



*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* subspp. *Lactis*, *Lc.*

Lactis subspp. *Lactis* biovar *diacetylactis*

Leuconostoc mesenteroides subspp.*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 (Netherlands 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.



1^{RE} ÉTAPE : L'ÉCRÉMAGE

Le lait est porté à une température de 40 °C
dans des écrèmeuses centrifugeuses.

2^E ÉTAPE : LA PASTEURISATION

La crème obtenue est pasteurisée entre 92 °C et 95 °C
puis refroidie entre 10 °C et 15 °C.

3^E 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.



4^E ÉTAPE : LE BARATTAGE

Le mélange est brassé énergiquement puis
malaxé afin d'obtenir une texture homogène.
La crème devient beurre !



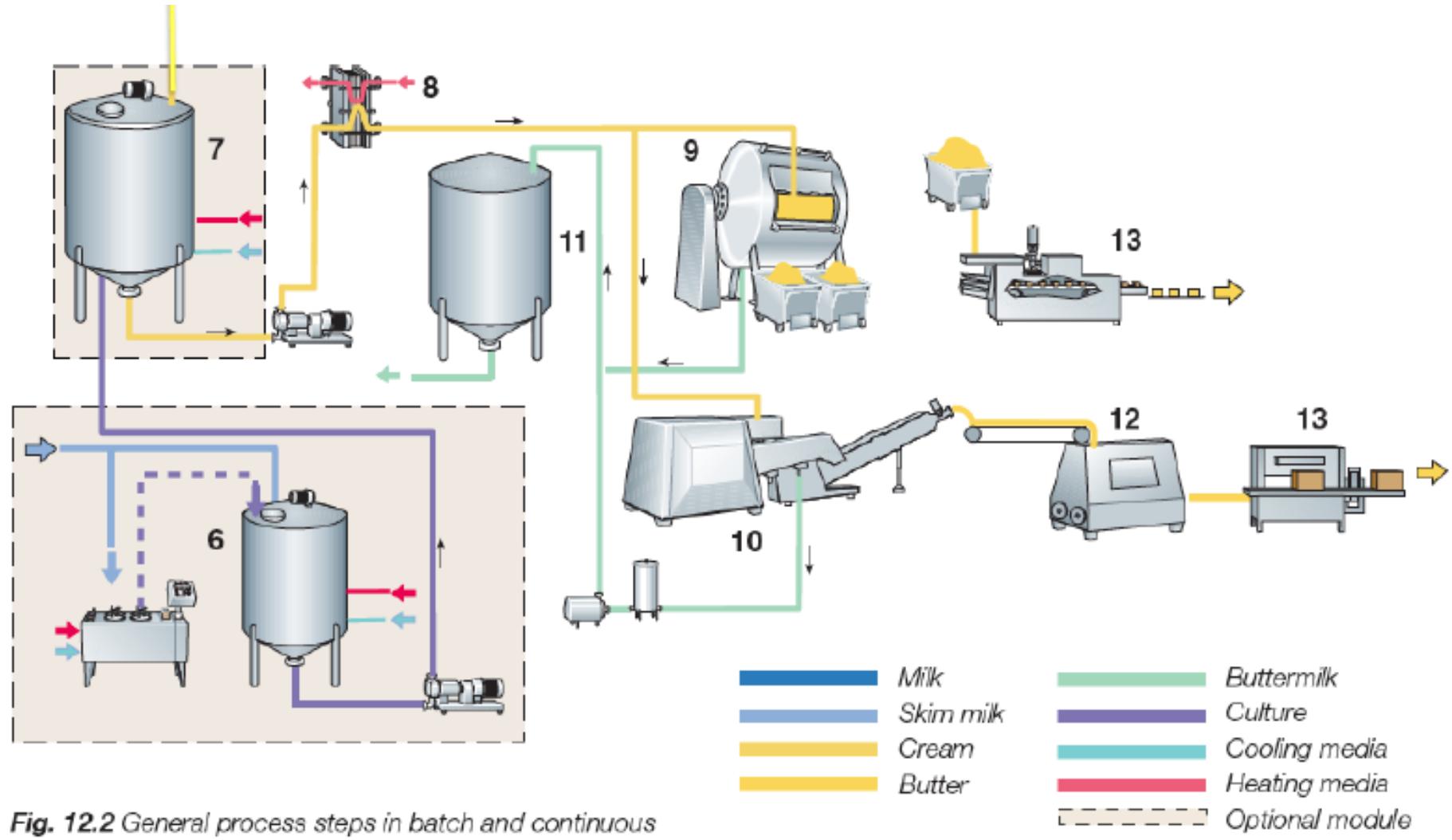


Fig. 12.2 General process steps in batch and continuous production of cultured butter.

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

1 Milk reception

- 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



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