

PROCESS MONITORING FOR THE AUSTRALIAN MEAT INDUSTRY – A COMPARATIVE INDUSTRY TRIAL

Project Report Reference: 2018-1070

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Project Description

In 2017, a critical analysis of the ESAM, Product Hygiene Index (PHI) and Meat Hygiene Assessment (MHA) programs as currently operated by Australian meat export establishments (AMPC Project 2017-1068) recommended alternative monitoring procedures which required trialling by the industry prior to implementation.

The broad objectives of the project were to generate data to evaluate the proposed alternative monitoring system and enable further refinement, at the end of which one alternative system was developed.

Project Content

AMPC Project 2018-1070 involved twelve export establishments (six bovine, three ovine and three porcine) from every state of Australia based on their production volume and whether they boned hot or cold carcasses. Over the period (October 2017 to October 2018), the project gathered a total of 27,157 microbiological results and 1,645,537 visual checks. These data were analysed and discussed on a monthly basis with a Reference Panel comprising representatives of the DAWR, industry, AMPC, MLA and APL.

The project team also prepared analyses for each participating establishment for discussion throughout the project. At the conclusion of the information-gathering phase of the project, data were analysed to inform possible alternative monitoring regimes for microbiological and visual testing of carcasses, bulk meat, primals and offals.

Project Outcome

Regarding visual hygiene monitoring it is concluded that:

1. Establishments already undertake a huge amount of visual testing of carcasses and of final products, bulk meat and offals.
2. The number of checks varies widely between establishments and is not directly related to the volume of production.

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3. Overall, visual hygiene performance was very good and limits were breached very infrequently.
4. Despite numerous meetings between industry representatives and the project Reference Panel no consensus could be reached on what might comprise an alternative system for visual monitoring.

Accordingly, it is recommended that a comprehensive review be undertaken of the current "Meat Hygiene Assessment" requirements, including which defects should be monitored as part of regulatory compliance; defect severity criteria (definitions of a Minor, Major and Critical) and practical elements of what action should be taken in the event of an Alert.

Considering microbiological testing data gathered by the twelve participating establishments, it is concluded that:

1. The microbiological profile of bovine, ovine and porcine carcasses confirms the substantial improvements recorded over recent decades by the ESAM database and by national baseline surveys.
2. The microbiology of bulk meat, primals and offals conforms well with limits imposed by other countries (e.g. New Zealand) and by commerce (e.g. supermarkets).
3. A proposed system based on testing carcasses, bulk meat, primals and offals would provide better information to establishments and their customers.

A re-allocation of the number of carcase samples currently tested to include bulk meat, primals and offals was considered suitable, with bovine and porcine/ovine products to be tested at a frequency of 1 in 1000 and 1 in 3000 carcase equivalents, respectively.

The Proposed System is based on:

-) A single set of criteria for all species as they are all considered as 'meat' by consumers.
-) A moving window of $n=15$ as per the current system for carcasses, bulk meat and primals; a moving window of $n=5$ for offals.
-) Setting $c=1$ (carcasses, bulk meat and primals) whereby establishments can have one result over the m -limit in a window of 15 samples ($c=3$ for offals).
-) Carcase TVC m -limit of 10,000 cfu/cm² (the same as the strictest NZ M -limit for carcasses).
-) Bulk meat and primal TVC m -limit of 100,000 cfu/(cm² or g), based on commercial criteria (e.g. major supermarkets) and reflecting an accepted 1-2 log difference between carcase and bulk meat TVC results.
-) All *E. coli* m -limits are 100 cfu, based on standard commercial limits.
-) Offal criteria are as per the agreed China protocol.

-) Removal of *Salmonella* testing due to a history of very low prevalence but with the suggestion that *Salmonella* testing could continue as part of future baseline surveys

Performance criteria for all products are presented below.

	TVC			<i>E. coli</i>		
	n	c	m-limit	n	c	m-limit
Carcase	15	1	10,000	15	1	100
Bulk meat	15	1	100,000	15	1	100
Primals	15	1	100,000	15	1	100
Offal	5	3	1,000,000			

Accordingly it is recommended that the industry and the department pursue with overseas markets the possibility of amending the present agreed system based solely on carcass monitoring to include bulk meat, primals and offal.