Activated Lactoferrin

INTERVENTION SUMMARY	
Status	Currently available
Location	Post-slaughter on carcass or at packaging/retail
Intervention type	Surface treatment
Treatment time	No-rinse application
Regulations	Approved in the US (up to 2% in water), but not in the EU and Australia
Effectiveness	Reported to be good
Likely cost	Likely to be high capital cost
Value for money	Likely to be good
Plant process changes	Minimal process changes Significant equipment changes – special cabinet required
Environmental impact	Lactoferrin may interfere with effluent treatment through its antibacterial and iron-binding properties
OH&S	No hazards documented
Advantages	No effect on taste, colour or nutritional quality of meat
Disadvantages or limitations	Capital costs for set-up of application

Activated Lactoferrin

Lactoferrin (LF) is a naturally occurring antimicrobial found in milk, saliva and tears, and in trace quantities in meat tissue. The 'activation' of lactoferrin is a patented process. ALF can be sprayed onto a carcass to help prevent bacterial contamination during processing or it can be applied to a sub-primal or finished beef surface prior to final packaging. ALF has been reported to improve the safety of beef and poultry by interfering with adhesion/colonization and detaching microorganisms from biological surfaces, inhibiting multiplication, and neutralizing the activity of endotoxins. The recommended level is 2%.

Naidu (2002) has previously prepared a review on the microbial activity of ALF. In this review, several experiments have reported that ALF is effective against a variety of food-borne pathogens such as *E. coli* O157:H7, *L. monocytogenes* and *Salmonella*, as well as spoilage organisms. Particularly, ALF was found to extend the retail display life of treated steaks by 1.7 to 2.5 days compared to non-treated steaks in conventional packages. Both treated and control samples also showed no differences in tenderness, juiciness and flavour of the cooked steaks. In another study, sub-primals previously treated with ALF and stored for 21 days exhibited a 5-log reduction in the total plate counts compared to non-treated streaks. However, Heller *et al.* (2007) has reported low efficacy of ALF when used in conjunction with other antimicrobial. Treatments of sub-primals with 2% ALF followed by 5% lactic acid solution at 55°C only resulted in a 1-log reduction on the surface.

References

Heller, C. E., Scanga, J. A., Sofos, J. N., Belk, K. E., Warren-Serna, W., Bellinger, G. R., Bacon, R. T., Rossman, M. L., Smith, G. C. (2007). Decontamination of beef subprimal cuts intended for blade tenderisation or moisture enhancement. Journal of Food Protection **70**: 1174-1180.

Naidu, A. S. (2002) Activated lactoferrin: A new approach to food safety. Food Technology **56**: 40-45.