

# Practical experience with process hygiene criteria referring to the safety of milk products and the reliability of certification

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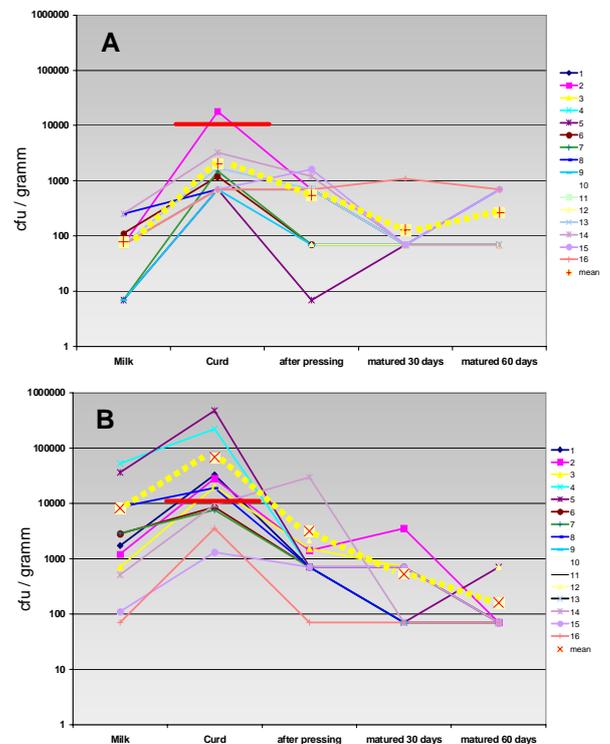
In Switzerland, about 45 % of total cheese production is exclusively made from raw milk. Another 6 % are made from thermised milk with added fresh raw milk. The rest is produced from thermised (12 %) or pasteurized milk (36 %). Data collected within the Swiss national monitoring programme for dairy products have confirmed that hard and extra-hard raw milk cheese varieties do not pose a risk to consumers.

Unpasteurised semi-hard and soft cheese varieties are shown to be more prone to contaminations, especially to contaminations with staphylococcal enterotoxins, *Listeria monocytogenes* or Shiga toxin-producing *E. coli* (STEC). However, the frequency of contaminations strongly varies with both, type of production plant and type of cheese. Since 2007, cheese factories have to monitor coagulase-positive Staphylococci in the cheese-making process instead of testing the final products. Data collected so far from the Agroscope Liebefeld-Posieux Research Station ALP advisory service and the ALP emergency team for businesses demonstrate that potential risk of toxin formation by staphylococci in semi-hard cheese made from raw milk had been underestimated. In the following of two cases of STEC-positive cheeses ALP initiated an intensive monitoring with the products concerned on STEC, *L. monocytogenes*, *E. coli* and coagulase-positive Staphylococci. Samples were taken at five production stages. 100 different daily productions have been investigated within a year. In cases of unsatisfactory results for *E. coli* and coagulase-positive Staphylococci corrective measures have been implemented. STEC have been detected in one case. The process hygiene criteria proved to be very helpful to identify weak points.

All of the investigated production sites were third-party certified and regularly inspected by official food control but auditing did in some cases not sufficiently review the food safety of the products. Unsatisfactory or missing results from checking the different production stages should have been noticed and correction steps been taken. General experience of the ALP emergency team for businesses is that either problems were not identified because of lacking competence, inappropriate monitoring e.g. final product control instead of inprocess control or problems have been identified, corrective actions have not been taken and no penalty was given at follow-up inspection. Reasons for this unhelpful attitude may be the customer relationship and competition within third-party certification, amicable respect or even lacking independency. This is in accordance with other findings [Albersmeier et al. (2009), Egan et al. (2007), Imhof (2009)]. Main reasons mentioned by these authors are: differences between certification bodies and auditors, inefficiencies in control systems, know-how differences between auditors, varying auditing intensities, economic dependencies, "courtesy certificates" or relying on standardized checklists instead of a risk oriented approach. An inspection of the observance of process hygiene criteria in alpine, farm, artisan and industrial production sites revealed that only 50 to 88 % of the businesses met the demands [Danuser et al. (2009)].

**To our experience the observance of process hygiene criteria is the basis of safe food production. Third party certification (TPC) therefore may generate an additional benefit but is in the end of second priority. Relying exclusively on TPC is misleading.**

**Pictures:** Photos A to D show real situations in different production sites encountered by the ALP emergency team for businesses during situation analysis. Photos E to G show situations after restoration. All of the shown production sites were third-party certified and regularly inspected by official food control.



**Figure 1:** Examples of the monitoring of coagulase-positive Staphylococci monitored as process hygiene criterion (PHC m, red line). While production site A shows one singular transgression of the PHC in production site B are due to deficient milk quality. All productions exceeding the PHC M were immediately analysed for Staphylococcal enterotoxins (SET) before matured and placed on the market. As a measure to improve product safety the cheese producers will establish a history for each milk producer.

## References

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