Lessons from an accidental butter maker
What is Butter

• It is a plasticized dispersion of the emulsion type “water-in-oil”, in which water droplets, crystallized fat and air cell are dispersed in butter oil.
Historic references

SACRIFICIAL HOLLOW

Among rock carvings like these small hollows or ‘elf-stones’ are found. We don’t know why they made them but as late as the 20th century people were still offering butter as a sacrifice in them. How long have they been doing that?
Butter Making starts on farm
Seasonal variations

• Summer
• Autumn
• Winter
• Spring
• European traditional butter makers do not distinguish the seasons
Factory & Equipment
NIZO IBA (Indirect Biological Acidification) or Natural Ferment?
Butter can be divided into 2 categories:

**Sweet butter cream:**
Made from pasteurised fresh cream
The flavour is mild and creamy
pH 6.4 or more

**Cultured butter:**
Made from fermented or cultured cream
The flavour of cultured butter originates from lactic acid bacteria
Such as *Lactococcus lactis* subsp. *Lactis*, *Lc. Lactis* subsp. *Lactis biovar diacetylactis*  
*Leuconostoc mesenteroides* subsp. *cremoris*  
The starter is added to the pasteurised cream.
pH 5.1 or less
The aroma is richer
Indirect Biological Acidification

• About 25 years ago, NIZO (Netherland Dairy Research Institute) established another variant:
  • **Mildly sour butter (IBA):** Adding culture / flavour concentrates after churning process
  • pH is 6.3 or less
  • Most commercial cultured butter is made this way unless legislated AOP, DOC
Natural fermentation
Cultured Butter -

- Flavour depending on culture used and cream age
- Shelf-life depends on moisture distribution and pH
- Consistency largely dependent on fat crystals
- Number and size of fat crystals depends on temperature and temperature history and transportation
UNE FABRICATION ISSUE DE LA TRADITION.

Après réception dans les laiteries, le lait est stocké dans des tanks réfrigérés à sa température de ramassage entre 0 et 4°C.

1ère ÉTAPE : L’ÉCRÉMAGE
Le lait est porté à une température de 40°C dans des écrémuses centrifugeuses.

2ème ÉTAPE : LA PASTEURISATION
La crème obtenue est pasteurisée entre 92°C et 95°C puis refroidie entre 10°C et 15°C.

3ème ÉTAPE : LA MATURATION BIOLOGIQUE
La crème est ensemencée de ferments lactiques pendant 15 heures, à une température comprise entre 9°C et 15°C.

Ce sont ces ferments qui confèrent au beurre Charentes-Poitou une texture fine et onctueuse mais également son inimitable saveur.

4ème ÉTAPE : LE BARATTAGE
Le mélange est brassé énergiquement puis malaxé afin d'obtenir une texture homogène. La crème devient beurre!
Fig. 12.2 General process steps in batch and continuous production of cultured butter.

6 Culture preparation, when used
7 Cream ripening and souring, when used
8 Temperature treatment
9 Churning/working, batch
10 Churning/working, continuous

11 Buttermilk collection
12 Butter silo with screw conveyor
13 Packaging machines
Malaxage
fat % on finished product, does it matter?
Benefit of natural fermentation
Value every product
Benchmark
Opportunity

- The future of naturally fermented dairy
- Health and wellness market
- Higher value retail products
- Better flavour profile
Value added products
Think outside the box!
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