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Strategic analysis of the sheep milk production chain in Brazil: an approach using the SWOT methodology

Análise estratégica da cadeia produtiva de leite ovino no Brasil: uma abordagem pela metodologia SWOT

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Highlights

Fifteen Brazilian dairy sheep farmers participated in the survey.
Production system, volume, and destination of the milk produced were characterized.
Strategic SWOT points were identified in the dairy sheep production chain.
Production of derivatives with greater added value is an important action.
Dairy sheep farming has a great growth potential in Brazil.

Abstract

Sheep milk is used on a global scale for the production of cheese and other derivatives, or fresh consumption. The production of milk and its derivatives, whether formal or informal, is part of a production chain, with a lower or higher level of organization depending on the regional development of the activity. The objective of this study was to describe and discuss the elements of the sheep milk production chain in Brazil using the SWOT methodology. This study was developed in 2017 based on direct research with agents linked to the sheep milk production sector of 15 properties distributed in seven states of Brazil. The agents pointed out and described the strengths and weaknesses, opportunities and threats of the segments of inputs, production, processing, and sale and distribution of products and, subsequently, these elements were organized in a SWOT matrix. In the production segment, the low adoption of

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adequate production techniques, data control, and knowledge of production costs are critical factors. In the processing segment, positive aspects were pointed out for the physicochemical characteristics of sheep milk, while aspects related to legislation were considered critical. The lack of culture and consumer knowledge about sheep milk products are critical points affecting the sale and distribution segment. The small scale of production, the low demand for milk and its derivatives, and the lack of specific inputs for the activity are also critical points in the production chain. However, the use of inputs from other livestock activities (mainly dairy cattle) is an important option to reduce production costs and optimize the use of resources in dairy sheep farming. Appropriate production and processing techniques for sheep milk and data and production cost control must be implemented. Despite the heterogeneity of the studied production systems, some have positive economic indicators, which demonstrate the productive and economic potential of the activity. In this scenario, intensive production aimed at products with higher added value and the growth of the consumer market are factors that stimulate the growth of dairy sheep farming and are considered opportunities, so that marketing campaigns to promote the consumption of dairy products must be carried out. The small volume of milk produced generates opportunities for the sector, due to the lack of competition and the large potential market to be explored, especially in large centers, with greater purchasing power.
Key words: Inputs. Marketing. Organization. Processing. Production.

Resumo

O leite ovino é utilizado em escala global para a produção de queijos e outros derivados, ou para consumo *in natura.* A produção de leite e de seus derivados, seja formal ou informal, faz parte de uma cadeia produtiva, com menor ou maior grau de organização dependendo do desenvolvimento regional da atividade. O objetivo deste estudo foi descrever e discutir os elementos da cadeia produtiva de leite ovino no Brasil utilizando a metodologia SWOT. Este estudo foi desenvolvido em 2017 a partir de pesquisa direta com agentes ligados ao setor produtivo de leite ovino de 15 propriedades distribuídas em sete Estados do Brasil. Os agentes apontaram e descreveram os pontos fortes e fracos, as oportunidades e ameaças dos segmentos de insumos, produção, processamento, e venda e distribuição de produtos e, posteriormente, esses elementos foram organizados em uma matriz SWOT. No segmento produção, a baixa adoção de técnicas adequadas de produção, controle de dados e conhecimento dos custos de produção são fatores críticos. No segmento processamento, aspectos positivos foram apontados para as características físico-químicas do leite ovino, enquanto aspectos relacionados com a legislação foram considerados pontos críticos. A falta de cultura e conhecimento do consumidor sobre os produtos derivados do leite ovino são pontos críticos que afetam o segmento de venda e distribuição. A pequena escala de produção e a baixa demanda pelo leite e seus derivados, assim como a falta de insumos específicos para a atividade, também são pontos críticos da cadeia produtiva. Entretanto, o uso de insumos de outras atividades pecuárias (principalmente da bovinocultura leiteira) é uma opção importante para reduzir os custos de produção e otimizar o uso dos recursos na ovinocultura leiteira. Técnicas adequadas de produção e de processamento do leite ovino devem ser implementadas, assim como o controle de dados e de custos da produção. Apesar dos sistemas de produção estudados serem heterogêneos, alguns apresentam indicadores econômicos positivos, o que demonstra o potencial produtivo e econômico da atividade. Nesse cenário, a produção intensiva de produtos com maior

valor agregado e o crescimento do mercado consumidor são fatores que estimulam o crescimento da ovinocultura leiteira, e são considerados oportunidades, de modo que campanhas de marketing para promover o consumo de derivados do leite devem ser realizadas. O pequeno volume de leite produzido gera oportunidades ao setor pela falta de concorrência e pelo grande mercado potencial a ser explorado, especialmente nos grandes centros, com maior poder aquisitivo.
Palavras-chave: Insumos. Marketing. Organização. Processamento. Produção.

Introduction

Dairy sheep farming in Brazil is still incipient, with few producers, who face limitations and difficulties to maintain the activity. This scenario emphasizes the need to search for efficient management alternatives to guarantee the permanence of these producers in the activity. Added to this, it is important to point out that dairy sheep farming enables the production of products with high added value, such as dairy products (yogurt, dulce de leche, and, mainly, cheese), which motivates producers to maintain or start the activity. In general, these products meet the needs of a demanding consumer profile, with high purchasing power and who are willing to pay more for high-quality products.

In this context, new tools have to be developed to attract more investments and producers to this agricultural sector. Therefore, strategic planning is an administrative tool that can assist in better business direction, as it seeks to expand knowledge about its external environment, that is, the consumer market, the industry, and its target public. In addition, strategic planning acts in an innovative and diversified way to find factors that can influence the projections of the activity such as trends, threats, singular discontinuities, and diverse opportunities (Ansoff & McDonnell, 1993).

For this type of analysis, several methods include the observation of the market, the product, the competitor, as well as the internal factors of the activity (Azevedo & Costa, 2001). Among these methods, the SWOT analysis is a tool that allows exploring the internal and external environments in different situations, companies, industries, organizations, and agricultural segments and, therefore, can be applied to the sheep milk production chain. This analysis seeks to identify and characterize strengths and weaknesses, as well as opportunities and threats strategically, making it one of the most used tools in the world (Costa Júnior et al., 2021).

SWOT is an acronym formed by the initials of the words Strengths, Weaknesses, Opportunities, and Threats, which define the four dimensions of this type of study; the objective is to generate a list of pros and cons that help in decision-making, within the segment under study (Mintzberg et al., 2000; Osita et al., 2014). Thus, the SWOT methodology provides strategic guidance, as based on its results, it allows for eliminating weaknesses in areas where the company/activity faces serious threats from the competition and unfavorable trends towards the business; identifying opportunities based on their strengths; correcting weaknesses in areas where the organization sees potential opportunities; and monitoring areas where

the organization has strong points, in order not to be surprised in the future by possible risks and uncertainties (Alves et al., 2007).

SWOT analysis can be used to identify key elements in various fields such as production process, external and internal marketing, brand equity, product development, distribution, business model, and operational management (Brad & Brad, 2015). After identifying and characterizing the key elements in a report, the content analysis, which consists of an analysis of the meanings of the information, can generate inferences of knowledge related to the conditions and indexes of the production system (Bardin, 2011).

Thus, the present study aimed to identify the internal and external factors of all segments of the sheep milk production chain, and how they interfere with the current situation of the activity in Brazil.

Material and Methods

Methodology employed

The methodological structure of this research was based on an empirical study through interviews with key agents in the sheep milk production chain in Brazil. Purposive sampling method was used, which is one that, even though it is non-probabilistic, meets certain criteria at the time of sample selection (Cooper & Schindler, 2003). In the present study, the criterion was that dairy producers and owners represented approximately 80% of all properties and sheep milk processing units in Brazil between 2015 and 2017. From June to October 2017, visits were made to 15 properties and milk processing units, during which the owners or guardians, who were important agents of the production units and linked to the sector of the sheep milk production chain, were interviewed through the application of a questionnaire (Table 1).

Location, structure, and management of properties

The 15 sheep milk-producing properties were distributed in three regions (Table 2) and seven Brazilian states (Figure 1).

The evaluated properties ranged in size from 2 to 55 ha, with a greater number of properties up to 8 ha. The average area of the evaluated properties was 4.63 ha (Table 3). All of them had a mechanized milking parlor, with the bucket milking system predominating in 73% properties, due to the small number of animals in the flock. The most used production system was semi-intensive with animals kept on pastures and supplemented with forage and concentrate feed (40% properties), but there were also some feedlot systems.

Table 1
Field questionnaire for the data collection on dairy sheep farms in Brazil

1 – Identification and location of the property
1.1 – Name of the producer
1.2 – Name of the farm
1.3 – Municipality/State
1.4 – Year of start of the activity
2 – Land structure
2.1 – Total area of the property
2.2 – Useful area for sheep production
2.3 – Area (m²) of the fold/shelter facility
3 – Milking parlor
3.1 – Model
3.2 – Number of constrainers
3.3 – Number of milking sets
4 – Production system
4.1 – Production system used
4.2 – Presence of other farming activity
5 – Flock
5.1 – Breed
5.2 – Number of ewes
6 – Lamb farming system
6.1 – Type of feeding
6.2 – Lamb mortality until weaning (%)
7 – Workforce
7.1 – Classification
7.2 – Number of people (human labor unit – HLU)
7.3 – Owner works directly in the activity
8 – Origin of food used for animals
8.1 – Bulky (buy/produce)
8.2 – Concentrate (buy/produce)
9 – Volume of milk production (liters per year)
10 – Destination of milk production
11 – Products and volume of milk used for each type of derivative
12 – Characteristics of milk processing units
12.1 – On the property
12.2 – Built-up area
12.3 – Type of Inspection

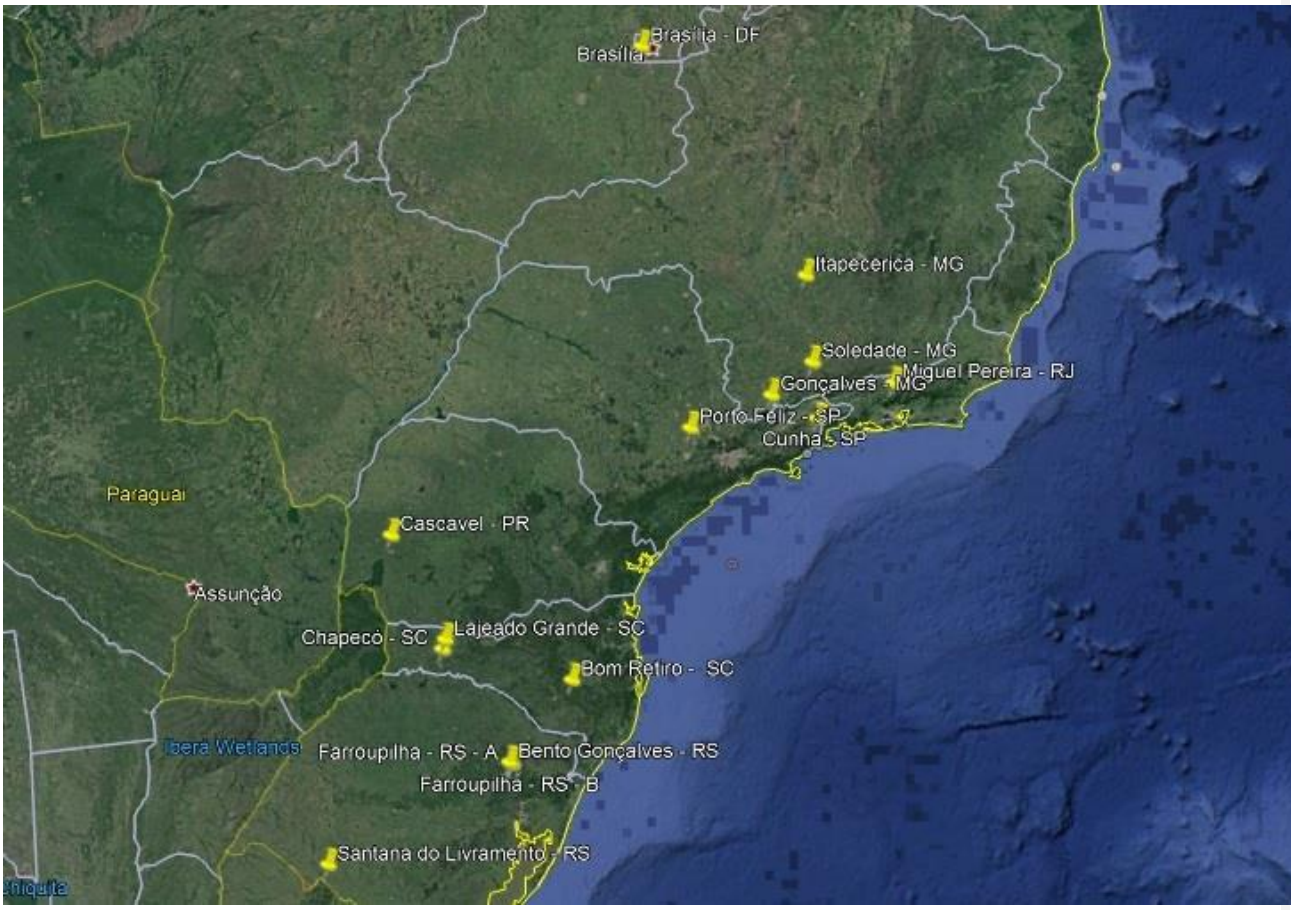

Figure 1. Location of the sheep milk producing units studied.

Flocks were formed by Lacaune and East Friesian breeds animals, in which the majority had less than 200 dairy ewes. The predominant lamb-rearing system was natural-controlled suckling. Some properties used the owner's exclusive labor; in others, labor was hired and, in most of them, the owner used temporary labor only for occasional assistance, such as during the silage- and/or hay-making season, as well as during the lambing season. Most of the milk produced was processed on the properties (83.3%). The properties that sold the milk produced, partially or totally, to other units, stored and transported the cooled or frozen milk. The largest volume of milk was destined for the production of cheese and three inspection systems were identified: SIM – Municipal Service; SIE – State Service; and SIF – Federal Service.

Table 2
Distribution of properties interviewed by Region, State, and municipalities in Brazil

Region	State	Municipality	Units (n)
South	Rio Grande do Sul	Bento Gonçalves	1
		Farroupilha	2
		Santana do Livramento	1
	Santa Catarina	Bom Retiro	1
		Chapecó	1
		Lageado Grande	1
	Paraná	Cascavel	1
Southeast	São Paulo	Cunha	1
		Porto Feliz	1
	Rio de Janeiro	Miguel Pereira	1
	Minas Gerais	Gonçalves	1
		Itapecerica	1
		Soledade de Minas	1
Central-West	Brasília	Metropolitan Region of Brasília	1
Northeast	No production unit in this region		
North	No production unit in this region		

SWOT methodology

For systematization and analysis of the data, the SWOT methodology was used, which is the global assessment of the strengths and weaknesses, opportunities and threats of a company/sector, and these are external factors (non-controllable) and internal (controllable) variables (Mintzberg et al., 2000). For better visualization and interpretation of the results, the SWOT method was applied to each segment of the production chain, that is inputs, production, processing, and sale and distribution of milk and dairy products.

At the time of the interview, the methodology was explained to the agents, who pointed out the strengths, weaknesses, opportunities, and threats within their production system/property, making a brief explanatory comment on each element mentioned. Data collection was accompanied by the owner or in charge and was carried out in person at all properties. For analysis and interpretation of the data, the properties were grouped by category to determine the number in each analyzed variable.

Content analysis was used, in addition to descriptive and inferential statistics, with the support of Microsoft Excel and Windows 2010® software to organize, summarize, analyze, and interpret the information. This study has predominant characteristics of exploratory research, in which the main objective was to elaborate ideas that seek to develop, expand and improve the production of sheep milk in the Brazilian market.

Table 3
General characterization of sheep milk producing properties in Brazil. The production units were identified with numbers to keep the secrecy and impartiality of the information

Property	Land structure		Milking parlor			Production system[A]	Flock		
	Useful area (ha)	Built-up area (m²)	Model	Animals (n)	Milking sets (n)		Breed[B]	Ewes (n)	
								2016	2017
1	14	400	Bucket milking	8	2	Extensive	LC	110	140
2	8	170	Bucket milking	10	5	Semi-intensive	LC	220	150
3	3	80	Bucket milking	6	2	Semi-intensive	LC	170	110
4	15	750	Piped	24	12	Extensive	LC	340	650
5	4	560	Bucket milking	8	4	Feedlot	LC	120	200
6	46	2,200	Piped	24	12	Extensive	LC and EF	850	700
7	55	3,100	Piped	32	16	Extensive	LC and EF	1200	1050
8	12	400	Piped	24	12	Semi-intensive	LC	250	150
9	4	350	Bucket milking	8	2	Feedlot	LC and EF	120	150
10	12	800	Bucket milking	8	4	Extensive	LC	120	150
11	5	900	Bucket milking	8	3	Feedlot	LC	120	80
12	7	400	Bucket milking	8	2	Semi-intensive	LC	100	165
13	2	250	Bucket milking	8	2	Semi-intensive	LC and EF	40	50
14	36	1,300	Bucket milking	8	4	Semi-intensive	LC	280	320
15	4	450	Bucket milking	8	2	Extensive	LC and EF	50	60

Table 3
Continuing...

Property	Workforce		On-farm food production		Annual production and destination of milk		Milk processing unit	
	Description	People (n)	Bulky	Concentrate	Production (L)	Destination	Type of inspection[C]	Built-up area (m²)
1	Hired	1	Partial	Does not produce	15,000	Sale	-	-
2	Family	1	Partial	Does not produce	47,000	Sale	-	-
3	Family	1	Partial	Does not produce	36,000	Sale	-	-
4	Hired and entrepreneur	5	Partial	Does not produce	90,000	Own industry	SIF	300
5	Hired and entrepreneur	2	Partial	Partial	30,000	Sale	-	-
6	Hired	5	Self-sufficient	Partial	70,000	Sale and Own industry	SIM	20
7	Hired and entrepreneur	7	Self-sufficient	Does not produce	140,000	Sale	-	-
8	Hired and entrepreneur	2	Partial	Does not produce	10,000	Own industry	SIM	30
9	Hired and entrepreneur	2	Self-sufficient	Does not produce	18,000	Own industry	SIM	120
10	Hired and entrepreneur	2	Self-sufficient	Partial	18,000	Own industry	In registration process	40
11	Hired	3	Partial	Does not produce	30,000	Own industry	SIE	60
12	Hired and entrepreneur	2	Partial	Does not produce	20,000	Own industry	SIE	20
13	Hired	1	Partial	Does not produce	5,000	Own industry	SIE	100
14	Hired	5	Self-sufficient	Partial	80,000	Own industry	SIF	80
15	Hired and entrepreneur	2	Self-sufficient	Does not produce	3,000	Own industry	SIM	40

[A]Extensive: flock maintained exclusively on pasture; Semi-intensive: flock kept on pasture with bulky and/or concentrate supplementation.
[B]LC: Lacaune; EF: East Friesan.
[C]SIM: Municipal Service; SIE: State Service; SIF: Federal Service.

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Results and Discussion

Inputs

Table 4 corresponds to the SWOT matrix for the inputs, which are essential for agricultural production and characterized as all material intended for production, including seeds, farm machinery implements, fertilization, and agrochemicals, among others (Batalha & Silva, 2007). The acquisition of quality inputs was considered a strong point in the analysis, which generates a strategy to enhance the strengths, both pointed out by the agents of the sheep milk production chain. One opportunity would be to jointly purchase inputs and technologies since the demands are similar and could be easily met. This can be done both to stimulate domestic production and to make consistent volumes available for importing inputs. On the other hand, there is a shortage of production technologies suitable for dairy sheep farming, which is considered a weakness, as it can reduce productivity and negatively affect the outcome of the activity.

Table 4
SWOT matrix for the inputs segment of the sheep milk production chain in Brazil

Segment	SWOT Matrix			
	Strengths	Weaknesses	Opportunities	Threats
Inputs	Concern about purchasing quality products	Production technologies	Joint purchasing policies	High initial cost of animals
	Use of inputs from other activities	Non-specific products on the market	Available breeding biotechnologies	High cost of products and equipment
	National Sheep Breeders Association	Low volume demand		Credit agencies are unaware of the activity
		Difficulty to importing specific products		

Sheep milk production is a fast production cycle activity since lactation may occurs every 8 months in ewes. In addition to milk, which is the main product, the activity is also capable of producing animals for slaughter and reproduction. However, as the number of producers is still small, there is little demand for genetic material, products, and equipment specifically designed for dairy sheep farming. This makes a company's investments less viable in allocating the production of a specific input for dairy sheep farming. This low demand for inputs entails a series of other factors that impact the activity and are identified as threats indicated by the sector's agents.

Production

In the production segment (Table 5), dairy sheep farming has a lot to grow in productivity, although its systems are more intensive than sheep meat farming when considering land occupation (Silva et al., 2013; Debortoli et al., 2022), generally presenting higher revenues. The strong point of dairy sheep farming is the greater scope of the activity since the ewe produces milk, which is destined for the production of cheese, yogurt, and other derivatives that have a greater market value than dairy products of other species, moreover, lamb also is an important revenue-generating product. On the other hand, this production arrangement requires a trained workforce for such activity that remains on the property. The high turnover of people involved in animal management is harmful, since the activity is carried out directly with sentient beings that get used to the standard of relationship adopted between man (handler) and animal, causing losses and a reduction in the economic result. Added to this, dairy sheep farming is an activity that is still not widespread and that does not manage to train a large number of people and, generally, it is difficult to hire employees with experience.

Table 5
SWOT matrix for the production segment of the sheep milk production chain in Brazil

Segment	SWOT Matrix			
	Strengths	Weaknesses	Opportunities	Threats
Production	Intensification of production by area	Untrained workforce	Insertion in family farming and related production systems	Instability in the sheep milk market
	Male lambs have a good market for meat production	Low production volume	Insertion in small properties	Break-even point between production and sales
	Sale of dairy ewes to other breeders	Low liter of milk/ employee ratio	Know-how of public and private research and extension bodies	
	Production infrastructure is simple	Reproductive seasonality and short lactation period	Sectorial Chamber of the Goat and Sheep Production Chain - MAPA	
	Ease of handling animals	Animal genetics and high inbreeding	FrenteOvino	
	Entrepreneurship of producers	Difficulty in adopting production technologies		
		Data control		

An alternative to the aforementioned problem is the use of family farming, mainly due to advantages related to labor, which may be one of the activities in rural properties with diversified production. In small properties, the production of sheep milk can be practiced due to the milk production, but also to the production of lambs and dairy ewes for flock reposition, products that have added value in the current market. This diversification of products to be marketed is related to the lack of constancy of the consumer market for sheep dairy products, which in Brazil is still incipient, to the point that there are no data related to consumption, creating a scenario that is considered as a threat.

Faced with these challenges, there are opportunities to take advantage of the knowledge of research and extension bodies, both public and private, to develop technologies and services aimed at sheep milk production. These agencies will be able to optimize the physical and human structure used in other activities and operate in the sheep milk production segment to develop specific products and technologies. For example, some technologies, machinery, and employees trained to work with dairy cattle can be used for dairy sheep farming, given the similarity of their management and production processes.

Processing

Processing (Table 6) is a fundamental sector in the food production chain, as it is responsible for transforming the product, guaranteeing its quality and durability (Monteiro et al., 2021). This process is important as it transforms a fresh product with a short shelf life, such as milk, into other products with shapes, flavors, and characteristics that are very different from the original product. In this process, appropriate technologies, equipment, infrastructure, and labor have to be used to meet sanitary standards and provide an acceptable product that can be changed according to consumer demand, as observed from the responses to the questionnaire, and in the SWOT matrix.

Most sheep milk in Brazil is transformed into cheese, in addition to yogurts, sweets, curds, ricotta, ice cream, and destined to fresh consumption (Nespolo et al., 2012). Among the strong points, a very important and favorable characteristic from the point of view of logistics is the capacity that sheep milk has to be stored frozen and, after thawing, be transformed into its derivatives (Park et al., 2007), due to the smaller size of fat globules compared to cow milk, for example. Thus, sheep milk has physicochemical and biological characteristics distinct from milk from other species (Park et al., 2007), requiring specific knowledge of these characteristics for the processing and production of derivatives. In addition, the lack of legislation and specific regulations for obtaining, storing, transporting, and processing sheep milk was considered a very big threat. The creation and implementation processes of these laws and regulations, in addition to being costly, are slow and discourage the producer, leading many times to give up the business. Another factor that enhances this threat is the low specific technical knowledge about sheep milk by most inspection bodies, responsible for the interpretation and application of legislation.

Table 6
SWOT matrix for the processing segment of the sheep milk production chain in Brazil

Segment	SWOT Matrix			
	Strengths	Weaknesses	Opportunities	Threats
Processing	Milk is freezable	Production technologies	Sectorial Chamber of the Goat and Sheep Production Chain - MAPA	Lack of specific legislation
	Simple production infrastructure	Difficulty in adapting to current laws	Frente Ovino	Low specific technical knowledge by the inspection bodies
	Use existing structures	Low production volume	Actions focused on handcrafted products	
	Processing together with milk of other species			
	Processing facilities			

Despite all the aforementioned difficulties, the sheep milk derivatives market in Brazil has been increasing due to greater acceptance of products by consumers and the organization of producers, who founded, in 2010, the Brazilian Association of Dairy Sheep Breeders (*Associação Brasileira de Criadores de Ovinos de Leite* – ABCOL) headquartered in Chapecó, state of Santa Catarina, with an important role in promoting sheep milk in the country (Penna, 2011). Given this, and as pointed out in the SWOT matrix (Table 6), the opportunity of this sector is in line with several movements to standardize artisanal products, which have been emerging in Brazil in recent years, with sheep milk easily considered as such. In addition, the existence of the Sectorial Chamber of the Goat and Sheep Production Chain (*Câmara Setorial da Cadeia Produtiva de Caprinos e Ovinos*) of Ministry of Agriculture, Livestock and Supply (*Ministério da Agricultura, Pecurária e Abastecimento* – MAPA), and the Mixed Parliamentary Front for Supporting Sheep and Goat Farming (*Frente Parlamentar Mista de Apoio a Ovinocaprinocultura* – FrenteOvino), which, together with ABCOL, were considered important organizations. They should support the sheep milk sector, processing actions regarding the creation and adequacy of regulations to meet the specificities of the sector.

Sale and distribution

After the production and transformation of the raw material, dairy products are destined for the consumer market, and both sales and distribution are

complex processes influenced by several factors (Table 7). The main factors influencing sales are consumer profile and point of sale. Distribution is influenced by the type of product, volume, distance, and place of sale (Rohenkohl et al., 2011). Both processes are important and should be planned from the beginning of the activity together with aspects of production dimensioning.

The data recorded so far indicate that sheep milk derivatives are produced on an industrial scale in the Western region of Santa Catarina, in the Mountain Range and Metropolitan regions of Rio Grande do Sul, in the Center-South of Rio de Janeiro, and in the South of Minas Gerais (Nespolo et al., 2012; Santos et al., 2021); ricotta, cheese, yogurt, dulce de leche and whipped cream are the main products produced in these processing units (Santos, 2016). One of the strengths is that sheep milk derivatives are considered differentiated, handcrafted products, and draw the attention of consumers for being different from the usual, those whose production base is cow milk. These products also have good palatability and general characteristics appreciated by consumers in exhibitions and tastings that take place at fairs and gastronomic events, as reported by sector agents. The sum of these factors results in added value to the products, generally with higher market values than dairy products from other species. On the other hand, the low scale of production is a weak point, important to be considered at the time of sale and distribution. Another important factor is the perishability of products such as fresh cheese, yogurt, and ice cream, which require very well-organized cold food logistics, as failure can lead to serious product losses, as well as changes in presentation and flavor characteristics.

Although low production can be considered a weakness, it generates a great opportunity for the sector, as there is practically no competition between companies and producers due to the large unexplored space, with a large consumer market to be conquered. However, the production-sale balance point is fundamental in the sale and distribution process. Thus, this aspect was considered a threat to the sector, since after a work of dissemination and good acceptance by consumers, the lack of product at some time can dishearten the customer. Accordingly, there is a lack of knowledge about the product and, therefore, a lack of consumption of sheep dairy products; in this context, people must look for products in emporiums and specialized stores and/or directly with the producers.

Table 7
SWOT matrix for the sale and distribution segment of the sheep milk production chain in Brazil

Segment	SWOT Matrix			
	Strengths	Weaknesses	Opportunities	Threats
Sale and distribution	Product differentiated by being made of sheep	Low-scale production - Distribution logistics	Low competition of products on the market	Break-even point between production and sales
	Value-added products	Perishability of some products	Search for innovative foods	Culture and unfamiliarity with products
	Lambs for the gourmet cuts market	Large supermarkets request the exchange of expired products	Increase in consumers of gourmet cow milk products	High value of products compared to derivatives of other species
	Palatability and nutritional characteristics of products	There are no quality brands with the designation of origin	Use logistics of other food products	Difficulty in legalization
	Production close to the consumer market		Food fairs and events	Imported products
	Contact with gastronomy professionals			

Conclusions

In Brazil, the dairy sheep production chain has several challenges to be overcome, mainly because the activity is recent and practiced in small flocks compared to other more traditional agricultural activities in the country; this leads to a small-scale demand for inputs, making it difficult to provide specific products, but which are expensive. In the production segment, milk, the production of derivatives, and the production of lambs for meat are faced with a lack of specialized labor and limitations regarding slaughter and commercialization. On the other hand, the small volume of milk produced generates opportunities for the sector, due to the lack of competition and the large potential market to be explored, especially in large centers, where the population has greater purchasing power.

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