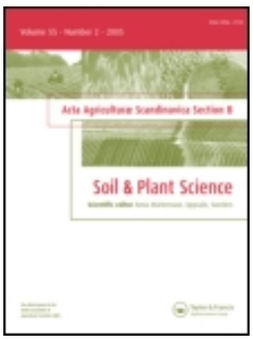

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PERSPECTIVE

Goat cheese production in Sweden – a pioneering experience in the re-emergence of local food

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The re-emergence and modernization of traditional goat-cheese production in Jämtland led to the articulation of a localized agri-food system that represents the frontline of the return and reinforcement of local food in Sweden. Already in the 1970s, some initiatives were undertaken to formalize the productive activities of this branch and to improve the product quality. The most important project was the articulation of a cooperative that, unlike all other Swedish cooperatives, engaged its members in the development of a joint trademark, development of a standardized assortment, common marketing efforts and finding creative solutions for infrastructure problems. Despite the overall success, we also found some downsides. Producing goat cheese requires that at least two people are involved, because the workload often leads to body injuries and illness for people working alone. By studying the institutional frameworks, rules and regulations, the economic function and entrepreneurial dynamics, and the dynamics of knowledge and competences, the article highlights how and why farm dairies in Jämtland became reinforced and modernized. This grasps both the actions of individual economic agents and their interaction with their environment. A special emphasis was put on the role of regional authorities in this process. Even though many obstacles have been removed and the trade has found successful ways to solve strategic issues concerning product development and marketing, there are still important structural shortcomings that might decrease the profitability and endanger the future development of the trade. There is a lack of experience and infrastructure to solve more complex problems like animal health and the potential risks related to the consumption of unpasteurized cheese and the increasing incidence of Tick-Borne Encephalitis (TBE).

Keywords: rural entrepreneurship; goat cheese; localized agri-food systems; mastitis in goats; Tick-Borne Encephalitis virus (TBEV) risk

Introduction

Over the course of the last century, Swedish agriculture underwent a process of fast structural rationalization and modernization that contributed to the eradication of the lion's share of traditional practices and activities and turned Swedish agriculture into a very homogenous sector. The far advanced stage of this process ultimately led to a path-dependent process that caused the loss of traditional food. In this context, Jämtland constitutes a major national exception. Just as in other European mountain areas and in neighboring Norway, keeping small farm animals, such as goats and the tradition of curdling managed to – although just barely – survive the hey days of the productivist paradigm.

The vitalization and modernization of traditional goat cheese in Jämtland represent the frontline of the return of local food in Sweden. Previous research argues that the general success of Jämtland in this area is characterized by a specific type of social commitment that contributes to a successful connection between agricultural and non-agricultural economic activities (Bruckmeier & Höj Larsen 2009). In addition, the creation of National Centre for Artisan Food in Jämtland in 2006 is seen as an important explanation behind the relocalization, e.g. the process in which large scale food production for exports shifts its focus to the local market, through the transfer of key knowledge to potential and active food artisans (Fonte & Grando 2006). Although this

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experience is of national interest for policy-makers and potential new food artisans, our previous knowledge only grasps an aggregated view of current positive outcomes, we still lack knowledge about how this process took place. Therefore, important questions about the articulation of the market for local food, or about the strategies of the new emerging economic sub-sectors, or individual firms have remained unanswered.

Departing from the localized agri-food systems (LAFS) approach, the current article contributes with new knowledge about how the process was initiated by highlighting the experience of the predecessors in this development, namely that of the goat cheese sector. The main questions asked in this article are: How and why did the Jämtlandic goat cheese sector become predecessors in the re-emergence of local food in Sweden? and which are the main entrepreneurial features in this process? Implementing an interdisciplinary approach, we also offer a short insight of some of the main constraints and risks to further development in the sector.

The goat cheese dairies are today of varying sizes. Activities grasp goat farming, milking, curdling, and sales. Some of the firms have additional activities, for example farm stores or cafés. In spite of the wide variety of aspects in each single operation, we have chosen to put an emphasis on those aspects related to the questions asked in this article. Therefore, the farming side will mainly be addressed in relation to the constraints and risks related to curdling.

Theoretical considerations

The county of Jämtland is a less developed area that, due to its geographical characteristics, low population density and distance to large consumer markets, was severely affected by the institutionalization of agricultural rationalization experienced in Sweden during the twentieth century (Länsstyrelsen 1976; Länsstyrelsen 1987). The structure of the value chain, here understood as: "the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use" (Kaplinsky & Morris 2000), had become path dependent and embedded in the productivist paradigm. Therefore, promoting innovative activities amongst small holders became imperative. But innovation processes in small scale/peasant economies are complex processes. If technical change in agriculture is biased toward capital intensity, such as in the case of the productivist paradigm, small holders will not have a high propensity to innovate (Rytkönen 2004).

The solution in this particular case was to promote on-farm elaboration of traditional cheese. Over the time this led to the articulation of a LAFS. The LAFS approach took off the ideas of Alfred Marshall ([1890]1982), who observed that some local industrial districts were successful in generating growth. He argued that the industrial districts had many internal benefits because of the close ties and links between the actors involved, which generated positive spin-off effects at the local level. The factors behind success were beyond what could be explained by economic theory and rested on social and cultural aspects. The concept has developed from industrial districts to broader systems (Requier-Desjardin 2007).

This article takes off from the LAFS approach and highlights (1) *the institutional frameworks, rules and regulations*, such as regional, national, and local rules, behaviors, legislation and financial or other important constraints and frames that condition the actions of stakeholders (Muchnick 2009); (2) *the economic function and entrepreneurial dynamics*. In this case, entrepreneurship is an essential phenomenon concerning innovation and the innovation process. Different organizational or institutional settings are important since they influence the innovation process. The innovation perspective does not necessarily mean a new invention, but is rather about performing an entrepreneurial function to launch new combinations of *existing* productive resources, or using *existing* resources for new purposes and it does not require, but can include, the creation of a new organization (Schumpeter 1939, 1947). That means that the "re-invention" of old practices and products for new purposes or in new combinations, or ways of distribution; and (3) *the dynamics of knowledge and competences*, in the intersection between various disciplines from natural science, social sciences and humanities, and a combination of material variables, such as soil and climate and immaterial variables, for example know-how and skills (Muchnick 2009) which in this case are essential to highlight loopholes, shortcomings, and risks.

Materials and methods

We have used several methods from social sciences and science. As an overall method, we have used case study methodology because it allows for the in-depth understanding of a phenomenon within its own context. Additional and more specific methods have been used to work with single part of the case study. Between 2010 and 2012, we conducted in-depth interviews with 24 of the 28 farm dairy owners in Jämtland, only those concerning goat farms are used

here. The interviews grasped open ended questions about the history of their operations, farming conditions, entrepreneurship, administrative and financial issues, general and specific constraints, interactions within and outside the trade, sales and trademark strategies, relevant education and training, gender related issues, future possibilities, etc. We also interviewed informants from the County Board Administration (CBA), Eldrimner (National Centre for Artisan Food Production), the National Farmers' Association (LRF) to highlight the structural aspects, policy implementation, general sectoral development and getting an outside perspective. Animal health has been analyzed because of its direct impact on productivity and therefore on profitability. In this case, five dairy goat farms were screened for the most frequently isolated bacterial species. The risk analysis related to climate change was done based on the leading existing research. The primary oral sources were complemented with primary and secondary written sources composed by contemporary policy documents and scientific articles.

Results

The creation of pre-conditions for the goat cheese sector

Goat farming in Sweden is a remnant from traditional agriculture. In earlier times, this was an important activity for the rural population and was mainly based on an extensive system. Goats were well adapted to marginal and rangelands and were an important contribution to the livelihoods of vulnerable and resource-poor farmers who lived under difficult conditions. However, during the late 1970s there were only around 50 goat cheese producers in the county (Länsstyrelsen 1976). Goats were kept as a complement to other and more important economic activities. The goat cheese was of a varied quality, prices were low and as demand was falling the prospects were not bright. In addition, most goat farmers were old and had no incentives to invest in modernizing the trade (Stryjan & Fröman 1991). In the late 1970s, the CBA of Jämtland employed Bodil Cornell, who had just finished her undergraduate thesis about the neighboring Norwegian goat trade. She became responsible for all the issues related to small farm animals and her knowledge added a new understanding for the potential of the goat sector. She implemented the introduction of subsidies and control measures to help promoting goat cheese production as a solution to small holdings profitability problems. These measures helped in supporting the start of new goat farms by a completely new group of farmers, who were either returning home after obtaining higher education or moving out to the countryside after a carrier in other occupations, such as teachers (Interview Cornell 2010). Even though the regional dairy processed goat milk, its position in the general product portfolio of the dairy became more and more marginalized. Reproduction was and still is handled the natural way, with a billy-goat and all births take place early during the spring, therefore milk production is characterized by a strong seasonality. Traditional farmers processed the milk themselves, only a fraction of the total output was sold to the regional dairy, Nedre Norrlands Producentförening (Lower Norrland Producer association, NNP). Therefore, when NNP decided to stop collecting goat milk at the beginning of the 1980s it became urgent to find alternative market channels for the surplus milk (Stryjan & Fröman 1991). A project called "Swedish Goatcheese" investigated the possibility of developing joint marketing and product development for the Jämtlandic cheese. Bodil Cornell was a leading part in this project and she also ensured the finance for it. This project laid the foundation for the following events. In 1983, six goat farmers started a cheese cooperative, Jämtspira, with the support of authorities. Börje Forsberg who owned HusåGoatfarm and was the chairman of the goat breeding association and Bodil Cornell from the CBA were the initiators. The idea of having a common warehouse and distribution, as French farmers have, was launched by Börje Forsberg (Interview Klensmeden 2010). The lion's share of investments was paid for with public funding (Interview Cornell 2010).

The economic function and entrepreneurial dynamics

At the beginning, the members produced four tons of cheese altogether. They all sent their cheese to the common warehouse from which all the cheese was sent out to retailers. This new cooperative differs from all the previous cooperatives in two fundamental senses: (1) Instead of sending the raw material and let the cooperative elaborate (which is the tradition in Swedish cooperatives), the elaboration was made on the farm, which meant that curdling knowledge could be kept and developed in the farm. (2) Decisions were kept locally and made by the farmers, in contrast to all the previous experiences when cooperatives meant centralized decisions (Stryjan & Fröman 1991). The organization of Jämtspira in itself was an important innovation.

An important issue was to develop a "modern" assortment that could win a broader customer base in the regional and national market. Peter Kalling, the most experienced curdling expert in small scale

elaboration of goat cheese was engaged as a consultant to help developing the new assortment. The result was the "Vit Caprin" cheese, a white goat cheese that differentiated itself from the traditional red goat cheese. The other main product was the traditional goat whey butter that is produced by slow cooking the whey and that represents half of the output of the farms (Interviews with goat cheese producers 2010 and 2011). According to Klensmeden (Interview 2010), one of the founding members of Jämtspira, "the old cheese looked like hairy rabbits" and their appearance made modern consumers suspicious. To differentiate the "new" cheese from the "old" cheese was thus an important strategy.

After a short while two more cheeses followed: a blue cheese called Gelbleu and a spiced cheese called Estragon (Stryjan & Fröman 1991). The foreign influences in the latter two are quite prominent and over the time this influence has become more and more important for the assortment strategy of the farmers.

The CBA equipped two mobile dairies in 1987. These dairies are rented for a period of two years at a very low cost, which offers the farmer a smoother introduction to the business and the possibility of building up a business before making the commitment in building a dairy. The total cost of a new (average size small scale) dairy ascends to around one million Swedish crowns in prices of 2012 (€116,400 exchange rate from 23 October 2012), but if the farmer buys used equipment it is possible to lower the price considerably. Thus, the entrance barriers to the business have been and are still quite low (Interviews with goat cheese producers 2010 and 2011).

Since there was an overproduction of traditional red goat cheese when Jämtspira was started, the challenge was to open up a new market with younger consumers. The farmers sent their cheese to the warehouse, but were also allowed to deliver their cheese directly to local stores. All bills were sent through Jämtspira. "The farms stepped back and Jämtspira was allowed to come forward instead" (Interview Hansson 2010). The general idea was to establish a trademark. At the beginning, all farms participated actively in promoting the cheese, they were out "slicing cheese in people's mouth" (Interview Norrman 2010).

The development process also meant to charge a fair price for the products. Since it had been a side activity in the past, charging a rightful price had not been a priority of people. In addition, many of the older producers were shy and did not dare to charge more. But in 1984, the consumer price was raised by 400% to 62 crowns (€7.22, exchange rate from 23 October 2012). Older consumers complained, they argued that the price had been 1.50 crowns in the past (Interview Klensmeden 2010). Today, the price per kilo varies between 250 and 450 crowns depending on the cheese and the producer.

Over the course of 17 years, a total of 20 goat farmers had been members of Jämtspira and when it closed down in 2010, the smallest of them produced an annual output of 4–5 tons of cheese, while the largest member produces 120 tons annually and employs 10 people in the dairy alone. Herd size varies greatly but the smaller farms have herds of 30–60 goats, while the largest farm has between 400 and 500 goats, without counting kids (Bonow & Rytkönen 2012). Even though not all 20 farms exist today, production grew for everybody during their time in Jämtspira. The farms that closed down did so mainly because the owners wanted to retire and there was nobody to take over. In addition, not all farms have learned to charge a fair price for their products, therefore some farms have a lower profitability. When Jämtspira started, there were around 50 producers of traditional goat cheese who kept goats mainly as a side income. Today, there are 28 farm dairies in Jämtland and the majority of them have goats. All firms are now full time enterprises that provide employment to either several members of a family or to other local people. Some of them like Bränna Getgård, Kullens Gårdsmejeri, Skärvångens Bymejeri, and Åsbergets Gårdsmejeri have several permanently employed people all year around. Thus, the trade has become commercialized providing important economic values for their municipalities (Interviews with goat cheese producers 2010 and 2011).

There are also some relevant downsides. Running a farm dairy requires at least two full-time employees. For the few people that work alone, the workload often leads to musculoskeletal injuries or other health related problems. Moreover, achieving profitability is difficult for people working alone because finding time to take care of the animals, curdling, and marketing activities is difficult (Interviews with goat cheese producers 2010 and 2011).

Today, the farmers have farm stores, they sell their products at markets and fairs, to local stores and the majority also has cafés, farm-inns, and/or other tourism related activities as a complement to their income. The assortment of all farm dairies today is refined and contains many different cheeses. Most of the cheese recipes and also the cheeses are copies of foreign originals. Although most of the cheese is sold locally, the larger firms sell some cheese to Stockholm also. All farm dairies are considered as important tourism attractions and are also as such important for the rest of the business in their respective municipalities (Bonow & Rytkönen 2012).

In addition, the producers took off from Jämtspira, they gained experiences concerning how to build a brand, how to develop the products, about the product quality. All these competences were used to develop each member's experience further. At the beginning of the described process, the measures and actions undertaken to establish a modern farm dairy sector created strong links and positive social dynamics between stakeholders. These dynamics became the basis for the foundation of Jämtspira, Matora and Eldrimner and are even today the cause of positive agglomeration effects between existing and new food artisan firms.

The profile of the successful firms varies from the local inhabitants, some moving home after living in the city for a few years, others are skillful people with more or less resources who moved to the countryside to fulfill a dream of a better life. While most farms in Sweden are predominantly male owned, most farms in the sample are run by women, and their businesses show marked innovative features. Some important causes behind the success of this trade is that there has been a continuity in policy implementation at local level, all developmental efforts have built on each other and that the regional dairy became a partner rather than a competitor and not the least because there was and still is a local entrepreneurial stock.

The institutional frameworks, rules and regulations

Developing a new trade that completely differs from the norm, e.g. large scale, is not an easy task. The main challenge was to meet the national standards for hygiene and food safety. All regulations were developed for large scale operations and an industry in which food should not be touched by the hands of man and in practice all knowledge acquired by inspectors is based on this tradition. But small scale artisan curdling involves a human hand during the entire production process. Many of the farmers also produce some of their cheese in their summer farms, where they lack electric refrigeration and other amenities. Several of the informants claim that the inspectors wanted them to till the summer farm, which is impossible and in some cases prohibited, since some of the summer farms are protected as cultural heritage. And all of them claim that inspectors often have complaints because they lack understanding for artisan food production. But over the time, the inspectors in Jämtland have become more informed and experienced about the conditions in small scale curdling. Eldrimner has developed instructions that are used by both producers and inspectors. In addition, in 2009, a hygiene industry guideline for farm dairies was developed by Kerstin Jürss who was previously employed at the school dairy in Ås (Livsmedelsverket 2009). Hygiene regulations have been the main constraint toward the development of the industry. Thus, the trade has been actively involved in pushing for a new form of implementation of existing rules that eventually led to the development of completely new rules. Bodil Cornell argues that getting acceptance for small scale food elaboration and for selling unpasteurized cheese has opened up doors for many other branches, for example (small scale) farm butcheries (Interview Cornell 2010).

The dynamics of knowledge and competences

Educating existing and potential entrepreneurs has been of crucial importance for the development of the trade. They started at a very early phase to organize both educational support as well as study tours to other countries. The former led to the start of the educational dairy in the village of Ås, a place to which farmers often returned for further education and where new farmers were instructed. All informants agree that the school served as an important hub for information exchange and product development. Later on, a French curdling expert, Michel Lepage, was contracted to hold courses in Sweden, which he still does at least twice per year. He has made a high impact on the assortment development of the goat farms. The assortment is highly influenced by French cheeses and he also reintroduced knowledge on curdling unpasteurized cheeses. There is a consensus amongst informants that the study tours to farm dairies in other countries have been pivotal for the development of a modern cheese assortment. They led to a direct input of ideas, products and experiences that were worth copying. The first study tour went to Denmark in 1992, the second to France 1993 and thereafter many more followed. Initially the trips were organized by the CBA, but in 1995 the scope of activities had grown to the extent that it became necessary to create a separate organization, Matora. At this point, the experiences of the goat farmers had spread to cow farms that started to initiate farm dairies, and also to other branches. Therefore, the number of food artisan cooking jam, selling sausages, baking traditional bread, etc. had grown considerably (Interviews with producers 2010 and 2011). Later on, Matora changed its name to Eldrimner and in 2006 it became a national organization.

The main remaining bottleneck is that the knowledge about goat diseases is only lightly included in the educational program for veterinarians, which all informants claim is a real problem. This is likely due to the fact that the national goat herd is composed by only 7000 animals, and because all structures,

including education were adjusted to promote large scale production. In the case of animal husbandry, this means cows. Many of the farmers get help from Norwegian veterinarians when they can, but it is not always possible to get help. Goat farmers are also excluded from the national animal control. They need to subscribe to the service in order to get help, but for an unknown reason goats were never included in the system.

Inflammation of the udder, mastitis, is the most important and costly disease in dairy goat production in the Nordic countries and therefore important to diagnose and control. Mastitis causes suffering to the animal and leads to increased veterinary and treatment costs, reduced milk production, decreased milk quality for dairy purposes and poor milk hygiene; especially important when unpasteurized milk is used for cheese production. Treatment of mastitis with antibiotics can lead to problems with antibiotic resistance. Mastitis can be clinical, with visible symptoms of the animal, udder or milk and subclinical with no clinical symptoms (IDF 1999). Subclinical mastitis is difficult to diagnose and control since diagnosis has to be based on the analysis of inflammatory markers in the milk, somatic cell count (SCC) being the most common one (Bergonier et al. 2003). Undiagnosed subclinical mastitis might lead to poor herd udder health due to shedding of udder pathogens from individual goats with subclinical intramammary infections (IMI).

Subclinical mastitis in goats is common (Contreras et al. 2007) and is mainly caused by infection with bacteria; coagulase negative staphylococci (CNS) and *Staphylococcus aureus* (*S. aureus*) is the most common pathogen (Bergonier et al. 2003) and is also known to produce a toxin (enterotoxin) causing food poisoning in humans.

National surveys on microbial etiology of subclinical goat mastitis have not been performed in Sweden. In a limited study on five dairy goat farms, the most frequently isolated bacterial species was CNS followed by *S. aureus* (Persson & Olofsson 2011), which is in line with several international studies. In addition, farms infected with *S. aureus* had higher SCC than those infected with CNS. But, the sample is still very small and further scrutiny is needed. In an ongoing study that looks at the relationship between *S. aureus* and SCC in 16 farms, these results seem to be stated. Subclinical mastitis is difficult to diagnose since there are no visible signs on the goat, udder, or milk. Instead, different milk indicators are used. SCC is the most widely used indicator of udder health in cow, sheep and goat milk, but unfortunately SCC can be difficult to interpret in goats. SCC in goat milk is also relatively high in the healthy udder and it increases throughout the lactation and also with parity (Paape & Capuco 1997). There is also a great variation in SCC among farms and among individuals (Schaeren & Maurer 2006). But farmers have not yet introduced the available techniques to measure SCC, they seem to be unaware of the relationship between mastitis and low profitability, this is especially problematic because of the lack of visible signs.

An additional problem is the lack of screening in antibiotics control. Surveillance of antimicrobial resistance is important to ensure the optimal results of antibiotic use and minimize the risk for selection and spread of antimicrobial resistance. β-lactamase production is the most common resistance mechanism in staphylococci and makes the bacteria resistant to penicillin which is the most commonly used antibiotic in the dairy sector. Such production was rather prevalent among CNS isolates (27%) in a Swedish study (Persson et al. 2011). But this has not previously been studied in goats in Sweden.

An upcoming risk related to the production of unpasteurized goat cheese is related to climate change. Over the last decades, rising temperatures caused the spread of ticks over the Swedish territory (Süss et al. 2008; Gray et al. 2009), which led to an increase in the incidence of Tick-Borne Encephalitis (TBE) (Randolph et al. 1999; Lindgren & Gustafson 2001). Arthropod-borne flaviviruses are serious factors of world morbidity and mortality, and include the Tick-Borne Encephalitis virus (TBEV) causing severe CNS disease. TBEV can be divided into three genetically distinguishable subtypes, the Western European TBEV transmitted by the tick vector *Ixodesricinius*, and the Far Eastern- and Siberian-TBEV predominantly transmitted by *I. persulcatus* (Ecker et al. 1999). In nature, TBEV is present at endemic foci, maintained in rodent-tick cycles where human infections are "dead ends" for further transmission of the virus (Mandl 2005). Several factors, including climate change, socioeconomic changes, and variation in human activities have affected the distribution of both the tick vector and TBEV (Süss et al. 2008; Randolph 2010), which increases the risks for human infections (Donoso Mantke et al. 2008; Elväng et al. 2011).

TBEV can be transmitted through the consumption of unpasteurized milk products because the virus might pass from the blood into the mammary glands of sheep, goats, or cows, which is shown by historical and recent TBE outbreaks (Dobler et al. 2012). The largest outbreak so far reported occurred in Roznava district in Czechoslovakian (1951–1952) where more than 660 people were infected by drinking unpasteurized goat milk (Ruzek et al. 2010), but outbreaks have also recently been reported in a number of European countries (see Holzmann et al. 2009; Kriz

et al. 2009; Balogh et al. 2010). A recent study showed that goats experimentally infected by TBEV lacked signs of clinical disease but the virus were shedding in the milk. Immunized goats did not produce virus within the milk, which suggests that vaccination of grazes could be a way to control the risk for future human TBEV outbreaks (Balogh et al. 2012). In Sweden, the TBE cases have been increasing for decades and climate change fluctuations are for sure one factor out of many. But even though risks might be obvious, neither the trade nor regional authorities seem to be aware of them. There is also a lack of connectedness between the trade and the researchers that might contribute with knowledge on how to minimize the risks.

While knowledge and competences about market development, curdling, creating, and creating product portfolio were addressed quite early in the formation of the LAFS, more complex problems like animal health and risks due to the exogenous factors such as climate change are more difficult to address. To solve them requires a massive change in structures and institutions that are further from the sector than those related to production hygiene and that are therefore more difficult to influence. The branch itself does not yet have a full understanding of the multidimensional aspects of addressing profitability.

Conclusions

The Jämtlandic goat cheese sector has contributed with valuable experiences to the recent development of local food in Sweden. Starting off from the institutional rules, frameworks and regulations, the results show that hygiene and food safety regulations were inadequate for artisan food but over the time this has changed. When the farm dairies grew in numbers and inspectors accumulated more experience this situation has improved. The CBA has been proactive in developing frameworks, planning and implementing policies, and also allocating strategic resources in order to sustain the innovative process. The analysis of economic function and entrepreneurial features in the articulation of this LAFS grasps the development of new forms of organization, the use of old knowledge into a new market situation, the development of new products, opening of new markets, learning processes and not the least a dynamic interaction between economic actors over the time. All of these can be classified as classical entrepreneurial features. Through Jämtspira a new form of organization was adopted for the purpose of using existing resources differently and embarking into a journey of innovation. Over the time and both during and after Jämtspira, new products and market segments were developed. The entrepreneurial function was in this case performed by farm owners, but also by Bodil Cornell who had the ability to visualize and influence the creation of a market for artisan cheese before it actually appeared and who has been a step ahead of the development creating conditions for growth in a way that goes far beyond just policy implementation. The third and last indicator, the dynamics of knowledge and competences shows that although many obstacles have been removed, there are still important structural shortcomings that might decrease profitability and endanger the future development of the trade. In addition, the lack of knowledge and awareness of the trade on the economic implications of simple infections, such as mastitis, are probably influencing the profitability of goat farms negatively. An important reflection that cannot be explained at this point of time is that most of the firms are run by women and many of them are quite successful. We cannot at this point of time answer why, but because of the importance of this finding an important conclusion is that this needs further scrutiny.

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