

Technological Innovation As A Strategy Of Growth: A Case Study Of A Brazilian Small Dairy Company¹

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Abstract

Agroindustrial activity has been increasingly valued in Brazil and represents an important share of national exports. However, the different sectors that compose agroindustry have heterogeneous performance, presenting different levels of competitiveness in the international market. The inverse flow, namely the entrance of imported products and installation of firms in the country, mostly in the agroindustrial sectors that have less competitive capacity, has been intense since the country's commercial opening in 1994. The dairy sector is part of this scenario, with a huge concentration of transnational companies manufacturing in Brazil and importing products (powered milk, cheese, UHT milk), specially from other countries of Mercosul. This article intends to analyze the growth strategy of a small family-owned firm from the dairy sector. The strategic option for technological innovation aiming to add value to the final product justifies its choice for this case study. This case presents one of the possible strategic options for the small-and-medium-size companies vis-à-vis to the Globalization Phenomena. It is intended to make a contribution to the strategies' restructure of the small-and-medium-size companies to survive, or even growth, being on international competitive scenery.

Keywords: SME's food sector, strategic options, globalization

Introduction

Agroindustrial activity has been increasingly valued in Brazil and represents an important share of Brazilian exports. However, the different sectors that compose agroindustry have heterogeneous performance, presenting different levels of competitiveness in the international market. The inverse flow, namely the entrance of imported products and installation of firms in the country, mostly in the agroindustrial sectors that have less competitive capacity, has been intense since the country's commercial opening in 1994.

The dairy sector is part of this scenario. The offer of new products and the speed of the globalized information process have stimulated the consumers' demand for dairy products (Farina, 1997). The recommendation of INAN (National Institute of Food and Nourishment) for consumption is 150/kg/inhabitant/year. According to projections developed by Castro (1998), based on data from IBGE (Brazilian Institute of Geography and Statistics), with the increase of the population and the production in the next years, considering that the *per capita* consumption remains at the present levels,

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Brazilian production will produce a surplus. From the 1997 deficit of 22,4 kg/inhabitant/year, which is presently supplied by surplus imports, it is expected to reach a surplus of 6,2 kg/inhabitant/year already in the year of 2000. This is a clear sign of the national small and medium firms' need to qualify themselves to participate in a proactive way in the national market or even to start exporting dairy products.

This article intends to analyze the growth strategy of Maribo, a small family-owned firm from the dairy sector located in Osório. This city is located in Rio Grande do Sul State 100 km away from Porto Alegre, capital of the State. Maribo is considered to be a reference in terms of quality of products and innovation. While the big groups are acquiring the local dairies and cooperatives, Maribo competes and elaborates expansion projects. The strategic option for technological innovation aiming at adding value to the final product justifies its choice for this case study.

This paper will be presented in five sections: section two describes the sector to which the studied firm belongs; section three presents the literature background, reviewing relevant concepts such as technology, agroindustrial productive chains and an explorative typology of small and medium size firms' strategic options *vis-à-vis* the globalization process; section four reports the case of the firm chosen for this study and, finally, section 5 provides the analysis and conclusions of the study.

Brazilian Dairy Chain

Brazil is one of the largest milk producers in the world, occupying the sixth place. The country's production is of 21 billion liters/year, producing a GDP of US\$ 13,4 billions (Rubez, 1999). The sector's importance can be highlighted by the milk's nutritious value, by the generation of income for hundreds of producers and by the high national consumption of the milk and dairy products. The milk production in Brazil, however, is going through deep changes in the last years. Among the causes of these changes, Gomes (1999) highlights: the liberation of the milk's price in 1991, after almost half a century of government control; the maintenance and strengthening of the informal sector in the dairy production; the larger economic opening of the country to the international market, specially the installation of Mercosul; the stability of the Brazilian economy with the "Real" economic plan; the quality of the milk became absolute priority in all stages of the chain and the growth of the Ultra High Temperature milk changed the reference point of the milk's price.

It is possible also to highlight the growth of the supermarkets' bargain power regarding the dairy and the cooperatives as another determinant for the changes which the milk chain has been going through (Padula *et al.*, 1999).

It is necessary at this point to make a brief description of the Brazilian milk chain to characterize the peculiarities of the company Maribo. In order to achieve this, we make use of the classification of productive chains in three macro-segments: raw material production, industrialization and distribution. The first macro-segment of the chain, the raw material production, is quite heterogeneous. There are traditional, intermediate and technified producers. The **traditional** ones work in a scale up to 30 liters a day, high diversification level, familiar workmanship and low technological level; **intermediate** ones

produce above 30 liters until 200, have a high diversification level, use familiar workmanship and medium technological level; and the **technified** ones produce more than 201 liters in a low diversification level uses a familiar and concentrated workmanship with high technology (Padula *et al*, 1999). The traditional and intermediate producers represent the larger part of the primary production. According to Jank (1999), the non-specialized sector includes cattle raising producers, that explore the activity only during harvest time, and those producers that work with milk and dairy products throughout the whole year, but with little or low-level technology applied to the activity.

The second macro-segment of the chain is responsible for the milk's industrialization, fitting in the following classification (Jank,1999):

Multinational companies – the large private groups controlled by foreign capital, like Parmalat, Nestlé and Danone. They have activities such as buying the milk, processing the product, manufacturing and distributing starting from a nationally known brand. They have activities of “Research and Development”, high production scales and high expenses with advertising.

National Groups – also have activities such as buying the milk, processing the product, manufacturing and distributing, but have less financial such as capacity and act in regional markets. This group is going through a transition period, with growing difficulties and being take-over targets for multinationals.

Cooperatives – can be singular or central. The singular ones act in the ordinary purchase of input and in the common sale of milk to other dairy firms and, in some cases, manufacture products for local consumption. The central ones are constituted by singular cooperatives, aiming to achieve scale economies in the industrialization of dairy products.

Small Dairy Firms – small companies that acquire the raw material, industrialize and commercialize their products in the regional markets. They take advantage of the legal loopholes in the tributary and sanitary areas, mainly in cheese production.

The third macro-segment of the chain refers to the distribution and retail trade. This is the segment that reviews the consumers' new demands for the whole productive chain. According to Jank (1999), it is constituted by:

Bakeries and Small Retailers – distribute mainly milk of type B and C (less validity time) and sliced cheese without brand. Because of the growth of the UHT milk, has been losing relative importance in medium and big cities.

Large distribution surfaces – the supermarkets and hypermarkets. Today they dominate the chain, pressuring the margins of the dairies, operating with high sales turnover, expanded payment periods and demands of just-in-time inventory replenishment from supplier. According to Padula *et al*. (1999), these large chains have the possibility of importing products from other countries, mainly from Mercosul, which gives them a great bargaining power.

Direct Sale to the Consumer – is done by producers, intermediates and small dairy firms, in a general way, out of the legislation.

After this brief description, it can be said that if on one hand the industrialization and the distribution of dairy products have a strong concentration of large groups, on the other hand, the production of raw material is accomplished by a heterogeneous group and, therefore, with less organization capacity.

Theoretical Background

Analysis of Agroindustrial Chains and Technology

An approach already well established in agribusiness studies is the analysis of productive chains, where the sector, segment or company object of the study takes place through its relationships with the other links of the productive chain to which it belongs. The study of agroindustries differs from the other industries', because it deals with peculiarities such as seasonal effects, short shelf lifecycle of the product and low value-weight relation of the goods involved in the transactions, mainly between the segments of raw material production and industrialization. The productive chains approaches considers the entire configuration, how the links are connected and the capabilities of one link have influence on another. The chain approach, thus a privileges systemic vision (Martins *et al.*, 1999).

According to Schumpeter (1961) an entrepreneur is the manager that searches new combinations of technology aiming at reforming or revolutionizing the production system through an invention or, in a general way, a new technological possibility for the production of a new commodity or the manufacturing of an old one in a new way, through the opening of new sources of material supplies, new channels of distribution, reorganization of the industry, etc. In other words, Schumpeterian innovations are not limited to the *stricto sensu* technologies. Beyond the introduction of a new good and a new production method, the innovations can also assume the form of a new organization mode of the industry or company, of the access to a new consumer market and of conquest of a new raw material source. As the manager does not know *a priori* if its innovation will be successful or not, this activity is surrounded by risks and uncertainties. In the Schumpeterian model, the profits achieved by the innovators are decisive to urge the levels of growth and attract competitors. This process of imitation leads to new innovations (Loiola, 1998).

The role of the entrepreneur-innovator, as described by Schumpeter in his first work, corresponded to the profile of a small-or-medium size company owner at the time, with flexibility to achieve innovations. However, large companies invest continuously in innovations through formal systems of Research and Development and are attentive to the its importance to the maintenance or the increase of their market-share.

Batalha (1995, p. 43) sustains that “from the point of view of competitiveness, the development or implementation of a new technology only makes sense if it increases in any way the company’s

capability of remaining in the market in satisfactory conditions". Under the new globalization view, technological innovation qualifies to the survival of the national companies within the increasingly concentration food sectors and the entrance of transnational groups.

An innovation can be of a predominantly technological character (technology push), where the company prioritizes development actions of new manufacturing processes, new raw materials, innovative products conception. The innovations of marketing nature (market pull) are orientated by the demand, as new distribution forms, new packages, marketing repositioning, new financing forms to the consumer, etc. Batalha states that, in the case of food industry companies, most of the innovations are of market pull type.

Technological innovation process, as described by Martin (1994), concerns in one sequence of activities, starting from an invention (scientific or not), that becomes a commercial success that makes the entrepreneurship reach a differentiated competitive level. Companies must have a set of scientific and technological knowledge to manage the innovation. There are different sources of learning and their relative importance will vary according to the nature of the core competence of the firm. Some factors are (Pavitt, 1992): learning by experience, learning from competitors, communication, training and the external (customers, suppliers, competitors, etc.) and internal environment (firm-specific competences, organization, evaluation).

Monitoring the consumer's habit tendencies and life standard change is fundamental for the identification of investments and profit opportunities (Farina, 1997). The strategies that give competitive advantages are rapidly imitated and should, for that reason, be associated to the differentiation strategies. For this reason, the food industry constitute the sector of largest investment in sales and advertisement promotion, at the same time that it presents one of the lowest levels in Research and Development (Sutton, 1992; Connor *et al.*, 1985 *apud* Farina, 1997).

Another type of technological innovation, besides product and process, is the managerial one. The choice for the coordination of the different stages of a productive chain involves different decisions, such as: the management of the productive flows, its extension and its balance. The vertical integration is an option that internalizes the economic transactions, making them subordinated to the hierarchy, where the costs of market transactions are replaced by the costs of monitoring and internal stimulus associated to the company's organizational structure (Farina, 1997). The decision of vertically integrating is taken to achieve the aims of (Fleury and Proença, 1993):

- a) Raising the profit margin, eliminating transaction costs and reducing logistic costs;
- b) raising the control over part of the business environment, improving the information flow and enhancing market power, through the establishment of more rigorous entry barriers.

However, to vertically integrate may be an expensive and risky strategy, although recommended when the transactions between the chain links are frequent, as the vertical integration reduces the uncertainties and opportunistic behavior in the relationships.

In the present case study, the company is vertically integrated in the three macro-segments: commercialization – industrialization – raw material production, investing in value aggregation on the final product and in the strengthening of the brand name. The short lifecycle of the product certainly influenced the adoption of this model, which can be considered innovative, given the small size of the company.

Small and Medium Companies vis-à-vis the Globalization Phenomena

There are few studies about how the small-and-medium-size companies should react to the invasion of their local markets by the transnational companies. In general terms, the small-and-medium-size companies have little resources and deficient infrastructure to deal with the competitive pressures resulted from the globalization process. As a result of these barriers, they present a reactive behavior to the technological and market changes brought by the internationalization of the economy. Concerned with this problem, Fernandez and Noël (1994) proposed three types of possible strategic options for the small-and-medium-size companies: maintenance, growth and disengagement from the activity.

The option for maintenance consists of the company remaining the same size or on the same activity. This can be achieved through cost reductions, adoption of a new technology, or through a strategic alliance that will provide the necessary upgrade.

When the company chooses a growth strategy (growing in its present market, new market, expansion of the activities or diversification), it can reach this aim through a merger or an acquisition. A less radical alternative would be a strategic alliance.

The disengagement is an option in which the company gradually abandons its market seeking new opportunities in other activities or sells the company. In this case, a strategic alliance with a company from another sector eases the changing of activity.

In all three options, cooperative strategies are suggested for the success of the strategic option adopted by the company. As strategic alliance is a partnership that provides the technology, capabilities or product exchange for mutual benefit (Yoshino and Rangan, 1995). There is a great diversity of concepts about strategic alliances and the authors delimit them by affirming that they should have three necessary and sufficient characteristics:

- The two or more companies that linked together aim at achieving a set of agreed objectives and remain independent after the formation of the alliance;
- the partner company shares the benefits of the alliance and control over the agreed task's performance. Perhaps the most distinctive characteristic of alliance and the one that makes them so difficult to manage;
- the partner company contributes in a continuous basis in one or more strategic key areas, as technology, product, etc.

Strategic alliances are important alternatives to be analyzed for competitive strategies that aim for growth or maintenance by the Brazilian small-and-medium-size companies. In a sector exposed to competition with multinationals, alliances appear as a possibility for the development of new capabilities and production scale increase.

Case Study

Maribo has five years of existence. It was created to be a sales point of dairy products, jams and other food products on a highway that gives access to the beach coasts of southern Brazil. Today, the company has exceeded the owners' initial expectation as it commercializes its dairy products (cheeses, yogurts and milk sweets) for small establishments in the capital and for one of the largest supermarket chain of the state. The company is also starting a network of franchises for their own products' commercialization. Two important factors for this growth are the emphasis on quality and on value aggregation on the product. Maribo chose to produce only high quality dairy products to attend consumers with sophisticated tastes. Besides, the company participates of one of the most traditional sectors. The strategy of technological innovation was used in: products, processes, distribution channels and management. One of the company's innovations was the option for vertical integration to guarantee the quality of its products. The company is responsible for the raw material production, industrialization and commercialization as described below:

Raw Material Production: This macro-segment employs 20 workers. The company imported cows from Uruguay, a country with tradition in milk production with high quality and productivity. From a partnership with a company responsible for artificial insemination Maribo is improving genetically its herd, which is composed by 100 cows. The aim is to standardize the herd to maintain the present productivity of 20 to 25 liters/day/cow. Data from the Brazilian Confederation of Dairy Cooperatives (CBCL) about national milk productivity show that 80% of the producers obtain up to 5 liters/day/cow the equivalent to 42% of the production, 12% produces between 5 and 7 liters/day/cow, referring to 24% of the production, and the remaining 8% of the cattle-raisers are responsible for 34% of the production with indexes above 7 liters/day/cow (Alimandro *apud* Naves, 1998). Therefore, Maribo is among the most specialized producers within the national milk production.

The cows are kept semi-confined in the *free-stall* system, where they are fed, sleep and generate organic fertilizer that is used for fertilizing their own pasture (Correa, 1998). When they leave the *free-stall* they go to the *Voisin* system, constituted by 10 sections in which the cows alternate, grazing two hours a day. This system was observed in Europe by the company's owner and was successfully introduced. There is an intense care with the feeding of cows, based on clover, oat and hay. The company produces 60% of the raw material used in the ration. There is a great care with the supplies acquired from outside of the company with respect to the season, so that are supply of ration is assured throughout the year. The ration is crushed in the confinement area and distributed in a wagon that mixes all the fodder in reduced time: the preparation and the feeding takes place within 10 minutes (Correa, 1998). The milking is totally mechanized and without any manual contact. Besides this, the facilities are organized in a way that optimizes milking. It takes place in a masonry room, concrete floor and tiled walls, in a system known as fish spine - two lines with four cows in each one, (Correa, 1998).

Jean Borsatto, the commercial director of Maribo, stressed the importance of hygiene in the milking room for the quality of the final product. Every 24 hours, through two milkings, around 2,2 thousand liters of milk are obtained.

Industrialization: This macro-segment has 20 workers that, as the ones in the raw material macro-segment, live in the property. Milk activity starts very early in the morning and since must be done also on weekends, it is important that the trained workers live near the company. The fresh milk takes two minutes to be transported from the milk farm to the processing unit of it being separated only by 100 meters (Correa, 1998). The milk is not pasteurized, being 80% destined to the production of yogurts and dairy drinks. The rest is transformed in cheeses such as: *minas frescal*, *creamy*, *tilsit*, *quartirollo* and smoked cheese. For the company, the processing of the milk is the best way of adding value to it. The factory's technology is of the last generation and there is a laboratory with a chemical engineer to make analysis of samples of the raw material. The company also has a factory that process fruit pulp to produce jams. This brings a competitive advantage in the company production of yogurts, since it has different fruit pulps (even apricot, imported from Chile) at low cost price. These fruit pulps are also commercialized to competitor dairies. In the sector of fruit pulps, Maribo competes with a multinational that dominates the sector. The company has two brands of jam, regular and diet one, that are commercialized in the market.

Commercialization: This macro-segment involves 26 workers. The strategy of adding value to the product giving an emphasis to the brand Maribo is more salient in this stage. The company has trading point, where it sells its own products, as well as other produced by regional companies with the brand name Maribo and imported products. The shop has its own bakery, area for snacks and product tasting. In this place, there is a contact between the consumer and the commercial management. The shop's presentation is a constant concern and a differentiation factor for the company. There is no formal channel for customer service, but the company accepts suggestions that arise in a spontaneous and informal way. Many of the product innovations developed by the company were brought after the contact with consumers. The investments in advertisement are *out-doors* on the highway in which the shop is located and the participation in promotions on the supermarket chain that it serves. According to the commercial manager Jean Borsatto, the company became known by "spreading the word away". Some suggestions for improvement come from the suppliers and distributors. To attend the region of Porto Alegre, the company subcontracts a distributor that handles the logistic of the process. There is a concern of the company in supervising the outlets (such as supermarkets, *delicatessen*) in which its products are sold in order to observe if the conservation of the products in the shelves is correct, if they received the proper arrangement that they receive in the gondola and to listen to the clients' comments about their acceptance. The sale of dairy products to the supermarket chain pressured the company to use bar codes, develop package improvements, new labels, etc.

Technological innovation process occurred mainly on learning by experience. The managers learn basically by doing, by using or by failing. There is little communication with research institutions, but they are open to receive research groups from all fields of knowledge. This relationship is unilateral and works more for them as advertising of the company than as knowledge exchange

The entrepreneur-innovator profile

The family's patriarch is an Italian descendant and possesses the profile of the entrepreneur-innovator. He is attentive to the market, imitating and adapting constantly technologies developed in Europe, in Mercosul countries and in Brazil, introducing innovations. He is responsible for the technological innovation process, which focus on learning by experience. One of the barriers for productive activity pointed by him is to find qualified employers to work according to its systems. As Maribo differs from other companies from Brazilian dairy chain, there is difficult to find qualification on the workmanship. So, the company gives appropriate training and support to the employers that demonstrate competence on their duties. The employers are prone of some improvements suggested by them.

Maribo has some firm-specific competencies that distinguish it from others. Company's strategy is to invest continuously on their vertical model to differentiate its product. External environment, as customers, competitors and suppliers, are important sources of technological learning.

There are three managers, one for each macro-segment. The managers responsible for the dairy and the shop are both the owner's sons. In spite of the company being family, owned and operated, they manage it in a very professional way, having decision autonomy in their respective areas and being evaluated based on results.

The company states that the competition with products of the transnational companies operating in Brazil and the ones from other Mercosul countries does not pose any problem for it. As it operates in a specific market niche not very sensitive to price sales are rather stable. It also sells, in own shop, many imported products to complete the product mix that they produce.

In Maribo's growth strategy, two new investment projects are being implemented: the franchising of shops and the investment in rural tourism. The company's intention is to sell products in the franchised shops to increase its return. When its products enter a supermarket chain, they dispute space with several other brands, whereas its own sales point the consumer recognizes the quality and differentiation of its products. The project has already started with a franchise and the evaluation of interested candidates. The plan is to attend the main cities of Rio Grande do Sul and the neighboring state of Santa Catarina. It is necessary to create a structure for control and distribution of the products in order to assure that no damage is done to its quality image.

The rural tourism project consists in using the farm company as a tourist complex with a thematic park related to milk, visits to the company's facilities (dairy and semi-confinement stalls), typical lunch in a restaurant that will be built on the edge of a pond, ecological walks, etc. This project intends to enhance even more the Maribo brand to the consumers. The reception of the visitors by the family itself is also a part of the strategy of developing fidelity to the brand name.

The commercial manager considers the exportation of dairy products, even the ones from the company that fulfil the quality requirements, is temporarily out of plans. The exchange rate instability and

the difficulties in distributing products with short lifecycle are the main declared reasons. The focus is to serve the southern region of Brazil.

Conclusion

Maribo entered the market through its owner's strategy of adopting international *best practices* and the better existing technologies to produce quality dairy products. The company's owner is characterized as an **entrepreneur-innovator**, because he seeks new combinations for the manufacturing of a traditional product in a modern way, through assured quality of raw material, his own channel of distribution and emphasis on the brand. From the description of the three milk chain's macro-segments, it is possible to verify the company performs well in all them: its milk production is technified; its characteristic of small dairy doesn't prevent it from offering differentiated products; and its own sales point shows the company's care with attending class A clients.

When Maribo decided to integrate the three macro-segments of the productive process its practices reduced its transaction costs resulting into higher quality for its products. The management adopted was innovative in each of the segments. The company presents a trajectory of growth, working mainly to reach a class A market niche. The rapid growth of the company brings the necessity of going beyond family management and searching for new forms of organizing that will support its growth. One possibility, coherent with its growth objective perspective is to make strategic alliances, as pointed in the typology of Fernandez and Noel (1994). Making partnerships in the three macro-segments would allow the company to: raise the quantity of the raw material (milk) to be received for processing, maintaining the productivity and quality that the company has already achieved; raise the production of dairy products; and reach new markets through alliances with distributors of other regions and States.

For successful alliances, the company should select partners and pass on to them the capabilities already developed in the three macro-segments so that it will be possible for them to achieve the same level of quality and innovation. Ideally, these partners should also be able to make innovations and improvements in the processes and products involved in the alliances. Since market niches are very restricted, it is important the entering in new markets as a way of guaranteeing the expansion and continuous growth of the company.

The case of Maribo presents one of the possible strategic options for the small-and-medium-size companies vis-à-vis to the Globalization Phenomena. Considering this paper showed a case study, it is not possible to make generalizations, but it intends to contribute as **benchmark** in the elaboration of companies' strategies from food sector and even from other sectors that suffer this competitive pressure. It is important to develop new studies about other strategic options to the small-and-medium-size companies that show well succeeded trajectories that served as lesson to the survival in the new international competitive atmosphere.

References

- Batalha, M. O. (1995). As Cadeias de Produção Agroindustriais: uma Perspectiva para o Estudo das Inovações Tecnológicas. *Revista de Administração*. São Paulo, V. 30, n.4 p 43-50, outubro/dezembro.
- Castro, C. C. (1998). *Estudo das Relações entre os Elos da Cadeia Láctea do Rio Grande do Sul e sua Competitividade*. Porto Alegre, Dissertação de Mestrado, UFRGS.
- Castro, M. C. D. E Martins, P. C. (1999). Organização da Produção Primária: um Desafio para a Indústria de Laticínios - Workshop. Juiz de Fora: EPAMIG - Centro Tecnológico - ILCT.
- Correa, J. Um Tambo de Cinema entre a Serra e o Mar. *Zero Hora*, Caderno Campo e Lavoura, 09/10/1998.
- Farina, E. M. M. Q, Azevedo, P. F. E Saes, M. S. M. (1997). *Competitividade: mercado, estado e organizações*. São Paulo: Singular.
- Fernandez, G. Et Noël, A. (1994) Mondialisation et Stratégies. *Revue Internationale PME*, vol. 6, ns. 3-4.
- Fleury, P. F. E Proença, A. (1993). Competitividade Industrial e a Gerência Estratégica de Operações, *Revista de Administração*. São Paulo, Vol. 28., No.2, Abril/Junho.
- Freeman, C.(1982) *The Economics of Industrial Innovation*. London: Frances Pinter, 2nd edition.
- Gomes, S. Diagnóstico e Perspectivas da Produção de Leite no Brasil in: DUARTE, D. *et al.* (orgs.) (1999) *Restrições Técnicas, Econômicas e Institucionais ao Desenvolvimento da Cadeia Produtiva do Leite no Brasil*. Brasília: MCT/CNPq/PADCT, Juiz de Fora: EMBRAPA-CNPGL.
- Jank, M. S. *et al.* (1999) *O Agribusiness do leite no Brasil* . São Paulo: PENSA/ Editora Milkbizz.
- Martin, M.(1994) *Managing Innovation and entrepreneurship in technology based firms*. New York: J. Wiley.
- Martins, L. M., Vieira, L.M. E Padula, A.D. (1999) Uma Contribuição para o Entendimento da Agroindustrialização como Alternativa para o Desenvolvimento Regional: um Estudo do Caso do Óleo Cineol no Estado do Rio Grande do Sul. *Anais do I Seminário Internacional sobre Gestão da Inovação Tecnológica no Nordeste*. Fortaleza.
- Loiola, E. (1998) *Agroindústria, Competitividade e Desenvolvimento Regional*. Salvador, Tese de Doutorado, UFBA (mimeo).

Milkbizz, Jornal. São Paulo, ano 1 n. 4 , 01 a 15/05/1999.

Naves, L. F. (1998) *A Oferta de Leite no Estado de Minas Gerais: Um Estudo no Período de 1975 a 1995*. Lavras, Dissertação de Mestrado.

Padula, A D. *et al* (1999) A Cadeia Láctea do Rio Grande do Sul: o Processo de Adaptação ao Ambiente Competitivo do Mercosul. *Anais do XVI Congresso Nacional de Laticínios*. Juiz de Fora.

Pavitt, K. Some Foundations for a Theory of the Large Innovating Firm: in Dosi, G. *et al.* (org). (1992) *Technology and Enterprise in a Historical Perspective*. Oxford: Clarendon Press.

Rubez, J. (1999) O Idec e o Leite Clandestino. *Folha de São Paulo*, 02/03/1999.

Schumpeter, J. A. (1961) *Capitalismo, Socialismo e Democracia*. Rio de Janeiro: Editora Fundo de Cultura.

Wilkinson, J. (1993) Competitividade da Indústria de Laticínios. Nota Setorial do Complexo Agroindustrial. *Estudo da Competitividade da Indústria Brasileira*. Campinas. Captured from the site of Science and Techonology **Ministry** in 12/06/1998.

Yoshino, M. Y. And Rangan, S. U. (1995) *Strategic Alliances: an entrepreneurial approach to globalization*. Boston: Harvard Business School Press.

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