On-farm food processing: an opportunity to create activities and jobs in rural areas

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Summary

To increase competitiveness internally and externally, and to take advantage of positive market developments is not the only objective of the CAP. The creation of alternative jobs and income opportunities for farmers and their families, as well as the integration of environmental goals into the CAP, are also major objectives.

"On-farm food processing" and direct selling are two potential ways to add value to the raw material produced by farms. This opportunity has to be developed, particularly, in less favoured areas and in regions where an increase in competitiveness cannot be reasonably achieved (peri-urban areas). The market for such products is relatively important, but the quantities concerned remain small in comparison with the capacity of industrial systems. There are examined case studies from the perspective of the "observatory of innovation" (one in the meat sector, two in the milk sector) to show how farmers can take advantage of a personalised relationship with the consumer to improve the specific quality of their production for regional or urban micro-markets.

Such activities remain a source of jobs and activities in rural areas as long as industry and farmers remain non-concurrent and farmers remain managers of their activity, risk and profit. "On-farm production" could be protected through official quality signs in Europe.

Introduction

This paper is concerned with the economic importance of "on-farm products" for the development of marginal agricultural zones, and the specific characteristics of "on-farm products" compared to industrial products and official quality labels and "on-farm products".

Three main sources of information are used:

1. the results of *"Agroalimentaire Paysan Européen: situation de la production et des marchés"*, a research programme managed by the Groupe de Recherche et d'Échanges Technologiques (GRET), and developed in 4 European countries (Belgium, Germany, United Kingdom and France), with the University of Gent, the University of Kassel, the Scottish Agricultural College (SAC) and Institut National de la Recherche Agronomique (INRA), as part of the EC-funded CAMAR programme. The objective was to understand the economic importance of "on-farm food processing". The conclusions were based on 2000 inquiries on farms and a market study.
2. The first results of an ongoing programme *"Agroalimentaire paysan européen: caractéristiques distinctives des produits fermiers"*, a research programme managed by GRET and developed in seven European countries (Belgium, Germany, United Kingdom, France, Ireland, Portugal and Greece), with the same partners as above, plus Teagasc, Ireland, INDE, Portugal, and Vakakis, Greece, and funded through an EC-funded programme. In this programme, the objective is to understand what are the distinctive characteristics of "farm products" for the consumer. In other words, we try to understand what the reasons are that lead consumers to buy "farm products". We have taken into consideration the questions of price, organoleptic characteristics, particularly the taste of the product, and image.
3. Examples of "on-farm processing" and local products in rural areas, through the "observatories of innovation", particularly the leader observatory of DG IV, and the French network "Réseau Produits Fermiers".

On-farm food processing adds value to the raw material produced by the farm

We will take three examples in France, one in a peri-urban area, and two in less-favoured areas in the south and centre of France.

"La Ferme de N...." near Nangis, to the east of Paris, obtains milk from 75 cows. The main part of the milk production is sold to the dairy. Three years ago, a plant was built to process milk into yoghurt. The objective was to create income and jobs on the farm. Today, this EC-authorised plant processes 200,000 litre/year of milk into yoghurt (the maximum capacity of the plant is 400,000 litres/year). One extra job has been created on the enterprise as two part-time jobs. The sale price of the processed product is the equivalent of more than 1.52 Euro/litre of milk (c.f. 0.30 to 0.43f Euro/litre from the dairy). The yoghurt is sold with the label "yaourt fermier", through local markets, local dairy shops, other farmers, on-farm selling and supermarkets.

"Les Fermiers des Grands Causses" is a Groupement d'Intérêt Economique" (GIE) of 11 farms, in a less-favoured region of the Midi Pyrénées. With this system, the selling price of the meat through the GIE is up to 6.86 Euro/kg carcass weight, compared with 4.57 Euro/kg through a co-operative. The sheep is sold with the label *"Agneau des grands causses"*. All the meat of the GIE is sold through markets: Millau, Montpellier and Lyon/Paris (on demand).

"La ferme de P...." is located in a less favoured area in the centre of France. The farm is of 75 hectares and 70 goats are the basis of the activity of two persons. A plant processes the milk into "Crottin de Chavignol", which is a Protected Denomination of Origin (PDO) cheese. The objective is to increase the production to be able to employ one more person on the farm. The selling price of the cheese is the equivalent of 1.21 Euro/litre, compared with 0.38 Euro/litre to the dairy. The sales are on-farm sales (30%), dairy shops (20%) and supermarkets (50%). The PDO is very important for access to the supermarkets.

Table 1. The development of on-farm processing activities in four EU countries.

	Germany	Belgium	France	UK
Mean utilised agric. area per holding (country average) (ha)	44 (17.7)	37 (15.8)	50 (28.2)	104 (67.9)
Job creation since 1984 (%)	67	30	55	65
No. of full-time jobs for on-farm food processing & selling (average, in UTA)	0.9	0.6	1.14	12.5 (milk) 6.7 (meat)
Mean turnover (base 1992) (Euro)	23,000	14,208	63,732	125,425 (milk) 710,720 (meat)

Source: François and Sylvander (1995).

Table 2. Proportion of consumers that buy on-farm products.

	Germany	Belgium	France	UK
% of consumers in the total population[1]	43.5	53.6	59.6	35.2
% of regular consumers in the total population[1]	11	11	12	7
% of the total population buying farm products during their holidays	<5	<5	12	<5

Source: François and Sylvander (1995).

These three examples illustrate how much the activity of food processing on the farm can add value to the raw material produced on the farm. It is also a source of jobs and income in rural areas.

Through the CAMAR program, 2000 questionnaires in 4 European countries provided general data about the activity. Table 1 summarises these figures, which confirm the importance of the processing activity for these farms.

Three main conclusions from these results are:

1. The farms involved in "on-farm processing" are medium-sized farms (the average agricultural area per holding is greater than the country average area per holding in the four countries). In other words, "on-farm processing" farms are not small or very small farms, which survive by this activity. It is a real activity of viable farms. This is confirmed by the analysis of the turnover generated through food processing. The turnover generated through farm-processed products, and the number of jobs for the activity, is related to the size of the farm. In France and Germany, about one full-time job is dedicated to food-processing and selling. The average is less in Belgium. Particularly in the Flanders region, on-farm processing in the milk sector remains a traditional activity of older people.
2. More than 50% of the farms in our survey had begun on-farm food processing since 1984. The activity has been created to adapt the business to the modifications of the CAP. For example, milk processing into cheese is a way of keeping the farm profitable with the constraint on quotas. Forty-five per cent of farms in France began the activity before 1984. On-farm food-processing is based on a tradition of processing on farms, which is today still active. The farmers continue to process milk or meat into cheese, butter or other products, on the basis of the tradition and skills of their parents. In such cases, the way of considering the activity is renewed. New plants are built often EC-authorised plants), and the amount of milk processed is generally increased to be able to pay for the investment.
3. On-farm food-processing creates jobs, added-value and economic activity in the disadvantaged areas. On average, in each farm, one full-time job is necessary for processing

[1] A survey on a representative sample of the population has been done in the four countries of the study. Consumers are considered as the people who declared they had bought "on-farm products" once. Regular consumers are those who declared that they consume on-farm products at least once a month.

and selling. In many cases the spouse of the farmer develops his/her own sector of activity, skills and responsibility on the farm. It is seen as a way to create a job on the farm, rather than working away from the farm. In some cases, employees are also involved in the activity.

The market for "on-farm products"

The CAMAR programme also conducted a market survey in France, Belgium, Germany and the UK on a representative sample of the population in each country.

The results showed that the consumption of on-farm products is common in the four countries. Almost one half of the population has once bought "on-farm products", up to 60% in France (only 35% in the UK as there are less farms than in the other countries). Increasing consumption of "on-farm products" is a strong trend in the four countries. Among the population, more than 10% can be considered as regular consumers (ie. that consume farm-processed products more than once a month). The figure is less in the UK (7%), and higher in France (12%). The consumption of farm-processed products during holidays (buying local farm-processed food specialities during the holidays) seems to be a specifically French phenomenon. Twelve per cent of the population in France buy farm products during their holidays, compared with less than 5% in the other countries.

These figures show that the market for farm-processed products exists in the four countries. In France, where two studies have been undertaken in 1989 and 1994, the trend is that the market is increasing. According to INSE, on-farm products (including direct-selling of vegetables and other products) represent 2% of food purchases in France. Even if it increases, thanks to the new demands of urban consumers, it remains small.

In other words, if the production of farm-processed products increases, the market should increase in the same proportion, though its overall size will remain relatively small.

The distinctive characteristics of farm-processed products

The questions that arise then are: "Why does the consumer buy the farm product?"; "Is a farm-processed product really different from an industrial one?", "What are the characteristics of the farm-processed product?", and "What are their relative weightings for the consumer in his decision to purchase?". Current research managed through the EU FAIR programme aims to provide a contribution to answering these questions.

A food product can be described as having several characteristics, namely: organoleptic characteristics (taste, texture, flavour, odour and appearance), economic characteristics, mainly price, symbolic and transferred characteristics (image of the product) and hygienic and nutritional characteristics.

In the recent programme the objective was to compare farm-processed, industrial and cottage industry products in relation to these characteristics. This has been done with fourteen products (two products in each of the seven countries of the programme): yoghurt and Valencay goat cheese in France; yoghurt and apple juice in Belgium; quark and farm-processed bread in Germany, Feta and Ladothyri cheese in Greece; Cheddar and honey in Ireland; Cheddar and ham in the United Kingdom; Sierra d'Estrella cheese and farm-processed olive oil in Portugal.

The following methodology was used. To compare the organoleptic characteristics of the products, in each country a trained jury was assembled to describe the sensory profile of industrial, farm-processed and cottage industry products. Each product (cottage industry, industrial and farm product) had its specific characteristics. A trained jury could recognise one product from another. Figure 1 shows the differences between six different yoghurts.

However, there is no typicality of farm products. A farm product may be very different to another of the same type from another producer. Even for each producer, the characteristics of the product may be different from one production batch to another. This is particularly true for Greek and Portugese cheese. The "distance" between two cheeses from the same producer may be greater that the "distance" between two producers.

This part of the work concluded that there is a real difference in organoleptic characteristics between on-farm products and industrial products. The main origins of the difference are:

1. The raw materials. Milk quality, for example, may differ. A Cheddar cheese from Jersey cows has a yellowish colour, which derives from the speciality of the milk. The characteristics of the milk at the beginning and at the end of a sheep's lactation are not the same. In consequence, the Sierra d'Estrella Cheese in Portugal is semi-liquid in summer and solid in autumn.
2. The processing technologies. Cheddar from pasteurised milk, for example, is different from the cheddar from raw milk (the odours, flavours and taste are more strongly developed). For yoghurts, the farmers do not use a homogenisation technique. The surface of the farm yoghurt is creamier than the industrial yoghurt.

Once it is established that the organoleptic characteristics of the farm-processed products are really different from the characteristics of the industrial or artisanal products, the following question is: "Can "naïve" consumers really detect those differences?"

In each country of the project, a survey was conducted on a sample of 250 consumers of each product. The consumers were given samples of farm-processed, artisanal and industrial products. They had to taste the sample and then to give their hedonic appreciation on the product, using a 9-point scale.

This test indicated that naïve and usual consumers of the products can indeed detect differences between artisanal, industrial and farm-processed products. Consumers can be divided into segments based on their preference for different products. The farm-processed products do not always get the best mean score of preference, but there are always segments of consumers who prefer this type of product, and these are generally the usual consumers. For example, the farm cheddar consumers in the UK prefer farm cheddar rather than industrial cheddar.

The conclusion of this part of the work is that a farm-processed product is not the same product as an industrial or artisan product. It has specific organoleptic characteristics but there is no typicality over the farm products sector as a whole. A farm-product may be very different from another farm product from another producer. Even for a product produced on the same farm, the differences can be great between two batches of production.

Faced with these products, the naïve consumers recognise

that the different products have different organoleptic characteristics if they are allowed to taste the product. There is generally no "ideal product" among the consumers. Each segment of consumers prefers different products with different organoleptic characteristics. In other words, each product, industrial, artisanal and those produced on farms, has its own segment of the market.

The image of "farm product". How can the consumer recognise a farm product?

The farm-product can be sold through different channels of distribution, even in supermarkets. How can the consumer recognise farm-processed products? The main way to obtain information before buying and tasting the product is to read the labels and communication associated with the product.

What does the consumer read on the label? What kind of product is labelled as a farm product in the supermarkets? This is a complex question, with the answer being influenced by national and European rules and regulations. As an example, we will take the case of France.

The exact meaning of "produit fermier" is not defined in the same way for all products in France. But the term "fermier", "from the farm", is widely used on labels in French supermarkets. This term carries for the French consumer a highly positive image of a natural, traditional and quality product. For this reason, it has been used for many years to associate this image of quality with several products, including many that it is not possible to produce on the farm!

For historical reasons, several definitions of "fermier" exist, and are applied to different products. Firstly, the "produit fermier", adopted by the network, "Bienvenue à la ferme", of the agricultural chambers is defined such that the product must be processed by the farmer. Secondly, "poulet fermier", in the case of chicken, is defined by the "Red Label" regulation. In most cases, the farmer is not responsible for the sale of his product to the consumer. The production of quality "poulet fermier" is performed through industrial firms, which provide the farmer with chicks and food, and buys the chickens he produces. The farmer who keeps chickens and sells through direct selling is not authorised to use the label "poulet fermier" when his is not a member of Label Rouge. Thirdly, the definition of "fromage fermier" is different in that it originates from the definition of farm-produced cheese adopted for PDO products. The "fromage fermier" must be processed with traditional technologies. The milk must come from the flock of the farm. It also prescribes some techniques, such as homogenisation of milk for yoghurts, or osmotic concentration to process cheese.

The diversity of definitions confuses the consumer, accord-

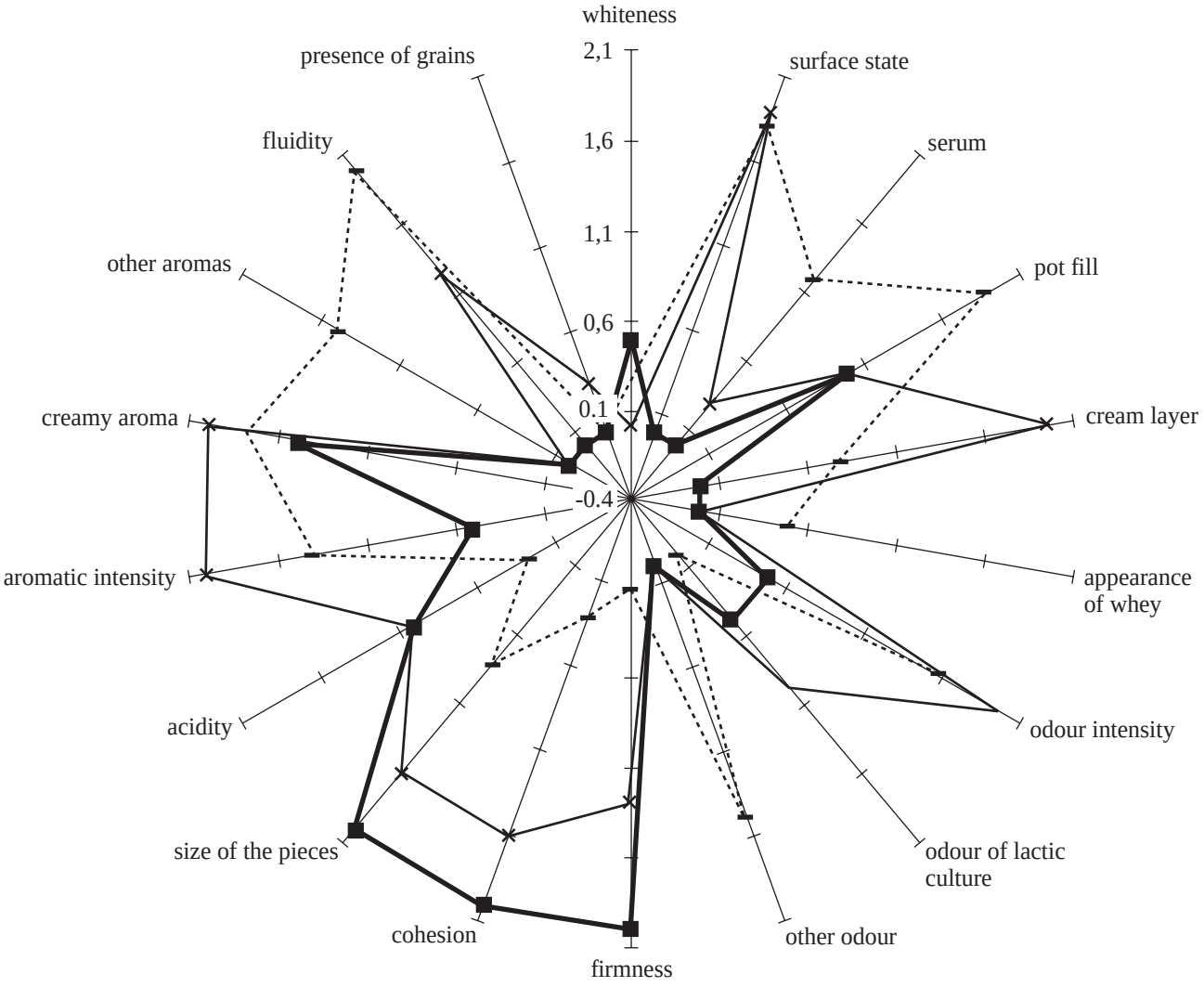

Figure 1. Description of organoleptic characteristics of six yoghurts by a trained panel.

ing to the consumer questionnaire that was conducted in Paris Fermier (November 1998). To the question: “What exactly is a farm product?”, generally the answer given was: “It depends.”

Conclusion: Helping the farmer to keep and expand the market

At this stage, we can say that the farm products studied are physically different from their industrial equivalents. It is not only a question of image. On-farm production preserves the diversity of food, recipes and traditional varieties in Europe. The activity is a profitable and professional job for numerous farmers, particularly in less-favoured rural areas. It also meets a real and increasing consumer demand, particularly in urban areas. However, extra local sales are necessary to make the EU-supported processing facilities profitable for many farmers.

A distinctive label could be a useful tool to stimulate sales of farm-processed products outside the region of production, and to help the consumer to recognise them when not sold direct from the farm.

References

Francois, M. and Sylvander, B. (1995). *On-farm food-processing. The market for on-farm products. Final Report.* EC CAMAR programme No. 120.