Scientific Interpretive Summary

Evaluation of methods for detection of coagulase-positive *Staphylococcus* and staphylococcal toxin in milk and cheese

The Animal Products (Raw Milk Products Specifications) Notice 2009 recently opened the way for domestic production of cheeses from unpasteurised milk. The notice requires manufacturers to demonstrate process safety and compliance with an approved Risk Management Programme or Food Safety Programme.

Staphylococcus aureus, a foodborne pathogen, can contaminate milk if cows are suffering clinical or sub-clinical mastitis, or from the skin/respiratory secretions of food handlers. Cheese has historically not been considered an important vehicle of *S. aureus* food poisoning in New Zealand because the organism is inactivated by pasteurisation of the milk prior to manufacture. However, manufacture of raw milk cheeses, without pasteurization, requires alternative control measures to reduce the level of *S. aureus* in the final product or, more importantly, to prevent growth to numbers (>10^5 CFU/ml) where toxin levels cause human illness. The raw milk cheese notice specifies the absence of staphylococcal enterotoxin in 25g of product.

This report commissioned from ESR describes and evaluates currently available methods for detection of coagulase-positive *Staphylococcus* species (e.g. *S. aureus*) and staphylococcal toxin in milk. NZFSA recognises that many food businesses that have expressed an interest in manufacturing raw milk cheeses are small and, therefore, a cheap, easily used, in-house, method to indicate likely compliance with the Animal Products (Raw Milk Products Specifications) Notice 2009 would be very useful. Actual demonstration of compliance still requires use of NZFSA approved dairy test methods.

The report describes available methods for detection of *Staphylococcus* and staphylococcal toxins. However, it shows that there is little information available on toxin detection methods specific to use for dairy products and questions remain regarding the sensitivity of available methods.

None of the methods evaluated in the report were suitable for use by small businesses for in-house testing.

This means that it remains necessary for premises to have testing carried out at accredited laboratories. A useful table listing *Staphylococcus* and staphylococcal enterotoxin methods used by IANZ accredited laboratories in New Zealand is included, and contains links to further information on specific test kits and to the NZFSA approved dairy test methods

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