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Strategic Actions for a Sustainable Internationalization of Agri-Food Supply Chains: The Case of the Dairy Industries from Brazil and Germany

Caetano Luiz Beber [1,*], Greta Langer [2] and Johannes Meyer [2]

[1] Department of Agricultural and Food Sciences, University of Bologna, 40126 Bologna, Italy
[2] Department of Agricultural Economics and Rural Development, University of Goettingen, 37073 Goettingen, Germany; greta.langer@uni-goettingen.de (G.L.); johannes.meyer@agr.uni-goettingen.de (J.M.)
* Correspondence: caetanoluiz.beber@unibo.it

Abstract: While facing a growing domestic demand of milk and milk products, the Brazilian dairy industry is far behind in terms of competitiveness and sustainability when compared to other national agricultural sectors. Nonetheless, in Germany the leading dairy companies mainly pushed by a saturated domestic market, EU agriculture policy oriented to liberalization of markets, and increasing political and social demands are looking at markets beyond EU. In the context of the increasing globalization of agricultural supply chains, the issue of sustainability gains particular importance in companies' internationalization strategies. By using expert interviews, this paper investigates strategies for integrating Brazilian and German dairy supply chains and how both sides can benefit from this situation also in terms of sustainability. The analyses show that problems of the industries in both countries basically complement each other at different levels and positive synergies for both sides exist when it comes to sustainable issues, positioning themselves competitively for the future and creating a good position for conquering market shares in a globally growing milk market. This paper proposes an approach for the challenges of such integration, as well as viable solutions to sustainability issues.

Keywords: dairy value chain; dairy industry; internationalization strategies; sustainable internationalization; German dairy supply chain; Brazilian dairy supply chain

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1. Introduction

International trade is framed by a set of rules and norms defined by international or bilateral agreements which companies doing business beyond their frontiers must respect. However, in addition to such rules and standards, companies are also urged to adhere to contemporary social values as well as environmental and moral principles and norms, which societies consider to be adequate in different parts of the world [1]. These issues have led to a discussion in recent years about the role of companies in society and the ethical foundations of economic management. These discussions gained greater prominence with the publication of the (SDGs) by the United Nations, which have further concretized the idea of sustainable development and the responsibility of the value chains.

Therefore, sustainability in its three pillars has become one of the most important topics of our times and inevitable for enterprises of the agriculture and food industry. A corporate policy without a strategic and corporate cultural orientation towards responsible, sustainable management is no longer conceivable, at least in developed countries [2–4]. Sustainability is becoming a basic requirement for internationalization and any internationalization strategy would thus involve the implementation of sustainable strategies.

Further than pressures for sustainable practices, the globalization and liberalization of markets have resulted in increased international competitive pressures on agri-food

supply chains in recent decades. Several agri-food multinational companies are entering developing countries, seeking opportunities to access new resources and market expansion in light of their market saturation at home. Depending on the way it is conducted, such internationalization process can either bring benefits to the guests and to the host region in the developing country, or only be a form of neocolonization, and the literature shows evidence of both [5–7].

From one side, in the absence of regulation in global value chains, dominating multinationals can pursue only outsourcing strategies, which generally do not generate the benefits otherwise possible. These companies act to take advantage of weak institutions, low wages, and less strict environmental laws in developing countries, simply to expand their power and market share with no or very little compensation to their hosts [8].

From the other side, a process of supply chain modernization can exist within the host region. This might represent a strategic opportunity, since such multinational companies can provide not only new sources of foreign direct investments (FDI), revenue, and employments, but also access to modern technology, knowledge, and sustainable practices [9].

The scientific link between the internationalization of value chains in the form of FDI and sustainability is an area that has been little studied. There are studies such as those by Zanin et al. and Favarin et al. [1,10] that focus on the development of sustainability in the Brazilian dairy industry, but they do not address the opportunities for internationalization processes. On the other hand, there is research on the supply chain management of different industries discussed in the context of global value chains and multi-stakeholder initiatives, but with little or no focus on sustainability aspects [11,12]. For example, the study by Dambert et al. [13] considers "socially responsible supply chain management" but focuses only in parts on the internationalization processes. The study by Taqi et al. [14] identifies strategies to manage the impact of the COVID-19 pandemic in the supply chains of the readymade garment industry and also refers to economic and social sustainability, but not in the course of new internationalization processes. Naseer et al. [15] examined sustainable supply chain management strategies for the agricultural sector in a developing country, but they focus on identifying critical production and marketing constraints. Most of the studies do not combine the possibilities and opportunities that arise during the internationalization process, although global value chains are seen as having great potential for achieving more sustainable development [16]. Antonowicz and Jarzebowski [17] also point out that integrating value chains and sustainability represent a new direction that has been little researched. In light of these different situations and to fill this research gap, the aim of this study is to investigate how a process of internationalization in the agri-food sector could be conducted in a sustainable manner, benefiting both the host region and the multinational company. Our goal is to define a framework that supports managers and decision makers in achieving fair and sustainable practices in the dairy industry during the internationalization process. We therefore focus our analyses on the dairy industry in a developed country, Germany, and an emerging country, Brazil, with the aim of identifying the constraints and success factors of the dairy industry in both countries and suggesting ways to connect and develop them.

Brazil is a strong player in the agri-food business scenario. The country is amongst the most competitive players in today's international markets in sectors such as soybean, sugar cane, cattle, and poultry. However, there is a non-competitive dairy industry that has not benefited from this change or has benefited only marginally from it [18,19]. Furthermore, Brazilian agriculture and dairy farming in general is not considered particularly sustainable and faces major challenges regarding sustainable development practices and critics from its main importing countries. The issues of sustainability are increasingly becoming a decisive competitive factor for the agri-food sector as a whole, and particularly for the dairy industry [20,21]. According to zu Ermgassen et al. [21] (p. 21), in Brazil, "productivity is still well below its sustainable potential", and "improvements in cattle productivity are key to the sustainable intensification of Brazilian agriculture".

Weak institutions and educational systems together with corruption are keeping the country one of the main targets of developed countries regarding the externalization of their environmental impacts related to agrifood production [22,23]. Forbidden pesticides, GMOs, deforestation induced by the soybean-meat complex, contamination of surface and groundwater, and biodiversity losses are recurring problems in Brazil that need solutions conceived at the global value chain level, from global institutions and governance [24,25].

A completely different situation can be found in Germany. The German dairy industry is among the biggest exporters worldwide. However, it faces certain challenges in the future which will make it more difficult to gain and maintain market share. On one hand, this is due to the fact that resources for milk production, such as arable land and labor, are scarce and milk production is in competition with other types of production with better opportunity costs. On the other hand, societal requirements on production conditions related to sustainable aspects, such as environment and animal welfare, are stricter, increasing production costs. Under certain circumstances such additional costs may be recovered on the domestic market for specialty products, but that certainly does not apply to the mass-produced commodities on international markets with low margins, which are the base of German exports [26].

In this study, we investigate whether it is viable for the German processing companies, which are adapted to high standards of quality, safety, and sustainability in the EU, to act as diffusers of such practices and standards throughout their internationalization process. To implement sustainable strategies (that are expensive) in a country where the resources are cheaper (e.g., Brazil), maintaining the strict social and environmental requirements from Germany is necessary, but so is reducing other costs, such as land, labor, water, and feed.

Keeping standards high and reducing costs would allow these companies to keep their market share in exigent markets, at least for some products. Moreover, a successful implementation of sustainable business strategies opens up greater differentiation potential for companies [27,28]. With the increasing interest in sustainability, companies are expected to extend their sustainable supply chain management beyond organizational boundaries and address these issues internationally [29].

With an extensive survey of the main actors in the supply chains of both countries, this study searches for viable solutions to a sustainable internationalization process, focusing on practices that lead to an increase in overall competitiveness. The paper is organized as follows. After the introduction, we present a theoretical background in Section 2. In Section 3, we describe the applied methodology and introduce our sample. Next, in Section 4, we derived possible combined solutions for the Brazilian and German dairy supply chains with regard to a sustainable internationalization strategy, which in the best case represents a win-win situation for both sides. The paper ends with a conclusion and provides implications for political support in Section 5.

2. Theoretical Background on Internationalization Strategies

The basic framework of internationalization consists of the analysis of the driving forces of internationalization and the different sources of competitive advantages [30]. Diverse forms of market entry and strategies can be identified. Their choice is crucial, as different markets often require very different forms of products and services [30]. In this regard, Capar and Kotabe [31] simply described internationalization as "international diversification". However, given the complexity of the issue, this definition is not sufficient for the purposes of this paper. Basically, we can distinguish between three forms of market entry [32–34]:

- A traditional export (or a cross-border trade), where companies simply export their products to a foreign country. This involves the lowest expenditure of resources and the lowest risk. Exporting is described as a simple strategy, and therefore it the most common first market entry strategy in the course of internationalization.
- Contractual arrangements (licensing, franchising, strategic alliance) are concluded between at least two business partners. They require more resources and are associated

with higher risks. However, they can also promise higher profit potentials, even if equity investments are not always possible

- Foreign direct investment (FDI), which can be implemented in the form of joint ventures, minority shareholdings, and new wholly owned subsidiaries, requires substantial investment and a very strong commitment in the host country. In this case, a company from one country invests in another country, either in the form of capital and/or tangible assets.

Since this study investigates whether it is possible to conceive a framework in which the internationalization of a supply chain generates a win-win situation, we will assess the more advanced and complex market entry mode, the FDI. Here, the resource allocation is greater, investment and engagement take place in the host country, and subsidiaries have the largest potential to achieve above-average returns [30,35]. With this strategy, companies can secure total control over their foreign operations and protect their unique competitive advantage. The profit achieved by the competitive advantage is also claimed by the company alone [36].

According to Dunning and Toward [37], companies choose market entry via FDI if three specific factors are fulfilled.

i. Ownership specific advantage: In order to operate internationally, a company must have an advantage over companies in the host country in order to be in an advantageous position over competitors (e.g., intellectual property, assets, logistics channels, early entry into foreign markets). The greater this ownership advantage, the greater the incentive to internationalize.
ii. Internationalization incentive advantage: This is present when the company-specific advantages at the targeted location cannot be marketed directly through licensing or similar forms of cooperation. In this case, the only option is to establish a local subsidiary or to take over a local company.
iii. Location specific advantage: If the destination country offers a location advantage (e.g., low factor prices, access to resources), an FDI via subsidiaries is recommended. The location advantage is regarded as the decisive factor. Dunning [38] has expanded this factor to include other influential factors, namely cultural differences, political regulation, exchange rates.

With this in mind, we can distinguish between the degree of intensity of a company's internationalization, which also reflects the maturity of its internationalization strategies. To illustrate this issue, we refer to the Ethnocentric-Polycentric-Geocentric (EPG) model [39] and its extension, the Ethnocentric-Polycentric-Regiocentric-Geocentric (EPRG) model by Bartlett and Ghoshal [40] (see Figure 1).

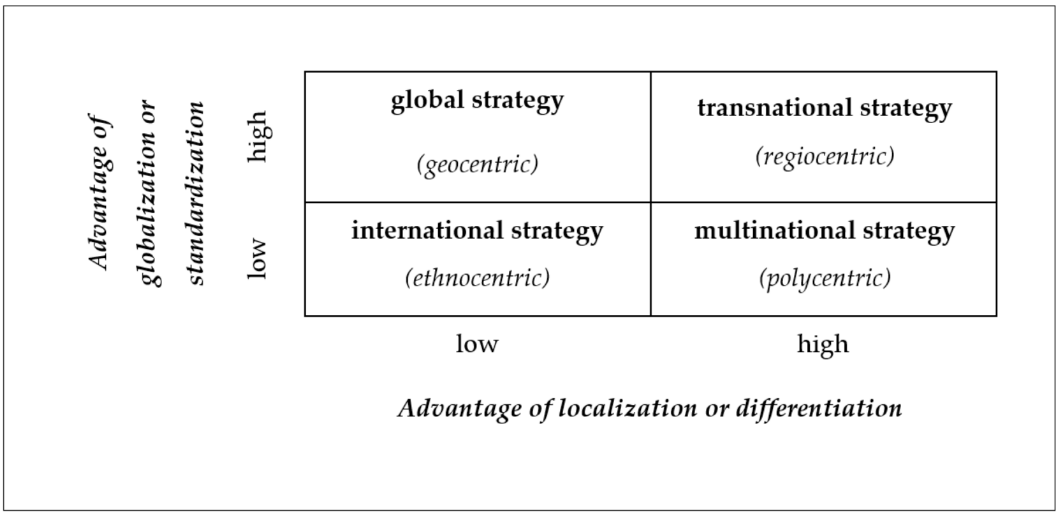

Figure 1. EPRG Model. Source: Author's own depiction based on Holtbruegge and Welge [41].

The expanded EPRG model differentiates between four internationalization strategies with regard to their advantages through globalization and standardization, as well as through localization and differentiation [42]. The most complexes are generally only achieved after years or decades of a company's experience in internationalization.

(a) The companies that follow the international (ethnocentric) strategy process their products exclusively in its own country, design products for home market purposes, and tend to transfer marketing strategies to export markets. Foreign companies are only used for marketing and distribution. Accordingly, the foreign trade of these companies is carried out by simple export. Decision-making tends to be top-down with decisions handed down from domestic-oriented managers.

(b) The multinational (polycentric) strategy is characterized by companies having their production and processing sites abroad, focusing on each export market separately. It is necessary to adapt national circumstances abroad. The plants are located in more distant countries and partially on other continents. Decision-making is bottom-up, as the information needed for strategy setting is generated in each market. Products are designed for each market and strategies are mostly adapted.

(c) The transnational (regiocentric) strategy focuses on the complex structure of the organization. It is based on regional homogeneity and inter-regional heterogeneity. Products are designed with regional homogeneity taken into consideration, but they differ across regions. Other elements of the marketing mix are standardized within- and adapted across-regions. This strategy has the strength to unite the resources and capabilities of a company through interdependencies. Some resources and capabilities are controlled from the home country other activities from the foreign subsidiaries. It can combine the advantages of globalization and localization. Value-adding activities that are in direct contact with customers are to be carried out decentrally in the national markets with the respective adaptation. However, all other activities must be centralized, with the aim of realizing volume benefits. Procurement, production, as well as research and development (R&D) for the standardized parts in the products that are commercialized in all countries are to be localized where the framework conditions such as factor costs are the most advantageous. The transnational model focuses equally on costs and revenues, as well as on innovation and efficiency [27,40,43,44].

(d) Companies that follow the global (geocentric) strategy base their operations on a global organizational culture also having branches abroad [39]. These companies offer standardized products abroad while pursuing a competitive strategy driven from home. Decision-making is typically negotiated between headquarters and foreign operations. Products are designed for global markets and marketing strategies are standardized globally, though minor adaptations are possible.

3. Materials and Methods

The research was conducted in the main producing zones in both Brazil and Germany, where qualitative primary data were collected concerning the competitive advantages and disadvantages of each supply chain (see Figure 2). For the former, data were collected between November 2016 and January 2017 in the Southern Region, in three states that form the 'mesoregion Grande Fronteira do Mercosul (The mesoregion comprises the Southwest zone of Parana, the West of Santa Catarina, and the Northwest of Rio Grande do Sul.) (GFM)'. For the latter, data were collected between April and August 2018 in the two main dairy producer states, Lower Saxony and Bavaria.

Figure 2. Methodological steps of the research.

A total of sixty-four interviews were conducted across a spectrum of leadership roles in the dairy industry; twenty-six in Brazil and thirty-eight in Germany (see Table 1). We

interviewed managers, directors, and presidents of the main dairy processing cooperatives and private companies (all large and medium enterprises), in addition to the leadership of institutes, associations, unions, and producer organizations involved in the dairy sector. We intended to collect opinions from different perspectives in this economic activity.

Table 1. Interviewed stakeholders in Brazil and Germany.

Country	Farmers	Political Association/Union	Producers Organization	Upstream; R&D; Advice; Supply	Downstream; Processing; Retail	Total
Germany	10	8	3	12	5	38
Brazil	no	9	2	5	10	26
TOTAL	10	17	5	17	15	64

We selected the interviewees according to the snowball sampling method. This constitutes a non-probabilistic sample, used to study complex phenomena. A first subgroup of the population is interviewed, who again identify other members of the group, who, in turn, refer to further people belonging to the same group, and so on [45].

The actors were separated according to their activities in the supply chain (similar issues and support for competitiveness). They are:

(1) Farms (FA)
(2) Political (association/union/government) (GOV)
(3) Producers' organization (PO)
(4) Upstream actors (research and consulting, services, extension) (US)
(5) Downstream actors (processors, retailers) (DS).

We chose the main companies with operations in the region and the main institutes carrying out important actions to promote the supply chain. Some of the companies or cooperatives interviewed are the largest in the zone, in some cases representing more than 6000 producers in GFM or more than 8000 in Lower Saxony for example, and covering areas in more than one state. When considering the subsidiaries, associations, and alliances, they are all on a larger scale and these organizations are usually dispersed all over the country. For confidentiality purposes, the interviewees are identified throughout the results by their acronym ("PO" for producer organization for example) followed by the country acronym (BR for Brazil and GE for Germany), then followed by an identification number. For example, the Producer Organization 02 in Germany is identified as "POGE02". dispersion

Farmers were only interviewed in Germany. In Brazil, they were not interviewed because of the high heterogeneity of production systems throughout the zone, the large spreading of small farmers and limitations for the data collection within the project. We chose the German farms based on their competitive strategies. Different types of strategies were selected as long as they remain competitive/stable in the market. Farms were selected with the help of upstream actors, i.e., research and consulting institutions, and service providers, which are in direct contact with the producers.

Data were collected using semi-structured interviews, which were individually prepared and guided to avoid missing important aspects from each respondent. Questions varied according to the participants targeted, being adapted to the type of stakeholder, interviewee role in the enterprise or association, the operating scope, and region. Therefore, some questions asked to a farmer were not all equal as those asked of a president of an association, a processing company director, or even another farmer from a different region. All questionnaires followed the same criteria, focusing on the strengths and weaknesses for the sustainability of the dairy supply chain in which he/she operates. They covered aspects of the background information of those interviewed and their relation/influence on the supply chain with an historical perspective; structural and organizational aspects; management aspects; governance environment; market dynamics and external factors; technology adoption and diffusion; attributes of purchased raw milk; product differentiation and commercialization channels; future expectations and actions. The intention was to

capture the main problems and strategy factors that might have any effect on sources of competitiveness and coordination between actors in the supply chain. Ten interviews were conducted in Rio Grande do Sul, eight in Santa Catarina and eight in the state of Paraná, showing a uniform spatial distribution within the GFM zone. Similar action was taken in Germany, with seventeen interviews conducted in Lower Saxony, sixteen in Bavaria, and five at the national level. Each interview lasted around one and a half hours on average. In a few cases, more than one person from the same institute or enterprise were interviewed.

After collection, the information was transcribed, and a content analysis of the qualitative data was carried out using the software ATLAS.ti. This included codification, a first round of analysis and recodification. We identified how the elements are related to each other and how they affect the competitiveness of each zone. From this process and from the fundamental topics investigated in this study, the competitive advantages and disadvantages emerged (according to the interviewees' perceptions). As a result, several factors were identified that directly or indirectly affect competitiveness in these supply chains and we will discuss them in order to answer the question of whether there can be a win-win situation for both countries in an internationalization process. By combining the expertise of the experts interviewed, we can also identify more recent problems, strengths, and weaknesses in the dairy industries in both countries and all of this in a much higher level of detail and with aspects that are not available when using secondary data.

Whether and under what conditions an internationalization strategy can become a win-win situation for both sides is discussed in the following chapter.

4. Results and Discussion—A Sustainable Internationalization Strategy

GFM is a fast-growing region where large companies have been installing processing plants. For instance, Nestlé installed two plants in 2008 and 2010. Lactalis arrived in 2014 and is already the largest group in GFM. Other large companies include Tirol, Italac, Piracanjuba, etc. The largest cooperatives are CCGL, installed in 2008 and Aurora, which started processing milk in 2004. All of this provoked controversy among interviewees. Some believe that these companies will develop the dairy sector by stimulating improvement in techniques to achieve greater competitiveness. They affirm that "the entry and expansion of large companies increases the competitiveness of the sector" (USBR02) and it "brings improvements in competitiveness, boosting production and innovation" (DSBR05) so that the sector is " ... becoming competitive, professional instead of familiar and that raises the prices [for producers]" (DSBR02). Others think that these companies harm the smallest ones and bring about negative consequences by establishing a monopsonist position in milk procurement from some areas and therefore have an anticompetitive effect.

Furthermore, as profit margins decline, increasing concentration is inevitable in order to spread fixed costs and remain competitive [46]. Porter [47] considers that rivalry generates pressure on competitors and stimulates sustainable growth to maintain competitive advantages. The process of concentration and internationalization is inevitable in the modernization of a supply chain, but these processes should happen in a fair way, especially for small producers who are the most affected [8]. This is often limited in monopolistic situations and particularly in the case of companies' opportunistic actions. In this case the consequences of monopolies would be lower returns to farmers, increase risk in farming activities and cut-off more farmers and small companies, especially cooperatives, as demonstrated by the studies [16,48] on dairy processing companies in southern Brazil. In this regard, mergers and acquisitions of small companies would be an important strategy to realize gains in scale and bargaining power. Interviewees mentioned that " ... there is a tendency for any merger between cooperatives to compete in scale" (DSBR01) and to improve their cost structure and reduce idleness in processing plants through more efficient planning [16]. Despite interviewees' awareness, there is not much evidence of these mergers in GFM, which should occur faster and involve more cooperatives [48]. Various successful examples of mergers and acquisitions all over the world reinforce this strategy, e.g., the case of Fonterra, DFA, FrieslandCampina, and Arla.

We subdivided the remainder of this chapter between the main issues that German processing companies should consider upon their decision of entry in GFM. We discuss the main challenges present in GFM dairy sector and the possible solutions based on the German dairy companies' capabilities extracted from the interviews.

4.1. Market Entry Strategy and Organizational Forms

Companies wishing to expand their operations to other countries would have to decide on the best suited **internationalization strategies** according to the EPRG model. The benefits of locality and differentiation seem to exceed those of globalization and standardization in terms of the economic success of dairy companies which internationalize their activities [49]. The quick perishability of dairy products is a natural reason why many dairy firms do not follow the Perlmutter's 'international strategy' for trading with distant markets. Other reasons also favor different alternatives. For instance, firms following the 'multinational strategy' appear to have advantages in considering the local demand conditions and build up brands that will lead to higher turnovers [41,50]. Qian [51] confirm the positive effect of this strategy on the companies' economic success. A successful example is the Arla cooperative dairies like Arla, which have been implementing the multinational strategy in several countries. For the German cooperatives, the major obstacle in this respect could be the risk attitude amongst cooperative members and managers [52]. In Germany, there are differences in **governance structures** concerning cooperatives. The two largest German cooperatives, Bayerische Milchindustrie eG and DMK, have created a governance system, which means that farmers, the actual owners, no longer have any influence on the operative business. Such governance structures also have mechanisms to attract external capital, which might enable them to raise the necessary capital for such a step. *"At DMK there is a cooperative and a company at the head of the company. The cooperative collects only the milk and receives money from the limited liability company (GmbH), which it distributes to the farmers. Thus, the farmers, who are at the head of this cooperative, cannot influence the GmbH" (GOVGE04).* Theoretically both cooperatives and private German dairies are in a position to establish themselves in GFM to develop their internationalization strategies. For the time being, an entry into the Brazilian market, at least in the short term, is likely to be easier for some German private dairies due to governance structures and to the high demands in terms of equity endowment and financial power [53].

Particularly in view of existing idle capacities, market entry through takeovers or mergers seems in this case to be a strategical opportunity. Processing companies in Brazil face high **idle capacity** rates in their plants and this affects processing plants that do not have sufficient milk suppliers, cannot manage the seasonality, or simply because of an excess of infrastructure or poor management and planning, as shown by [16]. Seven interviewees noted this problem. "Many industries are still working with idle capacity, which 'weighs' the production system" (GOVBR09). They mention that "this idle capacity is very costly" (USBR03), generating losses and inefficiency.

Considering Dunning's OLI model, all three **advantages** that must be present in order for a company to enter the market through FDI [37] can be considered for the GFM region. The first advantage, the 'ownership advantage' is based on the fact that German dairies have a technological advantage and can produce low-cost products on the one hand and highly differentiated products on the other, which puts them in an advantageous position over competitors. In addition, if establishing subsidiaries there or taking over another company, German companies would have an early presence in the GFM region, giving them an 'internationalization incentive advantage'. The last factor, the 'location advantage' of the target country, is also to be seen as fulfilled: access to natural resources, good climatic conditions, cultural proximity, and favorable human capital. FDI is thus considered a good opportunity for German dairies to expand their capabilities to Brazil.

4.2. Business Strategy

In terms of business strategies, GFM and Brazilian conditions allow companies to implement both a **cost leadership** and a **differentiation strategy**. On the one side, the internal market has a high demand potential, and so far, a low offer of differentiated products. On the other hand, low prices for inputs, labor, land, and good climatic conditions offer an attractive scenario for cost leadership strategies and scale gains with the focus on exports. Both strategies are found among German dairies, which is also demonstrated by Theuvsen and Ebneth [52]. The cost leadership strategy is usually implemented by large cooperative dairies from the north, while private dairies from the south of Germany pursue a differentiation strategy. *"There is a big difference in Bavaria, because compared to Lower Saxony, there are special types of cheese there. Bavaria offers more specific products than northern Germany with standard cheeses and skimmed milk powder that anyone can produce. They have higher costs but in the end they also have better products. When you think of the German milk market and the well-known brands, they are particularly Bavarian" (GOVGE01).* They offer products with unique attributes such as well-known brands, superior product qualities, environmental or regional appeal. The most important types are organic milk, non-GMO milk, hay milk, grazing pasture milk, mountain milk, the *Geprüfte Qualität Bayern* label and the animal welfare label. Lower Saxony dairy companies primarily pursue a cost leadership strategy and try to use favorable production conditions to sell their products on the world market. This is demonstrated on the one hand by the significantly higher export share of their own production compared to Bavaria (6.8% of German exports). *"The dynamics and relations with the producers in Lower Saxony are quite different from those in Bavaria. In general and controversially, the cooperative does not have the same concern for farmers: 'There are far fewer competitors, there are some private companies and cooperatives, but DMK is the dominant one" (DSGE02) "Many dairy companies have brands with high innovation potential and we find that in Germany, in southern Germany, Bavaria is still the region with the highest milk prices, because of these high value-added products, but farmers have many opportunities to change dairies too (supplier competition) (DSGE03)".*

Due to the fact that companies will strive for high value creation and that production costs in Brazilian dairy production are still comparatively high due to some fundamental problems in the dairy sector in Brazil (related to low technology adoption and small farm size, for example), companies entering the market could largely benefit from implementing a differentiation strategy focusing on the internal market potential. In addition, the companies could advertise with their German origin, which enjoys a high international reputation and is linked to attributes, such as high quality, food safety and sustainability, even for mass production products [26,54–56]. Our results show that only two interviewees confirmed that their companies in the GFM region had implemented product differentiation as a strategy. A further four believed that companies had difficulties in differentiating products but should do so to increase their profits. More specifically, *"micro and small companies should differentiate products in order to have gains in the niche markets" (GOVBR05).*

In terms of investments, five interviewees, representing large cooperatives and private companies, argued that there is low level of **investment** in the GFM sector, especially in **marketing and research, technology, development, and innovation (RTDI),** which is an important aspect for successful differentiation as evidenced by Beber et al. [19], and largely dominated by German dairies' managers. Brazilian managers still consider marketing an expense rather than an investment, arguing that *"there is a very poor culture of investment in RTDI and marketing" (GOVBR07)* as a consequence of non-professionalization in the chain. Only six participants mentioned marketing as an important investment. Seven participants affirm that they **invest in RTDI** to improve competitiveness, however *"there is still a huge gap to improve and create more products. Companies should also diversify the presentation of products, types and sizes of packages" (GOVBR02).*

The concentration in the supermarket sector should support the differentiation strategy. Though it has consolidated rapidly in Brazil over the past years. In 1994, the 10 largest supermarket groups had 24.3% of market share, while in 2018 the 10 largest have 42.2%,

it is far less concentrated then in Germany (five large retailers in Germany accounted for 76% of market share in 2019) [57–59]. Accordingly, manufacturers' negotiating position vis-à-vis food retailers is comparatively more unfavorable in Germany [60]. In view of lower concentration levels in the Brazilian retail sector, this should have a positive impact on the dairies' bargaining position, which may have a positive impact on conditions, such as the prices, placing, and listing of products.

4.3. Professional Training and Sectorial Development

Regardless of the dairy's organizational form, any market entry would require simultaneous support and advice from processing companies to their suppliers, especially with regard to production technology and professionalization. One of the first measures on which processing companies have to work, is to enhance the quality of the milk produced by the farmers. The **low professionalization of human resources** in production and processing levels in the dairy supply chain may be the principal cause of several other problems [19]. Fifteen interviewees agreed that one of *"the weakest points in the chain is the professionalization of farm management" (DSBR06)* and that this significant problem needs to be fixed. For example, these are leading to low *"**quality and sanitary** indices, which must be improved in the supply chain" (DSBR05).* These indices are too *" . . . variable and difficult for industry standardization" (DSBR08).* Farm, herd, and feed management parameters must be controlled and be viable to ensure competitiveness for farmers and the whole sector. Besides controlling for several problems during milk processing, higher quality ensures better products and improved market access [24]. Ten interviewees agree that an improvement of these parameters is essential. The implementation of inspection and quality control systems will be especially important if the industry aims to reach international markets. *"In order to export, the country has to develop a program of quality improvements to reach the international standards" (GOVBR02).* If quality standards cannot be improved, there is a risk that German companies will jeopardize their good reputation, or that of their brands, and cause themselves considerable damage. This process has to be led by processing companies but coordinated with local advisory and consultancy institutes. Programs for the payment of farmers' milk based on quality and solids would be essential. Payments for quality and solids are incipient in the region but are growing with the instalment of new companies, e.g., *"there is a tendency for payments per quality and solids because that's only what interests in milk production" (USBR03).*

In order to attract farmers interest in investing in technical progress and sustainable and quality-improving practices, the importance of a good **contracting system** should be enhanced. Its benefits then need to be communicated to farmers, with the aim of ensuring their loyalty and compliance to the quality requirements. It gives farmers the opportunity to improve, can reduce price variations, increase farmers' incomes, promote rural development, and build up access to global markets, as revealed by various studies about contract farming [60–63]. In Brazil, most transactions are still done on the spot and the **establishment and enforcement of contracts** between producers and processors is one of the most frequently mentioned problems. Almost all the processors interviewed stated that they currently work without contracts with producers. Some of them had used contracts in the past but not anymore. *"There is also a problem with the seasonality of production, which makes it still harder to sign contracts" (DSBR05) where " . . . production and prices are instable along the year." (GOVBR02).*

With contracts and quality parameters established, training and advisory would be required for the achievement of higher standards. German dairy professionals have significant experience with farmer training and advisory. The German Agricultural Information and Knowledge System (AKIS) is made up of a wide variety of organizations and institutions with a long tradition and well-established roles. All categories of organization (public administration, public and private research and education, private sector, farmers' organizations, and non-governmental organizations) are represented. In Germany, the dairy supply chain, and agriculture in general, developed and received high levels of support.

Investments in R&D and the system of vulgarization are very functional and effective. The use of public and private technical and economic advice seems to be quite sought after by milk producers. *"There are a handful of consultants, people who are important to us (FAGE04)." " . . . we are all well-educated and you need a consultant because he has accurate data on other farms (FAGE08)".* In Germany, 65% of all farm managers have completed vocational training in agriculture, while 12% have a university degree [64]. This is translated into an impressive **management capacity and economic monitoring** among the German producers, with strict monitoring of the farms' techno-economic indicators. Furthers actions involve the ease of operationalization of certain activities, gains in technical and allocative efficiency, reduction of labor costs, choice of more suitable breeds and outsourcing activities, among others. *"Cost reduction is the most important task to maintain or improve the competitiveness of a dairy farm. Get the best with the least effort possible." (FAGE06).*

Figures in Brazil show a different situation at the moment, with only 1.3% of farm managers having vocational training (agriculture technician) and 4.2% holding a university degree. Agricultural vocational training is not widely developed across the country [46]. R&D should be further enhanced jointly by companies, universities, associations, extensionists and other R&D institutes for the identification and development of best practice, breeds, production systems, feed, etc. In GFM, institutes such as EPAGRI, EMBRAPA, EMATER, and universities, etc. have already developed important work in this regard and contributed to the improvement of dairy production parameters over the past few years. Some companies in GFM are already investing in R&D to generate better technology for the sector. A few *"release new products every year, have a department of innovation and R&D" (DSBR05)* or even run *"[on the cooperative] an experimental center to develop technology for pasture-based milk production. Also, some have an experimental dairy farm" (DSBR01).* Those practices must be further supported by German processing companies in order to take advantage of the full potential that the GFM resources have to offer.

In the course of FDI, companies from abroad are often criticized for doing too little locally for health, occupational safety, and environmental protection. The public and customers expect them to produce to a relatively uniform social standard worldwide [7,26]. Therefore, despite the progress made in this area, German dairies planning to enter the Brazilian market should start by training their employees and, if necessary, the farmers themselves to be made aware of the issue. This can be a win-win situation for both sides, as the effective development of a supply chain is only achieved through the work of qualified professionals. In addition, this might contribute to the achievement of the UN SDGs, in especial SGDs 1, 2, 12, and 13, implying the safeguarding and promotion of lifelong learning opportunities. This goal could be achieved in the course of German FDI, at least for Brazilian dairy farmers. German firms could try to bind employees to the company by offering them vocational training and in return, committing them to work for the company for several years. In this regard, the ongoing Deula exchange program is a good example, in which Brazilian farmers learn on German farms. The educational institutions affiliated in the Federal Association DEULA e. V. belong to the most important regionally and supra-regionally active agricultural technical educational institutions in Germany. These could be further promoted and supported by the dairy companies in order to improve both education standards and performance on dairy farms. In this way, small producers could also receive support and access to agricultural training.

In contrast to other regions, which are also forecast to experience strong growth in milk production and demand, GFM offers German dairies in particular the advantage of cultural proximity. Despite the declining trend, many people still speak German (descendents of German immigrants). This aspect and the cultural proximity should have a positive effect on the training and exchange of employees and farmers.

4.4. Sustainable Supply Chain Management

In terms of sustainability, the Brazilian agriculture, and in particular the dairy sector is facing major challenges [29,65]. Brazilian agriculture has failed to achieve sustainable

development in recent years, primarily due to large-scale deforestation of the rainforest for agricultural use. According to [66,67], the awareness of sustainable farming is still low in Brazil, although the Brazilian government had already introduced a program to promote climate-friendly agriculture practices in 2010 (Low Carbon Agriculture or ABC program) [66]. This program was one of the first of its kind, but has been slowed down by excessive bureaucracy, excessively high interest rates, political disinterest of the actual government, and low public awareness [29]. Zanin et al. [1] highlights that punctual initiatives of quality and sustainability are found at the company level, or in the case of some short duration regional actions. The program "Balde Cheio" (or Full Bucket in English) from EMBRAPA (Brazilian agricultural research company: https://www.embrapa.br/balde-cheio accessed on 23 January 2021) is the main program of technological transfer at national level for the dairy sector, in which farmers receive information on environmental and animal welfare practices. In Brazil, public regulatory standards set requirements of milk quality. The Normative Instructions 51, 62, 76, and 77 of the Federal Government regulate such standards in Brazil, which are inspected by the "Brazilian System for the Inspection of Products of Animal Origin-SISBI-POA".

German dairy companies have the opportunity to extend their knowledge beyond organizational boundaries and to implement sustainable supply chain management in the Brazilian dairy industry due to their great deal of experience in **quality and sustainable supply chain management.** The main mechanism for quality management in Germany is the QM-Milch Association (Qualitäts Management Milch). The majority of German farms are part of this scheme, *"over 90% in some regions, must meet these standards of quality milk. It's a neutral certification, neutral auditors go to the farms. If you do not meet the QM standard for milk, especially in northern Germany, you will not find a dairy that collects your milk (GOVGE01)"*.

Its foundation in 2011 dates back to an initiative of the German farmers' association Bauernverband, the German Raiffeisenverband, and the Milchindustrie-Verband. These three associations-supported by the dairy industry as a whole-laid the groundwork for uniform management of milk quality nationally in a working group in 2002. This association sets strict quality standards for milk production, which apply uniformly throughout the country. Standards are "business-to-business" between milk producers and dairies-from pasture and barn to delivery to the dairy, the first stages of the production chain. With its standards, QM Milch ensures that not only the quality of the product is guaranteed, bu the entire production process is transparent and traceable. These standards specify requirements that go beyond legal requirements and the requirements of good professional practice. In addition, the Thünen Institute, together with QM-Milch e.V. and other representatives of dairies, producers, and supermarkets, developed a more comprehensive dairy production sustainability assessment tool. It integrates aspects of quality, environment, animal welfare, and socioeconomics in a tool that has the purpose to enhance sustainability for the whole supply chain. Due to the positive response of this pilot project, the industry solution "QM Sustainability Module Milk 2.0" has been continued for another three years since July 2020. Both modules, QM-Milk and QM Sustainability, make an important contribution to high-quality and sustainable milk production, and thus to the competitiveness of the German dairy industry [28].

Since the creation of such a standard is a lengthy process, dairies entering the Brazilian market pursuing stricter standards would initially be left to their own devices to set standards and control them. However, German companies have experience in company-owned initiatives, such as the "Milkmaster" program or "sustainability program" of the DMK cooperative [68] for example. Both set extra goals to promote sustainability in dairy farming using a scheme of indicators and rewards. German dairy professionals are well prepared to contribute to sustainable practices in Brazilian dairy industry and could in turn benefit from favorable location factors and low resource costs in Brazil. These important aspects should be promoted in collaboration with Brazilian associations and authorities to increase transparency, sustainability, and awareness of quality milk production nationwide.

Furthermore, cooperation with the Brazilian authorities is necessary to achieve the SDGs adopted by the United Nations and contribute to more sustainable development. In addition to the SDGs, the Food and Agriculture Organization (FAO) of the United Nations has established five principles to support and, above all, accelerate the transition to more sustainable food and agriculture systems [69]. These five principles are: (1) Increase productivity, employment, and value addition in food systems (2) Protect and enhance natural resources; (3) Improve livelihoods and promote inclusive economic growth; (4) Enhance resilience of people, communities, and ecosystems; (5) Adapt governance to new challenges [69] (p. 8). The first four principles must, in a sense, be guided by the fifth principle, which is to find the correct combination of private and public sector actions while ensuring "accountability, equity, transparency, and the rule of law" [11] (p. 87). In this context, the contribution of small and medium-sized enterprises (SMEs) is crucial to achieve the SDGs. Small SMEs are strongly represented in the Brazilian dairy industry and, according to Sinkovics and Sinkovics [11] (p. 93) should not be considered as standard takers across the board. SMEs, when included in a standard setting, can contribute greatly to the achievement of the SDGs [11]. Consequently, SMEs should be considered as an important instance in the course of FDI on the part of Germany [17].

4.5. Technological Progress for a Sustainable Dairy Farming

In Germany, **digitalization and new technologies** of farming activities and processes are gaining significant attention amongst dairy farmers. The advent of digitization in agriculture offers numerous opportunities to increase farm efficiency and competitiveness, to improve livestock management, to make agricultural practices more sustainable [1] and achieve the SDGs [70–73]. The SDGs also make specific reference to digital technologies, e.g., SDG 9 to promote resilient infrastructures and sustainable industrialization with the help of digitization.

Difficulties in the **transmission of technology** and best practice for farmers in Brazil slows the modernization in the chain. Interviewees recognized that *"the only way to improve [competitiveness] is by increasing productivity and making farms' production viable (DSBR09) through good farming techniques and animal genetics" (GOVBR05).* This would be possible through the diffusion of digitalization tools and techniques to producers [24]. However only a small proportion of farmers are sufficiently specialized in dairy production, in some cases making necessary investment unaffordable; in particular, there is a lack of financing options for the adoption of digital tools for the Brazilian farmers [19]. Some companies in GFM claim to have *" . . . a department for the promotion of quality, nutrition, silage, hygiene" (DSBR09)* for the farmers, or even a *"a program of technical assistance to reduce the problem of seasonality. They work in the pasture, nutrition, pregnancy rate in the summer to search for stability in the production" (DSBR06).* In total, thirteen interviewees stated that the sector offers technical assistance, though it is precarious and lackadaisical. In addition, most of the entities, which offer this service, are cooperatives, underlining the importance of these organizations for technology diffusion and farm management.

By the other side, German dairy farmers pursue a strategy of digitization, intensive capitalization and expansion. Especially for those who have an expectation of inheriting the farm, investments are generally progressive and constant. *"You see that farms are becoming more capital intensive, they are investing more in machines, and so on. This is a normal trend that you see everywhere (POGE1). "For now, it's important to modernize the business with a new stable concept (FAGE10)." "So they can invest in milking robots and some farmers invest in cutting-edge technology for milking, automatic feeding, etc., then harvesting the grass, etc." (DSGE03)".*

Automated systems are already widely used in the barn, including milking robots, sensor-based call flows or automatic feeding systems. Milking robots have been part of the state of the art for years and two out of three dairy producers now opt for an automatic milking system for a new purchase. *" . . . yes, not only because of less work, it may be less, but it's easier work, more attractive work. Young people like to work with laptops, etc., and not in the*

barn. That's what I see at the moment, those farms that have invested in automation, it's easier for them to hire qualified staff (DSGE01)".

The use of digitalization significantly improves efficiency on German dairy farms and brings higher milk yields, but also more environmental and climate protection [74]. In this regard the local government in GFM must foster technology adoption through the availability of credit lines for financing the purchase of such equipment (technology improvement), and processing companies should provide advice on how to best use these new technologies (efficiency improvement). Beside this, the mentioned exchange programs for farmers could support the progress of digitalization and technical progress, as young farmers get in touch with these technologies.

Another strategy of technology adoption is known as **collective action** which is also put in place in Germany, such as 'machine networks', which according to [75] facilitate access to modern technologies, especially for small-farmers. These so called "Maschinenring" are associations that allow producers to rent necessary machines and equipment, without the need to buy them, thus reducing investment, maintenance and depreciation costs, for example. A producer can also offer services through a "Maschinenring". "Maschinenring is a common practice here, and all over Germany, when I read some of the agricultural newspapers, "Maschinenring" is spread everywhere. You can reduce your investments and your fixed costs (DSGE03). The sharing of machinery could be supported or encouraged by dairies to give farmers faster access to technical progress.

Best practices for **herd and feed management** which are common in Germany should also be widespread in Brazil in order to improve efficiency and sustainability [24]. The management of cows with technical and performance indicators is recurrent. *"I've been rigorously planning how we manage cows for calving because our calf mortality rate is a bit high. Daily and weekly controls, what cows eat, so we have strict management and we know what to do, so everyone knows exactly what to do to improve control of everything" (FAGE03).*

Above all, nutritional quality emerged as a factor that was considered very important. Feed costs are the most important among specific livestock costs. They account for about 60% of the total specific costs in the two German study regions. Production autonomy is also highly sought after by producers. *"In our individual case, we produce more than we need and we sell the rest (FAGE02)".* In view of the great importance of feed costs, dairies should offer farmers good advice here. The production costs in comparison with other countries show that Brazilian dairy farming still has a lot of potential for improvement [46].

5. Conclusions and Policy Recommendations

In future, the increase in milk production is expected to take place mainly outside Germany and the EU. In order to maintain or increase market share worldwide, German dairies will be dependent on processing milk outside Germany as well. In addition, competitiveness in international markets tends to deteriorate as a result of increasing domestic requirements and the already high production costs, while the added value of commodity exports is comparably low anyway.

Developing and emerging countries will also face huge environmental challenges in the future as a result of their strong growth [29]. If such challenges are not addressed, these countries might lose market access to modern supply chains and developed markets. Sustainable practices are not yet an integral part in some of these countries' business' activities, especially in agriculture. The recent case of the EU/Mercosur trade agreement illustrates this situation well. The environmental negligence of the Mercosur countries, especially from the agricultural sector of Brazil, are among the main reasons for EU reject the agreement [76].

Today, such practices are vital in agri-food supply chains and increasingly required by politicians, retailers, and consumers. Developing countries often have few opportunities to assert themselves in the sustainability debate [25,77]. Thus, the sustainable agro-industrialization process of this supply chain might contribute to improvements in

competitiveness, business development, and poverty alleviation, bridging concepts of agribusiness and development as well as achieving some of the SDGs [78,79].

The GFM region offers German dairy companies considerable potential. Furthermore, location- and ownership-specific advantages offer good opportunities for German dairies consider investments in the GFM region. From the natural resources available, there is nothing to prevent the milk value chain from following an equally successful path like other agricultural sectors in Brazil. German dairies would in turn bring know-how and added value to southern Brazil. The major problems Brazil faces in terms of sustainable development practices could be overcome with German processing companies adapted to high quality, safety, and sustainability standards in the EU, as part of the internationalization process. Worldwide initiatives show this sustainable internationalization strategy is possible, such as the Nigerian-Dutch partnership carried by FrieslandCampina, WAMCO Nigeria PLC, and the University of Abuja. However, there are challenges that should not be underestimated in terms of raw material quality, the level of training of potential employees and farmers. At the bottom line, dairy farming in Brazil can only develop sustainably and improve rural livelihoods while adopting environmentally friendly practices if a mix of appropriate measures are put in place in partnership with local authorities. These include financial incentives, support for training and agricultural extension services, and improved supply chain management and infrastructures, among others. Some private German dairies have already gained experience in setting up and producing abroad. There is no question that this development would be challenging but German dairies have the necessary know-how to drive this development forward. In the end, there could be a win-win situation for both German companies as well as for Brazilian farmers and rural communities.

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References

1. Zanin, A.; Baú Dal Magro, C.; Bugalho, D.K.; Morlin, F.; Afonso, P.; Sztando, A. Driving Sustainability in Dairy Farming from a TBL Perspective: Insights from a Case Study in the West Region of Santa Catarina, Brazil. *Sustainability* **2020**, *12*, 6038. [CrossRef]
2. Schwartz, T. Ökonomisierung der Ethik oder "Ethisierung" der Ökonomie? Herausforderungen einer zukunftsorientierten Unternehmenspolitik. In *Herausforderungen Einer Zukunftsorientierten Unternehmenspolitik. Ökonomie, Umwelt, Technik und Gesellschaft Als Determinanten*, 1st ed.; Gramlich, D., Träger, M., Eds.; Gabler: Wiesbaden, Germany, 2007; pp. 91–105. [CrossRef]
3. Lendle, M. *Nachhaltigkeit in der Ernährungsbranche. Strategien Sicher Planen und Umsetzen*, 1st ed.; Behr's Verlag: Hamburg, Germany, 2012; pp. 1–6.
4. Luhmann, H. Corporate Social Responsibility und Nachhaltigkeit im Agribusiness. Dissertation, Georg-August-University, Goettingen, Germany, 9 May 2017.
5. Ammann, R. Ohne Ausland geht es nicht. *DMW Milchwirtsch.* **2013**, *12*, 441–445.
6. Imam, A.; Zadeh, M.N.; Dubey, L.R. Dairy Marketing Strategies in the Context of Globalization: Issues and Challenges. *Int. J. Trade Econ. Financ.* **2011**, *2*, 138–143. [CrossRef]
7. Overview Foreign Direct Investment for Development. Maximising Benefits, Minimising Costs. Available online: https://www.oecd.org/investment/investmentfordevelopment/1959839.pdf (accessed on 6 September 2021).
8. Reardon, T.; Barrett, C.B.; Berdegué, J.A.; Swinnen, J.F.M. Agrifood Industry Transformation and Small Farmers in Developing Countries. *World Dev.* **2009**, *37*, 1717–1727. [CrossRef]
9. Wilkinson, J. The food processing industry, globalization and developing countries. *J. Agric. Dev. Econ.* **2004**, *1*, 184–201.

10. Favarin, A.M.; Kim, J.-N.F.; Faria, G.R.; Antunes, J.M.; Aparecida de Castro, M. What Brazil Does When Nature Calls: Applying Situational Theory of Problem Solving for Coalition-Building for Sustainable Agricultural Practice for Brazilian Farmer. In Proceedings of the 23rd International Public Relations Research Conference: Connecting Theory and Research with Public Relations Practice, Orlando, FL, USA, 5–7 May 2020; pp. 179–189.
11. Sinkovics, N.; Sinkovics, R.R.; Archie-Acheampong, J. Small- and medium-sized enterprises and sustainable development: In the shadows of large lead firms in global value chains. *J. Int. Bus. Policy* **2021**, *4*, 80–101. [CrossRef]
12. Neubert, M. Internationalisation behaviour of small and medium-sized enterprises from emerging markets: Implications for sustainability. *Lat. Am. J. Manag. Sustain. Dev.* **2018**, *4*, 226–238. [CrossRef]
13. Damert, M.; Koep, L.; Guenther, E.; Morris, J. Stakeholders and socially responsible supply chain management: The moderating role of internationalization. *Sustain. Account. Manag. Policy J.* **2021**, *12*, 667–694. [CrossRef]
14. Taqi, H.M.; Ahmed, H.N.; Paul, S.; Garshasbi, M.; Ali, S.M.; Kabir, G.; Paul, S.K. Strategies to Manage the Impacts of the COVID-19 Pandemic in the Supply Chain: Implications for Improving Economic and Social Sustainability. *Sustainability* **2020**, *12*, 9483. [CrossRef]
15. Naseer, M.; Ashfaq, M.; Hassan, S.; Abbas, A.; Razzaq, A.; Mehdi, M.; Ariyawardana, A.; Anwar, M. Critical Issues at the Upstream Level in Sustainable Supply Chain Management of Agri-Food Industries: Evidence from Pakistan's Citrus Industry. *Sustainability* **2019**, *11*, 1326. [CrossRef]
16. Beber, C.L.; Lakner, S.; Skevas, I. Organizational forms and technical efficiency of the dairy processing industry in Southern Brazil. *Agric. Food Econ.* **2021**, *9*, 1–22. [CrossRef]
17. Antonowicz, M.; Jarzebowski, S. Innovative Models of Supply Chain Management. *J. Manag. Bus. Adm. Cent. Eur.* **2018**, *2*, 2–15. [CrossRef]
18. Agricultural Productivity and Family Farms in Brazil: Creating Opportunities and Closing Gaps. Available online: https://economics.ucr.edu/docs/helfand/Helfand%20Ag%20Productivity%20and%20Family%20Farms%20in%20Brazil%202015.pdf (accessed on 7 September 2021).
19. Beber, C.L.; Carpio, A.F.R.; Almadani, M.I.; Theuvsen, L. Dairy supply chain in Southern Brazil: Barriers to competitiveness. *Int. Food Agribus. Manag. Rev.* **2019**, *22*, 651–673. [CrossRef]
20. Qualitätsmanagement Beim Milcherzeuger. Available online: https://www.qm-milch.de/qualitaetsmanagement-beim-milcherzeuger (accessed on 22 December 2020).
21. Zu Ermgassen, E.K.H.J.; De Alcântara, M.P.; Balmford, A.; Barioni, L.; Neto, F.B.; Bettarello, M.M.F.; De Brito, G.; Carrero, G.C.; Florence, E.D.A.; Garcia, E.; et al. Results from On-The-Ground Efforts to Promote Sustainable Cattle Ranching in the Brazilian Amazon. *Sustainability* **2018**, *10*, 1301. [CrossRef]
22. Hutchins, M.J.; Sutherland, J.W. An exploration of measures of social sustainability and their application to supply chain decisions. *J. Clean. Prod.* **2008**, *16*, 1688–1698. [CrossRef]
23. Ferreira, F.U.; Robra, S.; Ribeiro, P.C.C.; Gomes, C.F.S.; de Almeida Neto, J.A.; Rodrigues, L.B. Towards a contribution to sustainable management of a dairy supply chain. *Production* **2020**, *30*, e20190019. [CrossRef]
24. Beldman, A.C.G.; Daatselaar, C.H.G.; Zaalmink, W. Possibilities for Technology to Strengthen Brazilian Dairy Chain. Brochure LEI Wageningen UR. 2015. Available online: https://www.wur.nl/de/Publicatie-details.htm?publicationId=publication-way-343931313635 (accessed on 10 January 2021).
25. Profit Mit Nachhaltigkeit? Die Rolle der Privatwirtschaft in Entwicklungsländern. Available online: https://suedwind-institut.de/files/Suedwind/Publikationen/2017/2017-25%20Profit%20mit%20Nachhaltigkeit.%20Die%20Rolle%20der%20Privatwirtschaft%20in%20Entwicklungslaendern.pdf (accessed on 15 March 2021).
26. FAKT: Ist 6: Lebensmittelexport. Available online: https://www.bve-online.de/presse/infothek/fakt-ist/lebensmittelexport-fakt-ist (accessed on 12 April 2021).
27. Beux, S.; Viagi, A.; Panizzolo, R.; Cassandro, M.; Waszczynskyj, N. Food Supply Chain—Sustainability in Small Milk Industry. In Proceedings of the IFIP International Conference on Advances in Production Management Systems (APMS), Iguassu Falls, Brazil, 3–7 September 2016. [CrossRef]
28. Krys, C. Megatrends—Rahmenbedingungen für unternehmerische Nachhaltigkeit. In *CSR und Strategisches Management. Wie Man Mit Nachhaltigkeit Langfristig im Wettbewerb Gewinnt*, 1st ed.; Wunder, T., Ed.; Springer Gabler: Wiesbaden, Germany, 2017; pp. 45–65. [CrossRef]
29. Martí, J.M.C.; Seifert, R.W. Assessing the Comprehensiveness of Supply Chain Environmental Strategies. *Bus. Strategy Environ.* **2013**, *22*, 339–356. [CrossRef]
30. Johnson, G.; Scholes, K.; Whittington, R. *Strategisches Management—Eine Einführung*, 9th ed.; Pearson Studium: Munich, Germany, 2011; pp. 363–490.
31. Capar, N.; Kotabe, M. The Relationship between International Diversification and Performance in Service Firms. *J. Int. Bus. Stud.* **2003**, *34*, 345–355. [CrossRef]
32. Strunz, H.; Dorsch, M. *Internationalisierung der Mittelständischen Wirtschaft: Instrumente zur Erfolgssicherung*, 1st ed.; Peter Lang GmbH Internationaler Verlag der Wissenschaften: Frankfurt am Main, Germany, 2001.
33. Claver, E.; Rienda, L.; Quer, D. The Internationalisation Process in Family Firms: Choice of Market Entry Strategies. *J. Gen. Manag.* **2008**, *33*, 1–14. [CrossRef]
34. Kutschker, M.; Schmid, S. *Internationales Management*, 6th ed.; Wissenschaftsverlag Oldenbourg: Munich, Germany, 2008.

35. Volberda, H.W.; Morgan, R.E.; Reinmoelle, P.; Hitt, M.A.; Ireland, R.D.; Hoskisson, R.E. *Strategic Management: Competitiveness & Globalization: Concepts & Cases*, 9th ed.; South-Western Cengage Learning: Boston, MA, USA, 2011.
36. Hymer, S.H. *The International Operations of National Firms: A Study of Direct Foreign Investment*; University of Cambridge: Cambridge, UK, 1976.
37. Dunning, J.H. Toward an Eclectic Theory of International Production: Some Empirical Tests. *J. Int. Bus. Stud.* **1980**, *11*, 9–31. [CrossRef]
38. Dunning, J.H. The Eclectic Paradigm as an Envelope for Economic and Business Theories of MNE Activity. *Int. Bus. Rev.* **2000**, *9*, 163–190. [CrossRef]
39. Perlmutter, H.V. The Tortuous Evolution of the Multinational Corporation. *Columbia J. World Bus.* **1969**, *4*, 9–18.
40. Bartlett, C.A.; Ghoshal, S. Managing Across Borders: The Transnational Solution. *Am. Foreign Policy Interests* **1999**, *21*, 20–22. [CrossRef]
41. Holtbrügge, D.; Welge, M.K. *International Management Theories, Functions and Case Studies*, 6th ed.; Schaefer-Poeschel: Stuttgart, Germany, 2015.
42. Wind, Y.; Douglas, S.P.; Perlmutter, H.V. Guideline for Developing International Strategies. *J. Mark.* **1973**, *37*, 14–23. [CrossRef]
43. Meckl, R. *Internationales Management: Lernbücher für Wirtschaft und Recht*, 3rd ed.; Vahlen: Munich, Germany, 2014.
44. Wolf, K. *Internationalisierungsstrategien von Deutschen Familienunternehmen*; Witten/Herdecke University: Witten, Germany, 2011.
45. Goodman, L.A. Snowball Sampling. *Ann. Math. Stat.* **1961**, *32*, 148–170. [CrossRef]
46. Sutton, J. Understanding the rise in global concentration in the agri-food sector: A background paper. In Proceedings of the OECD Conference on Changing Dimensions of the Food Economy, The Hauge, The Netherlands, 6–7 February 2003.
47. Porter, M.E. The competitive advantage of nations. *Harv. Bus. Rev.* **1990**, *68*, 73–93.
48. Beber, C.L.; Theuvsen, L.; Otter, V. Organizational structures and the evolution of dairy cooperatives in Southern Brazil: A life cycle analysis. *J. Coop. Organ. Manag.* **2018**, *6*, 64–77. [CrossRef]
49. Meyer, J.; Feil, J.H.; Schaper, C. Internationalization strategies in the German dairy industry and their influence on the economic performance of firms. *Int. J. Food Syst. Dyn.* **2019**, *10*, 332–346. [CrossRef]
50. Harzing, A.W. An empirical analysis and extension of the Bartlett and Ghoshal typology of multinational companies. *J. Int. Bus. Stud.* **2000**, *31*, 101–120. [CrossRef]
51. Qian, G. Multinationality, product diversification and profitability of emerging US small- and medium-sized enterprises. *J. Bus. Ventur.* **2002**, *17*, 611–633. [CrossRef]
52. Theuvsen, L.; Ebneth, O. Internationalization of Cooperatives in the Agribusiness—Concepts of Measurement and their Application. In *Strategies for Corporation*, 1st ed.; Theurl, T., Meyer, E.C., Eds.; Shaker Verlag: Aachen, Germany, 2005; pp. 395–419.
53. Censo Agropecuário. Instituto Brasileiro de Geografia e Estatística. Available online: http://www.ibge.gov.br/home/ (accessed on 26 October 2019).
54. Branchenstudie Molkereiwirtschaft. 2017. Available online: https://www.hcob-bank.de/media/pdf_3/marktberichte/branchenstudien/handel_ernaehrung/2017-03_leseprobe_milchstudie_hsh_nordbank.pdf (accessed on 7 September 2021).
55. IFCN Dairy Report 2013. Available online: https://ifcndairy.org/wp-content/uploads/2019/02/Dairy-Report-2013.pdf (accessed on 7 September 2021).
56. Wertschöpfung von Molkereien. Zusammenfassung der Ergebnisse der Analyse von Jahresabschlüssen von 2009 bis 2013. Available online: https://www.landforscher.de/cms/data/files/Downloads_Karin/151006%20Paper_Wertsch%C3%B6pfung_Molkereien-1.pdf (accessed on 7 September 2021).
57. Economia e Pesquisa »Ranking Abras» As 500 Maiores—ABRAS. ABRAS—Associação Brasileira de Supermercados. Available online: http://www.abrasnet.com.br/economia-e-pesquisa/ranking-abras/as-500-maiores/ (accessed on 23 September 2020).
58. Farina, E. Consolidation, Multinationalisation, and Competition in Brazil: Impacts on Horticulture and Dairy Products Systems. *Dev. Policy Rev.* **2002**, *20*, 441–457. [CrossRef]
59. Marktanteil der Führenden Unternehmen im Lebensmitteleinzelhandel in Deutschland in den Jahren 2009 bis 2019. Available online: https://de.statista.com/statistik/daten/studie/4916/umfrage/marktanteile-der-5-groessten-lebensmitteleinzelhaendler/ (accessed on 22 March 2021).
60. Schlippenbach, V.; Pavel, F. Konzentration im Lebensmitteleinzelhandel: Hersteller sitzen am kürzeren Hebel. *DIW Wochenber.* **2011**, *78*, 2–9.
61. Key, N.; Runsten, D. Contract Farming, Smallholders, and Rural Development in Latin America: The Organization of Agroprocessing Firms and the Scale of Outgrower Production. *World Dev.* **1999**, *27*, 381–401. [CrossRef]
62. Andri, K.B.; Shiratake, Y. Empirical study of contract farming system conducted by dairy cooperatives in east java, Indonesia. *Rev. Agric. Econ.* **2005**, *55*, 73–84.
63. Alemu, A.E.; Adesina, J. Effects of cooperatives and contracts on rural income and production in the dairy supply chains: Evidence from Northern Ethiopia. *Afr. J. Agric. Resour. Econ.* **2015**, *10*, 312–327. [CrossRef]
64. Besonderheiten der landwirtschaftlichen Kreditmärkte. Available online: https://www.econstor.eu/bitstream/10419/194572/1/1662405421.pdf (accessed on 7 September 2021).
65. Arbeitskräfte und Auszubildende. Available online: https://www.bauernverband.de/situationsbericht/3-agrarstruktur/35-arbeitskraefte-und-auszubildende (accessed on 22 March 2021).

66. Agriculture Productivity Growth in Brazil Recent Trends and Future Prospects. Available online: https://openknowledge.worldbank.org/handle/10986/29437 (accessed on 22 December 2020).
67. Klimaschutz und Klimaanpassung in Brasilien. Available online: https://lsg.iamo.de/microsites/lsg.iamo.de/fileadmin/Dokumente/2_Brasilien_HP.pdf (accessed on 22 December 2020).
68. Sustainability 2018. Available online: https://www.dmk.de/fileadmin/redaktion/presse/publikationen/dmk/en/DMK_Group_Sustainability_Brochure_2018.pdf (accessed on 22 December 2020).
69. Food and Agriculture Organization of the United Nations. Transforming Food and Agriculture to Achieve the SDGs: 20 Interconnected Actions to Guide Decision-Makers. Available online: http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1140709/ (accessed on 23 September 2021).
70. Aubert, A.B.; Schroeder, A.; Grimaudo, J. IT as enabler of sustainable farming: An empirical analysis of farmers' adoption decision of precision agriculture technology. *Decis. Support Syst.* **2012**, *54*, 510–520. [CrossRef]
71. Grandl, F.; Kammer, M.; Duda, J. Digitalisierung im Milchviehbetrieb aus der Sicht des LKV—Angebot und Perspektiven. In Proceedings of the Milchviehhaltung—Lösungen für die Zukunft: Landtechnisch-Bauliche Jahrestagung, Grub, Germany, 28 November 2018; Bayerische Landesanstalt für Landwirtschaft (LfL): Freising-Weihenstephan, Germany, 2018; pp. 119–125.
72. Weersink, A.; Fraser, E.; Pannell, D.; Duncan, E.; Rotz, S. Opportunities and Challenges for Big Data in Agricultural and Environmental Analysis. *Annu. Rev. Resour. Econ.* **2018**, *10*, 19–37. [CrossRef]
73. Mozas-Moral, A.; Bernal-Jurado, E.; Fernandez-Ucles, D.; Medina-Viruel, M. Innovation as the Backbone of Sustainable Development Goals. *Sustainability* **2020**, *12*, 4747. [CrossRef]
74. Dorfner, G. Ökonomische Herausforderungen für die bayrischen Milchviehhalter. In Proceedings of the Milchviehhaltung—Lösungen für die Zukunft: Landtechnisch-Bauliche Jahrestagung, Grub, Germany, 28 November 2018; Bayerische Landesanstalt für Landwirtschaft (LfL): Freising-Weihenstephan, Germany, 2018; pp. 9–20.
75. Brandes, W. "Maschinenringe"—Their Role f or Farmers' Income and Impacts on Structural Change in West Germany. *Jpn. J. Farm Manag.* **1991**, *29*, 78–85.
76. Mercosur—kein Freihandel Ohne Umweltstandards. Available online: https://www.heise.de/tp/features/Mercosur-kein-Freihandel-ohne-Umweltstandards-4941390.html (accessed on 16 January 2021).
77. Weber, T. Determinanten und Risiken der unternehmerischen Nachhaltigkeit. In *Nachhaltigkeit in der Ernährungsbranche. Strategien Sicher Planen und Umsetzen*, 1st ed.; Lendle, M., Ed.; Behr's Verlag: Hamburg, Germany, 2012; pp. 19–26.
78. Cook, M.L.; Chaddad, F.R. Agroindustrialization of the global agrifood economy: Bridging development economics and agribusiness research. *Agric. Econ.* **2000**, *23*, 207–218. [CrossRef]
79. Reardon, T.; Barrett, C.B. Agroindustrialization, globalization, and international development: An overview of issues, patterns, and determinants. *Agric. Econ.* **2000**, *23*, 195–205. [CrossRef]