LIVESTOCK EXPORT R&D PROGRAM
STAKEHOLDER REPORT

April 2009

This report describes the current status of existing and new projects being undertaken by the Livestock Export R&D Program. Further information can be sought from David Beatty, Live Export R&D Coordinator on 0409 819 045 or dbeatty@mla.com.au

Highlights

Highlights of the Livestock Export R&D program since the February Stakeholder Report include:

- New R&D projects
  - Review of fodder quality and quantity in the live export trade
  - Determining the feasibility of developing an ovine salmonella vaccine
  - Development of salmonella / inanition treatment strategies for the live export industry
  - Linking pre delivery to post delivery factors for cattle to SE Asia
  - Indonesian feed testing
  - Monitoring morbidity and mortality of cattle to the Middle East
  - Refining stocking densities
  - Life export emergency management plan
  - Detailed climatology of Middle East ports

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
ON FARM / PRE EXPORT			
B.LIV.0123 Investigating mortality in sheep and lambs exported from Adelaide and Portland.	• Determine the rate, causes and predisposing factors of mortality for live export sheep and lambs at the different stages of the live export supply chain (up to discharge). • Determine the relative mortality risk for sheep and lambs by region and time of year, including whether or not pastoral sheep and lambs are more at risk. • Determine the relationships between inappetence and salmonellosis incidence at the pre-export assembly depot and on ship and associated factors. • Formulate additional strategies for producers and exporters that can be applied prior to arrival at the pre-export assembly depot to minimise the level of inappetence, salmonellosis and other conditions. • Develop a working prototype computerised information management system to record health and mortality data on sheep during all stages of live export.	Revised draft final report received and being reviewed.	University of Sydney
B.LIV.0126 Effluent Spillage and Animal Welfare during Transport	• Summarise current knowledge and opinion from stakeholders regarding stock effluent spillage; • Consider livestock limb protrusion from livestock transport vehicles (road & rail); and • Provide a recommended way forward on these issues.	Final report received and being reviewed	FSA Consulting
W.LIV.0130 Preparing goats for export	• Review current practices and performance for live goat export over the past five years against the Standards and previous work and recommend best practice guidelines for implementation by industry.	Final report received and being reviewed	SED Consulting

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0132 Investigating the property effect on salmonella / inanition	This project will identify the reasons for variation in the mortality rates between farm groups within the livestock export process. This will be achieved in 2 stages by: Part A • Liaising with relevant experts with experience in this area (including exporters, producers and Government officers) and reviewing existing literature to document current knowledge of the causes of mortality in sheep during livestock export that are influenced by on-farm factors. • Developing a scientifically justifiable methodology and robust implementation plan to address the current gaps in knowledge regarding the reasons for variation in the number of mortalities between farm groups. This methodology will be presented to the project advisory committee for acceptance and agreement to proceed. Part B • Implementing the project workplan following acceptance of the methodology and implementation plan by the Live Export R&D Management Committee. • Drawing together the research outcomes to deliver clear conclusions and recommendations to minimise sheep mortalities in the livestock export process that are influenced by farm factors.	Part A of the project progressing	AusVet Animal Health Services
W.LIV.0361 Ovine Pink Eye	• Establish the incidence and risk of sheep contracting ovine pink eye in pre embarkation feedlots. • Establish a practical grading system to reliably grade the severity of ovine pink eye. • Isolate pathogens which may have been responsible for causing the infection. • Establish a best practice treatment protocol for ovine pink eye.	Project progressing	Murdoch University
W.LIV.0133 Salmonella vaccine development	This project will determine whether the development of a salmonella vaccine for use by the Australian sheep industry can be justified from an economic perspective, as well as assessing the non-cash benefits. This will be achieved by referring to previous relevant work undertaken by the livestock export program and: • Quantifying the cost / benefits of an ovine salmonella vaccine, including: 1. Reviewing the methods and costs associated with the production (including registration) of salmonella vaccines, including (but not limited to) the production of DNA adenine methylase live attenuated vaccines. 2. Assessing the potential market for a salmonella vaccine within the Australian sheep industry, including all potential users of such a vaccine. • Consulting with relevant Government and industry representative to qualitatively assess what non-cash benefits might be derived from salmonella vaccine development.	Project progressing	AusVet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0137 Development of salmonella / inanition treatment strategies for the live export industry	This project will develop evidence based, best practice management strategies for the treatment of individual and groups of sheep suffering from inanition and salmonellosis. It will be undertaken in six phases: 1. Review relevant literature relating to the treatment of salmonella and inanition. 2. Review the content and structure of other guidelines produced for the industry and discuss with MLA how the best practice guidelines produced in this project will be integrated into the overall best practice industry guidelines 3. Consult with relevant veterinarians, stockmen and other industry participants to identify the treatment strategies that have been applied to date to address salmonella and inanition. 4. Collate the input from industry in the context of the current state of knowledge derived from the literature review to produce best practice management guidelines. 5. Consult with AQIS regarding the proposed industry recommendations. 6. Prepare the best practice guidelines in the format agreed upon during phase 2 of the project for delivery to the industry.	Project commenced	University of Sydney
ONBOARD SHIP / AIRPLANE			
B.LIV.0237 Develop an aircraft ventilation guide.	• Develop user-friendly aircraft ventilation computer software for the safe international livestock transport of beef cattle, dairy cattle, sheep, goats and deer. The primary output of this project will be a simple, checklist generated by software that the exporter can use to ensure the aircraft ventilation supply meets the animal cargo ventilation demands. The software will be accompanied by a user's manual.	Completed	Aerospace Developments Pty Ltd
B.LIV.0248 Investigating respiratory disease in export cattle	• Identify causes of mortality in cattle exported to the Middle East, with particular focus on respiratory disease. • For Respiratory Disease of Export Cattle: o Characterize the condition. o Identify the causative agents and causal web of risk factors o Develop recommendations for managing and minimizing risk of occurrence of RDEC and impact if it does occur. • Identify knowledge gaps and make recommendations for further research to address these. • Investigate the other major causes of mortality in export cattle to the Middle East.	Completed	Ausvet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
B.LIV.0249 Hot Stuff Version III – inclusion of port specific risk into open deck analysis	• Develop revised methods for calculating open deck mortality risk estimates based on both historical and real-time sea surface temperatures • Upgrade the HotStuff software to VB.Net • Repair current problems with the existing version of the software including printing problems with some installations, compatibility issues with newer operating systems and access to database files. • Implement the revised methods for risk assessment in the HotStuff model and deliver an updated version and associated manual/support material. • Communicate to industry stakeholders the changes to HotStuff through 3 workshops.	Project complete. Full review complete	Maunsell Australia Pty Ltd
W.LIV.0250 Diagnosis manual	Produce a "Vade Mecum" style booklet that describes the causes, incidence, occurrence, recognition, treatment and prevention of the specific disease conditions known to occur in export livestock. This manual will include: • Appropriate linkages to the Livecorp / MLA Best Practice Use of veterinary Drugs Manual; • Include specific and detailed management plans to address salmonella, inanition, heat stress and respiratory disease in export cattle. • Reference to the Livestock Export R&D project B.LIV.0123 Causes of Mortality in Export Sheep, undertaken by Dr John House, University of Sydney.	Project progressing	Dr Graham Best
W.LIV.0251 Quantitative assessment of cattle behaviours on board live stock ships	To quantify the proportion of time cattle spend performing key behaviours using the video recordings from the B.LIV.0240 "Assessing a method of incorporating jetting in the HS model and its commercial implications" project	Final milestone due	Murdoch University
W.LIV.0253 Refining stocking densities	• Build on the outcomes of previous research to develop justifiable stocking density standards. • To determine the animal welfare outcomes in cattle and sheep during sea transport at different stocking densities. • For each class of livestock there will be three stocking densities investigated 1. current ASEL or the allometric standard (LIVE.233) 2. 10% less than ASEL or allometric standard and 3. 10% greater than ASEL or allometric standard	Contract sent	CSIRO
W.LIV.0254 Bedding management	• Review current practices and literature to identify opportunities to improve current practices in terms of animal welfare. • Identify knowledge gaps for research to address issues identified. • Make recommendations concerning best practices where appropriate.	Final report received and being reviewed	Rural Management partners

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0256 Fodder quality and quantity	• Review the current requirements for the feeding of livestock during the preparation and export of livestock by ship and recommend improvements to the current requirements.	Project commenced	EA Systems
W.LIV.0260 Livestock Export Annual Shipboard Performance Report	• Produce a report which summarises the mortality of cattle, sheep and goats for the 2008 calendar year and provides an informed analysis of mortality trends in the livestock export industry. • Maintain data and expertise to provide analysis and informed comment.	Project commenced	Dept Ag. WA
W.LIV.0261 Best practice stock crate design for export by air	• A set of minimum structural specifications for the manufacture of livestock crates for air freight; • Oversee the construction of the first batch of crates under the new specification.	Final report received and being reviewed	EA Systems
W.LIV.0262, 0263, 0264, 0265 HotStuff Review	• Review the scientific basis for the HS model in terms of: 1. Animal physiology 2. Engineering 3. Climatology 4. Statistics.	Review completed.	Led by CSIRO
W.LIV.0138 Emergency Management Plan	• Review arrangements various shipping companies have in place to deal with high mortalities • Review the actions, processes and procedures employed to address actual high mortality incidents in the livestock export and other relevant industries (such as feedlotting) • Develop a set of guidelines related to accessing a vessel for the removal of carcases, including any equipment needed to move and dispose of both sheep and cattle carcasses • Liaise with Shipping companies and identify preferred methods to supply and deploy such equipment	Project commenced	Shane Blakeley
W.LIV.0252 Investigating cattle morbidity and mortality to the Middle East	This project has been initiated in response to concerns regarding elevated mortalities in some cattle voyages to the Middle East that were attributed to bovine respiratory disease (BRD). • This project aims to produce valid and credible descriptions of causes of death in cattle exported from Australia to the Middle East and to develop systems that can be implemented by industry to describe causes of death in a sustainable manner.	Contract sent	AusVet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0267 Detailed climatology for Middle East ports	• Analyse and advise on the most suitable wet bulb temperature data (VOS or land based data) to be used in HotStuff version 3.0 to develop port specific heat stress risk estimates. • Investigate the availability of potential land based wet bulb temperature data sets that would be applicable to for use in assessing Muscat heat stress risk estimates.	Final report received and being reviewed	Bruce Buckley (Weather Australia)
POST DISCHARGE			
B.LIV.0127 Post discharge induction procedures for sheep in the Middle East	• Review existing information and develop “best practice” guidelines for sheep feedlot induction in the Middle East • Identify opportunities for further R&D.	Completed	UNE
W.LIV.0259 Develop extension materials for small holders in destination markets (tropical and temperate beef cattle)	• Development of support and extension materials relating to the production, husbandry, health and welfare requirements for tropical beef cattle. • Extension materials to be developed at two levels, for extension officers and producers.	Project contract under negotiation	QDPI&F
B.LIV.348 Preliminary investigation into adapting a gas powered nail gun into a cattle stunning device	• Utilise MLA’s stunning technician to determine the technical requirements of a stunning device. • Examine the technical specifications and determine the adaptability of three commercially-available gas propelled nail guns. • Engage the manufacturer of the preferred nail gun and seek cooperation to convert the equipment for commercial use as a stunning device in the cattle industry. • Based on the commitment to proceed by the manufacturer, prepare a full proposal for presentation to the MLA / LiveCorp Joint Program.	Project has been delayed	Amal Services Pty Ltd
W.LIV.0351 Investigating alternate feedstuffs for Indonesian feedlots	• To identify by products of other processes that could be used as alternate feed sources in Indonesian feedlots. • To investigate treatments of by products to make them suitable for use as alternate feed sources.	Final report submitted and being reviewed	EA Systems

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0359 Develop extension materials for small holders in destination markets (temperate and tropical dairy cattle)	• Development of support and extension materials relating to the production, husbandry, health and welfare requirements for tropical dairy cattle and temperate dairy cattle. • Extension materials to be developed at two levels, for extension officers and producers.	Redrafted final report submitted for review	VIC DPI
W.LIV.XXXX SE Asian feedlot training modules	Consultation with feedlotters in Indonesia has identified the need for the development of a modular training program that addresses the key issues associated with management of a feedlot. Modules for consideration include: • Australian delivery and supply chain • Feedlot design • Feedlot induction • Livestock handling • Feedlot management • Feedlot animal health management • Livestock nutrition • Feedlot breeding programs	Projects commenced	Various
W.LIV.0371 Welfare assessment of cattle restraining boxes	There is a need to independently review the capabilities and welfare impacts of the three types of MLA designed cattle restraining boxes. The mark I box has been installed in various abattoirs in SE Asia. The mark II and III restraining boxes are at the design stage. This project will provide a technical review of the design of each of the three restraining boxes and an operational assessment of the mark I restraining box.	Draft final report being reviewed	Paul Whittington (university of Bristol)
W.LIV.0373 Testing of novel Indonesian feedstuffs	This project will establish a service whereby feedlots in Indonesia can send samples of potential new ration ingredients to a lab for analysis.	Contract sent	University of Queensland
W.LIV.0374 Technical review and build of mark 3 cattle restraining box	The purpose of this project is to technically review the design of the mark 3 cattle restraining box before undertaking the building of a prototype. Subject to the technical review, approval may be granted to build a prototype of the mark 3 cattle restraining box.	Project commenced	Stark Engineering
CROSS SECTOR			

PROJECT	DESCRIPTION	STATUS	CONTRACTOR BUDGET
W.LIV.0131 Relationship between pre-delivery factors and post arrival performance for SH cattle	• Develop a representative model of the SH cattle trade to SE Asia and identify the key profit drivers within the model. • Identify knowledge gaps and/or constraints that limit the profit potential. • Develop a pilot system that enables the linkages between pre-delivery factors and post delivery performance to be determined. • Provide feedback to the industry in regard to the key factors involved.	Project commenced	AusVet Animal Health Services
W.LIV.0352 Undertaking a life cycle assessment for the live export trade	• Following a request by industry to quantify the carbon footprint of livestock exports, the Livestock Export R&D Management Committee identified a significant amount of this work has or is being undertaken. • A review of existing work is currently being undertaken as a basis for determining if any further work is required.	Contract sent	CSIRO

PROJECTS UNDER CONSIDERATION

The following projects are currently being considered for inclusion in the Livestock Export R&D Program:

PROJECT TITLE	DESCRIPTION	STATUS
ON FARM / PRE EXPORT		
Ryegrass toxins as a precursor to heat stress in sheep during live export	The role of endophyte toxins in heat stress is well understood. What is not well known is the possibility that they can be stored in body tissues and released later under stress conditions, thus the toxic effects may be direct or delayed. Sheep coming from high ryegrass pastures from late spring to early winter may have been grazing toxic perennial ryegrass pastures for several months this may make any heat stress situation on ship much worse. The project would aim to identify if ryegrass toxins contribute to live sheep mortalities. If so, modifications to sheep husbandry will be explored to minimise such problems	Project proposal on hold
B.LIV.0251 Backgrounding and feedlotting strategies to address salmonella - inanition	This project will produce a set of best practice guidelines for the pre-embarkation treatment (backgrounding and feedlotting) of sheep that aim to minimise the impact of salmonella / inanition on the Australian sheep export industry. This will be achieved by designing and undertaking a series of experiments that will examine backgrounding strategies that will: • Help sheep adjust from a pasture diet to a typical livestock export pelletised diet. • Reduce the stress that sheep experience on feedlot entry. • Feedlotting strategies that help sheep adjust from a pasture diet to a typical livestock export pelletised diet. • Use of additives or other influences in the feedlot that increase uptake and consumption of a pelletised diet. • Impact of time in the feedlot on salmonella / inanition. • From the results, provide any recommendations regarding changes to the ASEL.	Application approved subject to budget review
ON BOARD SHIP / AIRPLANE		
Hotstuff 3.0 – Implementing technical review recommendations	• The Hotstuff Technical Review panel suggested a series of recommendations to further improve the Hotstuff model. This project will look to implement a some of these recommendations. • Previous models of Hotstuff have not included jetting as part of the model. This project would look at the feasibility and implications of including jetting as part of the Hotstuff model. • The project will also consider the requirements for inclusion of additional ports to the model with the majority of work limited to analysis of the weather data.	Terms of reference being developed

PROJECT TITLE	DESCRIPTION	STATUS
POST DISCHARGE		
Space allowance for feed, water, shade and pen area for Middle East and North Africa maintenance feed systems	The objective of this project application is to determine the optimal feed, water, and pen parameters to minimise morbidity/mortality whilst aiming to reduce carcass loss during the maintenance feeding period.	Application to be reviewed by management committee
CROSS SECTOR		
Review of Scabby Mouth vaccine protocol for Saudi Arabia	Anecdotal evidence is suggesting that the incidence of Scabby mouth in exported sheep is reducing. It has been proposed that a comprehensive review into the success of the two scratch scabby mouth vaccination program be undertaken.	Review of scabby mouth vaccine protocol and impact on industry to be undertaken before terms of reference developed