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03 December 2018

Mr Steve McCutcheon
Department of Agriculture and Water Resources
GPO Box 858
CANBERRA, ACT 2601

Review of the Australian Standards for the Export of Livestock (ASEL) – consultation on draft report and draft reformatted standards

Dear Mr McCutcheon,

Thank you for the opportunity to provide comment on the ASEL Review Stage 2 draft report and the draft reformatted standards released by the Technical Advisory Committee.

The Australian Livestock Export Corporation (LiveCorp) is the research and development corporation (RDC) for the Australian livestock export industry. It is a not-for-profit industry body funded through levies on the export of beef cattle, sheep and goats from Australia, and a voluntary levy collected on live dairy cattle exports.

LiveCorp does not engage in agri-political activities. The responsibility for policy and advocacy lies with the Australian Livestock Exporter's Council (ALEC). This demarcation is important as it reinforces LiveCorp's focus on service delivery within the Australian livestock export industry. As such, LiveCorp's role is to market Australian livestock overseas and invest in RD&E to enhance the productivity, sustainability and competitiveness of the livestock export industry. A key aspect of this is to provide support to exporters in the implementation of new and existing regulation to meet their regulatory and animal welfare requirements. Details on the activities and objectives of LiveCorp are available in its Strategic Plan and Annual Report available on its website, www.livecorp.com.au.

The Livestock Export Program (LEP)

LiveCorp works in partnership with other Research Development Corporations, industry bodies and research providers to achieve strategic outcomes for the industry and leverage higher returns for investments that demonstrate value for money for livestock exporters. In recognition of the benefit of livestock exports to businesses throughout the entire supply chain, including producers, much of LiveCorp's investment occurs in partnership with Meat and Livestock Australia (MLA), through the joint Livestock Export Program (LEP). The partnership with MLA to deliver the LEP is widely recognised as the most efficient mechanism for delivering RD&E and in-market technical support. The most significant area of investment for the RD&E Program within the LEP is the delivery of animal health and welfare

improvements, which receives 71% of the annual RD&E Program budget. The remaining RD&E budget is allocated to supply chain efficiency and regulatory performance, as well as market access related research.

Key projects that have been completed or underway within the LEP include RD&E to develop and implement the Livestock Global Assurance Program (a quality assurance framework for livestock exports), new animal welfare indicators for the live export supply chain that expand beyond mortality, and a salmonella vaccine.

General comments on ASEL review draft report

LiveCorp would like to acknowledge the significant work undertaken by the Technical Advisory Committee (TAC) to review ASEL and consider the large number of submissions in such a challengingly short timeframe to meet the requirements of the Australian Government.

We recognise that this accelerated timeframe has had several consequences for the review, including in particular that the standards will remain inputs based. LiveCorp continues to believe that ASEL should be transitioned to an outcomes based model, and welcomes the TACs clear support for moving in this direction in future reviews. It would be beneficial to understand the process or responsibilities by which this might occur following from the current review.

Another consequence of the shortened timeframe has been that a number of items will require further review by the TAC once new science / research and data become available. This is a logical approach and we look forward to the opportunity for the LEP to contribute its research to inform such considerations.

Implementation

Once the new ASEL (ESAL) is completed, there will be a significant task involved in the implementation of the new standards. We expect that the department will play a key role in this process, but also note that one of LiveCorp's focuses is delivering support to exporters to understand and meet their regulatory and animal welfare requirements. LiveCorp has completed and delivers a range of support tools and training in this regard, including the Shipboard Stockpersons Accreditation course, the ASEL Handbook app, and Approved Arrangements training.

The upcoming update to ASEL will need to be communicated to and adopted by exporters, their staff, Registered Premise operators, stock people, AAVs and shipping operators etc. This will be a significant task and will require amendments to training, materials, approved arrangements etc.

In light of the above, LiveCorp questions whether the new reformatted layout of the standards is needed at this time, given the standards are essentially remaining the same in style / approach (i.e. inputs based, rather than outcomes based). It may therefore be simpler and smoother for implementation and understanding to update the standards within the current, familiar structure, for both industry and the department. We note that the TAC appears to have allowed for this in the draft report stating that "*Pending the finalisation of those reviews, and the review of the standards for air transport, the department could incorporate the committee's recommendations into the current format of the standard.*"

LEP research and development

Adoption of industry R&D

LiveCorp welcomes the TACs decision to make several recommendations that adopt key industry research findings. As recognised by the TAC, it is important for the standards to be based as much as possible on scientific evidence.

Such recommendations include those made in relation to shearing sheep and hair sheep (e.g. not requiring shearing of hair sheep, stipulating a minimum of one clear day for sheep held in sheds between shearing and loading for export), as well as inanition and minimum time in registered premises for sheep (e.g. requiring sheep be held for a minimum of 5 days prior to export).

Current industry R&D

LiveCorp notes the TAC's references to several ongoing LEP research projects in its draft report and its recommendations that a number of standards be further reviewed when such research is completed. The R&D projects raised by the TAC include:

- Animal welfare indicators
- Automated voyage reporting
- Stocking densities
- On-board bedding and ammonia production
- Fodder
- On-board veterinary kit

For further information and background on these individual research projects, please refer to LiveCorp's previous submissions made to the ASEL Review (Stage 1 and 2). All of these research reports will be made available to the TAC on their completion, and updates provided as they progress.

We also note, as per our previous submissions, that LiveCorp is focused on understanding and investigating the practical implementation challenges that will need to be worked through to move the outcomes from these projects from research to adoption. In many cases – particularly in relation to data collection – the increased use of technology is almost certain to play an important role. As such, LiveCorp is engaging closely with a number of potential providers / researchers through both the LEP RD&E program and its Open Innovation approach to work through the specific challenges that exist – for example, connectivity, data processing, device power sources, collection protocols, calibration and resilience (e.g. of electronics or the membranes / filters used for measurement of gases, such as ammonia).

LiveCorp would welcome any further views from the TAC on its priorities for research associated with the livestock export supply chain regulated by ASEL. Such information would be an invaluable contribution to the setting of R&D strategies and priorities for the LEP R&D Program.

For example, we look forward to working with industry and the department to support the collection and analysis of data on the relationship between weight and welfare outcomes for cattle to better define parameters for exporting cattle over 500kg and whether a threshold weight limit is necessary.

On-board stocking densities

LiveCorp, in reviewing the proposed recommendations of the TAC, noted the following points that it wishes to raise in relation to stocking densities.

Seasonal variance of allometric k-coefficients

It is unclear what the scientific basis or evidence is for differentiating between the k-coefficient applied to sheep between May and October (0.033), compared with November to April (0.03). It is understood that the use of the allometric equation should determine the minimum space required for the physiological needs of the animals, but that this should not change – without clear reason – between seasons. This is particularly the case for livestock exports where the Heat Stress Risk Assessment (HSRA) considers thermoregulation in a much more refined and complete manner. On this basis, we question the evidence as to why the TAC's determined baseline on-board stocking density (i.e. 0.03) does not apply throughout the year with the HSRA determining the necessary space allowance reductions on a thermoregulatory basis.

Integration of allometrics, ASEL and the HSRA

LiveCorp notes that the TAC has proposed an approach that incorporates a range of different information towards the setting of stocking densities within the standards, with space allowances to be determined according to:

- A baseline allometric k-coefficient of either 0.03 or 0.033;
- The current ASEL space allowances, wherever this exceeds the allometric baseline; and
- The HSRA, wherever the voyage crosses the equator and the HSRA exceeds the allometric baseline / current ASEL space allowance.

We appreciate and certainly accept that allometric equations / k-coefficients have their limits in terms of the correlation of the theoretical calculations against reality and practical experience. However, it does appear an inconsistent approach for the TAC to accept practical experience where it exceeds the allometric baseline, but not where it is below the baseline.

Generality of the TAC recommendation

Allometrics can provide a mechanism for determining space allowances tied to changing weights of animals. However, the allometric equation has its limitations and, as noted in LiveCorp's submission to Stage 1 of the ASEL Review, there are varying levels of confidence in the different ways it is applied / proposed to be applied. For example, we noted in our submission that the most commonly accepted use of the allometric equation (in the livestock space) is to calculate the actual space occupied by individual animals performing static activities (e.g. standing, lying etc). Conversely, the application of allometrics for groups of animals, or as an estimate of the space required for animals to perform movements or behavioural functions, is less clear / accepted. In this latter situation, where the use of allometrics moves into behavioural activities, the need for validation through scientific research and evidence specific to the situation is essential. This is particularly clear when considering how much variation exists between how different breeds and species animals behave and act, and what resources they need.

In LiveCorp's initial submission, we noted that there were three key areas that any k-coefficient would need to take into consideration, informed by trial evidence, being:

- The type of animal and its state;
- The extent of spacing that is appropriate – what is acceptable based on research, evidence, observation and judgment; and
- The type of journey – what activity is required during the voyage, what risks need to be managed.

Given the above, it seems that the application of a behaviourally linked k-coefficient of 0.03 to all species, breeds and voyages appears to be a significant generalisation. Of course, it is also recognised that understanding the behavioural needs for the key groupings of livestock and journeys requires the input of research and practical data. The LEP – as indicated above – has a project underway to look at these needs in detail and inform future stocking densities - *Effects of stocking density on behaviour and group dynamics of cattle and sheep exposed to differing export conditions*. We also note previous on-board work completed by the CSIRO (*Refining Stocking Densities*) that looked at objective measures of welfare including mortality, morbidity, lying time and weight change at different stocking densities (up to a k-coefficient of 0.027). The CSIRO identified that the ASEL space allowances were appropriate but that a 10 % increase should be considered, particularly for sheep – this 10 % increase equated to an allometric k-coefficient of approximately 0.027. The CSIRO identified this space allowance was appropriate – both in terms of providing the necessary lying time and access to feed (by derivation of weight gain) – to maintain welfare of the livestock.

Given the TAC's recommendation to review the stocking densities in 12 – 18 months, LiveCorp wonders whether there would be value in considering an initial shift to a k-coefficient of 0.027 with the UNE project and structured on-board randomised trials of 0.027 and 0.030 informing whether the evidence base exists for further change.

Requirement for a heat stress risk assessment

As outlined in LiveCorp's previous submissions to the ASEL Review, the LEP R&D Program has invested significantly over a long period into expanding the scientific knowledge of heat stress in sheep and cattle (particularly as related to wet bulb temperatures). This has included the ongoing research, development and improvement of the industry Heat Stress Risk Assessment (HSRA) model since the early 2000s.

Experts from a diverse range of disciplines contributed to its development including engineers, statisticians, bio-metricians, veterinarians, animal physiologists, epidemiologists, meteorologists and programmers. The development of the HSRA also necessitated significant on-board voyage data collections of voyages to the Middle East and climate controlled trials to address the lack of relevant science in this space at the time.

The LEP HSRA is currently subject to a separate review by a department appointed HSRA Review Technical Panel. This Panel held a consultation period recently seeking input on a range of matters and LiveCorp provided a detailed submission to this review. We refer the TAC to this submission for further information on LiveCorp's technical analysis of the HSRA model in response to the HSRA panel's issues paper. If needed, LiveCorp can provide this submission directly to the TAC.

Within this submission, LiveCorp highlighted a range of key opportunities for improving the HSRA model including:

- Completing existing R&D activities – this includes, critically, the delivery of independent audits of pen air turnover and re-ingestion risks but also automation of monitoring, climate control trials and improved weather data;
- Improving the sensitivity of the weather inputs into the HSRA model (e.g. better prediction of the exposure risks);
- Shifting the HSRA from a static assessment to a dynamic assessment (e.g. using alternative weather data sources and forecasting before and potentially during shipments); and
- Integrating an objectively based HSRA model with a continuous animal welfare improvement system (through the animal welfare indicators research and associated structures and developments).

The submission identified the key correlations tying the HSRA model together and the science behind each of these. In doing so, LiveCorp identified the significant difficulties, in terms of practical challenges and limited science, of shifting the HSRA from a predictive assessment of the animal welfare risks of heat stress based on the use of mortality (as an objective, reliable and robust measure), to one that assesses the risk of heat stress to animal welfare based on the use of a welfare measure (that are subjective, variable (e.g. not dichotomous), impermanent etc). The gaps in information are particularly significant in the complex, yet absolutely essential areas of duration, respite and repeated exposures, in terms of correlating exposure to physiological impacts and welfare outcomes. These specific areas are already the subject of research through the LEP – and it is worth noting that in this space, the LEP is the most significant contributor in terms of funding research that has advanced the information available to industry, government and the community.

Noting the above, LiveCorp has become concerned that while the ASEL and HSRA review processes and consultation opportunities are running in parallel, they are not aligned. As a result, it has been difficult to provide informed input to either review because of the availability of only partial knowledge. We note that this seems to have placed the TAC in a similar position where it has been required to report on recommendations of significance to heat stress, prior to the HSRA panel concluding its findings.

This being the case, we are concerned by the TAC's recommendation to expand the use of the HSRA to include cattle shipments to Vietnam, China, Japan, Malaysia, the Philippines and the northern islands of Indonesia. This seems to be a substantial change when it is not known what the HSRA panel's recommendations will be, whether these will be accepted, how they will be implemented and what relevance or implications they will have for cattle. With such uncertainty, an analysis of the costs / benefits or regulatory impacts also cannot be possible.

We have also noted that the approach adopted by the TAC seems to assume that for every situation the best way to achieve the needed outcomes is through the predictive HSRA. This focus risks over-applying the HSRA and ignoring the potential benefits of other mitigation or response options. For example, the ability to manage short term heat stress risks (i.e. crossing the equator before a period of respite) through effective management strategies, rather than preventing the voyage completely simply because the risk exists. In addition, many of the routes that the TAC has proposed including under the HSRA have also operated for a long period of time and there have been minimal reported problems to suggest a systemic issue warranting the application of the HSRA to the majority of Asian markets. However, we recognise that recent changes to the composition of parts of the trade (for example, the opening of China slaughter

cattle shipments) has identified a need for further investigation to understand the risk profiles across these Asian routes. In this regard, we know that these routes are very different to Middle East routes – and from each other – in terms of risk factors such as the vessel, the livestock, and the voyages (including individual climatic patterns for different routes and varying weather in terms of level, duration, respite etc). This not only means a significant research challenge to implement the TAC recommendation but also a significant risk that the blanket application of the HSRA to all voyages crossing the equator will inevitably apply unnecessary and potentially significant costs on many shipments / routes where it is not required. For example, shipments of *Bos Indicus* cattle to northern Indonesia, Vietnam, Malaysia etc (and we note of relevance that under the current ASEL *Bos Indicus* are excluded from the need for a HSRA to MENA reflective of their lower risk).

We therefore suggest that consideration be given to taking a more risk based approach to determining when the HSRA is applied to minimise the likelihood and degree of unnecessary cost impacts while further data is collected (i.e. to evidence the need). This data would likely include Independent Observer on-board observations, revised daily reports and specific weather data for potential routes in Asia. This will also support a more prioritised approach for the LEP in progressing the significant research and development required to introduce an Asian component to the HSRA.

Reportable mortality

LiveCorp welcomes the TAC's recommendation to maintain the reportable mortality threshold. As discussed in both the LiveCorp and ALEC submissions to the ASEL Review – Stage 2, mortality provides a very effective regulatory measure. Mortality is undisputable, permanent, clearly identified, can be completed at the census level, and there is no doubt whether a threshold has been exceeded. Measures of animal welfare will also be important but by their nature are less definitive (they can be temporary, have different degrees, be logistically difficult to record and be subjective). It is important that any strict regulatory measures / thresholds are clear to the regulated and the regulator and there is minimal subjectivity in whether they have been met or not.

It is worthwhile highlighting again that the LEP project – *Development and assessment of animal welfare indicators – quantifying welfare improvements in the live export industry* project – is a critical project that was commenced in recent years as part of an industry reform initiative. The aim of the project is to develop meaningful indicators of welfare along the supply chain that would move performance measurement away from a focus on mortality, support transparency and reporting to the community, and enable benchmarking of exporters and the industry. It is a key part of defining the measurement of welfare moving forward and is the basis on which a move from mortality to welfare can be pursued on a scientifically rigorous basis. As the TAC noted, this project must be completed before any decisions are made on which indicators industry should measure, and certainly before any additional 'trigger' / threshold measures are adopted.

Other voyage reporting requirements

As was discussed in LiveCorp's Stage 2 supplementary submission, a project was initiated by the LEP as a result of the livestock export industry and the regulator both identifying the need and opportunity to improve and standardise the on-board reporting framework under ASEL. Its objectives include:

- Improving the quality, consistency and ease of data collection, collation and use on-board by providing Australian Accredited Veterinarians (AAVs) and stock people with better tools that support their day to day activities and responsibilities;
- Enabling the collation of data more effectively through the standardisation of data collection content and methods;
- Providing new tools for the users of the data (AAVs, exporters, the regulator) to easily access and interrogate information from a central point; and
- Streamlining and standardising regulatory conformance with the daily reporting requirements under ASEL.

The project has developed a system that includes a smartphone app as the central collection tool, and a centralised database with data analysis tools and user interface platform are also in pilot development. These tools will provide for a semi-automated data collection, analysis and reporting system that is more efficient, standardised and valuable than the current regulator managed framework.

The expanded voyage reporting requirements outlined in the TAC's draft report align closely with the capabilities of the industry system being developed including animal and environmental data. The project will also build the technical platform to allow the introduction and integration of greater automation (e.g. of temperature / humidity data) and the implementation of animal welfare indicators, when this project concludes (noting that some welfare measures such as respiratory character and faecal description are already included).

LiveCorp would welcome the opportunity to discuss this submission further with you if required.

Yours sincerely,

Sam Brown

Chief Executive Officer

Australian Livestock Export Corporation Limited (LiveCorp)

Appendix A.

Comments on draft reformatted standards

Page	Draft Reformatted Standards	LiveCorp comment
11.	Importing country requirement: A reference to importing country requirements is a reference to: - The requirements of the relevant importing country protocol, and - The requirements or conditions of the relevant import permit …	LiveCorp notes that importing country documents take the form of either a health protocol OR import condition. Therefore the wording of the definition should be amended to say "and / or".
15.	1A.1.1 (a) In addition to the inspection requirements of the Land Transport Standards, at a minimum, livestock to be exported by sea must be individually inspected by a competent person…	The current ASEL under clause S3.15 requires all livestock to be inspected daily by a competent person but it does not specify that this be individual animal inspection. LiveCorp suggests that 'individual inspection' be clarified to avoid confusion (i.e. it does not meet a detailed individual animal inspection but rather an assessment within a pen or cohort environment).
18-19.	1A.3.4 (f) The following classes of livestock must not be *prepared for export* by sea to the Middle East during the period from 1 May to 31 October.	This section appears to be missing subsection (ii) which in ASEL states: "(ii) For livestock held in paddocks or sheds: - full-mouth wethers with a body condition score greater than 4; - broken-mouth sheep; and - pregnant ewes."
24.	2B.1 c) The quantity of feed available should meet at least the minimum daily feed requirements, which are: (ii) Sheep and goats – 3 per cent of their bodyweight per day for sheep younger than 4 tooth and 2 per cent of their bodyweight per day for 4 tooth or older, of a quality feed able to meet daily maintenance requirements.	We note that no specification has been made regarding the feed volume requirements for goats.
31.	3B.7 (c) For export by air, arrangements must be made to remove or separate sick or dead livestock from pens carrying multiple animals in transit.	This clause is not practical or logistically possible to comply with during a flight. Mortality rates during export by air are very low and therefore the standard should focus on arrangements being made to remove any sick or dead animals on arrival at the destination.
44.	Appendix B, Table #9 – Maximum water deprivation and minimum rest times	It is noted that this table lacks clarity in relation to journey duration times. As no limited as been given for 'normal' journey times and maximum journey times as been defined as anything 'less than 14 hours' it is unclear which minimum

		rest period must be complied with. For example, For cattle travelling 10 hours it is unclear whether a minimum rest period of 12-24 hours or 36 hours would be required.
67.	Appendix M – ASEL Management Plans "The relevant Australian Government agency will only consider requests to vary the following requirements"	The draft reformatted standards appears to reflect a change in policy direction from ASEL v2.3 which provides flexibility and the possibility for departmental discretion on certain matters. LiveCorp notes that some, but not all, discretions have been included in the draft reformatted standards under Appendix M. The TAC also noted in its draft report that "*the regulator should be given some scope to approve exports that do not strictly tick every box in the standard*." Given the comments of the TAC and the intention that Approved Arrangements were to provide an avenue for greater flexibility, LiveCorp suggests consideration be given to including an overarching statement to caveat the whole document – e.g. 'unless approved otherwise by the Australian Government'. It is also unclear how Appendix M would be added to in the future and therefore should provide flexibility and discretion to the regulator for future circumstances.