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# Dairy farming styles adopting technical changes for new PDO specifications

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**Abstract:** This paper presents a study concerning farmers' attitudes about technical changes in the case of the "Laguiole PDO cheese". During a 4-years period, the dairy cooperative has developed incentive policies to the maize silage abandonment in the cow feeding. 32 farms were surveyed to: (i) analyse of the farming systems evolution between years 2000-2005 and (ii) interview farmers about their motivation for technical change and their point of view for Laguiole cheese production specifications expected. The abandonment of maize silage has led to three main technical changes in the dairy farms: (i) a maize to grass silage substitution, (ii) the development of barn-dried-hay use, (iii) a return to traditional hay making. Four groups of farmers are defined as four patterns of dairy farming styles combining farmers' motivations for technical changes and farmers' point of view for Laguiole cheese production. The milk price has appeared like the main criterion to favour some technical changes.

**Keywords:** livestock farming systems, farming styles, farm management, PDO, cheese production.

## Introduction

To maintain dairy production in less-favoured regions, the value of the milk produced must be increased. It encompasses the recognition of a quality cheese production. The adoption of European PDO (Protected Designation of Origin) quality labels is generally essential to the local development. But the PDO specifications require many changes, particularly regarding the feeding system. These technical changes are aimed at developing high quality cheese production (flavour, smell, relationship with the "terroir") and providing more guarantees to consumers (food safety, origin) (Barham, 2003). Any change concerning milk production in the PDO specifications must be compatible with farmers' strategies. It is therefore important to characterize their current management practices to understand their patterns of evolution. Formalized descriptions of the forage and herd management practices are particularly suited to analyse the consistency of livestock farming systems. Our question consists in understanding "why and how" farmers accept the technical changes. We distinguish between the technical feasibility of the change and the farmer's motivation to change their management practices. Thus, the farming style concept (Van Der Ploeg, 1994) is of particular interest. In this paper we present the results of a study focused on farmers' attitudes in the face of technical changes in the case of the "Laguiole cheese production", a PDO label. This cheese is produced in Aubrac, a mountainous region in the centre of France. In 2000, the PDO label specifications have been modified (animal feeding, breed, milk production). The main change concerned the maize silage abandonment. During a 4-years period, farmers had to change their farming system. All farmers decided to make these changes in their forage systems because the social and economic context was favourable. Indeed to coach farmers in the technical change, the dairy cooperative has developed incentive policies to the maize silage abandonment.

## Methodology

Farmers are localised in 4 different areas of the "Laguiole cheese region" defined by different characteristics (historical, geographical, soil and climate conditions, social context...): (i) Aubrac upland area, (ii) Aubrac piedmont area, (iii) Aubrac recent extension area, (iv) Aubrac next extension area (in this area few farmers are changing their farming system management). This study was based on two kinds of data. First we analysed technical data collected in 66 dairy farms by the milking-advisors in the period 2000-2005. The analysis has led to the description of the patterns of technical evolution of the farming systems and provided the necessary elements to select 32 farmers for being interviewed. The second kind of data was 32 farmers' interviews about their motivation to change and

their point of view about requirements for the Laguiole cheese production. Firstly we analysed technical data to describe the different patterns of technical change; secondly we used a methodology designed to categorise farmers' practices according to farmers' interviews (Girard, 2006). Two typologies were then built resting on (i) farmers' motivations for technical changes and (ii) farmers' point of view about requirements for Laguiole cheese production. We proposed a combination of these typologies to define four farming styles.

## Main Results

Analysis of technical database showed that the abandonment of maize silage from 2000 to 2005 has led to three main technical changes in the dairy farms: (i) a maize to grass silage substitution, (ii) the development of barn-dried-hay use, (iii) a return to traditional hay making. The patterns of technical changes depended on soil and climate conditions. Few other changes were made: an increase of the sown pastures area, discontinuing meat production, a decrease of milk production, a change in the calving dates.

Concerning technical changes, we identified 8 variables describing farmers' motivations : Aubrac genetic program acceptance; reason for maize silage abandonment; quality aspect reason for grass silage abandonment; working aspect reason for grass silage abandonment; type of forage systems adaptation; involvement in the Laguiole specifications revision; goal for the dairy cow breed change; goal for calving dates changes. The combining of these data led to the definition of 6 groups of farmers as patterns of motivation about technical changes. Such groups could be analysed through the adequacy between farmers' production goals and the dairy cooperative objectives (maize abandonment, grass silage abandonment, summer milk production). The extremes modalities are (i) Farmer's production goals are consistent with the dairy cooperative objectives and (ii) Farmer's production goals are contrasting with the dairy cooperative objectives.

The farmers' points of view about requirements for Laguiole cheese production were described by different features: the definition of a PDO label, the raw milk use, the specifications requirements, the milk price, the rule of the dairy cooperative, the future of this PDO Label, the local development... These different points of view were defined by the farmers' acceptance of the PDO label requirements; on the one hand farmers thought high milk price are required in return of the specifications; on the other hand they are required to a specific market and consumers waiting.

The combination of farmers' motivations and points of view permitted identifying four farming styles:

- The grassland forerunners set up the technical changes to improve the quality of the Laguiole cheese: grassland with the use of hay and raw milk are fundamental and they have changed their systems to develop a better milk. These farmers (9) have been the dairy cooperative incorporators.
- The farming reformers use the technical change to improve their working conditions. Hay making and meadows use are developed by these farmers. Requirements are necessary to meet a specific market and consumers waiting about the PDO cheese. These farmers (5) have not active in the definition of the new Laguiole specifications.
- The technical innovators use the technical change to maintain their milk production using new techniques like the barn-dried-hay use. These farmers (4) manage the largest farms of the study.
- The income managers accept changes to sell milk to the cooperative and maintain their high milk price. The main part of these farmers (7) constitutes new farmers in the dairy cooperative.

## Discussion and Conclusion

To perpetuate the farm viability of the traditional farming systems in the case of the "Laguiole" PDO, farmers have implemented different forage managements without maize or grass silage. Concerning the livestock practices all farmers used the "Simmental" breed. Some of them developed spring calving while others have decreased the milk production.

The four farming styles showed that the farmers' changes are based on 2 axes firstly the "Laguiole" brand image and the milk price; secondly the collective or individual farmer's strategy. In this region,

the changes took place in a short time, perhaps because relations between farmers and the dairy cooperative are developing in a well-balanced climate of innovation and cooperation.

In a context of PDO incentives, different patterns of dairy farming style can be identified and this approach permitted to have a better understanding of the technical changes. This study is interesting for the dairy cooperative because it is possible to distinguish different sort of farmers' acceptance to the technical changes. Moreover in this case-study the milk price has appeared like an important criterion to favour some technical changes. Still, some of these changes already took place although these practices are not yet included in the Laguiole specifications (ie grass silage abandonment).

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