

Natural whey starter (NWS)

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Collect whey



Can be heated to 58-61°C if necessary



Incubation at 32 °C and 38 °C



Incubation in thermos



Remove the cream

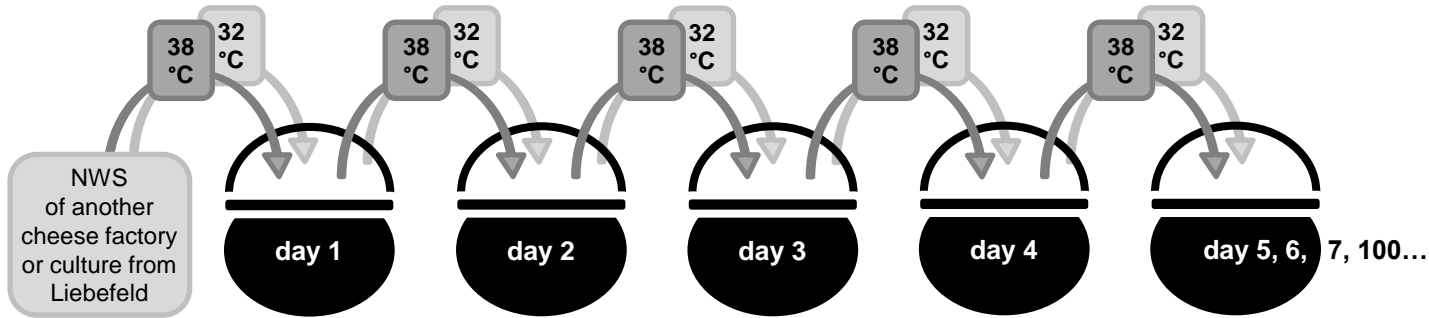


Sensory analysis
pH and acidity



Depending on the values, the cheesemaker will modify the recipe:

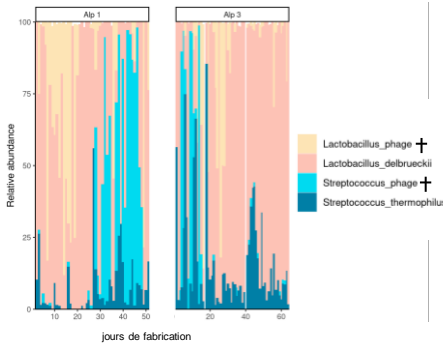
- incubation temperature
- incubation time
- the proportion of 32/38°C
- addition of an external culture
- addition of culture from the previous day



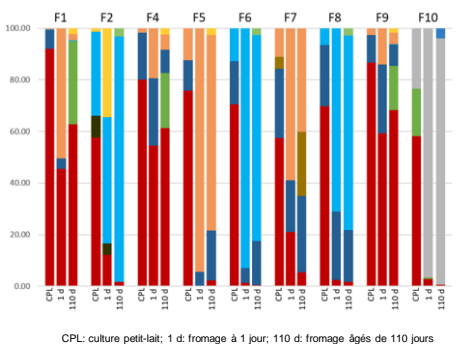
In alpine dairies, back-slopping can last for the entire summer season without any input of external starter culture

In artisanal dairies, Back-slopping can last for several years, but input of natural whey culture from another artisanal dairy is sometimes required!

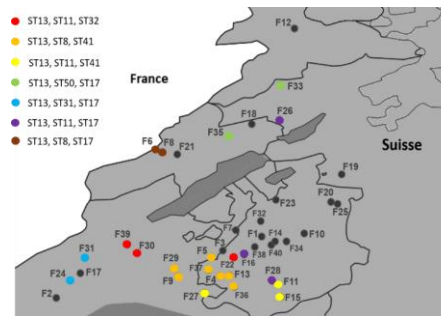
Evolution of strains and phages in natural whey starter during the alpine pasture season



Evolution of *Lb helveticus* strains in natural whey starter, fresh and 3-month-old Gruyère cheese



Diversity of *Lb helveticus* strains in whey cultures according to the region of Gruyère PDO production



Take home message

- ✓ The whey culture is made up of undefined strains.
- ✓ Phages and bacterial strains coexist.
- ✓ It is rich in *Lactobacillus helveticus*.
- ✓ It guarantees the typicality of the cheese dairy thanks to the know-how and the terroir.

Publication
 Population Dynamics of *Lactobacillus helveticus* in Swiss Gruyère-Type Cheese Manufactured With Natural Whey Cultures, Moser and al.