



Multiscale approach for pasture based dairy sheep systems

Enico Garcia*

Department of Pharmacy, University of the Basque Country, Vitoria-Gasteiz, Spain

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INTRODUCTION

Dairy sheep systems create employment and other opportunities for rural populations in many countries. These systems often rely on traditional pasture management associated with specific regions and local breeds, and include the processing of milk on farms and the distribution of dairy products through local marketing channels. Grass based sheep production takes place in temperate climates, but often in mountains and other areas with harsh conditions and highly seasonal production. Dairy sheep are better than dairy cows in terms of adaptability to local climates and topography. Additionally, low input farming systems and dairy products are often protected by internationally recognized labels. Nevertheless, dairy sheep systems, especially pasture-based systems, face significant challenges related to the need to improve milk production, innovate and adopt new technologies, and develop new and broader niche markets for products.

Traditional grazing of sheep has undergone changes in recent decades, including the introduction of more productive exotic species, the relaxation of trade in inputs and processed products, and increased demand for processed products. As dairy farms lose connection with their communities and become more dependent on outside input, they become more vulnerable and less resilient to adverse market conditions. Many countries are also experiencing significant declines in the sheep sector due to socio-economic changes. Many farmers have either given up on grass based dairy farming because it has not been passed down, or have switched to a more intensive approach.

DESCRIPTION

Second, quantitative measurements of dairy product quality and safety must be made. Sampling of bulk raw milk and cheese produced on selected farms should be conducted at different times during the lactation season and coordinated with the farmer's management practices. Food quality and safety parameters should be determined in the laboratory. The nutritional quality attributes of grass fed dairy products are overall composition, fatty acid profile, and tocopherol and mineral content. Food safety parameters should include checks for pathogenic microorganisms such as *Listeria*, *Salmonella* and *Staphylococcus aureus*. Analysis of terpenoids in milk and cheese can be used as chemical markers for pasture management associated with pasture based systems. In addition to farm level data, quantitative analysis should include data addressing consumer perceptions and preferences for products from different production systems. Information about foods raises expectations about their sensory properties and acceptability. Investigating the impact of information is particularly important in the case of food production systems, which are highly relevant to sustainability. B. grass based dairy system. The aim is therefore to assess the impact of information on the sustainability of production systems on the organoleptic acceptability of dairy products and determine whether this impact changes according to consumer perceptions of sustainability. Consumer behaviour research methodologies should focus on the level of consumer acceptance of dairy samples using labelled affective

magnitude scales.

CONCLUSION

By holistically characterizing livestock farms and grazing systems using food quality, economic, social and environmental indicators, decision makers can identify and support more sustainable practices. Nonetheless, this process involves identifying relevant stakeholders and engaging them throughout the evaluation process, defining appropriate indicators, and the significant amount of information needed to gather key information for consideration. It is not without its difficulties, including the effort. We believe that identifying key social actors can only be achieved through the implementation of open, inclusive and transparent participatory processes. Power relations can influence the degree of participation of social actors and the outcome of the participation process. Special attention should therefore be paid to the mechanisms used to incorporate the perspectives of different social actors. In this context, source triangulation is recommended. A

participatory approach should also take into account the potential influence of powerful actors and create spaces for the free expression of ideas and opinions. Note that there are no hard and fast rules or guidelines to help analysts translate social perspectives into metrics. In fact, this process relies more on the skill and experience of the analyst than on science. For this reason, interdisciplinary work is required to define appropriate indicators in various dimensions. By building a collaborative network with farmers, agents, and on site technicians, the burden of primary data collection can be reduced. Additionally, triangulation of methods such as participant observation, time use workshops, activity logs, and in depth interviews can be used to reduce reliance on single data collection methods and increase their effectiveness. Finally, making information relevant and useful to the social actors involved is a good way to encourage their participation. The livestock sector faces significant challenges related to changing global conditions, multiple stakeholders and new societal demands.