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Factors Influencing the Sale of Local Products through Short Supply Chains: A Case of Family Dairy Farms in Slovakia

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Abstract: Increasing consumption of local products is a key factor for sustainable agriculture. This study deals with the factors that influence the sales of local products with a focus on value-added dairy products. The research involved 30 family businesses operating in the agro-sector. Primary data were obtained by a detailed online questionnaire survey. For deeper examination, five hypotheses were determined and statistically tested using the Friedman test and Nemenyi method. Using the acquired theoretical background and empirical research in a set of family farms, we can state that the goal of farmers is to sell their products through the shortest possible route directly to the consumer. The most commonly used tools of a short supply chain are on-farm sales and telephone order sales, on the other hand, farms rarely sell products in farmers' markets, celebrations and anniversaries or e-shops, even though these tools all have great potential. The results show that farmers consider the product itself (quality, freshness, locality) to be the most important factor when selling local products, as well as customer recommendations and loyalty. Based on the results of the research, we propose to streamline sales support through new forms of marketing approaches to premium products, such as locally fresh products produced on family farms.

Keywords: family farm; marketing; short supply chain; local products

1. Introduction

Due to globalization and market openness, economic and distribution conditions are also changing, resulting in strong competition and increasingly demanding conditions in the consumption and sale of products and services. In an effort to gain a foothold in the food market, the sale of products is becoming a decisive factor for the existence of companies. To our knowledge, Slovak farmers, farmers' cooperatives, especially small and medium-sized enterprises, are still unable to adapt effectively to the open food market and are not able to sell their products to retail establishments or directly to the final consumer. According to the latest research [1], products of Slovak origin occur with a share of around 38.6%, which ranks Slovakia among the countries that have the highest share of foreign food in trade. An important factor that affects the competitiveness of Slovak farmers is the sale of products and services.

Consumption or sales of not only dairy products from Slovak farmers are affected by price volatility, rapidly changing food market, surplus stocks, changes in consumer behaviour and especially market dominance and commercial manipulation by retail chains [1]. One of the ways to increase the market share of Slovak food is to use innovations in production, packaging, storage, transport

and marketing. With appropriate marketing communication, new sales approaches, expansion of sales channels, community-supported sales or the introduction of new forms of communication with consumers, family businesses can provide sufficient revenue to operate.

The short supply chain system is a tool that can connect these activities and thus increase the potential for competitiveness of family farms in the regions of Slovakia. Many advocates emphasize the importance of family farming and often argue that small farmers or family farms are responsible for global food production [2]. The term family farm is often used to define small farms. There is no generally agreed definition of family farms, although various stakeholders have established definitions either for purely analytical purposes or for the implementation of government programmes [3].

Given that we are researching companies from the given sector, we will understand family businesses as family farms. A family farm can be defined as a unit of production, consumption and kinship [4]. Current Slovak legislation does not have a precise definition of a family farm, however, it has the concept of a family business. A family business in the Slovak Republic can be a business company, a family business or a farm. The condition for starting a family business is that family members are relatives in the direct line or brothers or sisters or spouses. A family member can do business in only one family company [5].

2. Literature Review

2.1. Distribution Systems

Increased globalization, together with a growing world population, has a significant impact on the sustainability of supply chains, especially in the food sector. The way in which food is actually produced, processed, transported and consumed has a major impact on whether sustainability is actually implemented throughout the food supply chain [6]. All supply chain concepts strive to be more efficient in all processes.

The most important thing is to ensure capable supply chains in food systems to a macroeconomic level, such as environmental, economic and social. At the micro level, they are individual farmers or individual consumers.

There is an increasing emphasis on all activities that ensure the feeding of people, starting with the productivity of farmers' work, the production of cereals and the efficiency of distribution channels. All activities that allow food to flow from the farm to the consumer's table are considered to be the food supply chain [7]. Food and agricultural systems have changed particularly in recent decades, affecting both consumer and production models [8].

In recent years, food supply chains have been fully industrialized on a global scale and this has reshaped the way food is actually produced, processed and consumed. Thanks to a focus on economic performance, food producers have systematically sought to make progress despite lower financial returns, although they have put the most pressure on ecosystems to meet the need for cheap food [9].

The food supply chain will have to match the way food is actually produced, stored, handled and distributed. In the past, all these processes occurred locally in a small place, which in the current situation may not be sustainable for the demand of the entire world population. In this way, the food supply chain is transformed into a global food supply chain, in which all or some parts of the distribution processes, as well as the storage or production processes, will be carried out in several areas of the world [10]. Increased food transport in quantity and distance is indeed associated with logistical risks caused mainly by low logistical technology and inefficient logistical management. These risks cause major damage to the agricultural sector, as they lead to food loss, food contamination, the spread of disease and environmental damage [11]. A closely coordinated (or shorter) supply food chain can offer greater security and more credible guarantees to consumers [12].

2.2. Agri-Food Supply Chain

Agri-food supply chains include a set of activities that cover all processes from production to distribution of agro commodities. The term agri-food supply chain (ASC) has been developed to describe an activity from production to distribution that provides an agricultural or horticultural commodity [13].

ASCs are organizations responsible for the production (farmers), processing, distribution and marketing of agricultural commodities to consumers. The main goal is to satisfy customer requirements [14]. ASC is completely different from other supply chains, it must take into account the importance of factors such as quality, food safety and weather-related variability [15]. Other important features of agri-food products are limited shelf life, demand and price variability. New global agri-food research systems, dominated by vertically integrated large private companies, have undoubtedly contributed to higher levels of food production and productivity in the food supply chain. However, this success has led to several negative economic, environmental and social externalities, which have led to increased marginalization, huge contrast and vulnerability of small family businesses [16]. In many developed economies, farms lose profits primarily due to the cost of shipping, processing and marketing activities, for which suppliers charge up to 80% of the total sales of products [17]. This suggests that the farmer receives only 20% of the retail price of food [18].

2.3. Short Food Supply Chain As an Instrument of Sustainable Agriculture

An alternative to the long-globalized food chain is short food chains (SFSC). These systems were created to solve this societal problem [19]. Interest is also growing in the concepts of micro-enterprises, which are becoming a trend and their popularity is increasing [20]. SFSCs allow consumers to assess the added value of a food product [21].

This means that the consumer has information on how and where food is produced, which leads to a stronger relationship with the producer him/herself. Despite the fact that most consumers come to supermarkets for weekly shopping, a growing number of consumers are increasingly aware of the role in managing change in the food sector [22]. Manufacturers who use the concept of a short supply chain are so-called "Producers of citizens" [23]. Consumers are increasingly asking for foods that are safer, healthier, tastier and more environmentally friendly [24–26].

In this sense, the SFSC acts as an alternative food system aimed at minimizing intermediaries [27]. This supply chain requires limiting the maximum number of intermediaries between the producer and consumer, thus leading us to conclude that a short commercialization and/or distribution channel is one in which the number of intermediaries is equal to or less than one [28]. Products that develop the local economy and social security are sold through this system [19]. SFSCs are analysed and translated as a method to significantly improve the resilience of family farms, together with the support of relevant consumers, local communities and civil society organizations. European policy management increasingly takes the SFSC into account as a driving force of agri-food systems and rural development [29].

A systematic review has shown that it is very important for most consumers in developed countries that food is natural [30]. They choose foods that are grown, produced and processed in the traditional way in harmony with nature. SFSC has specific social impacts, economic impacts at regional and farm level as well as environmental impacts translating themselves into a clear interest of consumers [21]. This means that products are embedded with information, allowing consumers to understand how and where food is produced, enabling the formation of a stronger bond of trust between consumers and producers [31]. Another research shows that restaurants, chefs and consumers are more confident in local products [32]. Creating a relationship between farmers and consumers in the local food system also plays an important role. A research conducted in Hungary highlighted that the most important advantage of direct sales of agricultural products is the close connection and trust between seller and buyer [33]. The Central European Consumer Behaviour Survey showed that the Czech Republic, Slovakia and Poland are countries whose citizens consider price to be one of the

main factors in buying goods and services. However, consumers search for health aspects and high quality in dairy products, meat products, fruits, honey and vegetables [34–36]. A significant share in the creation of the rural economy is agriculture, the main creator of which is the countryside [37].

Considering that 44% of the world's population lives in rural areas and the share of developing countries is even higher at 55%. At European level, the Commission for Agriculture and Rural Development considers that rural areas account for 85% of the total area and directly or indirectly affect more than 50% of the European population [38].

2.4. Forms of Sale of Local Agri-Food Products

There are many examples of SFSC. Many case studies, research and reports deal with SFSC issues. There exist three main forms of short food supply chains based on the number of intermediaries, physical distance and organizational arrangements [19,27]:

- Face-to-face,
- Proximate,
- Extended,

Other authors distinguish between individuals and collective selling, direct and indirect selling (with one intermediary) [39]. Another report [21] provides an interesting classification based on which is possible to distinguish between:

- *Traditional sales method*, which is based on farms in rural areas and family farms, using traditional and craft production methods,
- *Non-traditional way of selling*, which consists of more complicated networking of producers, where these businesses are often off-farm (especially supply systems) located in urban or suburban areas,

Short supply chains are seen in rural and food policies as a driver of the transition to sustainability in the agri-food system. They are considered to have economic, social, cultural and environmental benefits for farmers and consumers [40]. One non-traditional way of selling is vending machines that represent a supply chain that meets the principles of an alternative food system in line with the basis of circular economy. Firstly, they eliminate intermediaries and allow a more direct relationship between dairy producers and consumers; secondly, they avoid much of the processing and packaging of milk; and thirdly, they rely on local proximity [41]. We cannot omit the phenomenon of shopping virtualization. The most important advantages of online shopping are convenience and saving time, while the most significant disadvantages for consumers involve the risk of incorrectly valuating some products and apprehension about the selection and handling of perishables. Research into e-consumer behavior in relation to food products is also becoming increasingly abundant in the world literature, and this subject is bound to gain even more significance over time due to increased isolation and a sense of threat as to the safety of consumed food in reaction to the coronavirus pandemic [42]. However, agribusiness is a sector in which the diffusion of e-commerce progresses relatively slowly [43]. Research findings show that rural areas remain at a disadvantage due to poor connectivity, lack skills and ambitions to be engaged in the power of social media, but at the other side farmers recognize the opportunities the digital revolution can have on developing networks in agriculture [44].

The European Commission's research in the JRC Scientific and Policy Report 2013 in the EU identified available forms of sales of local products within individual regions. The document describes all so far identified examples of sales of local products that operate within Europe. Based on the identification and detailed analysis, we divided these forms into categories and subcategories. Table 1 breaks down the forms of sale of local products, which are very similar to the distribution in other researches [19,27]. These forms of sale can only be achieved under certain conditions of cooperation between farmers. Farmers can act individually or collectively, but traceability of origin must be respected. There are several factors that can be considered an advantage of direct sales:

- Building a relationship between the consumer and the producer,
- Possibility of determining the final price of products,
- Producer receives the full share of the profit,
- Raising awareness directly about primary producers [45].

In short, SFSC implementation relies on the adoption of procedures that enhance value and promote local characteristics. We call them critical success factors [46].

Table 1. Overview of types of SFSC in the EU.

Short Food Supply Chain	Subcategory
Sales in proximity	Community Supported Agriculture (CSA) On Farm Sales - Farm shops - Farm based hospitality - Roadside sales - Pick-Your-Own Off Farm Sales - commercial sector: - Farmers' markets and other markets - Farmer owned retail outlet - Food Festivals/tourism events - Sales directly to consumer co-operatives/buying groups - Sales to retailers who source from local farmers and who make clear the identity of the farmers. - Sales to HoReCa as long as the identity of the farmer is made clear to end consumers. - Sales to hospitals, schools etc. Farm Direct Deliveries: - Delivery schemes (e.g., veg box) - delivery directly to customer
Extended sale	Farm Direct Deliveries: - Delivery schemes - Internet sales - Speciality retailers

Source: Own processing based on JRC Scientific and Policy Report [47].

3. Materials and Methods

The methodology was designed to achieve the main goal, namely to identify the factors influencing the sale of local dairy products through a short supply chain with a focus on family farms. Using the acquired theoretical background and empirical research in a set of family businesses, to design tools for streamlining consumption/sales, which will be aimed at increasing the success of product sales.

All the companies surveyed are primary producers, but also processors of raw milk and produce dairy products with added value. Family businesses belong to the category of micro and small businesses. They are included in these categories on the basis of a document issued by the EU and the Slovak Republic, which sets out the criteria for micro and small enterprises based on the number of employees. 15 micro-enterprises (<10) and 15 small enterprises (<50 employees) participated in the research, all farms being classified as family farms. Territorial scope, i.e., the region in which the research is carried out is the entire territory of Slovakia (Table 2).

Table 2. Research design.

Object of Research	Family Businesses Operating in the Agro-Sector, Defined as Family Farms that Produce and Process Local Value-Added Products
Research strategy	Qualitative research
Data acquisition method	Detailed questionnaire survey
Data sources	Farm owners
Criteria for selection of respondents	<50 employees More than 1 family member works on the farm Cattle breeder Processor of raw material for value-added products with a view to sale to the final consumer Active business

Source: Own processing.

The research was carried out in 3Q and 4Q in 2019. For a deeper examination and verification of dependencies, 5 hypotheses were established:

Hypothesis 1 (H1). *We assume that there are significant differences in the use of sales opportunities.*

Hypothesis 2 (H2). *We assume that the most important sales channel is a direct telephone order from the final consumer.*

Hypothesis 3 (H3). *We assume that farmers participate regularly in farmers' markets, festivities and anniversaries.*

Hypothesis 4 (H4). *We assume that the decisive factor for innovation and modernization of the range of family farms is the possibility of using a new form of product sales in the region.*

Hypothesis 5 (H5). *We assume that the freshness of products and customer loyalty are among the most important factors influencing product sales.*

The research was carried out by a questionnaire survey, in cooperation with the Slovak Dairy Association on the Typeform.com platform. This survey was more difficult to answer, so we chose a platform that facilitates answering and offers efficient functions and modern visualization. The survey involved 30 family farms, which were divided into 15 micro farms and 15 small farms. All participating farms produce products with higher added value. The aim of the survey was to identify which sales channels mostly used on the Slovak market and effectively contribute to the success of family farms. As a part of the research, we identified and subsequently analysed the factors that affect the sales of local products. Questionnaire comprised categorical questions and Likert type questions.

We used Microsoft Excel 2018 and the XLSTAT statistical software to evaluate statistical methods. We evaluated and statistically verified the established hypotheses using the following statistical methods:

- The Friedman test
- The Nemenyi test

4. Results

After collecting data, checking and evaluating the complexity and correctness of filling in the questionnaires, we found that a total of 30 agricultural enterprises were involved in the questionnaire survey, of which 50% were micro-enterprises (1–9 employees) and 50% were small enterprises

(10–50 employees). From the performed analysis of the structure of companies, we then examined the legal form of business. The legal form of SEF (self-employed farmers) has the largest representation in the group of agricultural enterprises with 64% representation, the legal form of self-employed person and other types of self-employment (tradesmen, freelancer . . .) represented 36%. Other legal forms do not occur in the research. These legal forms and the fact that more than 1 family member works on all farms meet the conditions for running a family farm.

Sales Opportunities of Family Farms

In an effort to gain a foothold in the food market, the sale of products is becoming a decisive factor for the existence of farms. However, in many developed economies, farms lose profits mainly due to the costs of logistics, processing and marketing activities, for which suppliers charge up to 80% of the total sum of products [17]. This suggests that the farmer receives only 20% of the retail price of food [18].

We have identified the use of sales opportunities in the conditions of a short supply chain, which reduces the number of intermediaries and thus increases the profitability of the farmer him/herself (Figure 1). The companies scaled their answers with values from 1 to 5, while the values should indicate the intervals of use of the given sales channel, where 1—meant I do not use at all and 5—I use regularly. The most used channel for the sale of products is sales to order to the end customer, the answer I use regularly and I often use marked up to 7% of the companies. Subsequently, 63% of businesses indicated that they use the company's shop directly on the farm regularly and often. Subsequently, the company shop outside the farm is rarely used and it is not used by up to 76% of the companies. The channels that can also be considered as used are a small-scale farm direct sale 67% and product placement in retail establishments 37%. An interesting result that may seem like a potential sales channel is deliveries to hotels and restaurants, where 24% of farmers supply their products regularly or very often. Based on the results of the analysis, we can state that farmers sell their products through such tools that directly interact with the customer. Through these ways of selling fresh products, a relationship between the customer and the producer is built. The current consumer seeks authenticity, individuality, commitment, independence and wants to be informed, so it is important to build trust in this way [48].
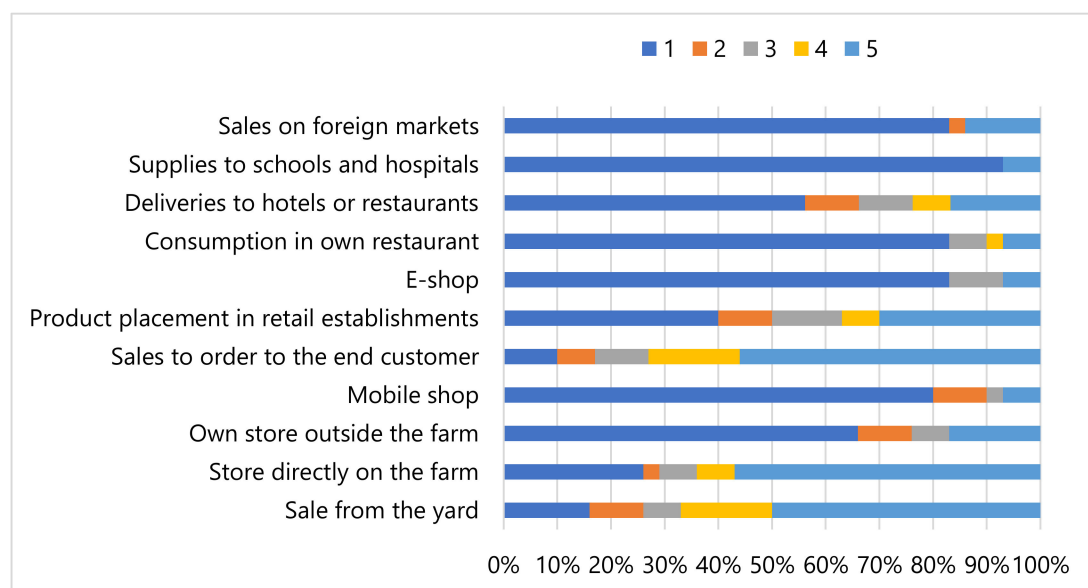

Figure 1. Use of sales opportunities when placing products on the market, number of companies, expressed in (%). Source: Own processing, 2020.

The null and alternative hypotheses were formulated for Hypothesis 1:

Hypothesis 1a (H1a). *We assume that there are no significant differences in the use of sales opportunities.*

Hypothesis 1b (H1b). *We assume that there are significant differences in the use of sales opportunities.*

By applying Friedman test, it can be concluded that results (*p*-value = <0.0001) confirmed that there are significant differences in the use of sales opportunities, and Hypothesis 1 was thus confirmed (Table 3).

Table 3. The result of the Friedman test by which we identified significant statistical differences in the importance of individual sales channels.

The Friedman Test:	
Q (Observed value)	129.222
Q (Critical value)	18.307
DF	10
p-value (one-tailed)	<0.0001
alpha	0.05

Source: Own processing, 2020.

In addition, we subsequently subjected these factors to a nonparametric contrast test, using the Nemenyi method. The individual factors were divided into five groups according to the importance attached, from the least important to the most important, with the most important channel being direct sales to order (Figure 2).
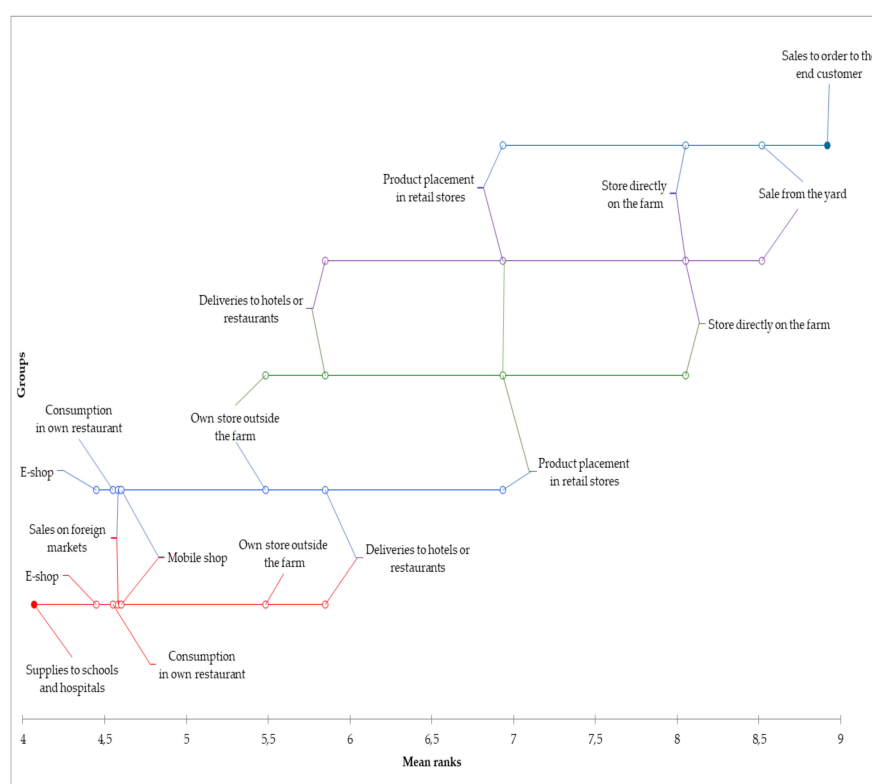

Figure 2. Demsar plot—the result of the Nemenyi method, which was used to confirm the importance of the marketing channels used by farmers, Source: Own processing, 2020.

These results confirmed Hypothesis 2: The most important sales channel is a direct telephone order from the final consumer.

We assumed that participation in farmers' markets, festivals, celebrations and anniversaries was a popular way of selling, in which farmers regularly participate. Selling products on farmers' markets is a unique opportunity to personally provide the consumer with a shopping experience that will lead to repeated purchases [18]. Through asking farmers about their participation in markets, festivals, festivities, anniversaries, where they directly sell their products, we have reached the results shown in Figure 3, which shows that farmers are not very interested in participating in these events. Only 7% of farmers attend these events regularly.
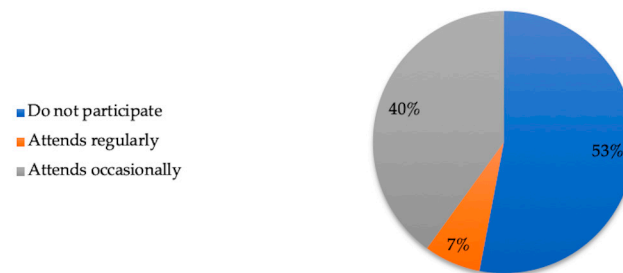

Figure 3. Participation in farmers' markets in (%). Source: Own processing, 2020.

For more detailed identification, we found out the positive or negative experiences of companies that result from participation or non-participation in these events. We conducted an in-depth survey with the surveyed companies, on the basis of which we identified the main reasons for low or complete lack of interest in participating in the following events:

- Time consuming
- Labour shortages
- High costs of point of sale, transport, wages
- Administrative burden and excessive control

The result has not confirmed Hypothesis 3: We assume that farmers regularly participate in farmers' markets, festivities and anniversaries.

Nevertheless, the right path to the advancement and prosperity of the agri-food system is a deeper link to innovation cooperation, by all market players (farmers, researchers, producers, processors and consumers) [49]. The main goals of innovation include the development of new products or the modernization and expansion of original products [50].

The decision of small-scale farmers to develop new products or modernize original dairy products is influenced by several factors. We can say that the most important factors influencing innovation, modernization and expansion of production are the possibility of selling products through a new form of product sales in the region, with up to 79% of farmers consider this factor to be the most important. Consequently, 74% of farmers consider it important to reduce the bureaucracy and 77% of farmers to obtain a subsidy for new technology. These results show that family farms are willing to innovate products, modernize and expand production, but must have sufficient financial resources to purchase processing technology or set up new facilities.

The spread of products of animal origin is accompanied by many controls and administrative burdens on farmers, who consequently do not have enough time to develop the farm and create new sales channels. These are also the reasons why family farms express the need to develop new forms of sales of local products. Research carried out within the EU also shows that not only individual countries but also the EU could help sell local products to small-scale farmers, especially in terms of providing financial support to the SFSC, marketing and promotion sectors, simplification and reduction of bureaucracy, improvement of regional networking [21]. Figure 4 shows the decisive factors that

farmers have given importance on a scale of 1–10, with 1 meaning unimportant and 10 meaning very important.
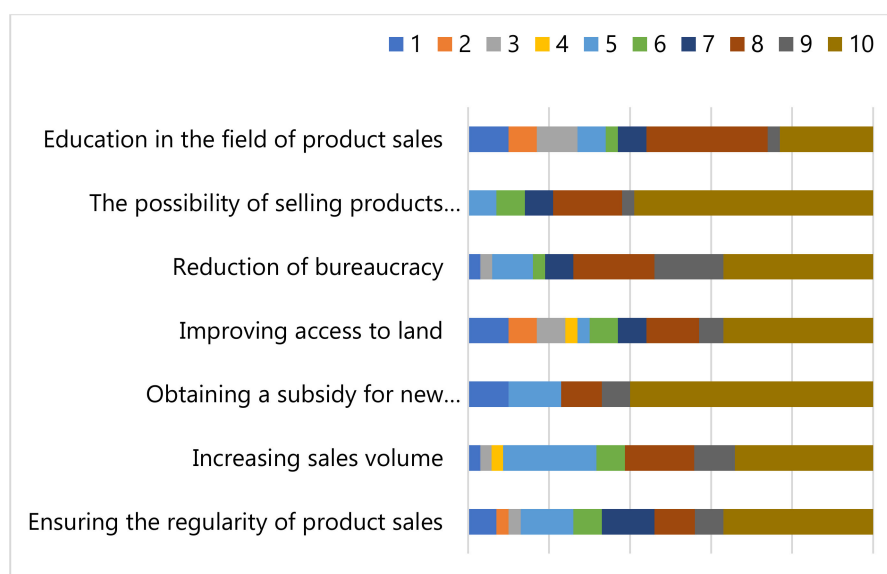

Figure 4. Crucial factors for the development, innovation and modernization of new dairy products. Source: Own processing, 2020.

We tested the decisive factors statistically using the Friedman test, which we used to verify statistically significant differences between the individual factors. Based on the Friedman test (p-value = <0.0001) we confirmed statistically significant differences in the importance of individual factors (Table 4).

Table 4. The result of the Friedman test, by which we identified statistically significant differences in the importance of individual factors.

The Friedman Test:	
Q (Observed value)	26.724
Q (Critical value)	12.592
DF	6
p-value (one-tailed)	<0.0001
alpha	0.05

Source: Own processing, 2020.

Subsequently, we formulated the null and alternative hypotheses for the Hypothesis 4:

Hypothesis 4a (H4a). *We assume that the decisive factor for innovation and modernization of the range of family farms is not the possibility of using a new form of product sales in the region.*

Hypothesis 4b (H4b). *We assume that the decisive factor for innovation and modernization of the range of family farms is the possibility of using a new form of product sales in the region.*

After finding that there are statistically significant differences between the individual factors, we subjected them to a nonparametric contrast test, using the Nemenyi method. The individual factors were divided into 3 groups according to the importance attached, from the least important to the most important (Figure 5). Group C expresses the most important factors and group A the least important factors.
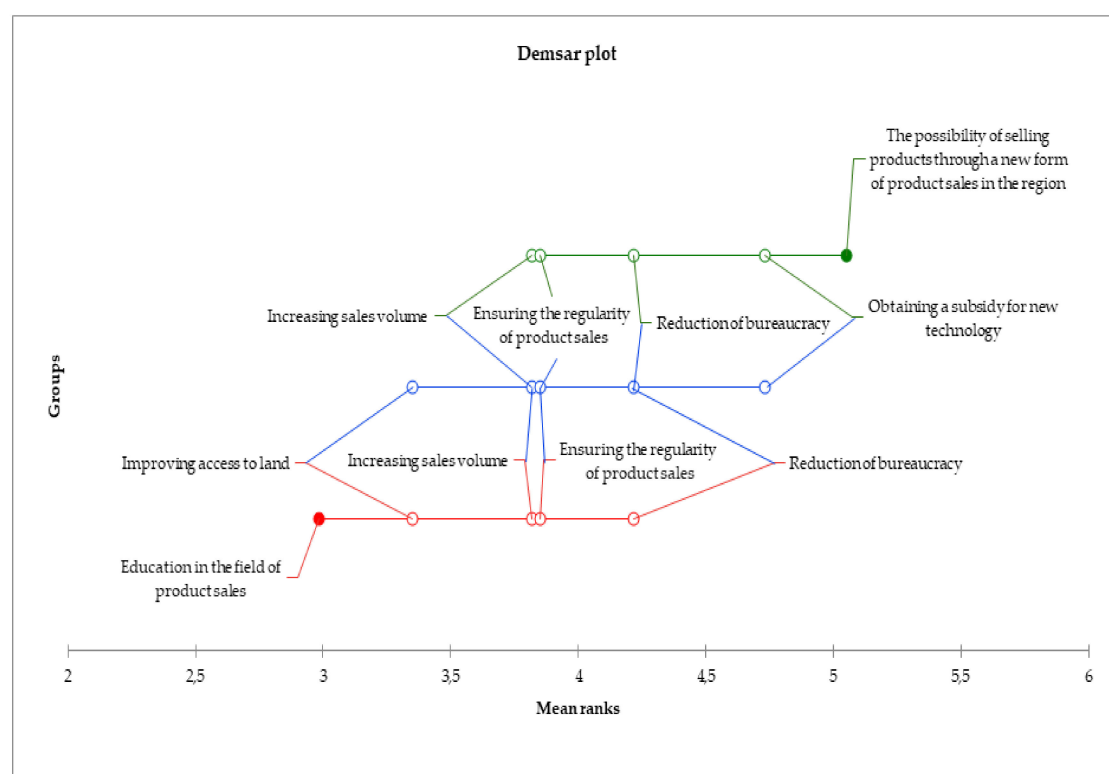
Figure 5. Demsar plot—the result of the Nemenyi method, which was used to confirm the importance of the factors influencing the expansion of dairy production.

The highest value (group C) is achieved by the possibility of selling products through a new form of product sales in the region—Mean of ranks = 5.050. Based on the result of the Nemenyi test, we reject the null hypothesis (H4a) and accept the alternative hypothesis (H4b). These results confirmed Hypothesis 4: We assume that the decisive factor for innovation and modernization of the range of family farms is the possibility of using a new form of product sales in the region.

EIP-AGRI Focus Group Innovative SFSC management discusses and identifies success factors for several case-studies that deal with the sale of local products through the short-food supply chain. This research proves that there are many success factors but also barriers to the success of the sale of these products. This report points to the existence of differences in the implementation of product development, market access, logistics and distribution in individual EU countries [51].

We obtained the results from the identification of success factors that family farms on the Slovak market consider important in the sale of local products from farmers who scaled their answers with values from 1 to 10, while they used the values to indicate which factors affect the success of their sales, where 1—means affects the least and 10—affects the most. The results are shown in Figure 6, which expresses the influence of individual factors on the success of the sale of local dairy products. We included herd production performance (50%), workforce efficiency (41%) and milk processing technology performance (43%) in the first group of factors, which means that almost 50% of farmers do not consider these factors important when selling products. The importance of the product itself, its price, quality, freshness and regularity of sales reached the highest values that affect sales. This fact means that the largest number of farmers consider the product itself to be a very important factor. For all factors, the percentages exceeded 60%, with the freshness and taste of the products reaching 80%. This result is also confirmed by a European survey, the results of which show that 96% of EU citizens say that quality is the most important factor when buying food [52].
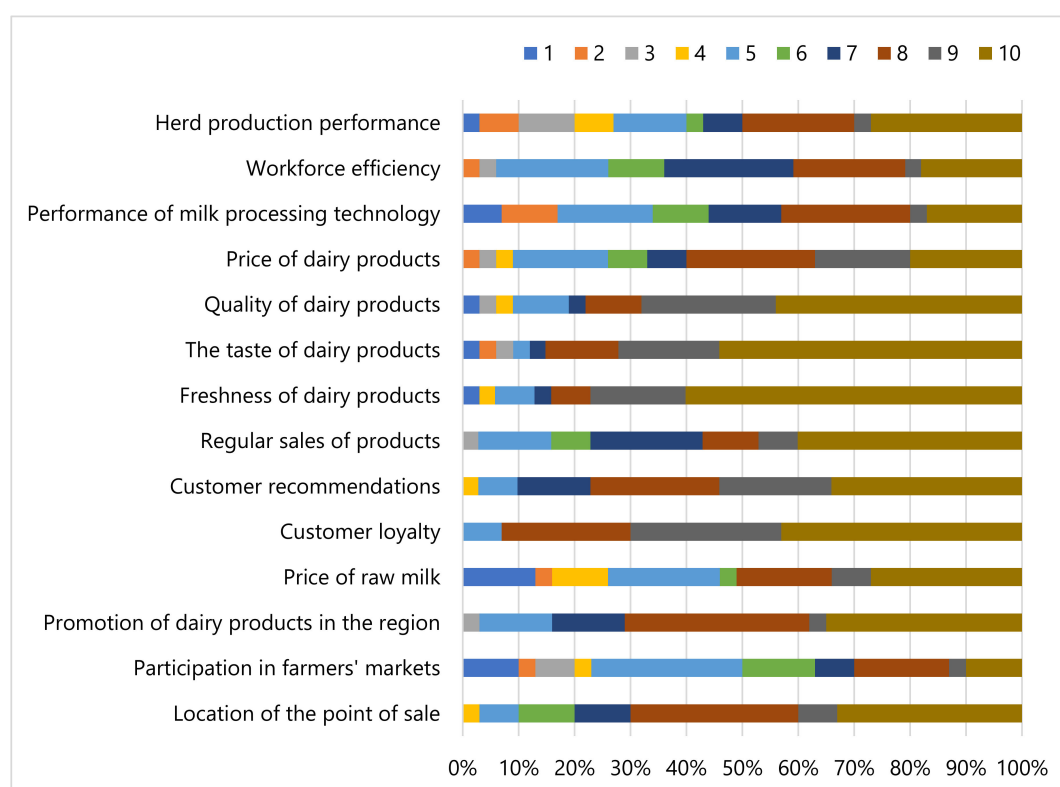
Figure 6. Success factors of the sale of local dairy products (in%). Source: Own processing, 2020.

We can also confirm this result by stating that one of the strongest competitive advantages of local products is their freshness and the associated taste, which is not replaced by artificial sweeteners or flavourings, which are not natural and beneficial to health. If we take into account the values on the scale including and above 8 points of recommendation and customer loyalty, we can consider it one of the most important factors. Figure 6 shows that farmers most often use sales channels where personal contact with the customer takes place. For these forms of sales, the most important factors are customer loyalty (83%) and recommendations from other customers (77%).

Based on the findings, we can say that farmers consider the location of the point of sale as a factor that affects the success of sales in the case of the location of the farm itself, where they sell products directly. Also with these results, we can confirm that participation in farmers' markets cannot be considered as a factor influencing sales, as up to 50% of farmers stated that this way of selling affects the sale the least or does rather not affect it and 27% stated "I do not know" as the mean value. The last factor examined was the price of raw milk offered by other processing companies, which determines the farmer's decision whether to sell raw milk to another dairy processing company or to process the milk into value-added products.

One way to increase the potential of small farms is to produce value-added agricultural products and then sell them directly to consumers [53]. However, in the results (Figure 4) we can see that farms are willing to innovate products but need new approaches, such as new sales opportunities or financial, technological or administrative support. In order to achieve a potential increase in the processing of specified products of plant and animal primary production, modernization and innovation is necessary with emphasis on the production of products with higher added value [54], as well as a support of rural development and local communities [55]. The amounts of sales and profits are directly linked to value-added processing, which are influenced by the price level of agricultural commodities and products, the creation of the added value of the products and, to a large extent, the cost and profit margin. We tested success factors statistically using the Friedman test, which we used to verify statistically significant

differences between individual factors. Based on the Friedman test (p-value = <0.0001), we identified statistically significant differences in the importance of individual factors (Table 5).

Table 5. The result of the Friedman test, by which we identified statistically statistical differences in the importance of individual factors.

The Friedman Test:	
Q (Observed value)	92.351
Q (Critical value)	22.362
DF	13
p-value (one-tailed)	<0.0001
alpha	0.05

Source: Own processing, 2020.

We then subjected these factors to a nonparametric contrast test, using the Nemenyi method. The individual factors were divided into three groups according to the importance attached, from the least important group A to the most important group C. Significant statistical differences arose in group A—participation in farmers' markets and group C—product freshness, taste of dairy products and customer loyalty. To find out in more detail the importance of factors, we have formulated null and alternative hypotheses for Hypothesis 5:

Hypothesis 5a (H5a). *We assume that the freshness of products and customer loyalty are not among the most important factors influencing the sale of local products.*

Hypothesis 5b (H5b). *We assume that the most important factors that affect the sale of local products include the freshness of products and customer loyalty.*

The highest value of importance (group C) is achieved by freshness of dairy products, taste of dairy products and customer loyalty (Mean of ranks = 10.017–9.700). Based on the result of the Nemenyi test (Table 6), we reject the null hypothesis (H5a) and accept the alternative hypothesis (H5b). The results confirmed Hypothesis 5: We assume that the most important factors that affect the sale of local products include the freshness of products and customer loyalty.

Table 6. The result of the Nemenyi method, which was used to confirm the importance of the factors influencing the sale of local fresh dairy products.

Sample	Mean of Ranks	Groups		
Participation in farmers' markets	4.083	A		
Herd production performance	5.800	A	B	
Performance of milk processing technology	5.900	A	B	
Price of raw milk offered by other processing companies	5.917	A	B	
Workforce efficiency	6.000	A	B	
Price of dairy products	6.767	A	B	C
Promotion of dairy products in the region	7.633	A	B	C
Regular sales of products	7.667	A	B	C
Location of the point of sale	7.717	A	B	C
Customer recommendations	8.767		B	C
Quality of dairy products	9.133		B	C
Taste of dairy products	9.700			C
Customer loyalty	9.900			C
Freshness of dairy products	10.017			C

Source: Own processing, 2020.

5. Conclusions

Based on the research, the main goal of which was to identify factors in the group of family farms that influence the success of the sale of local dairy products with a focus on the short food supply chain we found that the most effective sales channels for small family farms are those belonging to short supply chain. The most used channel is specifically direct sales to order to the end customer in the form of telephone communication. On the other hand, a modern form of sales to order through the e-shop is very little used by farmers. Another effective and widely used channel is the sale of products directly on the farm through a company shop, which means that consumers prefer personal contact with the farmer, either through a direct meeting or a telephone contact directly with the farmer or the family members. It follows that, although local products are sold through various channels, such as retail, specialist shops and the like, direct interaction is the most important factor for farmers and consumers. In this context, it is interesting to note that farmers' markets are not an interesting and efficient way to sell products, as only 7% of farmers regularly attend these events. This fact is caused by the current poorly set up system, high administrative burden, high costs and the large time commitment required. Farmers' markets have great potential for developing the local economy, building relationships between farmers and consumers in the given region, valuing agricultural products and farmers' knowledge. Therefore, for further research, we recommend a more detailed analysis and design of an effective system of farmers' markets that can motivate farmers to participate in these events and contribute to rural development. Innovation and modernization of a range of products that will be competitive and follow the trend is important for rural development, which includes the local dairy market. The results showed that the most important factor for innovation and modernization of the offer is the search for and creation of new innovative sales opportunities within the region. The main channels of this sale should link direct consumer orders with a personal visit to the farm. This finding is confirmed by other research results, which focus on the success factors of sales of family farms, which show that the most important success factors is the customer loyalty. These customers buy local products directly, ie authentically directly from farmers, who guarantee the freshness of these products. Freshness, ie maintaining a certain degree of product quality and loyalty of returning customers, can potentially ensure successful sales of local dairy products. We can say that for small family farms, the most important thing is to build a relationship with the customer based on the trust, freshness, transparency and authenticity of the purchased products.

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