

Cysticercus *bovis* risk management plan and verification arrangements

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Project Description

A risk management framework has been developed to support the risk-based inspection requirements for *Cysticercus bovis* in the revised *Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* (AS 4696: 2023; the standard).

The revised standard includes updates for some meat inspection requirements, based on current science, and continues to ensure that the meat we produce is wholesome and fit to eat, while providing benefits for processors.

The move to a risk-management approach to inspection for 'beef measles' (*C. bovis*) is an important change to support implementation of the standard. The modernised standard now reflects the negligible risk to consumers through consumption of Aussie beef, enabled by improvements in animal health over the past 40 years.

C. bovis causes small cysts in the muscles and offal of cattle (beef measles). The presence of cysts can lead to all, or part of the carcass being condemned. Cattle are infected with *C. bovis* from ingesting pasture and crops and drinking water contaminated by human wastewater that has not been effectively treated. Ingestion of viable cysts by humans consuming cattle meat products can lead to gut tapeworms (*Taenia saginata*).

The framework was developed as part of AMPC's strategy of addressing opportunities for regulatory efficiency and providing cost savings to red meat processors.

Project Content

While the science was there to support amendments to inspection of *C. bovis*, operational arrangements to identify and manage the risk, and to provide details of how the system would work, were needed for stakeholders.

The framework provides risk management and verification detail required by regulators, processors, producers, and other stakeholders along the supply chain. It details the actions and requirements to ensure the *C. bovis* risk associated with cattle exposed to inadequately treated human wastewater, is identified and managed appropriately.

AMPC previously ran research to understand the occurrence of human tapeworm eggs in human sewage water and how this water is treated around Australia to reduce the level of tapeworm eggs that may be present. Establishing and leading a steering group to develop a risk management framework was the next step for this work. AMPC brought together a group of processors, producers, government, technical experts, and other key stakeholders to guide the development of the framework, which was presented to government and industry for agreement (via SAFEMEAT Partners).

Project Outcome

This framework classifies cattle as either low or high-risk, where the latter is defined as *exposure to Cysticercus bovis (beef measles) may have occurred*. Under the standard, these high-risk cattle receive full carcass inspection including incision of the masseter muscles (beef cheek). Routine postmortem inspection for low-risk cattle still requires incision of the heart, but only observation of the masseter muscles under the standard.

The revised risk management of *C. bovis* have been endorsed by SAFEMEAT Partners. Amendments to Livestock Production Assurance (LPA) and National Livestock Identification Scheme (NLIS) for producers, saleyards, feedlots, processors, States and Territories, Integrity Standards Company (ISC) and LPA auditors, and wastewater treatment plants have been agreed and published. Full details may be found via the link below in [Useful Resources](#).

Producers being supplied with recycled water from a wastewater treatment plant that contains human excrement (recycled water) need to include recycled water use in their property risk assessment, indicate on their farm map where recycled water has been applied, obtain in writing from the wastewater treatment plant the treatment level of

the recycled water (agreement or contract), and demonstrate through the agreement that the recycled water use is low risk for *C. bovis*, as defined in the link provided.

In summary, the framework includes amended requirements for:

- Producers with properties where stock are potentially exposed to *C. bovis* (CBP status)
- Producers receiving stock with *C. bovis* status
- Safe use of recycled water from Wastewater Treatment Plants for pasture irrigation under relevant State, Territory and Australian guidelines for water recycling.
- Release of a property with *C. bovis* status
- Management of *C. bovis* status animals at saleyards and feedlots
- Introduction and release of *C. bovis* Warning (CBW) alert for properties receiving *C. bovis* status stock
- Processors will be able to see if a PIC they are purchasing from has a CBP or CBW status and further check if livestock being received have a *C. bovis* status
- ISC and LPA auditing and corrective actions
- Mitigation options under States and Territory regulations where *C. bovis* remains a Notifiable disease.

The revised risk management arrangements underpin the application of postmortem inspection options for *C. bovis* in the standard. This enables preservation of the beef cheek in most cattle that will be low-risk. The Department of Agriculture, Fisheries and Forestry are working on rolling out the changes to export processing plants.

Benefit for Industry

The changes in the new standard are relatively minor with the exception of the move to a risk-based approach to inspection for *C. bovis*. With the corresponding amendments to LPA and NLIS this could potentially lead to increased earnings of up to \$30 million for Aussie red meat processors through additional sales of beef cheek.

As well as providing guidance and support to regulators and industry, the framework is also useful for the Department of Agriculture, Fisheries and Forestry in gaining the agreement of trading partners for the move to a risk-based inspection for 'beef measles'.

The project provides opportunity for the recycled water industry to increase use of adequately treated recycled water for pasture production. This is enabled by publication of effective standards for such release by WasteWater Treatment Plants, supported by supply agreements and national on-farm auditing arrangements of LPA.

Useful resources

https://www.ampc.com.au/getmedia/e9f2c334-efcf-4c84-89bf-4f9b18cbf743/ISC-C-Bovis-Fact-Sheet_FA_online.pdf

Anon (2023). *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption*. Australian Food Regulation Standing Committee Technical Report Series 3. AS 4696:2023. Standards Australia.

Kiermeier, A., Hamilton, D. & Pointon, A. (2019). Quantitative risk assessment for human *T. saginata* infection from consumption of Australian beef. *Microbial Risk Analysis*, 12:1-10. <https://doi.org/10.1016/j.mran.2019.01.001>

Stevens DP, Daniel V, Shahsavari E, Aburto-Medina A, Soni SK, Khudur LS, Khallaf B, Surapaneni A, Schmidt J, Keegan A, Crosbie ND, Blackbeard J, Hampton J, Deere D, O'Connor N, Ball AS (2021). Improvement of Log Reduction Values Design Equations for Helminth Egg Management in Recycled Water. *Water* 13:3149.

<https://www.mdpi.com/2073-4441/13/22/3149>