

# Assessment of the environment-borne *Listeria monocytogenes* risk in cheesemaking facilities

Marion Dalmaso and Kieran Jordan

Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, IRELAND

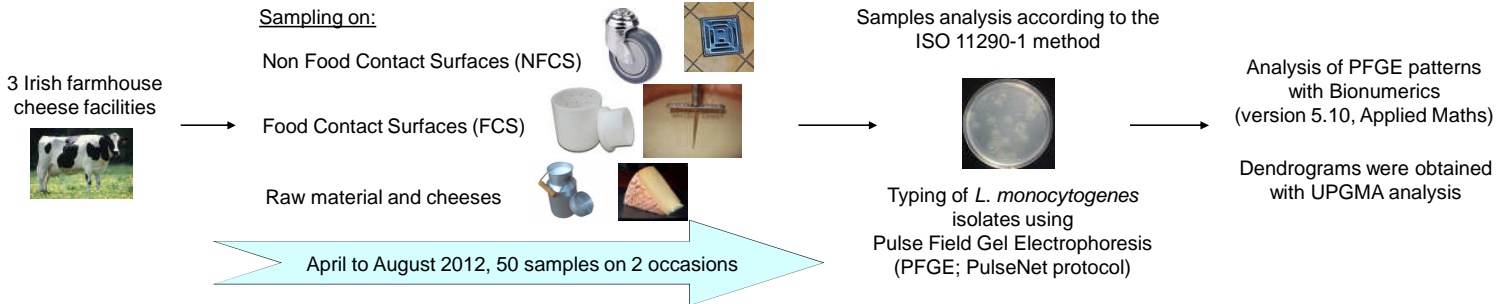


## INTRODUCTION

The contamination of dairy products, and especially cheeses, by *L. monocytogenes* is considered a public health risk. A processing environment sampling plan helps create awareness of *L. monocytogenes* in processing facilities so that the issue can be addressed. The aim of this study was to assess the environment-borne *L. monocytogenes* risk in cheesemaking facilities.



## MATERIALS & METHODS



## RESULTS

### FARMHOUSE CHEESE FACILITY 1

Proportion of positive samples: 5.3%

Proportion of positive NFCS / FCS / Cheese: 4% / 0 / 1.3%

• The detection of *L. monocytogenes* was in pre-market cheeses avoiding their release onto the market.

No. of PFGE types: 5 (Fig. 1)

Sources: unknown

Epidemiology :

- No transfer (strains were different in cheeses and on NFCS).
- Different strains from one cheese to the other.

Persistence: Yes for one strain (red on Fig. 1).

### FARMHOUSE CHEESE FACILITY 2

Proportion of positive samples: 41%

Proportion of positive NFCS / FCS / Cheese: 40% / 1% / 0%

• Advice on a reduction strategy was given to the food business owner.

No. of PFGE types: 10 (Fig. 2)

Sources: unknown

Epidemiology :

- Transfer between NFCS and FCS.

Persistence: Yes for one stain (red on Fig. 2).

### FARMHOUSE CHEESE FACILITY 3

Proportion of positive samples: 10.3%

Proportion of positive NFCS / FCS / Cheese: 0.9% / 1.7% / 6%

• By direct counts on cheeses, *L. monocytogenes* were less than 10 cfu/g and did not grow during the first 3 months of ripening; they were not detected at 4 months.

No. of PFGE types: 8 (Fig. 3)

Sources:

- External environment for at least one strain.

Epidemiology:

- 2 different strains identified in cheese A
- Transfer between NFCS (yard) and cheese B (Fig. 3).

Persistence: No

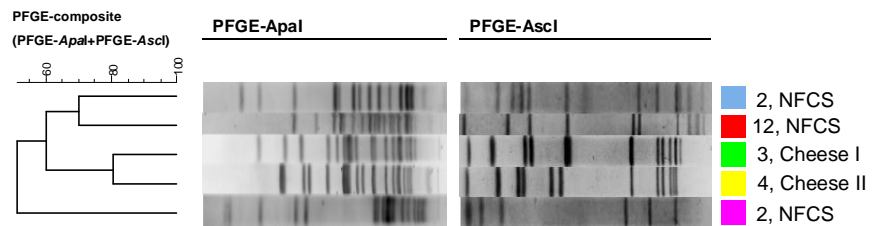


Figure 1: Dendrogram of PFGE profiles of isolates found at farmhouse cheese facility 1. The description of the profiles is as follows: Number, indicating the number of isolates displaying the same profile: Description, an indication of where the sample was taken from.

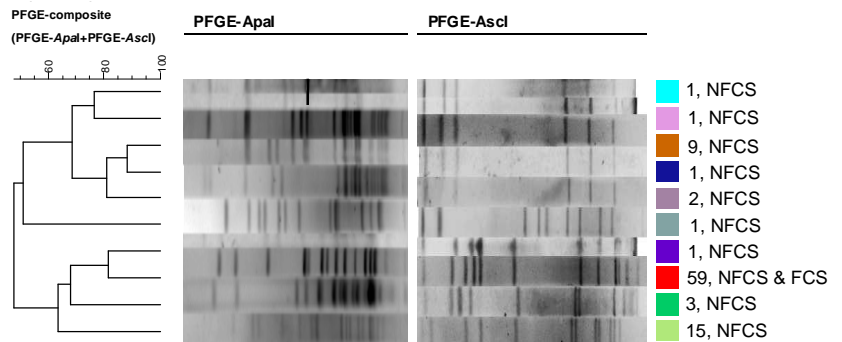


Figure 2: Dendrogram of PFGE profiles of isolates found at farmhouse cheese facility 2. The description of the profiles is as follows: Number, indicating the number of isolates displaying the same profile: Description, an indication of where the sample was taken from.

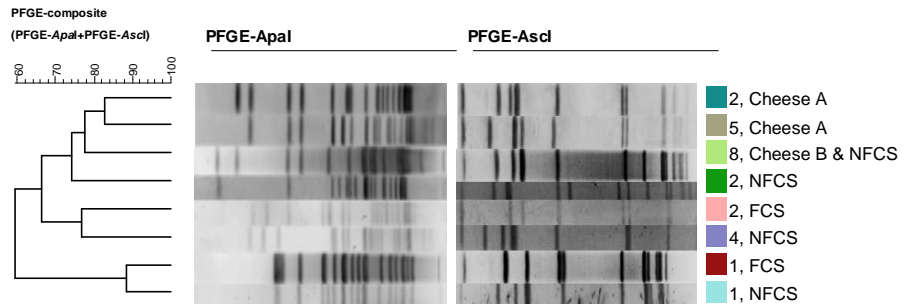


Figure 3: Dendrogram of PFGE profiles of isolates found at farmhouse cheese facility 3. The description of the profiles is as follows: Number, indicating the number of isolates displaying the same profile: Description, an indication of where the sample was taken from.

## CONCLUSION

These results suggest that NFCS in cheesemaking facilities may pose a risk to food contamination with *L. monocytogenes*. Efforts to reduce environmental contamination are worthwhile.