



Agroscope

State of the work 2008



ALP cultures have tradition

The study, development and production of starter cultures and specific cultures for the manufacture of fermented dairy products have a long tradition of more than century at the Agroscope Liebefeld-Posieux ALP research station. ALP continues to develop bacterial cultures especially for traditional Swiss cheeses and produce them at the manufacturing facilities in Liebefeld. All the cultures come from the Swiss biodiversity and because of their natural character (mainly organic) show a very promising potential for the differentiation of Swiss cheeses and dairy products from foreign competitors.

AOC Cultures with certification of origin

Market products benefiting from an AOC label have an added value since they are manufactured traditionally and endowed with a geographic origin. These products, however, have the added risk of being copied. Nevertheless, during the previous work period ALP succeeded in developing a process by which the origin of Swiss AOC cheeses can easily be authenticated by means of cultures, which considerably improves protection against counterfeits. This process was presented in Bern during the "5th IDF Symposium on Cheese Ripening".

Ever since the cheese-making field got wind of the possibility of producing cultures with certification of origin, several inter-professional organisations deposited mandates and the development of these special cultures has been integrated into the work program in progress. The development which has progressed most is that of cultures for Emmentaler AOC and Tête de Moine AOC, where initial practical trials with cultures integrating certification of origin have been planned.

Preserved Cultures - of great importance to the Swiss dairy economy

A key objective in the production of cultures is to offer selected cultures in a preserved form, which would respond to an important requirement in practice, according to a survey carried out with our customers. The achievement of this goal is of great strategic importance for ALP and will influence the orientation and planning of investments for the development and production of cultures during the coming years. Preparations are under progress for the purchase of a larger freeze drier which will function in 2010. Considerable progress has been made in the development of freeze-dried mesophilic cultures. The technological process could be defined so that in 2009 we envisage the use of these freeze-dried cultures in the initial practical trials in a pilot installation. In addition, a lyo culture with physiological-nutritional properties was produced in large quantities for a clinical study.

Increasing importance of aromatic cultures

The study of microbial metabolism which is responsible for the formation of flavour in fermented dairy products and the qualitative and quantitative determination of the volatile compounds formed has gained in importance. Over the last 10 years, the importance of research on flavour has considerably increased at ALP due to the increasing number of requests from the industry on this topic.

For example, aromatic sulphur compounds play an important role in typical Gruyère flavour. A thorough study of the metabolism of sulphur, in strains of *Lactobacillus casei*, has led to new knowledge on the mode of formation of these aromatic compounds in ripe cheese. The analysis of flavours has also contributed to the selection of specific strains for the development of a new culture based on the formation of aromatic substances.

Other work

In accordance with a concept elaborated in 2006, further milestones were reached in the development of cultures. Thus, within the framework of a project financed by external funds, a project was initiated on the development of starter cultures free from antibiotic resistance and to be used for the production of raw sausages. In collaboration with ETHZ, recent progress concerning the development of a culture to protect against listeria on the smear of semi-hard cheeses was presented at a conference.

