Prepared by: David Beatty

LIVESTOCK EXPORT R&D PROGRAM
STAKEHOLDER REPORT

November 2011

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 Manager on (02) 9463 9385 or dbeatty@mla.com.au

Highlights

Highlights of the Livestock Export R&D program since the July 2011 Stakeholder Report include:

- Completion of the cattle Standard Operating Procedures for the welfare of Australian cattle in market (W.LIV.0388)
- Publication of the 'Veterinary management of unfit to load livestock manual' (W.LIV.0162)
- Publication of the 'Manual for dairy herd management'
- New contracted projects
    - W.LIV.0399 Development of standard operating procedures for sheep and goats
    - W.LIV.3001 Development of supply chain procedures checklist for sheep and goats
    - W.LIV.3002 Modular training packages for management of Australian livestock in market
    - W.LIV.3003 Development of Work Instructions for cattle supply chain

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0142 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: • 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. • Assess the use of additives or other influences in the feedlot that increase uptake and consumption of a pelletised diet. • Assess the impact of time in the feedlot on inanition. • From the results, provide any recommendations regarding changes to the ASEL.	Project progressing Researchers currently undertaking research program to delivery stage 2. 1. Determined the incidence of inanition in specific lines of sheep at pre embarkation feedlot. 2. Investigated the impact of time in the pre embarkation feedlot on the incidence of inanition and clinical salmonellosis at the feedlot. 3. Investigated relevant hormonal and physiological (including immunological) measures on inappetent and feeding sheep from the feedlot to determine if there are specific detectable differences between sheep that do and do not eat at the feedlot, and determine whether sheep that are detected as inappetent at the feedlot can be treated or managed so that they regain their appetite, and whether they carry a high risk of becoming inappetent again if exposed to the same conditions in the feedlot.	Murdoch University

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0159 Preparation of rangeland goats for live export	Management of goats through the live export chain has been identified as a problem for the live export industry. Variation in management practices prior to export means that it is difficult to pin-point reasons for variation in consignment performance. As the goat industry in Australia is developing it is important to assess the need for change to management practices, particularly prior to export. Further experimental work is required to develop a suitable scientifically validated quality assurance program for the live export of goats. It is hoped that implementation of the resulting QA program will improve management and therefore performance of goats during live export.	Projected progressing Milestone 2 complete - Acceptance of experiment one design methodology	Murdoch University and DAFWA
W.LIV.0160 Construction of competency for stockman training course	The purpose of this project is to have the current stockman training course formally recognised and approved under the Australian Qualification Training Framework (AQTF). The project will break down the current stockman training course into skills and knowledge competency units. Competency units not already registered in the AQTF will be developed and submitted to the Australian Agri-Foods Skills Council for Government approval. Once the competency units are developed and approved the stockman training course will be rebuilt under the Australian Qualification Framework to produce a Certificate 3 in Agriculture (Livestock Export) qualification.	Project delayed Milestone 3 and 4 completed – final report delayed due to resubmission of 'Escort of livestock' competency unit to the AgriFood Skills Council Australia.	Australian College of training

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0161 Developing a veterinary training course	This Project describes a training program for Veterinarians which will: 1. Deliver two training courses (for up to eight veterinarians per course) covering: a. Conceptual frameworks using scenarios and case studies to assist the monitoring of animal health and investigation of animal disease events on sea voyages. b. Hands-on training in the safe and systematic necropsy of an animal to determine cause of death, including gross description (written and photographic) and collection and packaging of specimens for subsequent examination by a pathologist. 2. Reference information and material and checklists that can be used on voyages to assist optimal investigation and management of health and disease. 3. Produce a high-quality DVD as an ancillary training aid for post mortem procedures.	Project progressing. Milestone 3 completed – Both pilot courses conducted at Murdoch University with positive feedback from vets. Awaiting necropsy DVD and final report.	AusVet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0162 Management of unfit to load export cattle and sheep	A need has been identified to develop standard guidelines for veterinarians and feedlot managers describing the treatment and management of livestock found unfit to load onto ships at pre-embarkation inspections. A small proportion of livestock are identified as being unfit to load for a variety of reasons and are rejected to avoid sick or injured animals being loaded onto a ship. An agreed, standardised approach to treatment and management is required for optimal health and welfare outcomes for these animals, and for veterinarians and feedlot managers to confidently meet regulatory requirements The project will develop best practice management and treatment guidelines for unfit-to-load livestock. It will provide guidelines on: (i) Treatment and management of common diseases and conditions that are responsible for rejection of sheep and cattle prior to export by sea; (ii) Criteria for assessment of when and where euthanasia is necessary; (iii) Recommendations for management of rejected animals prior to road transport	Project completed Final report submitted and manual published.	Livestock Health Systems Australia

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0163 In water antibiotic medication for the treatment of pink eye in sheep	Infectious ovine keratoconjunctivitis (IOK) causes conjunctivitis, ocular discharge and in severe cases corneal ulceration in sheep. In cases where corneal oedema and/or ulceration occur, animals are likely to be in pain and have reduced vision. Currently it is estimated that 0.5% of sheep are rejected from the live export trade due to IOK. As the disease is infectious, the Australian Standards for the Export of Livestock states that affected animals must be rejected for export until the condition is treated and resolved. In-water treatment is a very cost-effective way of treating IOK, in terms of the cost of the drug, the reduced labour input and the reduced animal handling associated with this route of administration. This project will assess the efficacy and effect on rumen function of in-water oxytetracycline medication for the treatment of IOK in sheep. Given successful efficacy and rumen health outcomes, the project will determine a best practice treatment regime for IOK using an in-water oxytetracycline medication	Project progressing. Milestone 2 completed - Objective 1: Determine the efficacy of in water OTC (22 mg/kg) for the treatment of IOK in sheep. Revised experimental methodology being assessed.	Murdoch University
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). The 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.	Project progressing Milestone 4 completed – analysis of first 12 months of data.	AusVet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0253 Refining stocking densities	The purpose of this project is to: 1. Build on the outcomes of previous research to develop justifiable stocking density standards 2. Determine the animal welfare outcomes in cattle and sheep during sea transport at different stocking densities. 3. For each class of livestock there will be three stocking densities investigated i. Current ASEL or the allometric standard (LIVE.233) ii. 10% less than ASEL or allometric standard and iii. 10% greater than ASEL or allometric standard	Project progressing – second sheep experiment completed. Awaiting confirmation of cattle experimental voyage.	CSIRO
W.LIV.0259 Develop extension materials for small holders in destination markets (tropical and temperate beef cattle)	This project will develop support and extension materials relating to the production, husbandry, health and welfare requirements for both tropical and temperate beef cattle.	Modules currently being editing for publication	DEEDI
W.LIV.0269 Upgrade of LATSA software	The live export R&D program produced the Livestock Air Transport Safety Assessment (LATSA) software which can be used by exporters to evaluate the generation of heat, moisture and carbon dioxide and compare it to the ventilation capacity of the aircraft. The current version requires upgrading to address additional industry requirements.	Final report submitted and being assessed. Researchers contracted to act as administrator of software for 12 months.	EnviroAg

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0275 Investigating incidence of scabby mouth	The purpose of this project is to: 1. Review relevant literature relating to scabby mouth and scabby mouth vaccination as it affects sheep in Australia both on farm and in the live export industry 2. Determine the current use of scabby mouth vaccination for both the Western and Eastern Australian sheep flocks 3. Determine the incidence of scabby mouth of Australian sheep prior to departure and at the point of discharge in the Middle East 4. Provided recommendations to industry on the current vaccination protocols for sheep destined for Middle East markets	Final report received and being assessed.	Dr Michael McCarthy
W.LIV.0276 Monitoring and evaluation of the HotStuff model	In 2009 a technical review (W.LIV.0262, 0263, 0264, 0265) was undertaken by a panel of experts to examine the scientific basis, methodology and assumptions of the core elements that underpin the heat stress risk assessment model (HotStuff). Overall, the panel "concluded that the methodology and assumptions underpinning the HotStuff model are sound, reasonable and supported by scientific literature. The model developers have followed well-defined and logical principles of adaptive management in the presence of uncertainty." The panel made 13 recommendations which were designed to refine the operation of the model, test for biases and trends in the climate data, assess the suitability of historical data to validate the model and, most importantly, establish a data collection system to validate the model into the future. The purpose of this Project is to collate and assess relevant retrospective on board data sets in order to establish, implement, monitor and evaluate a data collection system to validate HotStuff predictions.	Project progressing – data collection on board livestock vessels is underway. Milestone 2 completed –Reviewed the HotStuff model and information that has been made available by industry in order to establish a framework and methodology that will form the basis for ongoing assessment and performance of the HotStuff model	University of Western Australia and DEEDI

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0277 HotStuff version 4.0 – Revised methodology and additional voyage routes and ports	In an attempt to provide a suitable risk estimate for open decks, the latest version of the HotStuff model (version 3.0 – project B.LIV.0249) introduced risk estimates for both the sailing and discharge components of the voyage as well as the functionality for the separate treatment of each Middle Eastern port and for voyages discharging at multiple ports. A key recommendation from B.LIV.0249 was to review the wet bulb temperature probability distribution for the sailing component of the voyage. The purpose of this Project is to revise the wet bulb temperature probability distribution for the sailing component of the voyage and include additional voyage routes and ports into the software model.	Final report received and assessed. Awaiting revised final report from researcher.	StaceyAgnew
W.LIV.0278 Live export veterinary disease handbook	The Live Export Veterinary Disease Handbook will provide best practice information and standardised approaches to ensure that veterinarians and stockpersons can achieve optimum and consistent animal health and welfare outcomes for exported animals, and is intended to cover the period from arrival at assembly feedlots to slaughter at overseas destinations. It will cover: 1. The incidence, causes, diagnosis, treatment and prevention of disease conditions known to occur in key export livestock species (sheep, goats, dairy cattle and beef cattle) 2. Diseases and conditions likely to occur in animals during the period from arrival at the assembly feedlot, during the export voyage and ending with discharge and feedlotting at the overseas destinations 3. Treatment(s) for all conditions that utilise therapeutics described in the LiveCorp / MLA Best Practice Use of Veterinary Drugs Manual	Project progressing Second draft under review	AusVet Animal Health Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0280 Management of premature lactation in dairy heifers	A previous Project, LIVE.217 conducted in 2003 and titled *Investigating premature lactation in pregnant dairy females* provided useful preliminary information. That report and other anecdotal reports indicate that premature lactation may occur in non-pregnant heifers and in pregnant cattle in early to mid gestation and that it is primarily a phenomenon of dairy cattle exported by sea. The cause of premature lactation is not understood although there are many speculative theories including stress, high protein feeds, day length effects on physiology and potential contamination of feeds with oestrogens of fungal or plant origin (eg zearalenone). Anecdotal information suggests that animals fed higher levels of pellets, of later stage of pregnancy and with more Jersey breed infusion are at greater risk. Beef breeds are so far not reported to be affected. It has apparently occurred in dairy cattle exported from other countries. This Project, using a process of desk top review and consultation with experts will attempt to critically review existing information on prevention of premature lactation and associated mastitis with a view to designing studies to address apparent knowledge gaps.	Final report received and under review.	University of Melbourne
W.LIV.0352 Undertaking a life cycle assessment for the live export trade	The purpose of this project is to deliver: 1. A Life Cycle Analysis (LCA) detailing the total GHG emissions, energy and water use, and nutrient discharges associated with the live export of feeder cattle to SE Asia and sheep to the Middle East. The report will cover both the on-farm and the post-farm gate supply chain 2. A documented library of Life Cycle Inventory (LCI) that MLA can use in subsequent investigations.	Project complete	CSIRO

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0378 Managing heat stress in Middle East feedlots	The purpose of this project is to evaluate and quantify best practice management techniques of pen stocking density, water and feed trough availability upon the welfare of Australian livestock in the Middle East and North Africa (MENA) region during summer months. It will also develop a clear list of recommendations for pen densities bases on seasonal variation and the availability of suitable amounts of feed and water trough length.	Project progressing with delays. Revised project completion date March 2012.	Sharon Dundon
W.LIV.0379 Monitoring Middle East feedlot temperatures	The objective of this project is to monitor, analyse and summarise the weather in five Gulf feedlots over a three year period. It will provide an opportunity to determine differences in climate conditions between the five different locations in the Gulf. The project will also quantify the affects of heat and humidity on mortality rates and identify risk factors which can then be used to develop strategies to minimise mortality during periods of high heat and humidity.	Project progressing Milestone 2 completed - summarise initial environmental data and outline a proposed methodology for environmental analysis including proposed statistical analysis.	Sharon Dundon and Shane Maloney (UWA)
W.LIV.0388 Review and revise a SOP for slaughter of Australian cattle in Indonesia	The purpose of this Project is to review and update the current training material for the slaughter of cattle in Indonesia that were developed for MLA by Paul Whittington of AWTraining, Bristol University, UK. Following this review, the Project will develop a standalone SOP manual for the slaughter of Australian cattle in overseas markets.	Project complete SOPs translated to Bahasa Indonesia and are currently with desktop publisher.	Leisha Hewitt
W.LIV.0390 Training DVD - Managing Australian cattle in Indonesia	The purpose of this Project is to develop and produce instructional DVD training material which can be used as an aid in training Indonesian stockman on the managing, handling and slaughter of Australia cattle in Indonesia.	Project progressing Second filming trip complete.	Anvil Media

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0392 Training DVD – On board livestock management	The crew on livestock vessels responsible for the management and handling of livestock are generally made up of people from countries such as Pakistan, Bangladesh or Philippines. These crew members will have varying degrees of experience with livestock and often the only training provided to new crew members is from perceived more experienced crew members on board. Given the variability in crew's backgrounds and experience there is a need to provide an industry standard training in animal husbandry, handling and welfare. The purpose of this project is to develop and produce instructional DVD training material which can be used as an aid in training ships crew and stockman on the management, handling and husbandry of Australia cattle and sheep on board livestock vessels.	Project progressing Cattle filming trip complete. Sheep filming trip likely late 2011 / early 2012.	Compliance Naturally
W.LIV.0393 Indonesian breeding cattle demonstration	The Indonesian government is looking to Australia to invest in Indonesian agriculture to help increase local production and to provide assistance with breeding programs to increase local productivity. With the support of the Live Export Program a model for breeding beef cattle has been developed by the management of PT Juang Jaya Abdi Alam feedlot. The key elements of this model have been drawn from a mixture of Indonesian and Australian expertise and involve an extremely low cost diet consisting of almost 90% palm leaves and Palm Kernel Cake (PKC) and large traditional style kandangs (feeding pens) located in palm plantations with easy access to leaf material, PKC from processing factories and local labour. The purpose of this Project is to demonstrate to both palm oil plantation owners and the Indonesian government that large scale beef production and breeding systems using Australian Brahman cattle and a low cost oil palm based diet are sustainable and economically viable.	Project progressing	Australasian Livestock Services

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.0396 Indonesian abattoir design concepts	The Indonesian Ministry of Agriculture through the DGLS has expressed concerns over the inappropriate location of many abattoirs, their hygiene standards, and the inefficiencies of small scale abattoirs. DGLS wish to consolidate the beef processing sector and to close down smaller slaughterhouses. The purpose of this project is to provide two modular abattoir design concepts that can be adapted for the specific needs of each proposed abattoir site and provide guidelines and advice to the Indonesian cattle processing industry.	Project progressing	FELIX DOMUS PTY LTD
W.LIV.0397 Mark 1 restraining box conversion	The purpose of this project is to develop, install and validate to OIE standards; modifications to an existing Mk I restraining box to allow it to be used for stunning of bovine animals in the upright position. The redesigned boxes are to comply with OIE standards.	Project progressing Prototype design complete and currently being installed and tested in Indonesia.	FELIX DOMUS PTY LTD
W.LIV.0399 Development of standard operating procedures for sheep and goats	The objective of project W.LIV0399 is to develop, implement and review SOPs for the handling, transport, feedlotting and slaughter (with and without stunning) of Australian sheep and goats in overseas markets. The World Organisation for Animal Health (OIE) animal welfare guidelines were used as the reference point for defining animal welfare and required practices throughout this project.	Project progressing Draft SOPs complete and to circulated to exporters for feedback	Dr Leisha Hewitt

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.3001 Development of supply chain procedures checklist	The Supply chain procedures checklist has been developed to assist Australian exporters of live animals, as well as the importers, transporters, lot feeders and processors of these animals, to record, report and ensure supply chain compliance by demonstrating that; • The supply chain, including the transport, feedlot and abattoir components, is controlled; • The animals are treated according to internationally accepted animal welfare standards; • The identity and whereabouts of each shipment of animals is known at any time up to the point of slaughter; and • Supply chain integrity can be assured within agreed boundaries to the point of slaughter via reconciliation of numbers at each stage of the chain. The Supply chain procedures checklist covers common stages in the journey of slaughter or feeder livestock from disembarkation to processing in the country of destination: 1. Vessel discharge, handling of livestock and truck loading 2. Feedlot operations 3. Abattoir operations	Project complete	Schuster Consulting Group

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.3002 Modular training packages for managing Australian cattle and sheep in market	The purpose of the project is to develop a detailed modular training program for each of the supply chain elements for cattle, sheep and goats and to manage the implementation of the training project in-market. The supply chain elements cover: a. Animal handling b. Land transport of livestock c. Feedlot operations d. Lairage e. Slaughter with stunning f. Slaughter without stunning The SOPs will form the basis of a universal training program to address the requirements of the OIE guidelines and DAFF Guidance as they relate to Australian animals in livestock export destination markets. The target audience for the training program will be the Animal Welfare Officers (AWOs) and suitably identified in market educational institutional trainers or government department employees.	Project commenced	Schuster Consulting Group and Charles Sturt University

PROJECT	DESCRIPTION	STATUS	CONTRACTOR
W.LIV.3003 Development of Work Instructions for cattle supply chain	The purpose of this project is threefold: 1) In order to maximise the uptake of the SOPs it is necessary for elements of the written procedures to be supported by effective and practical work instructions (WIs) and guidance documents. Work instructions ensure that personnel are provided with the information to perform an individual task correctly and consistently, whilst maintaining the required animal welfare outcome. They also provide a mechanism for practical training in the working environment and a tool for the assessment of competency. Guidance notes are supplementary documents designed to share best practice and experience. This project will develop and design WIs and guidance notes to supplement the published SOPs 2) Assess the design and operation of the mark 4 cattle restraining box in market 3) Whilst in Indonesian provide expert technical assistance for the filming of DVD for management of cattle – slaughter module.	Project commenced	Dr Leisha Hewitt

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		
W.LIV.0158 Development of ovine salmonella vaccine	Previous research (W.LIV.0133) has indicated that the methods and costs associated with the production (including registration) of DAM live attenuated salmonella vaccines should be further investigated. These findings are dependant on results of experiments being currently conducted in the USA using sheep as a model for vaccine efficacy.	Discussions with commercialisation partners are continuing.
ON BOARD SHIP / AIRPLANE		
LATSA 2.1	Following request to upgrade current LATSA software to include a range of additional functional variations, terms of reference will be developed which will also include a monitoring and validation objective. This will require ongoing on board monitoring of aircraft hold conditions.	Project application requested from EnvironAg.
POST DISCHARGE		
Upgrade Mark 4 restraining box design	Project objectives: 1. Modified the Mark 4 design to comply with OIE Slaughter of animals (Chapter 7.5) design guidance (for slaughter of cattle without stunning) and the DAFF guidance on meeting OIE animal welfare code outcomes. 2. Complete final report including: a. all associated CAD drawings for any design modifications b. photographs and operational video footage of amended Mark 4 design c. the requirements for automated operation	Draft contract schedule is under development.

PROJECT TITLE	DESCRIPTION	STATUS
Reviewing the risks to animal welfare at slaughter	Project application received from CSIRO with broad objectives: 1. Review current literature on the risks to animal welfare in the immediate pre-slaughter to slaughter phase. The review will prioritise these risks in terms of animal welfare and identify knowledge gaps where further research and development may be required 2. Identify current and potential metrics that would allow welfare risk estimation or evaluation in abattoirs, and the knowledge requirements to allow risk assessment.	Full application requested from researchers
CROSS SECTOR		
Nil		