity in Australia and, as a result, the community began to express its concern regarding animal welfare practices of the industry. This concern was reflected in the attitude of the Australian government that demanded extensive investigations and reporting. The main areas questioned were what had failed and why hadn't this failure been foreseen.

It was fortunate that the incident was heavily investigated because a clear picture of events emerged, sometimes in spite of the publicity. At the risk of oversimplifying a complex situation and despite efforts on the part of the stockmen, on-board veterinarians and ship's crew, it is now apparent that some of the animals selected for export were not capable of withstanding the environmental conditions. 'on balance therefore, the mortality incident occurred mainly as a consequence of the low UCT [upper critical temperature] of many of the *Bos taurus* animals and the extreme ambient conditions' (2). It is interesting to note that of the 1 995 head of cattle, no mortalities were recorded among the 515 head of *Bos indicus* breed (2). As a result of calls to close the live export trade and pressure applied to the Australian government, crisis meetings were held with industry.

Results of the incident – the birth of formal risk management

The recommendation of the investigatory reports on the voyage of *MV Becrux* was the immediate instigation of risk management models for heat stress. 'In a departure from the current ALES approach and as a matter of urgency, a computer-based system to assess and manage these risks should be developed and adopted by industry' (2).

Work was underway at the time of the *MV Becrux* incident to study the efficacy of ventilation of a number of livestock carriers (4). As a result of this work, a direct correlation was postulated between the onset of heat stress in livestock and the wet bulb temperature within the decks of livestock carriers. This led to the concept of 'wet bulb temperature rise' and the development by Conrad Stacey (from Maunsell Australia Pty, Ltd) of a software program for heat risk assessment called 'HotStuff', which is owned by Meat and Livestock Australia and is distributed to licensed livestock exporters across Australia (3).

HotStuff uses an algorithm for comparing the wet bulb rise for a particular deck on a specific livestock vessel to the characteristics of the livestock consignment on that deck for a specific time of year on a specific route. The model is based on extensive meteorological data for the wet bulb temperatures at different times of year and a range of livestock characteristics, including weight, acclimatisation to environment, breed and type, coat type (wool length for sheep) etc. (3). A typical screen for the software is shown in Figure 2.

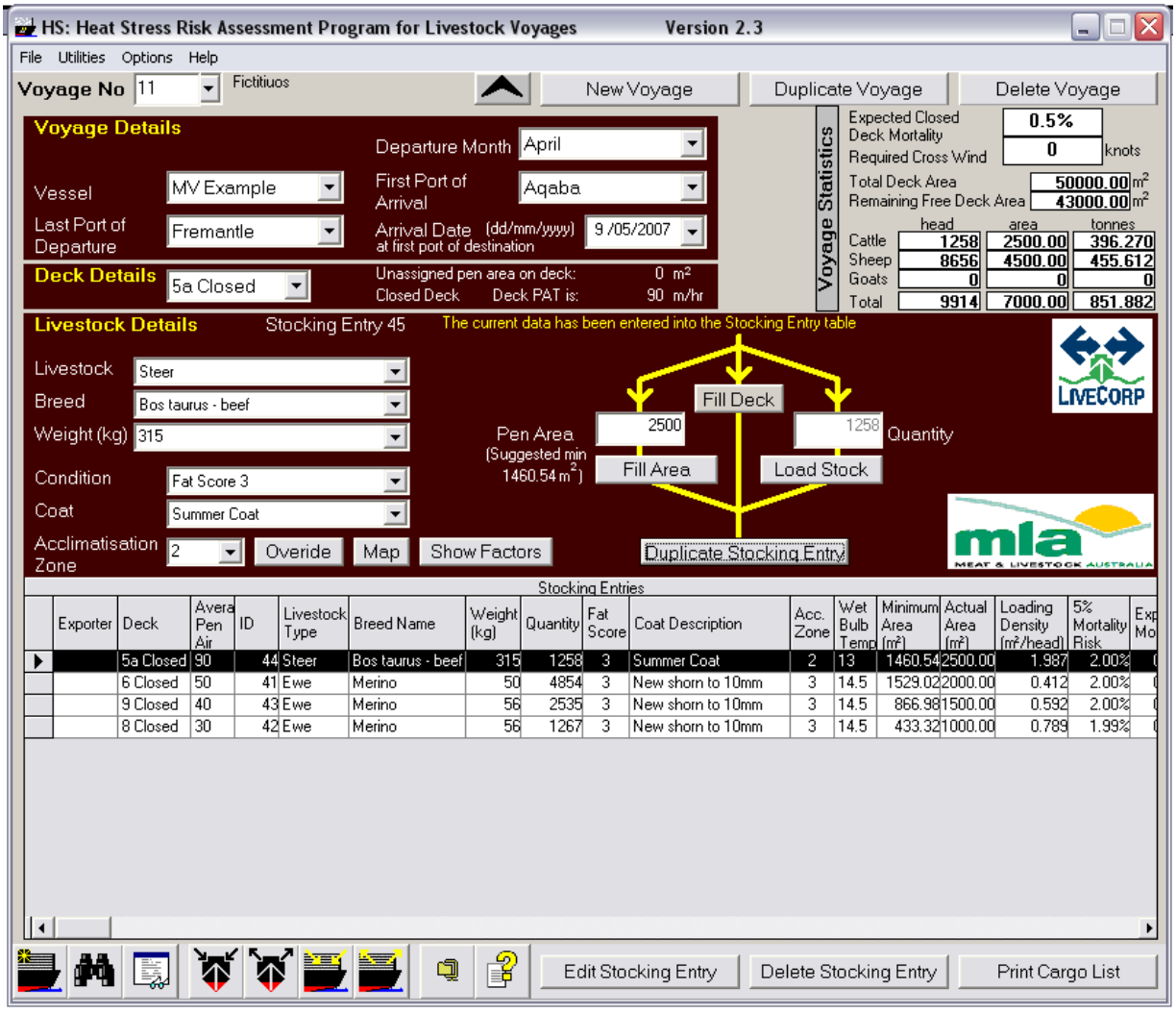

Figure 2
Data entry computer screen for the heat stress risk programme, HotStuff

The software assesses and quantifies risk as the probability of 5% mortality and suggests risk treatments through adjustments to the stocking density. This analysis is now incorporated in the standards and is required for all voyages from Australia to the Middle East. The acceptable risk agreed by government and industry is <2% probability of a 5% mortality. Hotstuff represents a major step towards the introduction of formal risk management into quality assurance for Australia's live export industry. The production of this software gave the government a level of confidence that industry was in better control of heat stress and that trade could continue.

Investigations into the *MV Becrux* incident included audits on the exporter under the existing LEAP to ensure compliance with industry's ALES. These audits demonstrated an acceptable level of compliance. It was rapidly realised that compliance to a set of 'whole of industry' standards on its own provided insufficient protection against incidents like that involving the *MV Becrux*.

The Australian livestock export industry through partnership between LiveCorp and Meat and Livestock Australia commissioned a full review of its self regulatory programme. This project (5) made 36 recommendations that covered the entire scope of standards, effectiveness in managing risk and the implementation and assessment of compliance. Recommendations included the following:

- industry adopt an outcome-based model with outcomes forming the basis of risk management (as it relates to animal health and welfare), incident management, and compliance both in terms of accreditation and auditing
- the management of animal health and welfare risks during live export be based on the methodology of the Australian/New Zealand standards for risk management
- industry take an outcome- (rather than a hazard-) based approach to risk management
- a number of recommendations expanding on the risk management approach using the prescriptive standards as a baseline.

In other words, the review recommended the addition of a formal risk management programme to the existing standards and accreditation scheme. The risk management programme was to be based on a generic model and was to take into account the complexity of the process and the diversity of risks involved (Fig. 3). The review was well received but required a substantial implementation plan involving a high degree of consultation with industry stakeholders, especially the Australian government. However, the second incident occurred before work could commence.

The second major incident

On 5 August 2003, the *MV Cormo Express* left Fremantle bound for the port of Jeddah in Saudi Arabia with 57 937 sheep. The voyage was without incident, with a mortality of 0.9%, which was well within the reportable incident level of 2%. Unfortunately, the shipment was rejected by officials of the Saudi Arabian government upon arrival on 21 August. The initial reason for rejection was given as disease, an observation denied by the Australian industry with subsequent support from an independent veterinarian nominated by the World Organisation for Animal Health (*Office International des Épizooties*: OIE) (N. Brown, personal communication). The reason for rejection remains controversial but the damage inflicted on the Australian industry was immense.

A variety of political manoeuvres by a wide range of governments failed to reach a solution with the result that the ship was stranded and it was not until 24 October 2003, eighty days later, that the vessel was discharged at Massawa in Eritrea. During this period of 80 days, the incident was a constant source of media attention which greatly hampered any animal welfare solutions and in turn placed enormous public pressure on the Australian government and industry to resolve the problem. Resolution of the incident left both industry and the Australian government with the enormous task of re-building public confidence in the livestock export industry.

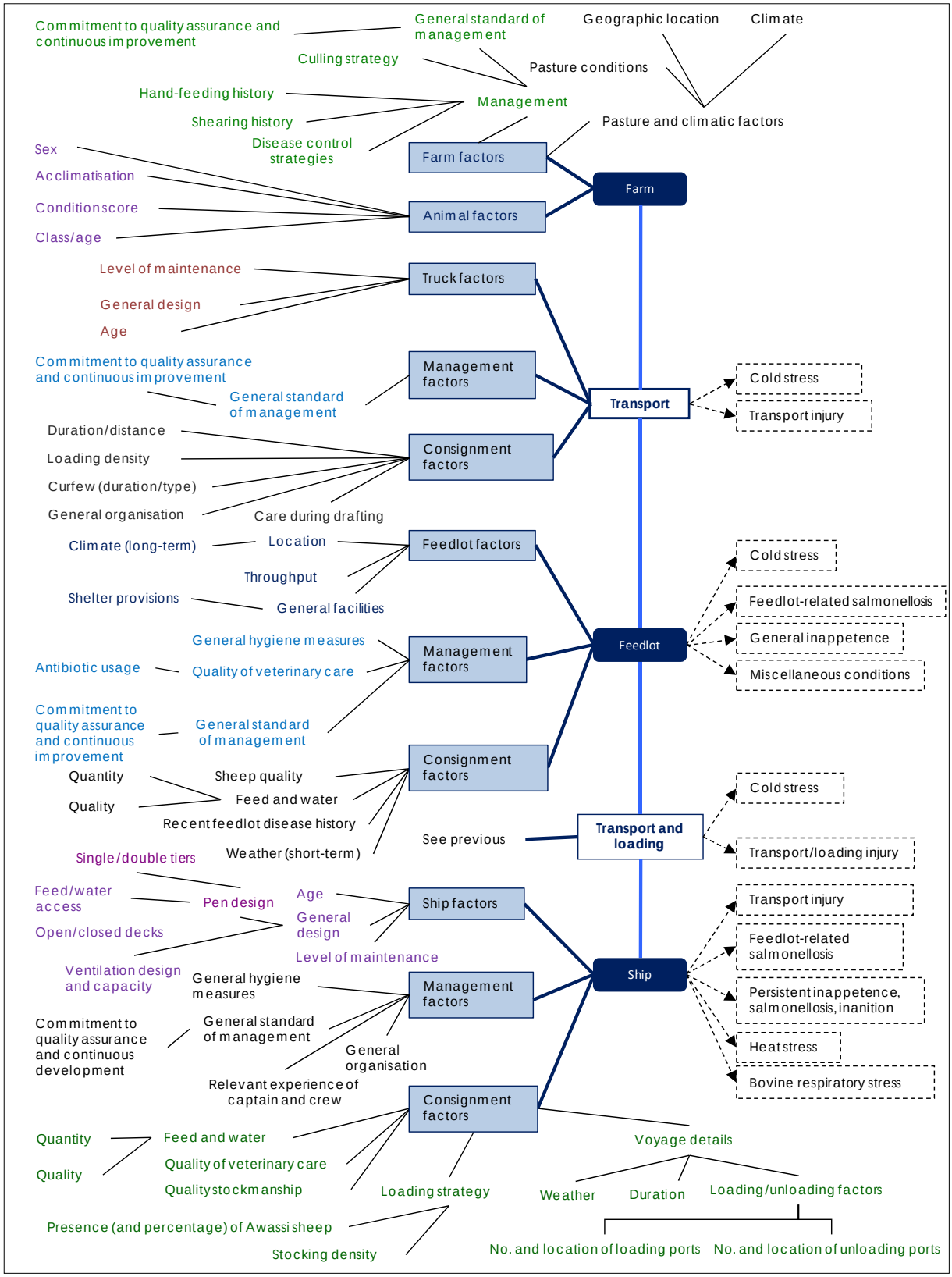

Figure 3
Web of causative factors
A diagrammatic representation of the live export process, including the causal web of risk factors (on the left) leading to adverse health and welfare outcomes (on the right)
(5)

Results of the incident – the end of industry co-regulation

The Australian government commissioned John Keniry to publicly review the livestock export industry, to take submissions from all stakeholders and the general public and to report to the Australian government with a series of recommendations for the future of the Australian livestock export industry.

The report produced eight recommendations and the Australian government accepted all but one of them. Ensuing government action achieved the following:

- the redevelopment of the standards to encompass all relevant codes of practice and existing standards into one government-controlled standard; the new standards, which incorporated most of the industry standards in the ALES and the Australian Model Codes of Practice for Animal Welfare were called the Australian Standards for the Export of Livestock (ASEL); the group charged with advising on the content and upkeep of the standards consisted of a range of stakeholders including Australia's Commonwealth and State governments, veterinary associations, animal welfare groups and livestock industries
- the assessment of and enforcement of compliance with the new standards was to be undertaken by the AQIS and was to be linked to government-issued export licences
- the presence of a veterinarian on all shipments that lasted more than 10 days and on a random number of shorter duration voyages
- the negotiation of memorandums of understanding between Australia and customer countries to avoid a repetition of this incident.

In effect, these actions removed all controls for standards and compliance from industry and returned them to government. Formal quality management programmes were also transferred to government and the LEAP accreditation scheme ceased. The formal quality management programme now consists of the requirements under law for a licensed exporter to produce an 'Operations and governance manual', which describes how a company intends to meet government standards. This manual and the process are audited every six months to verify compliance by government auditors. All consignments are to be approved before the commencement of sourcing livestock and must be accompanied by a 'consignment risk management plan'. This document informs government on how the exporter intends to mitigate consignment risks pertaining to compliance with the standards. Additional areas of government inspection along the process chain have also been instituted.

The serious casualty of the *MV Cormo Express* incident has been the failure to implement the recommendations in the *Review of the Australian livestock export standards* (5) regarding state-of-the art risk management. For an industry with the risk profile of livestock export, formal risk management on both a consignment-by-consignment basis and an industry-wide basis is essential. A question often asked when speaking of risk management is: Did the standards at the time take into account the scenario that gave rise to the *MV Cormo Express* incident? The answer is no and this pinpoints the crucial deficiency in relying on prescriptive standards alone, without the support of formal risk management.

Concluding remarks

The two incidents described have highlighted the need to combine formal risk management with compliance to standards as part of the quality assurance process for the Australian livestock export industry. Standards without risk management or risk management without standards will not achieve the desired outcomes for the high risk livestock export industry.

Risk management must be complete and include all aspects – risk context, risk identification, risk analysis, risk assessment, risk treatment and risk communication and validation. The performance of all these steps requires that the risk beneficiary, namely the

exporter, is intimately involved and takes ownership and accountability for the process rather than leaving it entirely to regulators. It is unlikely that regulators (government), industry bodies or exporters are in a position to identify all risks in their own right, let alone perform the entire risk management process. A system to facilitate risk management by the owner of the process, the exporter, is required to ensure that all aspects of risk in voyages are identified, treated where necessary and that treatments are independently validated. As the suggested system matures, prescriptive standards could be alternated with outcome-based standards for those exporters who display superior process controls.

A danger in not taking ownership or responsibility of the risk beneficiary into account in quality assurance processes could be increasing distrust between regulators (the government) and exporters. This could culminate in a burden of regulation where the goal of some exporters could shift from producing good animal welfare outcomes to that of avoiding the regulator. A structured three-way approach between the regulator, the livestock export industry as whole and individual exporters could ensure that standards are relevant and practical and produce good animal welfare outcomes. In addition, a combination between standards and formal risk management could enhance the protection of animal welfare and thus increase trust and confidence in the livestock export industry, a goal that the industry's own organisation, LiveCorp, is committed to achieve.

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