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INSTITUTIONAL, ORGANIZATIONAL AND TECHNOLOGICAL  
LIMITATIONS IN ARGENTINE SHEEP CHEESE AGRIBUSINESS

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Area II: Effective Food Chain Management

SUMMARY

The object of this paper is to identify the limitations and the key to competitiveness in Argentine sheep cheese agribusiness, to identify the impact on transaction costs, and to propose alternative and innovative institutional, organizational and technological designs focused on markets and customers. This project is based on a multiple case study methodology of three actual situations pertaining to the sheep-cheese agribusiness in Argentina, as follows: One vertically-integrated farm plus two sheep milk basins operating under different schemes. In all three cases, the adoption of alternative and innovative designs based on the utilization of business strategies focused on markets and customers increases the competitive advantages of this agribusiness. In the cases presented, the adoption of specific assets and the lack of formal contracts in the domestic market generate transaction costs which, added to the institutional environment, jeopardize the sustainability of innovation, since they coexist with the old paradigms.

**KEY WORDS:** *Competitive advantages, path dependency, innovation, strategies, sustainability.*

1) INTRODUCTION

The sheep cheese agribusiness is relatively new to Argentina. It started, among other reasons, as an income-diversifying alternative in response to the loss of profitability of sheep production in Argentina caused by declining international wool prices in the 1990s (McCormick & Lynch, 2003).

In the last few years, numerous players (small- and medium-size producers and investors) entered and exited this agribusiness very rapidly. New players justify their entry into this business on the grounds of the relatively small start-up investment required, and the possibility of increasing and diversifying their income by selling a product having greater added value (Dulce, 2004).

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However, entry into this business is seldom based on a sound business analysis and proper knowledge of the product to be offered, or an analysis of the required scale of production. These shortcomings are evidenced by the absence of competitive strategies on the part of the players involved; there is no leadership in costs or even in differentiation and, therefore, the business undertakings, regardless of their magnitude, are predominantly of low competitiveness and sustainability.

The main problem centers on the lack of response to change due to the adoption of institutional, organizational and technological designs that are out of line with the business strategy. Such designs do not focus on access to the market and customer preferences, all of which results in low competitiveness and increased transaction costs.

The objective of the present research paper is to identify the limitations and the key to competitiveness in the sheep cheese agribusiness in Argentina and the impact of transaction costs, and to propose alternative and innovative institutional, organizational and technological designs focused on markets and customers.

## **2) METHODOLOGY AND THEORETICAL FRAMEWORK**

This paper is based on a *multiple-case* study (Farina et al, 1997) of three actual cases of sheep cheese production in Argentina, as follows: “Establecimiento La Carlota del Monte” (farm), “Lower Chubut River Valley” and “Las Flores Milk Basin, Province of Buenos Aires.” These cases exemplify different ways of responding to the set of problems outlined above. The three players have adopted various differentiation strategies, coordination mechanisms and strategic alliances to attain an innovative process of greater sustainability.

In this study of multiple cases, innovation in its broadest sense was analyzed by contrasting the differentiation strategy and the mechanisms of coordination or governance with the complex innovative process undergone by the institutional, organizational and technological environments. The institutional framework is the key to applying technological innovation and a design of competitive organizations. A truly sustained competitiveness is built on comparative advantages. The alignment between the institutional framework and the comparative advantages is the key to competitiveness (Ordóñez, 1998).

Differentiated competitive strategies demand coordination or governance structures that guarantee vertical coordination and ensure differentiation. If differentiated systems of superior performance emerge, the fact that traditional systems can be improved would be demonstrated (Zylberjstan & Farina, 1997). We must bear in mind that technological and institutional change is the key to economic and social evolution, and that they both exhibit features of path dependency, though path dependency appears to be more complicated in the case of institutions (North, 1994).

Incomplete contracts give rise to additional problems when they are accompanied by opportunism evidenced by adverse selection, moral hazard, and other forms of strategic conduct. Given that players will neither reliably reveal the true conditions when asked to do

so, nor fulfill all promises, a contract as a mere promise unsupported by credible commitments will most likely not be honored (Williamson, 1999).

The choice of the governance structure goes from market to hierarchy, passing through a sequence of increasing contractual risks and safeguards. The passage from less complex to more complex governance implies the inclusion of additional security elements, reduction in the intensity of incentives, and higher bureaucratic expenses. When transactions are withdrawn from the market and placed under a single owner, other mechanisms are introduced in order to include the hierarchy to take charge of the coordination and settle conflicts arbitrarily. The more complex forms of governance are reserved for those transactions where it is particularly difficult to include the risks in the contract (Williamson, 1999).

### **3) OVERVIEW OF THE SECTOR**

#### **3.1. The Sheep Cheese Agribusiness. Global situation.**

Global milk production, all animal species included, amounts to about 600 million metric tons, 84% of the total being cow milk, while sheep milk accounts for only 1.3% of the total (Mantecón, 2003). At present, more than 100 million sheep are milked worldwide, especially in Asian and European Union countries, with Greece, Italy, France and Spain being the main producers of sheep cheese. Cheese produced in those countries are, to a large extent, very well positioned in the world market and protected by Denominations of Origin, that is, they employ specific assets. In order to enjoy the protection afforded by this intangible asset, producers observe certain rules within an institutional, organizational and technological framework, in line with the business strategy. While contracts are always incomplete, there are safeguards that aid in reducing transaction costs.

#### **3.2 The Sheep Cheese Agribusiness. Country Situation.**

The sheep cheese agribusiness is relatively new in Argentina and it started, among other reasons, as an income-diversifying alternative responding to the loss of profitability of sheep production in Argentina, caused by the crisis derived from declining international wool prices in the 1990s (Dulce, 2004). The production of sheep cheese in Argentina increased by 50% in 5 years (expanding from 39 metric tons in 1997 to 73.5 tons in 2002) and the producing farms are mainly concentrated in the provinces of Buenos Aires and Chubut.

There are about 75,000 dairy sheep in Argentina but only 5% belong to registered farms. This makes it difficult to gather data on production of farmhouse cheese or cheese produced on a small scale (Meinardi et al, 2004). There are very few dairy farms existing within the formal market. The existence of an informal market plus the lack of alignment between the type of product offered and the strategies applied, makes it difficult to position sheep cheese in Argentina, and it generates problems to commercialize the obtained products. In general, transaction costs are high, the contracts are incomplete and the safeguards very few. In only very few cases are strategies adopted to reduce transaction costs.

#### 4) CASE ANALYSIS

Analyzed below are three actual cases illustrating the sheep cheese agribusiness in Argentina. The analysis includes a brief description of the history of each of the above-mentioned farms or institutions, followed by a comparative analysis of the institutional, organizational and technological environments in all three cases, focusing on design limitations.

- The case of “*La Carlota del Monte*” farm.
- The case of the “Lower Chubut River Valley Sheep Milk Basin” (VIRCH, as per the Spanish acronym)
- The case of the “*Las Flores* Sheep Milk Basin”, province of Buenos Aires.

##### 4.1 “*La Carlota del Monte*” Farm.

*La Carlota del Monte* is an agribusiness enterprise operating in a rural area close to the town of *Capilla del Señor*, province of Buenos Aires, Argentina. Guillermo Harteneck’s project started about a decade ago when he was tempted to set up a dairy operation on his own 65-hectare farm located 100 kilometers from the city of Buenos Aires. He was initially to develop a cow dairy, but after analyzing the business figures he realized that the area was best suited for a sheep dairy. He started off by buying 50 Romney Marsh ewes and 2 thoroughbred Friesian rams.

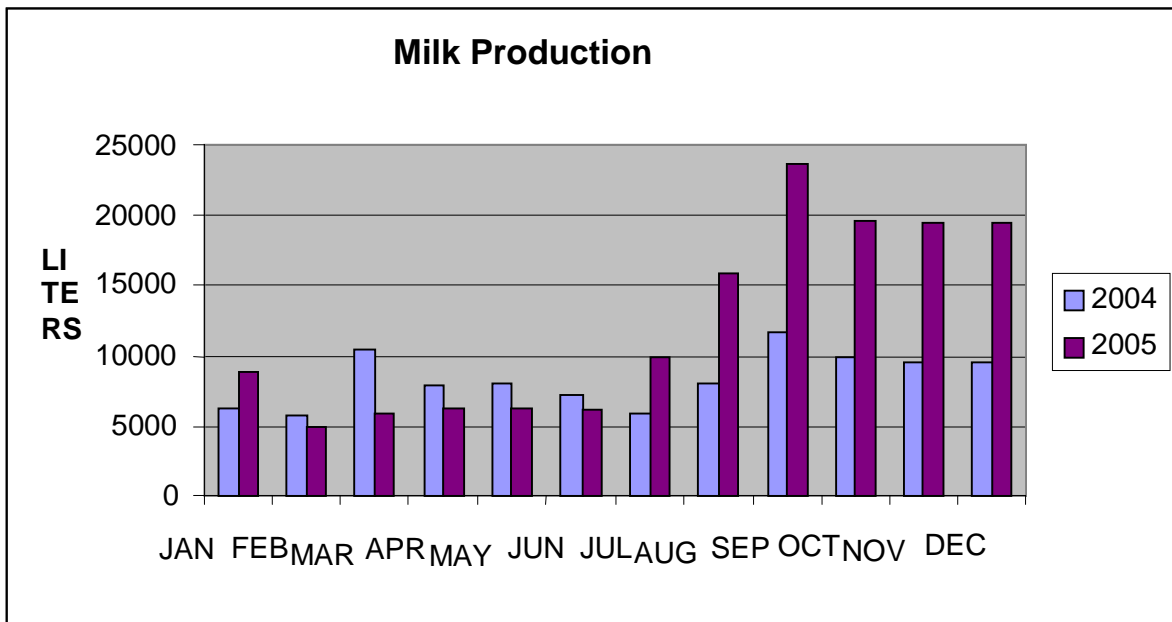
In 2002, 2 pedigreed rams and 6 pedigreed ewes were imported from New Zealand and cheese production and commercialization started that same year. Currently, the farm is innovating with a view to producing milk on a continuous year round basis (which is infrequent in Argentine dairies). This producer is vertically integrated from production all the way to manufacturing at a cheese plant established on-farm. Harteneck recently started exporting sheep cheese to the USA, where 80% of the farm’s total output is currently shipped. This is the first Argentine farm to export sheep cheese, and this is achieved as member of a gourmet-product export group.

Currently, *La Carlota del Monte* raises about 1.000 head on their 150 hectares, part owned land and part leased. The flock consists of 30% pedigreed animals, with the rest of the sheep having higher or lesser degrees of Friesian blood. The manufacturing plant is located on-farm where cheese is produced and commercialized under the “*La Capilla*” brand name.

The milk production forecast for this year is approximately 150,000 liters (see Figure 1). Milk currently industrialized on this farm is mostly self-produced, although a certain percent is bought from neighboring producers. In general, contracts entered into with these producers are highly incomplete and sometimes even non-existent.

The milking parlor is spacious; it comprises 48 chutes (24 on each side) with 8 descent ramps on each side.

**Figure 1. Milk produced in 2004 and projected for 2005**



Source: own elaboration since Company data.

The cheese factory is located right next to the milking parlor; raw milk goes from the milking parlor to a cooling unit, then to a pasteurizing unit, and finally to a stainless steel vat where it undergoes fermentation. It is only at the outlet of the vat that the product comes into contact with the surrounding environment when the cheese dough goes into the whey separator.

Five workers do all the tasks: Separating the whey, cutting the cheese dough, placing it in molds, transferring the molds over to the press, taking the dough out of the molds, carrying the cheeses over to the brine pools and finally to the chambers, where they age on trays. Those same workers take care of the final conditioning and packaging in thermoplastic bags. A small quality-control lab is used for the raw milk as well as for the cheeses during the various aging stages; the bacteriological assays are outsourced.

Eighty percent of the various types of cheese offered is exported, and this is done through export groups. These groups consist of groups of business people that export a variety of gourmet products worldwide, thus spreading the commercialization costs and facilitating the access to foreign markets through decreased transaction costs resulting from the degree of maturity reached by the contracts entered into with due safeguards and the specificity of the assets they offer. The remaining 20% of the total production is sold in the domestic market composed of wine-tasting clubs, gourmet stores, and some major supermarkets.

#### 4.2 The VIRCH Sheep Milk Basin.

The “Lower Chubut River Valley” (VIRCH) was initiated through the action of a government agency (INTA-National Institute for Agricultural Technology) which grouped several producers from the area into a sheep milk basin to jointly offer a basket of products

under a single brand name. INTA concentrates the industrialization of the milk. Producers from the milk basin obtain revenues from the milk they sell and from an agreed percent on the sale of cheese.

The Lower Chubut River Valley is located in the province of Chubut in the Argentine Patagonia. In the 1980s, when the plant and animal health-control barrier was set up at the 42<sup>nd</sup> parallel, two production alternatives for the Valley emerged clearly: forage production and meat production (lamb as well as beef). By taking advantage of the VIRCH's land-tenure structure, the expertise achieved in sheep production, and the decade old tradition of the renowned Chubut cheese the development of sheep dairies materialized. This proved to be a way of intensifying, diversifying and differentiating ovine production in the search for new high-quality and high-added-value products (Salgado & Bain, 2004).

In 1996 they started developing the VIRCH valley sheep milk basin with the objective of transforming that region into one of the main sheep milk basins in the country. The main limitations were the lack of a dairy-sheep breeding program and the absence of experts and producers with expertise and training in production and manufacture of sheep cheese.

In response to this situation, the people in charge outlined strategies and started interacting with different institutions and agencies related to the subject matter, and set up in theory and in practice a solid basis to carry out the project. With the aid of various contributing agencies, the INTA Chubut Agricultural Experiment Station set up and developed an Intensive Production Unit for ovine milk and meat, an experiment dairy farm and a cheese factory. Priority was given to the training of local technicians and producers for them to become the core support of the project; selected were those producers considered able to cooperate in establishing a dairy breed developed entirely in the area.

The encouragement of an active policy on the part of the province allowed for financing the purchase of the first groups of breeding animals. Five producers acquired 15-20 ewes for each farm and then started on the breeding programs.

An associative scheme was then set up to manufacture cheese with the milk obtained from ewes milked at INTA and from the milk obtained from the producers who had cooperated in setting up the breed. Under this scheme the government, through INTA's Cooperating Association, absorbed all of the production and commercialization risks during the first stage. During the second stage, when producers had already been trained and reached a stable production, INTA had them share responsibilities and expenses. This sharing induced producers to accept a higher degree of commitment and responsibility. A Producers' Association was formed as the first step towards formal organization.

At present, VIRCH has a total of 1,200 milking ewes (distributed among 8 producers and INTA), 7 sheep dairies and 3 cheese factories. In the 2003-2004 season, approximately 30,000 liters of milk were processed, mainly for the production of soft, semi-hard and hard sheep cheese.

Products are commercialized in the domestic market, mainly at regional fairs and supermarkets located close to the producing area. Their cheeses still do not reach the province of Buenos Aires although an interesting potential market has been detected in that area.

#### 4.3 The Las Flores Sheep Milk Basin.

In the *Las Flores* case, we are dealing with a single producer having a dairy flock of 40 Friesian ewes. This farmer produces his own milk and also buys milk from other producers from the area and the surroundings, and then processes that milk at the cheese factory built in his own premises.

This producer started operating on a loan granted by the Federal Investment Council (CFI) that he used to buy animals and to build the cheese factory. He sells his cheeses under his own brand name on the local market and also for special events. He only focuses on the domestic market as he recognizes he does not have the milk volumes required to supply foreign markets, or at least not for now.

This producer is vertically integrated from production all the way to the industrialization of the product. In turn, he applies horizontal coordination schemes by buying milk from various producers in the area who basically produce for him since they do not have an adequate manufacturing infrastructure on their own farms added to the fact that, traditionally, there is no consumption of fluid sheep milk. These facts imply that producers must either sell their milk to industry or not produce it at all.

### **5) DISCUSSION.**

On the basis of the three cases presented above, we shall now analyze comparatively the organizational, technological and institutional frameworks under which the activity is carried out, focusing on the design restrictions pointed out earlier. In this context it is worth mentioning that, in general, the price paid for sheep's milk in Argentina ranges between USD 0.40 and 0.50 per liter, and sheep cheese is sold starting at USD 8.00 per kilo. Clearly, then, in Argentina the sheep milk business is profitable only on large-scale operations, or for those producers who can commercialize their own cheeses. These facts bring about the need to produce on a large scale, such as in the first case outlined ("La Carlota del Monte" Case), or else under different forms of coordination such as in the milk basin schemes.

The alternative design of agribusiness implemented by these players is oriented towards improved efficiency by focusing on market niches and reducing transformation and transaction costs. Product differentiation strategies, as well as different degrees of contractual complexity are applied in all three cases. "La Carlota del Monte" Case a clear example of a producer trying to stay away from the informal market and unreliable commitments between the parties while targeting the export market through secure contracts, offering a brand product supported by a strict quality control. Contractual obligations induced the farm to incorporate technology in order to produce quality sheep

milk the whole year round, which is seldom the case in sheep dairy undertakings in Argentina.

In short, this farm has adopted an alternative agribusiness design oriented towards higher efficiency focused on market niches, increased productivity and reduced transformation and transaction costs. Williamson (1996) points out that any situation is remediable as long as a superior or more efficient form can be implemented at a net profit. In this particular case, the farm gradually leaned towards the export market (80% of their output) as a means of staying away from the informal domestic market lacking in contracts to encompass the transactions. Additionally, they are striving to position their cheese in the domestic market under the “La Capilla” brand name.

The three cases own registered trademarks positioned, to a higher or lesser degree, in the local market. However, the two milk basin schemes studied focus on the domestic market, although transactions tend to become increasingly complex due to the fact that contracts are incomplete. As Williamson (1989) remarks, the discreet paradigm of transactions is jeopardized when contractual risks arise. There are risks that endanger the contractual integrity and lead to the interruption of contracts, bad adaptations and distortion of the investment.

A brand constitutes a mechanism of economic appropriation of the surplus represented by consumer preference. It becomes an intangible asset protected by intellectual property rights. It thus turns into a specific asset that guarantees an identity and quality that starts in the field and goes all the way to the supermarket shelf. Farina (et al, 1997), with respect to this point, associates market segmentation and product and brand differentiation with the governance structure and the system of coordination. The brand, in its dual role as quality assurance and specific asset, determines that the surplus it generates be greater than the potential benefit of not honoring a contract.

The brand name, which stands for product image and product assurance, contributes towards building a trustworthy commitment. However, in the milk basin schemes an additional problem arises: The consequences of asymmetric information and, in many cases, of opportunism. It is in these cases that the evil consequences of contracts having safeguard deficiencies are aggravated. In the case of the VIRCH milk basin, the fact that producers shared the final price of the cheese they sold cooperatively, encouraged them to get involved in the business and accept further commitments and responsibilities. In the case of the *Las Flores* milk basin, many producers quit the business due to lack of incentives that in many cases led to a deterioration in the quality of the milk they delivered. This situation was no good either to the milk-receiving facility (as it received poor-quality milk) or to the producer himself who collected low prices for his milk and did not obtain any recognition for the quality of the milk he offered.

Although these new designs may improve competitiveness, the sustainability of the innovations is jeopardized by the institutional and organizational context coexisting with the old paradigms. Aside from the governance structure selected and implemented in each of the cases studied, and aside from technological innovation, the key to social and

economic evolution is technological and institutional change, and both exhibit path-dependency features, but this path dependency is more complicated in the case of institutions (North, 1994). It is hard to change institutional barriers in the short-run (Zylbersjtan, 1997; Williamson, 2000)

It becomes quite clear from these facts that organizational and technological innovation is seriously threatened by institutional restrictions and, in the case of Argentina, by the absence of legal security.

## 6) CONCLUSIONS

The alternative agribusiness design implemented by the players studied is oriented towards improving efficiency by focusing on market niches and reducing the transformation and transaction costs. All three cases apply product-differentiation strategies as well as varying degrees of contractual complexity.

Therefore, the adoption of alternative and innovative designs based on business strategies focused on markets and customers aids in increasing the competitive advantages of the three cases described, because they add value. However, a strong institutional path-dependency added to basic assumptions on behavior (opportunism and limited rationality), and the presence of asymmetric information, represent a permanent threat to the sustainability of competitive advantages.

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