**MLA food safety progress report – August 2017**

**Strategic code**
**2.2.1.2 - Conduct research to address key access issues and demonstrate technical quality of product and systems**
**3.3.1.3 - Ensure integrity systems underpinned by rigorous food safety R&D and science-based evidence**

| Strategic code | Project | Approach | Progress |
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|  | **Information and program management**: Monitor scientific developments in meat food safety research to respond, as needed, at an international level. | • Maintain a watching brief on relevant research and development (R&D) literature to identify areas that may impact on the direction of MLA's R&D program.<br>• Hold discussions with the program advisory group and scientific risk management panel to help direct future research. | MLA will continue to produce the news digest of food safety research, circulate it to interested parties and upload it to an interactive website maintained by the University of Tasmania: http://blogs.utas.edu.au/promep<br><br>The scientific risk management panel met in May 2017 to provide advice on future projects, current projects relating to risks associated with Australian meat and new technologies for bacterial identification.<br><br>The MLA website has a page for food safety information with links to reports, publications, fact sheets etc: www.mla.com.au/foodsafety |
| 2.2.1.2 | Ensure risks associated with Australian meat are known and controlled. | • Determine actual and potential market access risks (food safety risks, risks that can be understood as food safety risks, other technical risks), arising from the use of Australian red meat products in domestic and potential export markets. Provide a semi-quantitative rating of their magnitude.<br>• Develop plans to deal with the highest-ranked potential risks. | The risk assessment project is due for completion in early 2018. A particular focus is identifying risks with product supply chains and red meat uses that have not been previously recognised or managed. Information is being collected particularly on 'unusual' uses of red meat that may pose higher food safety risks in our major markets.<br><br>A workshop for key stakeholders was held in May 2017 to identify risks associated with the full range of red meat products. This will be followed with a survey to confirm the findings and select hazards and products for further evaluation. |

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| 3.3.1.3 | Controlling the known risks associated with Australian red meat. | • Implement the plans developed in 2.2.1.2 to deal with the highest-ranked potential risks on market access (both actual and potential), arising from the use of Australian red meat products in domestic and export markets. | Work in this area will be determined by the outcome of the 2.2.1.2 area topic 'Ensure risks associated with Australian meat are known and controlled'. |
| 2.2.1.2 | Promote the exceptional shelf life of Australian meat. | • Demonstrate Australian vacuum-packed and chilled red meat's superior shelf life in major export markets. | The second edition of 'Shelf life of Australian red meat' has been completed, following the successful first edition and new research information made available after its publication. The second edition was launched at the MINTRAC conference in October 2016.

The resource can be found at: www.mla.com.au/shelflifebook

Work continues with several processors, exporters, importers and other researchers to validate the shelf life models for vacuum-packed and chilled beef and lamb. Domestic and international supply chains are being evaluated to determine actual shelf life, and opportunities to derive value from product shelf life. To date, the model is providing adequate predictions. An agreement has been reached with the University of Tasmania that will allow processors and exporters to licence the model for research purposes.

The exceptional shelf life of Australian red meat has been recognised by the United Arab Emirates (UAE), where the maximum shelf life for beef increased from 70 to 120 days and for sheepmeat from 70 to 90 days.

Discussions have been held with Egyptian government officials and importers of Australian beef about increasing the regulated shelf life of beef in Egypt, which currently restricts the trade to air shipments.

Cold chain workshops were conducted in China in May 2017 to explain the importance of managing the cold chain to achieve long shelf life for chilled vacuum-packed meat. There is greater interest in chilled meat in China, and a slightly increased ability to manage the product. It is proposed to develop a practical manual for cold chain management to assist exporters and importers to |

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| | | | An expression of interest on shelf life of frozen meat has been sent out. This work will determine the frozen shelf life of Australian beef and lamb, and the results would be used to potentially extend the shelf life to 24 months for international markets. |
| 3.3.1.3 | Achieving optimum shelf life of Australian meat. | • Ensure producers, processors and supply chains are implementing tools and practices to achieve and maintain superior shelf life for Australian red meat. | Processors wishing to obtain advice have been invited to share their shelf life data, or questions about shelf life in supply chains, with the University of Tasmania. This will help build an understanding of supply chains and the impact of temperature on shelf life.<br><br>A number of supply chain studies have commenced, with others under discussion. Some processors are negotiating access to the shelf life modelling tool for research purposes. An agreement allowing licencing for research purposes has been finalised. |
| 2.2.1.2 | Demonstrate the very low risk of enteric pathogens (*E. coli*, *Salmonella*) in Australian beef. | • Demonstrate how pathogenic *E. coli* and *Salmonella* present lower risks to consumers of Australian beef compared with beef from competitor countries in markets with sensitivities (actual or potential) to these pathogens. | Investigations are underway to improve the screening and confirmation procedure for Shiga toxin-producing *E. coli* (STEC). The diversity of STEC strains has been investigated and a number of existing diagnostic kits and new methods are being evaluated to determine which are most effective for Australian strains and conditions. A guide on STEC testing (screening and confirmation) was rolled out at meetings in Melbourne and Brisbane in June 2017. These meetings provided industry with an opportunity to consider using new methods.<br><br>The survey on *Salmonella* in bovine lymph nodes is complete. A total of 197 cattle lymph nodes sets were analysed. No STEC were detected, however *Salmonella* was detected in six nodes, taking the total prevalence to 3.05% of animals. It can be concluded that there is a low risk of Australian trim contributing to *Salmonella* contamination, and the extra cutting and handling during the removal process would likely contribute to the increase in contamination. The final report will be released shortly on the MLA website and a paper has been submitted to the *Journal of Food Protection*. This survey will help MLA respond to US customers and regulators who are considering the control of *Salmonella* in their beef supply.<br><br>Large carcase surface swabbing to detect |

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| | | | *Salmonella* on beef and veal carcases pre and post intervention has been completed. The final report has been published on the MLA website. The *Salmonella* prevalence pre-intervention is 1.43% for beef and 3.75% for veal. Post-intervention shows a significant drop in the prevalence for beef (0.38%) and veal (1.30%). The reduction in prevalence shows processors have effective processes in place without the use of multiple interventions.<br><br>The Food Safety and Inspection Service (FSIS) survey results and their regulator intentions are yet to be made public. MLA will continue to monitor this area and provide a response if required. |
| 2.2.1.2 | Demonstrate appropriate post-mortem procedures for a risk-based approach. | • Demonstrate that post-mortem procedures manage risks – equivalent to the controls in place in major trading partner and competitor countries – while being reformed to reduce costs for Australian processors. | Work on cadmium in adult sheep offal (liver and kidney) is progressing at a slow pace. The aim is to understand how the risk of exceeding international cadmium maximum residue limits (MRLs) varies according to the geographic origin of the sheep. Early analysis shows sheep from high rainfall regions have less correlation of cadmium in kidney and liver and are more likely to exceed international MRLs.<br><br>Sampling has slowed for both studies (large geographic liver sampling, and liver and kidney correlation), due to the recent shortage of sheep coming from direct consignment and low rainfall areas. Plans to start sampling from more sheep establishments are being investigated. Sheep and lamb stock is forecast to make a recovery in 2019.<br><br>MLA will provide a risk-based justification for the revision of the post-mortem inspection methods and dispositions in the Australian Standards via a number of projects. The umbrella project is being conducted with a steering group chaired by Department of Agriculture and Water Resources (DAWR). Discussions are underway with a number of stakeholders, including the Australian Meat Regulators Group (AMRG). Discussions with AMRG on the principles for the review will be held at their next meeting.<br><br>The post-mortem work such as 'Efficient detection of Caseous Lymphadenitis (CLA) in ovines', 'Alternative post-mortem inspection methods' and 'Risk management for *O. gibsoni* in bovines' has started. A risk assessment on the effect of alternate inspection methods on *T. saginata* (*C.* |

| | | | *bovis*) infection in humans has been completed. These projects aim to provide data that will allow revision of post-mortem inspection schedules and gain acceptance from major trading partners. |
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| | | | Projects have been initiated with processors through the Plant Initiated Projects program to investigate the post-mortem classification and disposition of carcases affected by pneumonia and arthritis. |
| | | | This work is coordinated with the Rural Research and Development for Profit project, Health 4 Wealth, which seeks to create value from collecting post-mortem inspection data. |
| | | | A manuscript on the scientific/epidemiological assessment of Australia's tuberculosis freedom has been accepted for publication. |
| | | | Further information and copies of past reports in this area can be found at: www.mla.com.au/pmi |
| 3.3.1.3 | Implement new post-mortem procedures based on risk approach. | • Drive change in post-mortem procedures by demonstrating to trading partners and competitor countries that procedures are equivalent (based on risk) to the controls currently in place. | Work in this area will be determined by the outcome of the 2.2.1.2 area topic 'Demonstrate appropriate post-mortem procedures for a risk-based approach'. |
| 2.2.1.2 | Responding to international standard changes to keep the risk of residue violation in international markets low. | • The risk of residue violation in major international markets is low because the system for managing residues responds to changes in international residue standards. | MLA continues to respond to Technical Barriers to Trade (TBT) notifications on maximum residue limits (MRLs) for the red meat industry. MLA has developed, and agreed with SAFEMEAT, a protocol for raising these issues to an industry level when a response is required. |
| | | | The National Residue Survey (NRS) has informed MLA that Korea may potentially have a nil limit approach for all MRLs unless they are registered for use in Korea. This may come into effect in 2018. MLA has submitted to NRS a list of 465 chemicals which may be affected. We have reviewed 12 chemicals with high potential to impact production for the red meat industry, with a further 12 chemicals with moderate risk to the industry reviewed. MLA is working with NRS who will be collating other industry advice. MLA will continue to provide advice if the restrictions are imposed. |
| | | | The results from this work will allow the Australian red meat industry or drug manufacturers to |

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| | | | In May 2017, the Gulf Cooperation Council (GCC) issued 152 chemical MRL changes. An analysis of the notification shows the majority of the changes are in line with Codex. These results have been sent to NRS to collate with other industry stakeholders to respond. |
| 3.3.1.3 | **Plant toxins**<br><br>Prepare a position on pyrrolizidine alkaloids and plant toxins. | • Keep a watching brief on the progress of discussions in the Codex Alimentarius Commission, other regulatory bodies and the scientific investigations on pyrrolizidine alkaloids and other plant toxins (indospicine). Take appropriate steps to respond. | No action has been necessary at the Codex level. MLA is not continuing to fund work on the toxicology of indospicine, but keeps a watch on this area. |
| 2.2.1.2 | Controlling the risks of *Toxoplasma gondii*. | • The risks of *Toxoplasma gondii* in Australian meat are known and management plans are implemented if necessary. | There has been increased attention to the significance of *T. gondii* as a public health hazard in sheepmeat. Work commenced in November 2016 to produce risk assessment data on the prevalence and concentration of *T. gondii* cysts in sheepmeat for human consumption. |
| 3.3.1.3 | Implement a risk management plan for *Toxoplasma gondii*. | • Implement management plans for *Toxoplasma gondii* in Australian meat if required from 2.2.1.2. | Work in this area will be determined by the outcome of the 2.2.1.2 area topic 'Controlling the risks of *Toxoplasma gondii*'. |
| 2.2.1.2 | Controlling the potential risks associated with enteric pathogens in sheep. | • Quantify antimicrobial resistance and pathogen risks associated with sheep and lambs at the time of slaughter. Implement risk reduction plans if necessary. | MLA has commissioned CSIRO to undertake a baseline survey on the prevalence of pathogenic bacteria and their antibiotic resistance in sheep. Contacts have been made with processing establishments via the Australian Meat Industry Council (AMIC) and directly - so far only six plants have responded to contribute to the study. We hope to involve more establishments in the survey.<br><br>This work commenced in late October 2016 and ends in late 2018, with interim results available in late 2017.<br><br>MLA expects the results to demonstrate a low prevalence of antimicrobial resistance in sheep. Shiga toxin-producing *E. coli* (STEC) will be isolated and characterised, as they may become a more significant trade issue in future. The work will fulfil the expectations of Australia's antimicrobial resistance strategy. |

| 2.2.1.2 | Demonstrate that antimicrobial resistance risks in Australian livestock are low. | • Antimicrobial resistance (AMR) risks associated with red meat-producing species are known and management plans exceed the standards of our trading partners. | The antibiotic resistance of *enterococci* (a concern as human pathogens and indicators of resistance) demonstrated low levels of resistance. A scientific paper has been submitted for publication. This will support the finding that there are low levels of antimicrobial resistance in the Australian red meat industry.

Peak industry councils have been provided with advice in response to a Department of Agriculture and Water Resources (DAWR) request for submissions about the classification of *coccidiostats* as antibiotics. This is because these compounds, with no use in human medicine, are classed as antibiotics in the statistics on antibiotic usage.

MLA is working with other animal industries to produce a document explaining to external stakeholders the antimicrobial stewardship practices being followed and the results in terms of antimicrobial resistance. It is expected that the document will be finalised in time for Antibiotic Awareness Week in November 2017. |
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| 2.2.1.2 | Assessing new technologies for application by the program. | • Assess technologies that may be introduced to ensure the safety and market acceptability of meat, or investigate the public health implications of meat.<br>• Determine the status of Australian meat with the new technologies. | Discussions are being held with the Australian Meat Processor Corporation (AMPC) on projects to review technologies that may increase the ability of the industry to produce a safer product.

MLA is seeking opportunities through MLA Donor Company to co-invest in technologies that may provide the industry with significant advantages in the detection and destruction of foodborne hazards, and in ensuring product integrity. |
| 2.2.1.2 | Ensuring the system meets market expectations. | • Ensure systems for anticipating and responding to technical requirements for Australian red meat are effective in meeting requests from the market. | MLA is maintaining oversight of technical requirements for red meat products and how the industry can best respond to these requirements. |

| 3.3.1.3 | Maintaining and improving control of food safety and associated hazards. | • Implement measurement techniques, data, sampling points and analysis techniques for improving microbiological (and associated food safety hazards such as visual contamination) process control.<br>• Satisfy customer expectations for product quality and cost-effectiveness of processing. | Work has commenced on microbiological testing for process control. A review of systems and requirements for assessing microbial levels on meat carcase surfaces has been completed. Initial studies will focus on the most appropriate sampling sites and steps in the process for beef and sheep carcase testing.<br><br>Trials on whole carcases evaluated the use of oxidising agents (such as acidified sodium chlorite or chlorine dioxide) during the spray chilling process on *E. coli*. This work confirms an intervention during chilling is effective under commercial conditions. In the laboratory the same impact is noted for *Salmonella*. Further trials using carcases inoculated with *E. coli*, which will more accurately determine the size of the effect, are underway. This intervention requires a low capital investment and could potentially replace other interventions. |
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| 3.3.1.3 | Maintaining and improving quality systems and building capability. | • Implement options/models for 'whole chain' quality assurance systems to meet stringent and broad requirements of international and domestic customer expectations, with streamlined systems and audits. | Australian Meat Processor Corporation (AMPC) is considering a project on the harmonisation of audit requirements. Work may be based on the success of the horticulture sector of standardising requirements across retailers. |