

LISTERIA IN SWISS CHEESES AND DAIRIES: RESULTS OF LISTERIA MONITORING PROGRAMME 2003

J. Hummerjohann, R. Imhof, M. Mühlemann, D. Weik, B. Ulmann-Christen, M. Schällibaum

Agroscope Liebefeld-Posieux, Swiss Federal Research Station for Animal Production and Dairy Products (ALP), CH-3003 Berne, joerg.hummerjohann@alp.admin.ch

Introduction

Since 1988, the Swiss Federal Dairy Research Institute is performing a nationwide *Listeria* monitoring programme with 720 dairies and 57 large ripening stocks involved. Main goals of this programme are the performance as an early warning system for the safety of Swiss cheese products and creation of knowledge about occurrence and distribution of *Listeria* in Swiss cheese manufacturing industry. The data presented here are the results from the year 2003.

Materials and Methods

Swiss dairies were sampled four times and ripening stocks two times per year. Surface Samples (smear, rind, swaps) and environmental samples (smear water, swaps) were analysed for the presence/absence of *Listeria* by using a validated method, including ALOA agar (Biolife, Italy) and a *L. monocytogenes* specific gene probe (BioMerieux, France).

Results

From totally 7451 samples in 2003, we found 3% being positive for *L. monocytogenes* and 7% being positive for other *Listeria*. Ranges within different sample categories were from 1% (soft cheese) to 4% (extra/hard cheese) for *L. monocytogenes* and from 6% (extra/hard cheese) to 16% (soft cheese) for other *Listeria* (Tab. 1).

Contamination rates were in the same range of our observation from the years 1990-1999 (2%-6.5% for *L. monocytogenes* with a decreasing trend; not shown).

For a subset of 3028 samples (different cheese types of known origin) the relative occurrence of *L. monocytogenes* and other *Listeria* was calculated (Fig. 1). In contrast to dairies with 2.9% (range 0.7%-6.6%) contaminated samples, occurrence of other *Listeria* was much higher in ripening stocks (13.8%, range 0%-37%). Large difference between various cheese types were observed. *L. monocytogenes* was only found in low numbers (0.8% and 1.6% in two different cheese types at dairies and 6.7% in one cheese type at ripening stocks).

Sample category	No. of samples	not detectable		other <i>Listeria</i>		<i>L. monocytogenes</i>	
(extra) hard cheese	3555	3192	90%	214	6%	149	4%
semihard cheese	2290	2084	91%	149	7%	57	2%
soft cheese	538	444	83%	88	16%	6	1%
environmental	1068	955	89%	78	7%	35	3%
total	7451	6675	90%	529	7%	247	3%

Table 1: Results from the *Listeria* monitoring programme 2003

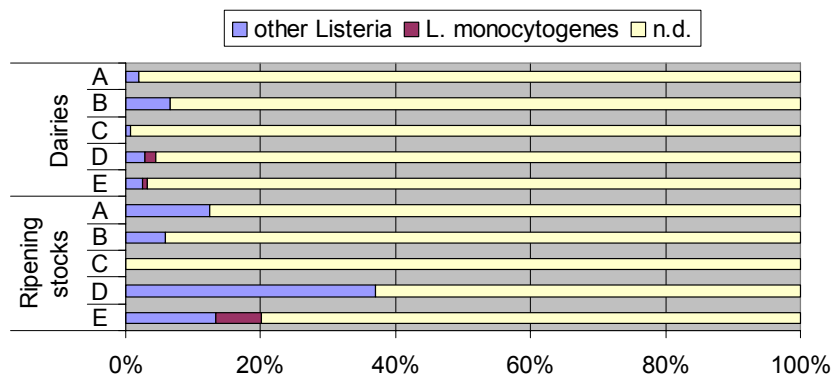


Figure 1: Occurrence of *L. monocytogenes* and other *Listeria* in dairies and ripening stocks.

A-E: Different cheese types

Conclusions

97% of analysed Swiss cheeses are free of *L. monocytogenes*. Contaminated products are early detected by the *Listeria* monitoring programme and excluded from entering the food chain. Contamination with *Listeria*, a surface germ, occurs mainly in large ripening stocks, less in dairies. Additional monitoring of "other *Listeria*" (such a result implies the need of further precaution measures by the enterprise) is more informative than monitoring *L. monocytogenes* only.