

Advancing the Value of Local Livestock Breeds: The Case of Greek Cheese Ladotyri Mytilinis

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Abstract. The present study aims to develop an effective niche marketing strategy for Ladotyri Mytilinis. There will be a particular emphasis on the preservation, protection, and promotion of the local Lesvos sheep breed. Interviews took place at livestock cooperatives in Lesvos, to collect primary data. ‘Ladotyri Mytilinis’ is a traditional Protected Designation of Origin (PDO) cheese made from the milk of the autochthonous Lesvos sheep that is part of the local agricultural heritage and major shaper of the island’s ecosystem. Enhancing the ties between the indigenous sheep breed and Ladotyri Mytilinis is a significant step towards sustainable rural development, as well as the differentiation of Ladotyri Mytilinis through effective product placement. The recognition of the multiple benefits of maintaining the local breed can be an essential part of an improvement plan for the promotion of this cheese, which can generate a substantial upgrading of its value chain.

Keywords: Local; Breed; PDO; Marketing Plan.

1 Introduction

Over the last years, the global population is growing rapidly rendering food security of paramount importance. Furthermore, in the context of climate change & environmental degradation, sustainable food production has also to be ensured (Smith & Gregory, 2013). The genetic diversity of local breeds can improve the productivity, adaptability, and resilience of agri-food value chains (Osman et al. 2017, EUR-Lex 2013). However, several indigenous sheep breeds of Greece are threatened, due to the abandonment of traditional production systems based on local breeds and the import of foreign high producing breeds (Biscarini et al. 2015, Mansoner et al. 2018)). Linking local breeds to the traditional high-quality products

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can advance the value of indigenous sheep genetic resources, contributing to the sustainable and economic development of less favored areas (Mathias et al., 2010). Ladotyri Mytilinis (LM), a Greek traditional cheese, is a striking example of this. The cheese has Protected Designation of Origin Status (PDO) and is made from milk of the Lesvos sheep breed (Qualigeo.eu, 2020). This breed is an important component of the cultural heritage of Lesvos (Sossidou et al, 2013). More specifically, the Lesvos dairy sheep can provide public goods and remarkable ecosystem services to society as a whole, such as the preservation of agricultural landscapes, the conservation of biodiversity, the development of superior food products and the promotion of alternative tourism. Nowadays, consumers tend to buy ecologically friendly products emanating from animal-welfare production systems (Grunert et al, 2014). In this context, repositioning the LM cheese on the market by highlighting the positive external economies via utilization of the Lesvos sheep, is expected to upgrade the examined value chain.

2 Theoretical background

Nowadays, niche markets for several livestock products are constantly growing (Hamlin et al, 2015). Niche marketing approach is a specific advertising strategy that concerns a small segment of a common market. Specifically, this strategy focuses on the satisfaction of specific customer requirements. Differentiation is a key for successful niche marketing. Differentiated products with added value include unique and distinct attributes in comparison with commodities products (Rawls et al., 2002). With regard to the livestock sector, small farmers can achieve sustainable development goals, through implementation of niche marketing principles (Nozaka et al. 2010). Limited access to economic resources is a very common problem for smallholders. Through the adoption of a niche marketing strategy, farmers will have the opportunity to work in a smaller market segment, less competitive, achieving higher prices with use of limited resources. Since in the latest years consumers' preference gradually shift to local products, a great opportunity for small – scale livestock farmers to compete with large companies is emerging (Lev & Gwin 2010, Oberholtzer et al., 2014).

3 Methodology

As far as the examined cheese is concerned, an integrated marketing plan was drafted. PESTLE ANALYSIS and SWOT ANALYSIS were used as strategic planning tools. First, LM's internal environment was analyzed. Then, PESTLE analysis was employed to highlight the external macro environment of the cheese market, through the description of Political, Economic, Social, Technological, Legal, and Environmental factors. SWOT analysis was used to summarize the internal and external environment that affect the specific product. The internal environment shows the strengths and weaknesses, while the external environment includes the

threats and opportunities of the product (Bernroider, 2002). Primary data were collected through in-depth interviews with the heads of two sheep cooperatives, five sheep breeders and institutions, during March 2020. A comprehensive literature review, followed.

4 Results

4.1 Internal environment

LM received the PDO certification by the European Union (EU), in 1996. According to the EU food legislation on PDO, this specific cheese must be produced in a traditional manner within the limits of the island. The vegetation, the homonymous sheep breed and the specific know-how have influenced the evolution of the product (Qualigeo.eu, 2020). According to ELGO (2019), a total amount of 342 tons of LM were produced in 2018, while the respective production was 460, 365 and 432 tons in 2017, 2016 and 2015, respectively. In total, eleven dairies are active in the production of LM on the Lesvos island. The estimated exports of LM amounted 17,2, 17,7, 22 tons and 9,7 tons in 2018, 2017, 2016 and 2015, respectively (ICAP2019, ELGO 2019 - provisional data). Most recently, eight producer groups have been set up on the island, consisting of a total of 350 farmers producing about 7,000 tones of milk. In the Greek market, there are conventional and organic LM with prices ranging from 13.50 euros to 16 euros per kilo (Field research, 2020).

LM is regarded as an emblematic product for the local society with strong ethnic and cultural ties. The cheese has been produced since the times of Homer, making it one of the oldest and rarest Greek cheeses. Traditionally, maturation and preservation of LM take place in extra virgin olive oil. In contrast, a modern way of preserving LM cheese is through cover with paraffin wax (Qualigeo.eu, 2020). Women's agrotouristic-manufacturing cooperative of Parakila also produces LM (Association of Agricultural Cooperatives of Lesvos, 2012).

About 260,000 purebred animals are being kept on the island (Ministry of Rural Development and Food, MRDF, 2015) dispersed over 2000 farms of medium sized flocks (100–200 animals) under a semi-intensive production system. Of these, n=40,000 ewes are officially milk recorded (A4 method) by six livestock cooperatives. These animals serve as a nucleus for application of genetic improvement programs suited to the breed. In 2014, the average milk yield ranged from 140.20 to 285.58 kg per ewe and year (Lesvos sheep breeders association, 2020). Most of the ewes are hand milked while only a limited number of farms have milking machines. Sheep graze all year round in olive groves or pastures of low productivity and grazing capacity. Animals' nutritional requirements by pastures are estimated to be covered by only 10% to 20%. Self-produced feed is not sufficient in quantity, while the purchased feed is expensive due to the high costs of transportation (Field research, 2020).

4.2 External environment

Results of PESTLE analysis showed:

i) Political Factors: the recent efforts to set up the Feta Cheese Interprofessional Organization seem to pave the way for the rest of the local cheeses. An Inter-professional body can enhance the protection and the promotion of local cheeses' signature brands (FAO, 2017). Economic factors: the production of PDO cheeses accounted for 63.2% of total production by industrial enterprises in 2017 (ICAP, 2019). In the Greek market, imitations of the LM are also sold. More specifically, on other Greek islands similar cheese recipes called Ladotyri are also produced. The latest market trends show an increase in sheep milk prices as the available quantity of ovine milk is low and the demand is high. Often, tourists buy local foods, supporting the economic development of the local community.

Social factors: local sheep breeds have shaped the cultural landscapes of the country (Ispikoudis et al., 2004). Women have a multifunctional role in animal husbandry and especially in the production of dairy products (Europa, 2016) and particularly in cheese making. Moreover, women are keepers of local livestock breeds using animals that are more resilient and of lower workload (FAO, 2016).

Technological factors: Greece has a long tradition of cheese-making, which was acquired over time. Innovative methods for the development of cheese products are passed down from generation to generation.

Legal factors: ELGO DIMITRA (former Organization for Certification and Supervising Agricultural Products - O.C.SAP., with the distinctive title Agrocert), has undertaken the control and certification of the LM cheese. Environmental factors: demand of organic dairies increase steadily since consumers are concerned about milk additives. Consumers are willing to pay more for products sourced from distanced mountainous and island areas where the level of animal welfare is considered higher (Zuliani et al., 2018).

Results of SWOT analysis derived from internal and external environment results are in Table 1 while actors in LM value chain are summarized in Table 2.

Table 1. SWOT analysis for Ladotyri Mytilinis.

<p>Strengths</p> <ul style="list-style-type: none"> • Protected Designation of Origin (PDO) cheese • Using traditional methods • Animal recording and genetic improvement of the local sheep breed • Creation of collective structures • Increasing trend in production • Increase in exports • Creating job opportunities for youngsters and women • High adaptability and resilience of local breed, lower veterinary costs • Milk quality of local breed 	<p>Weaknesses</p> <ul style="list-style-type: none"> • High feed cost (dependence on imported animal feeds) • Lack of suitable livestock farming facilities • Unfair distribution of profits along the value chain • Grazing pressure, poor pasture quality and abandonment of pastures (no efforts to restore and improve pasture quality) • No method of breed verification, product authenticity, traceability and protection
<p>Opportunities</p> <ul style="list-style-type: none"> • Consumers are interested in animal welfare • Increased demand for eco-friendly products, with significant symbolic value • Establish of cheese inter-professional Organization can help farmers to acquire more fair prices, better access to inputs and services • Back to the origins. LM in olive oil in a modern package 	<p>Threats</p> <ul style="list-style-type: none"> • Other cheeses produced outside Lesvos with the name Ladotyri • Unlimited import of dairy products, without protection for local products of Greece • Massive introduction of foreign high yielding breeds of sheep • Reduction in milk price

Table 2. Actors in Ladotyri Mytilinis value chain.

Level in value chain	Number of economic units	Comments
Farms	3.273	The producer price was set at 80 cents per liter in 2017, while in 2015 it was at 1 euro. This year ranged from 0.78 to 0.84.
Cooperatives	6	The Mantamadou agricultural cooperative has its own cheese making facility
Dairies	11	Some dairies play the role of wholesaler

Source: Field research, Association of Agricultural Cooperatives of Lesvos, 2012

5 Discussion

PDO certification works as a tool to protect local breeds. Nevertheless, policy makers should consider further protecting for the examined cheese from other imitation cheeses on the market and use of ovine milk originating from foreign sheep breeds. Increasing the productivity of local breeds through application of modern selection schemes is considered a crucial step for their survival. Today, consumers are interested in the practices applied on farms (Olynk, 2012). However, many times, communication between farmers and consumers is difficult. Information on the production system, the sheep breed used and welfare efforts must be clearly visible on the packaging (Roe & Buller, 2010). Tourism can play an important role in the upgrading of local breeds. In several developed countries, the value of local breeds is recognized in the development of fine gastronomic delicacies. It is necessary to include LM in the menu of local restaurants throughout Greece and foreign countries (Greek breakfast in hotels of Lesvos, Saganaki in restos). At the same time, the creation of visitable farms can further help in recognizing the value of local breeds, creating a new perspective of alternative – thematic tourism. Maintaining the local breed can empowerment female entrepreneurship. Better pasture management, through rotation grazing and systematic improvement can reduce the feeding costs while upgrading the value of the agricultural landscape. The Lesvos sheep breed can have satisfactory milk yields in the semi-extensive production system, covering their nutritional needs from the pasture and from the low-cost feeds. The sheep numbers can be reduced if the most efficient animals are selected. In this way, the grazing pressure and production costs will be reduced.

6 Conclusions

The culture of Lesvos is closely linked to the local Lesvos sheep. Niche marketing can encourage breeders to maintain their entire ecosystem of LM, gaining higher prices and preventing it from being converted to another use. More studies are warranted to investigate the contribution of local breed in highlighting the value chain of LM. The policymakers can assess the cheese's current situation and can make vital decisions to shape the product's future. Through the proposed marketing tactics and strategies, the added value of local breeds and their products can be increased.

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