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FACT SHEET 13.10 AMPC + MLA + MINTRAC

PRE-SLAUGHTER CATTLE CLEANING (WASHING)

BACKGROUND

Cattle washing prior to slaughter is an accepted practice at most major plants in Australia. The principle purposes of pre-slaughter cattle washing is to reduce physical contamination on hides reduce microbiological contamination particularly pathogens on hides.

Washing reduces the visible or microbiological contamination of hides or carcasses however there is considerably different schools of thought on what even constitutes industry best practice in this area. Furthermore, there is little data available on the various effects of washing on reducing the incidence of cross contamination between the hides and carcasses during the dressing process. Cattle identified as 'dirty' at ante mortem may be rejected for slaughter or put up for conditional slaughter and this can require extra processing time or staffing.

AMPC sought to undertake a review of previous research and practices in Australia and overseas, and to develop a best practice guide for washing cattle prior to slaughter.

The project determined however, that there was very little research on the efficacy of pre-slaughter cattle washing and minimal scientific evidence available to develop a 'best practice guide'. Therefore the next logical step is to design further experimental R&D projects aimed at quantifying the variation across different processing systems, configurations, livestock types, sources, microbiological outcomes and technologies utilised for washing. To this end, AMPC is currently engaging with MLA and ALFA in order to consider the approach for a series of experiments to examine washing technology, method, practices, livestock type/source and subsequent impacts on product quality.

THE PROJECT

A literature review of cattle washing R&D here and around the world has been completed and the connection between hide contamination and carcase contamination is well established in the literature. Likewise cross contamination between heavily and less contaminated stock prior to slaughter during transportation and time in lairage has been proven.

However, the efficacy and efficiency of carcase washing has been less well researched. What seems to be the case is that there are established industry practices employed without any supporting research into the impact washing cattle has on the

micro contamination of carcasses. There would appear to be scope for research into the impact of cattle washing based on breed and relative hide contamination.

The review of the training materials reveals that current training materials are aimed at operative level and competency assessment based on compliance with workplace and regulatory requirements. There is no training at QA manager level into assessing the impact

In relation to pre-slaughter washing, the correlation between visual contamination and microbiological contamination of hides and carcasses has been well established by researchers. It was also evident that animals which are visually identified as having dirt and other soiling significantly influence the cross contamination rate of carcasses.

Research indicates that washing can result in a reduction in hide and carcase contamination. However, there is no indication from the research as to what constitutes the most efficient washing process. The practices at plants vary between well-constructed dedicated cattle wash yards with floor sprays and back sprays through to plants which clean cattle with the use of high pressure hoses on cattle in pens.

Likewise, the water source used for cattle washing varies from plant to plant from potable to water drawn from the aerobic waste water ponds. The impact of using different water sources on the level of micro contamination of hides is a variable that has not been assessed.





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EXISTING CATTLE WASHING PRACTICES

The project involved surveying the cattle washing practices at 20 meat processing plants of which 12 were export establishments and 8 domestic abattoirs. Out of these twenty plants three domestic plants did not wash cattle at all relying on slaughter floor procedures to cope with 'dirty' stock.

In general the plants that processed feedlot cattle had the most sophisticated cattle wash procedures and facilities. These plants had soaker yards with belly and leg sprays where cattle spent between thirty minutes and four hours. This initial wash in almost all cases used recycled water from a variety of sources. In other plants that processed mainly grass-fed cattle the cattle washes were less sophisticated and tended to involve greater use of high pressure hosing using recycled water.

Almost universally a final potable water wash was delivered just prior to slaughter. However the duration of this final wash varied from one minute through to five minutes. Often this final wash was a misting rather than a rinsing. Cattle were in almost all cases wet when they went into the knocking box.

When it came to the assessment of stock cleanliness prior to washing, three out of the twenty plants have a formal grading/assessment system for recording livestock cleanliness.

In most cases plants relied on a stock handler assessment (not recorded) to dictate the time that cattle needed to be washed. Almost all plants did a final assessment of cattle before putting them up for slaughter. No plants indicated that they had done any testing of micro contamination on hides before and after washing.





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OUTCOMES OF THE PROJECT

Although there is not an abundance of research undertaken around cattle washing, what has been done has focused primarily on food safety. However, it is evident that there are a number of non-food safety issues associated with pre-slaughter cattle washing that have not been investigated. These include:

ANIMAL WELFARE

- temperature of the water
- use of high pressure hoses
- slips and falls
- impact of the washing process on stock stress levels

ENVIRONMENTAL ISSUES

- volume of water used
- cost of processing the water recovered from the cattle wash operation

THE POTENTIAL FOR INCREASED WHS RISKS

- creation of significant aerosols
- trips from hose use
- slips and falls from slippery flooring

MEAT QUALITY

- the impact of the animal stress on meat quality including dark cutters.

WHERE TO FROM HERE?

This project has established a need for further research to be undertaken before the industry guide around cattle washing can be finalised. Specifically, AMPC is recommending further investigation into:

- the effectiveness of existing techniques in decreasing contamination;
- examination of livestock source, type and cleanliness indexes;
- examination of washing technologies and approach (and the variation across industry);
- a multi-factorial designed experiment that identifies the correlations and interrelationships between the major variables e.g. livestock type, source, water quality, technology for washing, washing time, microbiological results, hide cleanliness and so on.
- the impact of temperature, duration of washing, pressure of washing, use of chemicals etc.
- The potential for improvements in those processes.

The results of such an investigation will create a broader understanding of what can be achieved (and more importantly, the importance of washing, the optimal washing approaches and the various efficiencies that might be gained) in terms of reducing the microbiological and physical contamination of hides and carcasses.

This pre-slaughter cattle washing intervention should also be compared with post slaughter intervention steps, some of which have already been investigated.

FURTHER INFORMATION

For additional information please contact the AMPC office by phoning 02 9436 0042 or by emailing info@ampc.com.au.