

PRODUCT LINE OF SELECTED AGRICULTURAL ENTITY IN SLOVAKIA AND SUGGESTION FOR ITS EXPANSION BASED ON ANALYSIS OF CONSUMERS' INTEREST IN DAIRY AND MEAT PRODUCTS

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ABSTRACT

Studies on primary agricultural production in Slovakia aimed mainly at biological, economic, or market point of view and there is a lack of managerial approach providing a specific recommendation for farmers according to their production lines or planning process. As a reaction, we are providing a practically oriented study based on the selected livestock producer, which is aimed at statistical significances as an establishment for further recommendations for management and marketing of this entity. The paper aims to analyze the views and preferences of customers of the monitored company, which sells its meat and dairy products in its stores and verify the expected success of the planned expansion of the product lines. Regarding this, the online questionnaire study was conducted on a sample of 202 respondents. Realized statistical analysis based on the Kruskal-Wallis nonparametric test and subsequent Bonferroni post hoc correction signify that meat products, fresh meat, and slaughter specialties are the most favorite products among customers of the monitored company. Fresh milk, on the other hand, is not as attractive as a meal for them. However, selling it from vending machines placed out of the store would increase the sales. Dairy products of own production should be even more successful, as we assume they would be as interesting for customers as the currently expanding portfolio of meat products. The benefit of this study lies in the consideration of the practical use of the obtained results in the business practice of the monitored company. Regarding this, we are providing a set of recommendations, according to the planning of their product lines and connected marketing tools for their successful placement on the market.

Keywords: consumers; livestock; company store; dairy production; meat; Slovakia

INTRODUCTION

Agriculture plays an important role in society. In Europe, it is not just an industry with a sole task to produce food. Farmers and agriculture systems play an essential and increasingly important role in protecting the landscape, and rural environment, and contributing to the social and economic development of rural areas. According to **Kotler and Armstrong (2004)**, the farm itself can be considered as a set of factors of production that are subsequently used to produce primary products and services. They are the units of labor, economic, and technological organization and their products are the outcomes of the transformation of the production factors: labor, land, and capital. According to **Jahnátek and Ladvenicová (2011)**, every farm aims to make the production process as successful as possible with the effort to maximize the effectiveness and minimize the difficulty of the performed activities. The complex of interconnected management activities involved in the production of a particular product is considered to be production management (**Chary, 2017**). It is a managing transformation process that changes labor, capital, materials, information, and other inputs into

products and services (**Hill, 2012**) with an aim for the right quality, number, time, and production costs (**Kumar and Suresh, 2006**). In agribusiness, this process should be designed in a closed cycle, where plant production is closely related to livestock production. Outputs of plant production are at the same time the inputs for animal production (in a form of feed and stems) and outputs of animal production are used back in plant production (in a form of fertilizers), while both should act environmentally friendly and improve the energy and nutrition cycle (**Bettencourt et al., 2015**).

Livestock production provides more than one-third of the human protein needs and is the main provider of livelihood in almost all developing countries (**Sakadevan and Nguyen, 2017**). Farm animals, poultry, and fish are biological transformers of low-quality feed into high-quality proteins and highly bioavailable and essential minerals in the human diet. Livestock production thus plays an important role in improving human nutrition, growth, and health, as well as economic, political, and social stability in society (**Wu, Bazer and Lamb, 2020**). Livestock plays a crucial role in human development as well

and has hitherto been of great importance in many diverse breeding systems. In the future, livestock production will present considerable opportunities and risks to the food security of the growing human population, as well as to the climatic effects that depend to a large extent on the agricultural system (Hosey and Melfi, 2018). Farmers also breed livestock to transform it into a wide range of outcomes (such as milk, meat, pulling force, manure fertilizer, fuel, hides, wool, fiber, or animals) which can be used for local consumption or sales (Rushton, 2008). Therefore, the personality and attitudes of farmers must be linked to animals, their health, wellbeing, productivity, and management. To reach beneficial results, farm managers should have a high degree of technical knowledge, skills for solving problems, be perceptive and responsible, have the situation under control, and have a good relationship with animals (Adler, Christley and Campe, 2019).

Milk is a biological fluid that contains all significant nutrients and a certain number of substances for given species and conditions (Keresteš and Selecký, 2003). Increasing the consumption of dairy products to the recommended level is one practical change that could significantly improve the content of certain vitamins and minerals in the body and have a positive impact on health (Scholz-Ahrens, Ahrens and Barth, 2020). This applies to calcium, magnesium as well as vitamin A. All dairy producers strive to improve the quality of milk, which can be achieved through various management procedures (Nolan, 2017). Optimal management of dairy farming should focus on milk production which is sustainable and responsible to animal welfare, and social, economic, and environmental perspectives. Each of these aspects is interrelated with one other and has an impact on sustainability, health, and workforce productivity (Hagevoort, Douphrate and Reynolds, 2013). Since the 1990s, the Slovak dairy industry has undone many significant changes related to the reduction of herds of cattle and milk cows, decrease in the quantity of the milked milk, low purchase prices of milk, and decline in a great number of milk producers and processors (Nagyová et al., 2021). Profitable dairy producers must have a great ability to identify problems or opportunities and then, based on their experience and judgment, look for solutions. However, adequate and timely information is of crucial importance for today's managerial decision-making (Onozaka, Nurse and McFadden, 2010).

Over the last few years, supply chains have become increasingly complex, multilevel, and geographically widespread. However, there is still increasing downward pressure on costs without further competing priorities for providing excellent customer service and offering high-quality products and services (Wilhelm et al., 2016). As a result, companies are looking for new technologies and advanced tools to help them navigate complexity (Gunasekaran et al., 2017). In agribusiness, external pressures on better environmental conditions, animal welfare, and food safety practices, together with the internal pressures faced by the conventional food system have led to the development of new supply chains, too (Ilbery and Maye, 2005). The agri-food supply chains are characterized by unique characteristics, compared to the conventional supply ones. Therefore, adapted managerial systems based

on high product differentiation, seasonality, the short life cycle of perishable goods, specific requirements of transport, storage conditions, and quality and safety in compliance with national and international regulations are needed (van der Vorst, Beulens and van Beek, 2000). One of the most discussed types of supply chains in Slovak agribusiness is a yard sale. A yard sale can be understood as the selling of products from primary production directly to consumers or indirectly through traders, other farmers, or retailers. Wagner (2000) describes two forms of direct selling of agricultural products. The first is a direct selling to final consumers or households in a form of selling from the yard, selling in a field or an orchard, local marketplace, and self-collection. The second form of direct sales is selling through various channels, for example, sales to smaller processing companies such as bakeries and retailers, and wholesalers. Supeková (2014) describes yard sales as an economic activity aimed at producing and selling certain foods, specialty products, or typical traditional products. In this type, products can be delivered by local supply chains which support the local producers, while promoting a certain kind of culture in the country. Pretty (1998) describes selling from the farm shop as an important way of selling directly to customers. However, he is highlighting that setting up and running such shops can be very costly and often may not bear fruit, since it is aimed at customers who come to the farm on their own. In connection with this, Šimčák, Piszczalka and Bialeková (2003) add, that an important feature of the sale from the yard is that the revenues remain in the area and are further used for the development of the region. As a result, agriculture receives more funding, which helps to expand activities and create a positive impact on rural areas and employment. In addition, Supeková (2014) mentioned, that direct sale from the yard contributes to the development of agrotourism and countryside and diversification of agricultural production and expansion of the offer of the regional specialties and traditional products.

The operation of milk vending machines is a specific form of selling from the yard. This represents a short supply chain because there are no intermediaries between the farmer and the final consumer and a close supply chain. After all, all the participants are geographically close to each other (Gallaud and Laperche, 2016). In line with customers' wishes to buy local foods and consume natural unprocessed foods, consumers appreciate this distribution channel and at the same time can buy products cheaper. To meet this demand for 'freedom of choice', farmers have increased their sales using self-service vending machines for sale on farms, outside supermarkets, in public squares, car parks, or along crowded streets and cheese factories (Giacometti et al., 2012). In recent years, there has been a significant increase in the development of the vending machine industry. For many farmers, revenues from this become necessary since the price of milk barely covers the production costs of farms. Fortunately, in developed countries, consumers' interest in raw milk is attributed to current trends in organic food and traditional local products (Tremonte et al., 2014). Therefore, vending machines generally appear to be a dynamically developing sector of the economy with fierce competition on the market (Hampel, Jůzová and Matulíková, 2012). Still, this type of selling faces objections in many countries, even though

the legislation has been pushed slowly (Giacometti et al., 2012). Moreover, vending machines alone cannot solve the crisis in the dairy industry. Farmers must help with teaching consumers to buy and consume high-quality and health-promoting milk (Šmehýlová, 2010). The quality of milk in vending machines is guaranteed by strict rules. Machines allow the sale of raw milk only for twenty-four hours, the temperature of the storage unit and the condition of the milk machine can be checked any time via application (farmer) or key card (inspectors) (TMR, 2016). Moreover, under the HACCP (Hazard Analysis and Critical Control Points) system, food business operators shall ensure that all the stages of food production, processing, and distribution under their control comply with the hygiene requirements of Regulation (EC) No 852/2004. Successful implementation of the HACCP-based procedures requires full cooperation and deployment of employees, who, concerning this, should undergo training (Egan et al., 2007). In addition, since the vending machines dispense milk in a raw state, the farmer is legally obliged to order consumers to cook it before consumption (Böhnlein et al., 2021).

The main objective of this paper is to analyze consumers' interest in the products of the monitored company sold in the company's store and make suggestions for the future by examining eight factors of consumption (gender of respondents, their age, social status, income, number of people in their household, distance from the company's store, frequency of purchase, and awareness of the product range) and twelve preferences of respondents (the type of products they prefer, whether they buy meal, milk, meat products, specialties, grease, pâté and ready meal for consumption, frequency of buying milk in the company's store, their potential interest in buying new dairy products or milk from a vending machine, whether the monitored company plans to expand the product line and lastly, their suggestions on new products offered). For this purpose, we are analyzing answers of 202 respondents of an online questionnaire study who were customers of the examined company.

Some relevant prior studies are strongly aimed at biological, economic, or marketing conditions of the primary agricultural production, without specific recommendations for selected farmers according to their product lines or provision of details for their planning process. We consider this lack of managerial approach as a big disadvantage for Slovak farmers and as a reaction, we are providing a practically oriented study based on the situation of the selected livestock producer and aimed at the statistical significances as a base for further recommendations for management and marketing of this entity.

Our findings indicate that meat products, fresh meat, and slaughter specialties are the most favorite products among customers of the monitored company. Fresh milk, on the other hand, is not as attractive as a meal for customers, but selling fresh milk from vending machines placed out of the store would increase the sales. The dairy products of their production should be even more successful, as we assume they would be as interesting for customers as the currently expanding portfolio of meat products.

The paper is structured as follows: the introductory part provides an overview of literature sources dealing with

entrepreneurship in the primary agricultural production, specifically in animal production focused on the production of fresh meat and milk with the addition of sale of the agricultural products directly from the farm. Next, we are setting a scientific hypothesis and a goal for this study. According to them, we are describing the used material and methodological procedure including its limitations. After, we are introducing the monitored company and describing the outcomes of the implemented analysis and their implications for the business practice of the monitored company. In the end, we are summarizing our outcomes, regarding the description of customers and their interest in the selected products, including recommendations for the production and marketing of the monitored company.

Scientific Hypothesis

The study is conducted to analyze the demand of the monitored company and make some suggestions for the future. For this purpose, the article analyzes both frequencies of the examined variables and differences between them, as well as preferences of respondents based on the general hypothesis H0 and the set of alternative hypotheses HA connected with the general one (H1 – H8), each specified, according to one factor of consumption (Q1 – Q8):

H0: There is no difference between the observed variables (factors of consumption Q1 – Q8 and the preferences of respondents Q9 – Q13).

HA: There is a difference between the observed variables (factors of consumption Q1 – Q8 and the preferences of respondents Q9 – Q13).

For our research, this alternative hypothesis was extended to the set of specific hypotheses derived from HA (Table 1). Specific alternative hypotheses (H1 – H8) pointed to the differences between factors Q1 – Q8 and preferences of respondents Q9 – Q13. A computed *p*-value lower than the significance level $\alpha = 0.05$ indicates rejection of the null hypothesis H0, and acceptance of the alternative hypothesis HA and vice versa.

MATERIAL AND METHODOLOGY

The goal of this study is to analyze the demand of the monitored company and make suggestions for the future. The article examines eight factors of consumption (Q1 Gender, Q2 Age, Q3 Distance, Q4 Social Status, Q5 Household, Q6 Income, Q7 Frequency, Q8 Awareness) which can be at the same time considered as (sorting) characteristics of customers and twelve preferences of respondents (Q9 Consumption Preferences, Q9A Consumption of Meal, Q9B Consumption of Milk, Q9C Consumption of Meat Products, Q9D Consumption of Specialties, Q9E Consumption of Grease, Q9F Consumption of Pâté, Q9G Consumption of Ready Meal, Q10 Milk products, Q11 Milk Frequency, Q12 Milk Machine, Q13 Missing Product) which express respondents' interest in consumption (and buying) of the selected products of the monitored company.

Table 1 Specific hypotheses derivated from HA.

HA	There is a difference between...	Factor of consumption	...and the	Preferences of respondents
H ₁		Q1 Gender		Q9 Consumption- Preferences
H ₂		Q2 Age		Q9A Consumption Meal
H ₃		Q3 Distance		Q9B Consumption Milk
H ₄		Q4 Social Status		Q9C Consumption Meat Products
H ₅		Q5 Household		Q9D Consumption Specialities
H ₆		Q6 Income		Q9E Consumption Grease
H ₇		Q7 Frequency		Q9F Consumption Pate
H ₈		Q8 Awareness		Q9G Consumption Ready Meal Q10 Milk products Q11 Milk Frequency Q12 Milk Machine Q13 Missing Product

Table 2 Design of questionnaire.

Title	Code	Description	Options
Gender	Q1*	Gender	1- Man, 2 - Woman
Age	Q2*	Age	1 - 18-24, 2 - 25-34, 3- 35-44, 4- 45-54, 5 - 55 and more
Distance	Q3*	Distance from home to the monitored store	1 -Less than 10 km, 2 – less than 20 km, 3 - less than 30 km, 4 - 50 and more
Social Status	Q4*	Social inclusion of respondent	1 - Student, 2 - Working student, 3 - Employee, 4 - Pension / Maternity leave, 5 - Entrepreneur / Self-employed
Household	Q5*	Number of members in the household	1 - 1 person, 2 - 2-3 people, 3 - 4-5 2 people, 4 -6 and more people
Income	Q6*	Common monthly income	1- less than 900 EUR, 2- 900 – 1500 EUR, 3 -1500 EUR and more
Frequency	Q7*	Frequency of shopping in monitored store	1 - Every day, 2 - Several times a week, 3 - A couple of times a month, 4 - A couple of times a year
Awareness	Q8*	awareness of the respondent about the current offer of the monitored store	1- Yes, 2 - No
Consumption- Preferences	Q9	The most preferred product of consumption from the portfolio of monitored store	1 - Fresh meat and milk, 2 -Meat and meat products, 3 - Meat and meat specialties
Consumption Meal	Q9A	Consumption of fresh meat (beef, veal, pork, smoked) from monitored store	1- Yes, 2 - No
Consumption Milk	Q9B	Consumption of fresh milk from monitored store	1- Yes, 2 - No
Consumption Meat Products	Q9C	Consumption of meat products (Hams, dry sausages, sausages, sausages) from monitored store	1- Yes, 2 - No
Consumption Specialities	Q9D	Consumption of slaughterhouse specialties (press, slaughterhouse porridge, liver) from monitored store	1- Yes, 2 - No
Consumption Grease	Q9E	Consumption of ointment and greaves from monitored store	1- Yes, 2 - No
Consumption Pate	Q9F	Consumption of pâtés and sterilized meat from monitored store	1- Yes, 2 - No
Consumption Ready Meal	Q9G	Consumption of ready meals (cabbage, soup soup) from monitored store	1- Yes, 2 - No
Milk products	Q10	The potential interest of the respondents in new dairy products produced by the monitored company (cottage cheese, butter, yogurt, cheese)	1- Yes, 2 - No
Milk Frequency	Q11	Frequency of purchase of fresh milk in the monitored store	1 - Every day, 2 - Several times a week, 3 - A couple of times a month, 4 - A couple of times a year
Milk Machine	Q12	Potential increase in the consumption of raw cow's milk in case the subject place a milk vending machine outside the store	1- Yes, 2 - No
Missing Product	Q13	Missing product in the portfolio of monitored store	1- Yes, 2 - No

Note: *factors of consumption.

Description of the Experiment

Questionnaire preparation:

The study was conducted in a form of an online questionnaire (Raclaw, Barchas-Lichtenstein and Bajuniemi, 2020) created by Google Forms.

Number of questions analyzed: 13.

The design of the questionnaire is summarized in Table 2. The questionnaire includes closed questions only (Rowley, 2014). The first part of them Q1 – Q8 includes sorting questions and the following Q9 – Q13 are the questions directed at the preferences of respondents.

Conducting a questionnaire survey: Due to the current pandemic situation (Cato et al., 2020; Wang, 2021), the questionnaire was distributed online by social media (Kayam and Hirsch, 2012) based on stratified randomization (Kim and Shin, 2014). We addressed members of the local Facebook communities with the support of the examined company to kindly ask their customers to participate and share the questionnaire via their profile. In the process, roughly 4000 local users of Facebook were addressed, which can be approximated to 2000 potential responding households (with an assumption of two adults/users per household). Therefore, we can say that we addressed 2000 respondents out of which 207 returned a filled form. The return rate was calculated as 10.35%. After adjusting the data (Wapstra, Audi and Thibault, 2003), the sample was narrowed to 202 respondents.

For this article, we addressed exclusively customers of the examined producer, since the designed questionnaire aimed at their preferences in buying products in the company store. The population size (Kaliyadan and Kulkarni, 2019) was estimated from the number of inhabitants of the 50 km radius around the company's stores (considered in the questionnaire). This was derived from the number of inhabitants of two regions (region of Nové Mesto nad Váhom – 62,531 inhabitants + region of Myjava 26,895 inhabitants). Together, it is 89,426 inhabitants from 17,885 households (the estimated number of people per household is 4), which indicates the same number of potential customers, since we assume one respondent per household. Therefore, with a 95% of probability that our sample accurately reflects the attitudes of the population and a 7% margin of error, a sample of 202 respondents can be considered representative (Krejcie and Morgan, 1970).

Statistical Analysis

For this study, the use of statistical analysis was indispensable. The methodological procedure was based on the initial finding that the data have a normal distribution and no autocorrelation. Subsequently, we indicated statistically significant differences between the factors of consumption and the preferences of respondents and verified the established hypotheses. The found differences were subsequently subjected to a pairwise comparison.

Initially, the Shapiro Wilk test of normality (Shapiro and Francia, 1972) was used to verify, if the sample comes from a normal distribution. The Shapiro Wilk procedure shows the Sig. value for all dependent variables 0.000, which indicates that the data significantly deviate from a normal distribution. This outcome was proved also by partial Sapiro Wilk tests for factors Q1 – Q8, which

establish that the variables are not normally distributed for each level of independent variables.

To indicate, whether there is an autocorrelation between variables, the Durbin–Watson test on autocorrelation (Watson and Durbin, 1951) was used. This was based on the least-squares residual vector, which causes that distribution depends on the regression matrix (Abrahamse and Louter, 1971). The Durbin-Watson procedure for the variables Q1 – Q8 (Table 3) shows outcomes between 1.5 and 2.5 and therefore, we can conclude that the data do not autocorrelation with one another.

Subsequently, under the non-normally distributed data we had, the Kruskal-Wallis nonparametric statistical test, which assesses the differences among three or more samples on a single non-normally distributed variable (Kruskal and Wallis, 1952), was applied. We use the test with an assumption of statistically significant differences between groups of the independent variables Q1 – Q8 and continuous or ordinal dependent variables Q9 – Q13 (Table 4 – Table 11). After finding significance, according to the group of variables Q1 – Q8, we used the Bonferroni post hoc test to study the relationship between the variables (Lee and Lee, 2018) closely. The test was applied to pairwise comparisons of the significant relationships found by Kruskal-Wallis, with an assumption that the data are a random sample from a normal population. The post hoc analysis was conducted as a pairwise comparison of the dependent variables and factors, based on the estimated marginal means with the mean difference significant at the 0.05 level, using the adjustment for multiple comparisons (Table 12 – Table 26). The *p*-value calculated in these analyses was adjusted for Bonferroni correction and therefore, it was not necessary to correct it additionally. The pairwise comparisons were applied to significance between factors of consumption (Q1 – Q8) and preferences of respondents (Q9 – Q13) identified by the Kruskal-Wallis test, excluding combination of dependent variable Q11 Milk Frequency and factor Q7 Frequency because of an apparent link between them, although no autocorrelation between respondents' responses has been found. Nevertheless, in our opinion, this combination does not yield valuable results for interpretation.

For the statistical analysis and calculating of the data frequencies, the Software IBM SPSS Statistics Subscription 1.0.0.1447 was used.

RESULTS AND DISCUSSION

The monitored entity is an agricultural cooperative established in 1991 from the original one which started in 1949. The company's main activities include the production, processing, and sale of agricultural products. It is a long-term member of the agricultural sphere in Slovakia and has a tradition in the region. In its production, it focuses on crop and livestock and thereby achieves optimal diversification (De Roest, Ferrari and Knickel, 2018) of primary agricultural production. Currently, it manages 1500 hectares of land of which 1000 hectares are of arable land, where traditional crops grow, while 70% of plant production goes to feed the livestock (Church, 1991). From the livestock sector, the subject is engaged in pig breeding (Whittemore, 1980) and cattle farming oriented towards combined meat and milk production (Foley et al., 1972).

Table 3 Durbin-Watson test of autocorrelation for variables Q1 – Q8.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Q1	.379 ^a	0.144	0.054	0.457	2.273
Q2	.556 ^a	0.309	0.237	1.079	2.080
Q3	.370 ^a	0.137	0.047	0.746	1.905
Q4	.513 ^a	0.263	0.187	0.672	2.108
Q5	.434 ^a	0.188	0.104	0.614	1.908
Q6	.505 ^a	0.255	0.177	0.552	1.909
Q7	.700 ^a	0.490	0.437	0.529	1.986
Q8	.406 ^a	0.165	0.078	0.360	1.888

Table 4 Kruskal-Wallis Test – Grouping Variable: Q1 Gender.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	0.214	0.9	0.494	0	0.178	0.572	0.011	0.9	0.964	0.408	1.42	0.058
df	1	1	1	1	1	1	1	1	1	1	1	1
Asymp. Sig.	0.643	0.343	0.482	0.986	0.674	0.450	0.915	0.343	0.326	0.523	0.233	0.810

Table 5 Kruskal-Wallis Test – Grouping Variable: Q2 Age.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	0.675	2.082	3.678	4.105	5.095	0.565	2.153	2.331	1.271	0.936	11.616	10.295
df	4	4	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	0.954	0.721	0.451	0.392	0.278	0.967	0.708	0.675	0.866	0.919	0.020	0.056

Table 6 Kruskal-Wallis Test – Grouping Variable: Q3 Distance.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	2.505	3.193	5.74	2.228	0.577	2.582	1.394	1.039	2.224	6.52	3.305	2.336
df	3	3	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	0.474	0.363	0.125	0.527	0.902	0.461	0.707	0.792	0.527	0.089	0.347	0.506

Table 7 Kruskal-Wallis Test – Grouping Variable: Q4 Social Status.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	8.9	3.13	5.938	4.495	4.367	4.47	5.428	0.898	2.273	6.898	4.737	2.949
df	4	4	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	0.088	0.536	0.204	0.343	0.359	0.346	0.246	0.925	0.686	0.141	0.315	0.566

Table 8 Kruskal-Wallis Test – Grouping Variable: Q5 Household.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	1.512	4.274	5.997	2.029	6.942	24.937	4.838	3.98	2.298	6.49	2.443	5.298
df	3	3	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	0.680	0.233	0.112	0.567	0.074	<u>0.000</u>	0.184	0.264	0.513	<u>0.030</u>	0.486	0.151

Table 9 Kruskal-Wallis Test – Grouping Variable: Q6 Income.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	0.081	2.574	1.694	0.736	1.496	7.111	8.746	0.836	1.777	0.723	2.44	0.278
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	0.961	0.276	0.429	0.692	0.473	<u>0.029</u>	<u>0.013</u>	0.658	0.411	0.697	0.295	0.870

Table 10 Kruskal-Wallis Test – Grouping Variable: Q7 Frequency.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	4.287	14.533	9.223	7	13.727	11.382	2.759	10.271	6.259	64.606	6.847	13.773
df	3	3	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	0.232	<u>0.002</u>	<u>0.026</u>	0.072	<u>0.003</u>	<u>0.010</u>	0.43	<u>0.016</u>	0.100	<u>0.000</u>	0.077	<u>0.003</u>

The company processes approximately 3,000 pigs per year. In dairy farming, it focuses on the longevity of cows (**VanRaden and Klaaskate, 1993; Pritchard et al., 2013**) to reach the intermediate period below 390 days and to show favorable production parameters. The average performance of the herd (**Coleman, Thayne and Dailey, 1985**) varies around 8,000 kg of milk per cow. Also, the subject owns a slaughterhouse and since 2015, it sells slaughter meat and products in its store. The offer based on fresh products was designed primarily for residents of the surrounding area. But the shop is regularly visited by inhabitants of nearby villages and towns, too. Therefore, the company decided to facilitate access to their products for people from the wider surroundings, and in 2018, the second store was opened. In these stores, they sell own-produced (1) pork (head, lobe, neck, shoulder, loin, tenderloin, belly, thigh, stock, tail, knee, leg and meat smoked by traditional technology on beech wood, (2) beef (neck, chest, shoulder, high and low filler, true sirloin, ribs, groin, and tail), (3) veal and (4) chicken meat. In addition, they offer meat products, traditional hams various types of sausages, slaughter specialties (porridge, stems), fat, grease, pâté, and sterilized meat. Newly, there are also ready-made dishes (ready meal) such as cabbage soup or soup stick. Fresh cow's milk, which can be sucked into a plastic bottle or own container, is also a stable part of the product line. The milk dispensing rack is made for self-service dosing into bottles. For the future, the monitored entity is considering placing the milk vending machine (**Doležalová et al., 2014**) outside the store, which presupposes an increase in milk sales, as it will be closer to consumers and due to this, it will not be necessary to visit the store for its purchase. In addition, due to the extraordinary success of meat products and specialties, the entity is considering the production of its own dairy products. Therefore, this paper analyzes the views and preferences of customers of the monitored entity on the currently offered products and verifies the expected success of the planned changes and expansion of the product line.

The benefit of this study lies in the consideration of the practical use of the obtained results in the planning of the production base of the monitored company. In addition, its contribution is theoretical in the expansion of the knowledge of management of the primary agricultural production in Slovakia and points out the need to strengthen the position of livestock production in the economy of the individual agricultural entities and country. As the world population continues to grow, the main challenge facing society is to maintain a strong and viable food system that is closely linked to the well-being and comfort of food-producing animals (**Wilson and Burton, 2015**) and to create strong connections between cultural and biological values (**Dobrovodská et al., 2019**) in rural society. This study's object is the primary agricultural producer who contributes to the fulfillment of the mentioned functions in its wider region. It focuses on the production of fresh and high-quality products, affordable and geographically available to people in the region. This effort is therefore directly dependent on the requirements of customers. It is the scientific processing that is an appropriate tool for analyzing the customers' requirements and preferences and we believe that this study, conducted in an academic approach, will bring practical benefits to the next steps in the business of monitored subject. Regarding this,

we have analyzed the answers of 202 respondents – customers of the monitored company. An online questionnaire study aimed at their preferences in buying products offered in the company's store was implemented. The questionnaire includes a set of sorting questions (Q1 – Q8), which helps us to understand the structure of the company's customers in a more detailed way, together with the questions (Q9 – Q13), which are aimed at consumers' preferences for products of the monitored store.

According to the product-oriented set of questions, we can conclude that the most preferred products of consumption (Q9 Consumption – Preferences) from the portfolio of the monitored store are meat and meat specialties, which is the reason for visiting the store for 62.4% of customers (126 out of 202). An additional 24.8% of them (50 out of 202) are interested mainly in meat and meat products (specialties excluding). And just the rest of 12.9% (26 out of 202) are interested in fresh milk and meat. In line with this, **Cupák, Pokrivčák and Rizov (2015)** described demand for dairy products as own-price elastic, which indicates that such goods are perceived as luxuries. Described structure of the customer's interest confirms that the recent expansion of the product portfolio of meat products and slaughter specialties was a good step, as these are the reasons for visiting the store for more than 80% of customers.

The specific composition of the customer's preferences in buying products of the monitored store is shown in Figure 1 and Figure 2. This proves that meat products, fresh meat, and slaughter specialties are the most favorite products among customers of the monitored company. The study of **Thornton (2010)** expected similar customer preferences and predicted a continuous increase in the demand for livestock products, driven largely by human population growth, income growth, and urbanization for the next three decades, at least.

Fresh milk, on the other hand, is not as attractive as a meal for customers. Just 1.5% of them (3 out of 202) buy fresh milk in the monitored store every day, 16.3% (33 out of 202) buy it several times a week and 34.7% (70 out of 202) buy it a couple of times a month. Almost half of the examined customers, 47.5% (96 out of 202), buy fresh milk just a couple of times a year. Such insufficient consumption of milk and dairy products was highlighted also by **Kubicová, Predanociová and Kádeková (2019)**, who assumed that in Slovakia, it is just at the level of 70% of the recommended intakes. Therefore, we see a solution for the monitored company in a start-up of production of their dairy products. We are recommending this even though since 1990, we have significantly reduced the production and consumption of dairy products in Slovakia, which resulted in two to three times fewer consumption of acidic products and cheese than in the developed countries of Europe (**Herian, 2019**).

Table 11 Kruskal-Wallis Test – Grouping Variable: Q8 Awareness.

	Q9A Meal	Q9B Milk	Q9C Meat product	Q9D Specialty	Q9E Grease	Q9F Pate	Q9G Ready meal	Q9 Preferences	Q10 Milk products	Q11 Milk Frequency	Q12 Milk Machine	Q13 Missing Product
Kruskal-Wallis H	2.986	1.283	1.2	0.326	4.204	6.433	0.593	1.004	8.95	6.594	0.036	1.953
df	1	1	1	1	1	1	1	1	1	1	1	1
Asymp. Sig.	0.084	0.257	0.313	0.568	<u>0.040</u>	<u>0.011</u>	0.441	0.316	<u>0.003</u>	<u>0.010</u>	0.850	0.162

Table 12 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9B Milk vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	0.252	0.225	1	-0.348	0.853
	3	-0.052	0.219	1	-0.635	0.531
	4	-0.094	0.228	1	-0.703	0.514
2	1	-0.252	0.225	1	-0.853	0.348
	3	-.304*	0.084	<u>0.002</u>	-0.527	-0.082
	4	-.347*	0.107	<u>0.008</u>	-0.63	-0.063
3	1	0.052	0.219	1	-0.531	0.635
	2	.304*	0.084	<u>0.002</u>	0.082	0.527
	4	-0.042	0.091	1	-0.286	0.201
4	1	0.094	0.228	1	-0.514	0.703
	2	.347*	0.107	<u>0.008</u>	0.063	0.63
	3	0.042	0.091	1	-0.201	0.286

Table 13 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9C Meat product vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.13	0.195	1	-0.65	0.389
	3	-0.226	0.189	1	-0.73	0.278
	4	-0.389	0.197	0.302	-0.915	0.137
2	1	0.13	0.195	1	-0.389	0.65
	3	-0.096	0.072	1	-0.288	0.097
	4	-.258*	0.092	<u>0.033</u>	-0.504	-0.013
3	1	0.226	0.189	1	-0.278	0.73
	2	0.096	0.072	1	-0.097	0.288
	4	-0.163	0.079	0.244	-0.373	0.048
4	1	0.389	0.197	0.302	-0.137	0.915
	2	.258*	0.092	<u>0.033</u>	0.013	0.504
	3	0.163	0.079	0.244	-0.048	0.373

Table 14 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9E Grease vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.052	0.178	1	-0.525	0.421
	3	-0.261	0.172	0.789	-0.72	0.198
	4	-0.317	0.18	0.48	-0.796	0.163
2	1	0.052	0.178	1	-0.421	0.525
	3	-.209*	0.066	<u>0.011</u>	-0.384	-0.033
	4	-.264*	0.084	<u>0.011</u>	-0.488	-0.041
3	1	0.261	0.172	0.789	-0.198	0.72
	2	.209*	0.066	<u>0.011</u>	0.033	0.384
	4	-0.056	0.072	1	-0.248	0.136
4	1	0.317	0.18	0.48	-0.163	0.796
	2	.264*	0.084	<u>0.011</u>	0.041	0.488
	3	0.056	0.072	1	-0.136	0.248

Table 15 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9E Grease vs Factor: Q8 Awareness.

(I) Q8 Awareness		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-.150*	0.072	<u>0.04</u>	-0.292	-0.007
2	1	.150*	0.072	<u>0.04</u>	0.007	0.292

Table 16 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9F Pate vs Factor: Q5 Household.

(I) Q5 Household		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	0.155	0.158	1.00	-0.268	0.577
	3	0.159	0.159	1.00	-0.264	0.583
	4	.818*	0.191	<u>0.00</u>	0.309	1.328
2	1	-0.155	0.158	1.00	-0.577	0.268
	3	0.004	0.055	1.00	-0.143	0.152
	4	.664*	0.12	<u>0.00</u>	0.344	0.983
3	1	-0.159	0.159	1.00	-0.583	0.264
	2	-0.004	0.055	1.00	-0.152	0.143
	4	.659*	0.12	<u>0.00</u>	0.338	0.98
4	1	-.818*	0.191	<u>0.00</u>	-1.328	-0.309
	2	-.664*	0.12	<u>0.00</u>	-0.983	-0.344
	3	-.659*	0.12	<u>0.00</u>	-0.98	-0.338

Table 17 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9F Pate vs Factor: Q6 Income.

(I) Q6 Income		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.159	0.124	0.601	-0.458	0.14
	3	-0.002	0.121	1	-0.295	0.29
2	1	0.159	0.124	0.601	-0.14	0.458
	3	.157*	0.059	<u>0.025</u>	0.015	0.299
3	1	0.002	0.121	1	-0.29	0.295
	2	-.157*	0.059	<u>0.025</u>	-0.299	-0.015

Our proposal assumes that customers could be more interested in dairy products than in fresh cow's milk itself, just as it is with meat products, in which customers are more interested than in fresh meat. Moreover, potential interest in new dairy products of the monitored company (cottage cheese, butter, yogurt, cheese), Q10, was expressed by 186 out of 202 asked customers, which indicates the niche on this local market and creates potential space for expansion. On the other hand, the potential increase in the consumption of raw cow's milk, in case the subject places a milk vending machine outside the store was shown just by 98 out of 202 customers, which still provides an opportunity but not as clear one as in the case of dairy products (Table 2).

This was indicated also by the outcomes of **Nagyová et al. (2021)**, who described a highly positive response of consumers (more than 94%) to the consumption of the Slovak traditional cheeses and dairy products. However, it must be mentioned that the recent worldwide consumption of animal-based products has decreased in favor of plant-based food products, under the current trend of the global expansion of alternative food (**Prytulská, 2021**). Also, when expanding the product range, the monitored company should be aware of the main factors determining the consumption of milk and dairy products considered by **Kubicová, Predanociová and Kádeková (2019)** as are quality, composition, price, durability, and nutrition data. These variables form consumer's attitudes and were thus found to be an important predictor of local food purchase behavior (**Feldmann and Hamm, 2015**).

According to gender, we can say that customers of the examined company are mostly women, 136 out of 202 (67.3%), which corresponds with the outcomes of **Ubřeziová et al. (2019)**, who states that women tend to buy dairy products more often than men. This fact should be taken into consideration when planning marketing and choosing retail strategies, customized for female clients (**Bakewell and Mitchell, 2003; Silverstein and Sayre, 2009; Hawkins and Mothersbaugh, 2010**). On the other hand, we do not recommend modifying the offered assortment and adapting it to the generally accepted preferences of female customers, given that we are analyzing products purchased for the whole family and therefore, the preferences of other household members should be considered, too. This is supported also by the results of the statistical examination out of which the Kruskal-Wallis test (Table 4) showed no statistically significant differences in the preferences of men and women involved in our study since p -values of all the examined variables were higher than significant 0.05. Therefore, in the case of grouping the variable Q1, we are accepting the null hypothesis H_0 and rejecting the alternative hypothesis H_1 . According to this, we consider the personal preferences of the one who is buying as not decisive, since products of the monitored company are foods for the whole family. Thus, the composition of the purchase reflects the customs of the family as a community and is based on the observances and traditions grown within the family (**MacGregor, 1995**) without a link to the preferences of a particular gender. On the other hand, this outcome

could be enhanced by the fact that the study was carried out at the time of the applied lockdown restricting the mobility of persons, which theoretically excluded more than one household person from buying and thus promoting their preferences.

From the age point of view, customers of the examined company are more diverse. We stratified five age groups (Table 5) which reflect the life stages of respondents. In the first group, there were young adults from 18 to 24 years of age, who typically still stay at their parent's house (**White, 1994**). Even though they often have at least a partial source of their own income (**Szendrey and Fiala, 2018**), their basic maintenance (food including) is often financed by their parents. This age group formed 11.9 % of respondents (24 out of 202). The second relatively low represented group (12.9%) was of age 25 and more (26 out of 202), which can be influenced by the fact, that the rural population (the study was carried out in an area with almost exclusive representation of rural settlements) in this age category maintains the tradition of domestic slaughters (**Edwards, 2010**) and self-made meat products (**Talon et al., 2007**), which results in a lower need for buying them. Age groups from 35 to 44 (21.8%) and 45 to 54 years (22.3%) are significantly higher represented. Respondents from the group of 35 to 44 year old (44 out of 202) are typically from families who have children in elementary schools or of teenage age and thus, their preferences affect the shopping habits within the family. Subsequently, respondents from the group of 45 to 54 years of age typically have children of adult age, yet dietary needs remain common. Adults at the age of 25 – 34 (32.2%) have the highest representation among the customers. In our opinion, the reason for this is that they are parents of younger children and thus try to be responsible, well informed, and rational, which results in their efforts to ensure high quality, fresh and local products for their family, since the home food environment is particularly important during childhood by making healthful foods available and accessible, modeling healthful eating behaviors, and encouraging children to choose healthful foods. Due to this, parents help them develop dietary patterns that will serve them well throughout their lives (**Ray and Klesges, 1993**). It must be mentioned that we found no significant differences in the frequency of shopping ($p = 0.705$) between mentioned age groups and therefore, there are no differences in the frequency of purchases between customers of different ages, either. Different age groups are represented in different numbers. However, significant differences were found (Table 5) in the case of Q12 for which we can reject the null hypothesis and adopt the alternative hypothesis H_2 . The Kruskal-Wallis test showed a statistically significant difference in attitudes towards the placement of a new milk vending machine among different age groups $\chi^2(2) = 11.616$ with $p = 0.020$. The subsequent post hoc test showed that this significant difference was between the age group 1 and 4 (Table 25), which means that the customers of age groups of 18 to 24 years old and of 45 to 54 years old have different attitudes ($p = 0.017$) towards the milk machine placed out of the existing company's shop.

Table 18 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9F Pate vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.052	0.186	1	-0.548	0.443
	3	-0.252	0.18	0.982	-0.733	0.229
	4	-0.317	0.188	0.567	-0.819	0.186
2	1	0.052	0.186	1	-0.443	0.548
	3	-.200*	0.069	<u>0.025</u>	-0.384	-0.016
	4	-.264*	0.088	<u>0.018</u>	-0.499	-0.03
3	1	0.252	0.18	0.982	-0.229	0.733
	2	.200*	0.069	<u>0.025</u>	0.016	0.384
	4	-0.064	0.075	1	-0.265	0.136
4	1	0.317	0.188	0.567	-0.186	0.819
	2	.264*	0.088	<u>0.018</u>	0.03	0.499
	3	0.064	0.075	1	-0.136	0.265

Table 19 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9F Pate vs Factor: Q8 Awareness.

(I) Q8 Awareness		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-.191*	0.075	<u>0.012</u>	-0.339	-0.043
2	1	.191*	0.075	<u>0.012</u>	0.043	0.339

Table 20 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9G Ready meal vs Factor: Q6 Income.

(I) Q6 Income		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-.242*	0.089	<u>0.022</u>	-0.458	-0.027
	3	-.263*	0.087	<u>0.009</u>	-0.473	-0.052
2	1	.242*	0.089	<u>0.022</u>	0.027	0.458
	3	-0.02	0.043	1	-0.123	0.083
3	1	.263*	0.087	<u>0.009</u>	0.052	0.473
	2	0.02	0.043	1	-0.083	0.123

Table 21 Pairwise Comparisons – Bonferroni: Dependent Variable: Q9 Preferences vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	0.126	0.329	1	-0.751	1.003
	3	0.287	0.319	1	-0.564	1.138
	4	0.633	0.333	0.354	-0.255	1.522
2	1	-0.126	0.329	1	-1.003	0.751
	3	0.161	0.122	1	-0.164	0.486
	4	.507*	0.155	<u>0.008</u>	0.093	0.922
3	1	-0.287	0.319	1	-1.138	0.564
	2	-0.161	0.122	1	-0.486	0.164
	4	0.346	0.133	0.061	-0.009	0.702
4	1	-0.633	0.333	0.354	-1.522	0.255
	2	-.507*	0.155	<u>0.008</u>	-0.922	-0.093
	3	-0.346	0.133	0.061	-0.702	0.009

Table 22 Pairwise Comparisons – Bonferroni: Dependent Variable: Q10 Milk products vs Factor: Q8 Awareness.

(I) Q8 Awareness	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
				Lower Bound	Upper Bound
1 2	-.152*	0.05	<u>0.003</u>	-0.251	-0.054
2 1	.152*	0.05	<u>0.003</u>	0.054	0.251

Table 23 Pairwise Comparisons – Bonferroni: Dependent Variable: Q11 Milk Frequency vs Factor: Q5 Household.

(I) Q5 Household	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b		
				Lower Bound	Upper Bound	
1	2	0.149	0.327	1	-0.722	1.021
	3	0.227	0.328	1	-0.647	1.101
	4	0.864	0.394	0.178	-0.187	1.915
2	1	-0.149	0.327	1	-1.021	0.722
	3	0.078	0.114	1	-0.227	0.383
	4	.714*	0.247	<u>0.026</u>	0.055	1.373
3	1	-0.227	0.328	1	-1.101	0.647
	2	-0.078	0.114	1	-0.383	0.227
4	1	0.636	0.249	0.067	-0.026	1.299
	2	-0.864	0.394	0.178	-1.915	0.187
3	2	-.714*	0.247	<u>0.026</u>	-1.373	-0.055
	4	-0.636	0.249	0.067	-1.299	0.026

Table 24 Pairwise Comparisons – Bonferroni: Dependent Variable: Q11 Milk Frequency vs Factor: Q8 Awareness.

(I) Q8 Awareness	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
				Lower Bound	Upper Bound
1 2	-.368*	0.146	<u>0.013</u>	-0.657	-0.079
2 1	.368*	0.146	<u>0.013</u>	0.079	0.657

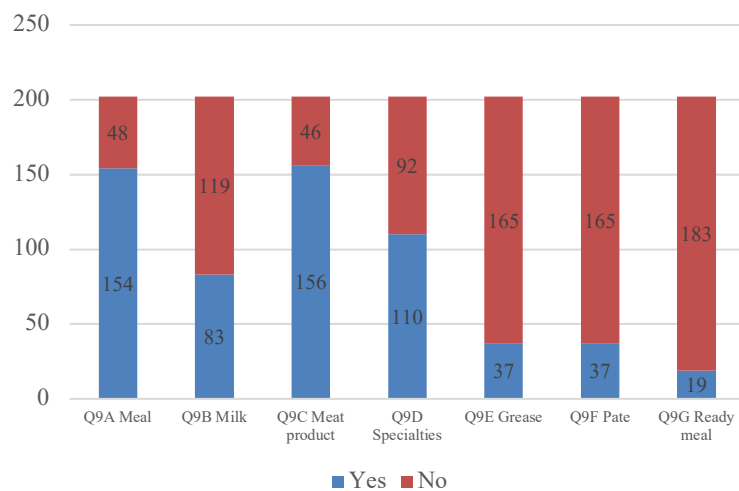


Figure 1 Frequencies of Q9A – Q9G.

These outcomes highlighted no necessity to adjust the product portfolio to different age groups of customers, but it must be perceived with caution in the plans, regarding selling raw milk in vending machines and taking the age of customers into consideration. The third examined variable was distance Q3. The choice of this variable was based on the outcomes of **Javanmard and Hoseini (2013)**, who proved a significantly positive relationship between short distance and customers' satisfaction. Our findings show that the majority of customers (74.8%) are from the neighborhood of ten kilometers (151 out of 202), which shows similarities with the outcomes of **Onozaka, Nurse and McFadden (2010)**, who identified that 82% of people buy local fresh products, which is vital information, regarding the aim of a marketing strategy. In connection with this, we strongly recommend pointing to the benefits of the local fresh production intended primarily for the direct domestic consumers. The rest of the customers live far from the company's store. Concerning distance of more than 10 kilometers but less than 20, 17.8% of them arrive in the store (36 out of 202) and concerning the distance of 30 kilometers, 2.5% of them arrive at the store (5 out of 202). Surprisingly, due to the products of the monitored company, 5% of the examined customers (10 out of 202) do not hesitate to overcome the longest distance of 30 to 50 kilometers. However, in the case of this variable, no significance was found. The Kruskal-Wallis test (Table 6) showed no statistically significant differences in the preferences of customers from different distances since p -values of all the examined variables were higher than 0.05 and therefore, for the variable Q3, we are accepting the null hypothesis H0 and rejecting the alternative hypothesis H3. It must be mentioned that from the distance point of view, **Bond, Thilmany and Bond (2009)** recommended increasing security and loyalty towards the current local customers by emphasizing the availability of fresh, superior, vitamin-rich, and locally grown products. To attract new customers who do not currently have a preference for purchasing directly, producers may find greater success by locating shop into the convenient-to-reach venues, showcasing a variety of colorful offerings, and working to enhance the overall aesthetic appeal of the market locations.

A similar statistical outcome as in the case of distance Q3 was found also in the case of the variable Q4 social status. Here we are accepting the null hypothesis H0 and rejecting the alternative hypothesis H4 out of the same reasoning (Table 7). Nevertheless, it can be concluded that just 4% of customers (8 out of 202) are students (with no own income) and an additional 4.5% of them (9 out of 202) are working students with their income. Surprisingly, just 6.4% are entrepreneurs or self-employers (13 out of 202) and 10.4 % of them are on a pension or maternity leave (21 out of 202). Therefore, we can say that most of the customers are employees (151 out of 202) and we can assume that this 74.8% represent adults with regular income, which allows them to buy products of the monitored company.

As the next examined variable, the Q5 household was chosen to identify, whether there is a difference in customer's preferences connected with the number

of people, their household consists of. One-person households are represented among customers of the monitored store only by 3% (6 out of 202), similarly to households of more than six people, by 5.4% (11 out of 202). The majority of customers, 48% (97 out of 202), are from families of two to three people, and surprisingly, a little lower number of them (88 out of 202) are from four to five-member families (44%). This distribution supports the general fact that most people of productive age (our most represented group of respondents) live in three to five-member households (**SOSR, 2020**). However, we believe that in the case of our respondents, it is also due to the increased interest in fresh meat and dairy products by families with children who are trying to apply a responsible approach to their eating habits (**Pedersen, Grønhoj and Bech-Larsen, 2012**). Moreover, in the case of this variable (Q5 Household), the Kruskal-Wallis test (Table 8) showed a significant difference in buying Pâté Q9F, $\chi^2(2) = 24.937$ and $p = 0.000$. The post hoc Bonferroni test showed a specific significance between families of more than six people and every other examined family type with the $p = 0.000$ (Table 16). This outcome indicates that the examined company should apply a different approach in selling their pâté to bigger households (more than six people). But, because this type of family is represented just by 5.4%, we do not recommend taking any specific actions. According to the Kruskal-Wallis test (Table 8), there was also a significant difference in the frequency of buying Q11 fresh raw milk ($\chi^2(2) = 6.49$ and $p = 0.030$), which under a deeper analysis (the Bonferroni post hoc test) showed a pairwise difference (Table 23) between households of two to three people and households with more than six people ($p = 0.026$). For the factors Q9F Pâté and Q11 Milk Frequency, we can therefore accept the alternative hypothesis H5. This indicates that the examined company should apply a different approach when selling fresh milk to these types of families. But again, due to a low share of more than six people families among customers of this company, we consider special activities too costly with a high risk that they will not be effective.

Generally, consumers' income and food prices are understood as the main influential factors affecting food consumption in Slovakia (**Benda-Prokeinová and Hanová, 2016**). Regarding this, the variable Q6 Income was included in the analysis to detect the income level of customers, which can help to understand their demand and price elasticity. According to this, we set three levels of customers' income. Monthly income under 900 EUR occurred less often, in just 5.9% of them (12 out of 202). Monthly income of 900 to 1500 EUR occurred in 38.1% of customers (77 out of 202) and surprisingly, the highest level of income which was set over 1500 EUR per month occurred in more than a half (55.9%) of the examined customers (113 out of 202). These outcomes indicate that the products of the monitored company are popular with people from a higher income group, given that the average nominal monthly wages of an employee in the Slovak economy (in 2020) was 1133 EUR (**SOSR, 2021**). Additional statistical analysis (Table 9) shows significant differences in buying pâté and ready meal by different income groups of customers. In case of Q9F Pâté, it was with $\chi^2(2) = 7.111$ and $p = 0.029$.

Table 25 Pairwise Comparisons – Bonferroni: Dependent Variable: Q12 Milk Machine vs Factor: Q2 Age.

(I) Q2 Age		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.258	0.118	0.298	-0.592	0.077
	3	-0.341	0.125	0.068	-0.695	0.013
	4	-.394*	0.124	<u>0.017</u>	-0.747	-0.042
	5	-0.173	0.139	1	-0.568	0.222
2	1	0.258	0.118	0.298	-0.077	0.592
	3	-0.083	0.097	1	-0.357	0.191
	4	-0.137	0.096	1	-0.409	0.136
	5	0.085	0.115	1	-0.24	0.41
3	1	0.341	0.125	0.068	-0.013	0.695
	2	0.083	0.097	1	-0.191	0.357
	4	-0.054	0.104	1	-0.349	0.242
	5	0.168	0.122	1	-0.177	0.513
4	1	.394*	0.124	<u>0.017</u>	0.042	0.747
	2	0.137	0.096	1	-0.136	0.409
	3	0.054	0.104	1	-0.242	0.349
	5	0.221	0.121	0.689	-0.122	0.565
5	1	0.173	0.139	1	-0.222	0.568
	2	-0.085	0.115	1	-0.41	0.24
	3	-0.168	0.122	1	-0.513	0.177
	4	-0.221	0.121	0.689	-0.565	0.122

Table 26 Pairwise Comparisons – Bonferroni: Dependent Variable: Q13 Missing Product vs Factor: Q7 Frequency.

(I) Q7 Frequency		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-0.1	0.212	1	-0.664	0.464
	3	-0.348	0.205	0.552	-0.895	0.2
	4	-0.406	0.215	0.361	-0.977	0.166
2	1	0.1	0.212	1	-0.464	0.664
	3	-.248*	0.078	<u>0.011</u>	-0.457	-0.039
	4	-.306*	0.1	<u>0.015</u>	-0.572	-0.039
3	1	0.348	0.205	0.552	-0.2	0.895
	2	.248*	0.078	<u>0.011</u>	0.039	0.457
	4	-0.058	0.086	1	-0.287	0.171
4	1	0.406	0.215	0.361	-0.166	0.977
	2	.306*	0.1	<u>0.015</u>	0.039	0.572
	3	0.058	0.086	1	-0.171	0.287

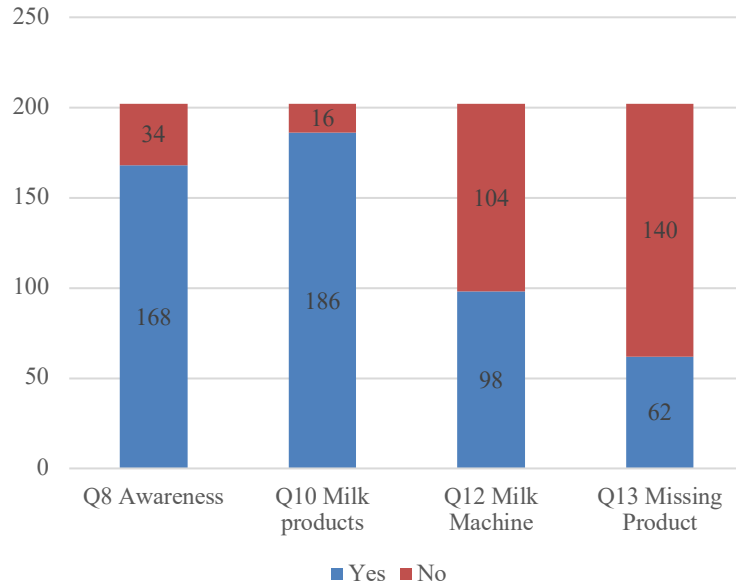


Figure 2 Frequencies of Q8, Q10, Q12, and Q13.

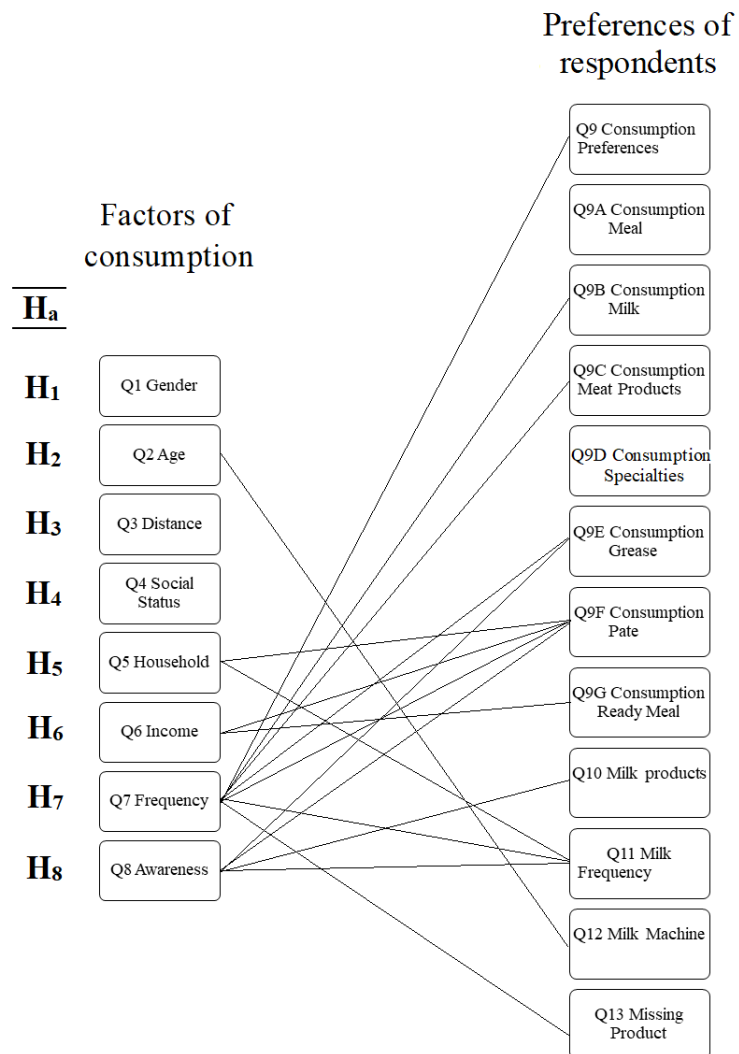


Figure 3 Graphical Conclusion.

The subsequent post hoc testing shows a difference (Table 17) between income groups of 900 to 1500 EUR and over 1500 EUR ($p = 0.025$). This pairwise comparison indicates the need for a different approach when selling pâté to customers with income under or over 1500 EUR. A similar difference was found by the Kruskal-Wallis test (Table 9) in buying Q9G ready-made dishes ($\chi^2(2) = 8.746$ and $p = 0.013$) with a pairwise difference (Table 20) between the lowest income group (under 900 EUR) and the other two income groups (with income of 900 to 1500 EUR, $p = 0.022$ and with income over 1500 EUR, $p = 0.009$). According to this, we can accept the alternative hypothesis H6 for two factors Q9F Pâté and Q9G Ready Meal.

These outcomes show the need for a different approach to customers with different incomes in case of a supply of specific products such as pâté and ready meal. Even though we identified this specificity only in the case of two products from the current portfolio, we recommend being aware of this variable in the future, too, when the monitored company will consider expanding the product portfolio and including other special products in it, too. This statement is supported by the outcomes of **Ubrežiová et al. (2019)**, who found the significance of the impact of the customer's average income per month on their willingness to pay for high-quality and relatively expensive dairy products. On the other hand, **Kádeková et al. (2017)** confirmed that 18% of respondents buy most meat and meat products of organic quality and 13% of them fully prefer dairy products of organic quality, which indicates a possibility for the monitored company to succeed when certifying production, even though the certified organic products will be of higher price.

Despite some statistical significance in the case of previous factors of consumption, the highest number of differences was found in connection with the factor Q7 Frequency. This showed the frequency of shopping in the monitored store and it was divided into four alternatives with the following outcomes. Just 2.5% of respondents (5 out of 202) visit the monitored shop every day, even though they sell fresh products of everyday consumption. This outcome is understandable, regarding lockdown applied at the time of the survey. Still, 22.8% of respondents visit the shop several times a week (46 out of 202) and 56.9% a couple of times a month (115 out of 202). Just 17.8% (36 out of 202) represent rare visitors, who visit the store just a couple of times a year. The Kruskal-Wallis test (Table 10) proved significant differences between these frequencies of shopping in connection with six factors (Q9, Q9B, Q9C, Q9E, Q9F, and Q13). In such cases, we can reject the null hypothesis and accept the alternative hypothesis H7. Differences in frequencies when buying (Q9B) milk ($\chi^2(2) = 14.533$ and $p = 0.002$) were found (Table 12) between buying several times a week and a couple of times a month ($p = 0.002$) and buying several times a week and a couple of times a year ($p = 0.008$). Similarly, differences (Table 10) in frequencies when buying (Q9C) meat products ($\chi^2(2) = 9.223$ and $p = 0.026$) were found (Table 13) between buying several times a week and a couple of times a year ($p = 0.033$). Also, in frequencies (Table 10) when buying (Q9E) grease ($\chi^2(2) = 13.727$ and $p = 0.003$), differences were found (Table 14) between buying several times a week and a couple of times a month ($p = 0.011$) and

several times a week and a couple of times a year ($p = 0.011$). In frequencies (Table 10) when buying (Q9F) pâté ($\chi^2(2) = 11.382$ and $p = 0.010$), differences were found (Table 18) again between buying several times a week and a couple of times a month ($p = 0.025$) and several times a week and a couple of times a year ($p = 0.018$). In frequencies considering (Q9 Preferences) the most preferred product of consumption (Table 10) from the portfolio of the monitored store ($\chi^2(2) = 10.271$ and $p = 0.016$), differences were found (Table 21) between buying several times a week and a couple of times a year ($p = 0.008$). Lastly, we found differences between the frequency of visiting the monitored store and opinions of respondents on the missing product (Table 10) in the portfolio ($\chi^2(2) = 13.773$ and $p = 0.003$). In pairwise comparison, it was (Table 26) again between buying several times a week and a couple of times a month ($p = 0.011$) and several times a week and a couple of times a year ($p = 0.015$). According to this, we can conclude that significant differences were found between the examined frequencies of visiting the monitored store, mostly in case of buying several times a week and a couple of times a month (Q9B, Q9E, Q9F, and Q13) and several times a week and a couple of times a year (Q9, Q9B, Q9C, Q9E, Q9F, and Q13). The high number of these differences indicates a strong need for adjusting the selling strategy, regarding the frequency of visiting the store and using specific marketing tools for customer groups, according to the frequency of their purchases, at least for products as fresh milk and fresh meat, grease, and pâté. Also, this approach would be essential in connection with expanding the portfolio by selling raw milk in vending machines outside the store or by other new products which are currently missing in the portfolio.

Finally, some significance was found in the case of the factor Q8 Awareness, which expresses the awareness of the respondents of the current offer of the monitored store. This question is simply dichotomic and shows that 83.2% of respondents (168 out of 202) are aware and feel to be well informed about the current offer of the monitored store and the rest of 16.8% (34 out of 202) feel not to be. Specifically, differences in customer's awareness were found in the case of the variables Q9E, Q9F, Q10, and Q11, for which we can reject the null hypothesis and accept the alternative hypothesis H8. Significance was found by the Kruskal-Wallis test (Table 11) and proved by the Bonferroni pairwise comparisons with the same p -value since Q8 was dichotomic. Mentioned significant differences in customer's awareness were in case of the products Q9E Grease ($\chi^2(2) = 4.204$ and $p = 0.040$); Q9F Pâté ($\chi^2(2) = 6.433$ and $p = 0.011$); Q10 Milk products ($\chi^2(2) = 8.95$ and $p = 0.003$) and Q11 Milk Frequency ($\chi^2(2) = 6.594$ and $p = 0.010$). This outcome shows a gap in customer's information about the current offer. Since all the examined customers are proficient in the use of social networks and information and communication technologies, we suggest the monitored company consider, for example, distribution of an information leaflet with the current offer through a local group on Facebook (as this method has also proven itself in the distribution of the questionnaire research). This suggestion is supported by **Jahn and Kunz (2012)** as well as **Huang and Chen**

(2018) who highlighted that consumer engagement and loyalty to the brand increase if a seller can satisfy their motivations or needs via social networking services since according to **Shawky et al. (2020)**, customers interact with brands through social media for several reasons such as access to the customer service and content, product information, brand engagement, entertainment, and promotion.

Limitations

The article is based on the online questionnaire study since we believe that in the current epidemiological situation, it is the only safe way to conduct it. However, the form of the study can affect the characteristics of the analyzed sample, since, in this way, we addressed only customers who were at the same time users of social media. Nevertheless, despite the widespread opinion that older people are not familiar with information and communication technologies (**Dickinson, Arnott and Prior, 2007**) and that social media users are mostly younger people (**Mellon and Prosser, 2017**), we believe that our study faithfully describes the reality of the researched subject (customers' age structure included). This presumption is also supported by the outcomes of **Velšic (2020)** who proved that in Slovakia, the proportion of Internet users is above average, especially among respondents under 54 years of age. In addition, **Huang and Chang (2020)** stated that in recent years, there has been a great surge in the number of Social networking services users and **Greenwood, Perrin and Duggan (2016)** added that more than 50% of Internet users use two or more Social networking services (social media platforms). Moreover, provided research sample is relatively age-balanced and its composition corresponds roughly to the age composition of the customers of the store declared by its employees.

The study is methodically based on the assumption that only one person from a household was involved in the questionnaire (which the research participants were concerned about). We are aware that possible failure to comply with this condition could significantly reduce the relevance of the results achieved, but we believe that this has not been attained. Moreover, the study was carried out at the time of the applied lockdown, restricting mobility, which theoretically excluded more than one person from a household from visiting the store and thus, becoming a customer of the monitored store.

The analysis shows the possibility of expanding the portfolio of dairy products. Interest in buying raw cow's milk from milk vending machines placed outside the store was claimed by 48.51% of customers. This supported the outcome of **Nagyová et al. (2021)**, which states that the most remarkable factor, which has a positive impact on the purchase of cow's milk, is its origin. In the case of dairy products such as cottage cheese, butter, yogurt, and cheese, it was 92.07%, which indicates that customers could be more interested in dairy products than fresh cow's milk itself, just as it is in the case of the new selling meat products.

When planning the marketing tools and choosing the retail strategies, we recommend for the monitored company to customize these for female clients (because they shop more often) but with the awareness that they do the shopping for the whole family, not just themselves. At the

same time, we want to point to the benefits of local fresh production intended primarily for direct domestic consumers. We identify no necessity to adjust the product portfolio to different age groups of customers, but caution must be the subject in the future, regarding selling raw milk in the vending machine and considering the age of customers. We also find the application of different approaches suitable, when selling fresh milk to households of two to three people and six-plus people (for this type of family, it is also applicable, when selling pâté), but due to the low share of these families among customers, we consider the special activities useless.

On the other hand, it would be essential to apply a different approach to customers with various incomes in case of a supply of specific products such as pâté and ready meal from the actual portfolio and we recommend being aware of this variable in the future, when including other special products, too. A specific selling strategy should be used also regarding the frequency of purchases, at least for products as fresh milk and fresh meat, grease and pâté, and in the future for milk from the vending machine and other new products. We believe that the distribution of an information leaflet with the current offer in an electronic form would be an effective and cheap way to do this, since COVID-19 has accelerated changes in the way we share information, with a shift towards social media use (**Jimenez-Sotomayor, Gomez-Moreno and Soto-Perez-de-Celis, 2020**). Specifically, we recommend using social media (e.g., a local Facebook group) since this social networking service offers various sorts of information to their audience (**Huang and Chang, 2020**) and can aim locally.

This study expands the limited published research on the managerial practice of the primary agricultural producers in Slovakia. Previous studies were based on an economic analysis (**Šimčák, Piszczalka and Bialková, 2003; Jahnátek and Ladvenicová, 2011; Cupák, Pokrivčák and Rizov, 2015**) or a biological approach (**Keresteš and Selecký, 2003; Doležalová et al., 2014; Herian, 2019**). However, there is a lack of managerial point of view in a form of studies examining the production process and its management in business entities of the primary agricultural production or livestock production. On the other hand, we found a solid base of actual and purely marketing oriented studies (**Kádeková et al., 2017; Kubicová, Predanociová and Kádeková, 2019; Ubřeziová et al., 2019; Nagyová et al., 2021**). Our study follows these and connects the managerial approach aimed at the selected aspects of livestock production with product finalization and its placement on the market, with marketing as a last step of the production management. In this way, we can help local suppliers of fresh and high-quality agricultural products to succeed on the market, which can lead to the changes of whole Slovak food supply and result in substantial changes in diet quality and overall health of people (**Byrd-Bredbenner, Abbot and Cussler, 2009**), since the current reduced consumption and thus reduced milk production has an adverse impact on agriculture, livestock production and, in particular, on human health (**Herian, 2019**).

For further research, we recommend enlarging the number of the examined entities on a geographical or production basis and provide a comparison between them. Also, we can see a possibility for comparison with other subjects

of a similar product range, using the database of RIAFE (Research Institute of Agricultural and Food Economics). This would allow study at the level of production area and/or country but considering the incomplete data it provides, we consider it impossible in the current conditions.

The benefit of this study is seen in the practical use of the obtained results in the planning of the production base of the monitored company. In addition, its contribution is theoretical in expanding the knowledge base of management of the primary agricultural production in Slovakia and points out the need to strengthen the position of livestock production in the economy of individual agricultural entities. We believe that this study, conducted through an academic approach, will bring practical benefits for the business of the monitored company.

Our findings will be used both in the academic and commercial spheres. Results will be provided to the representatives of the monitored company as a base for the further planning process. We believe that our outcomes encourage the expansion of the product range and help with choosing suitable marketing tools. The results will be used also in the teaching process of the universities involved in the project KEGA 005SPU-4/2019.

CONCLUSION

The paper aimed to analyze the views and preferences of customers of the livestock agribusiness entity which sells its meat and dairy products in its stores. Concerning this, we conducted an online questionnaire study on the sample of 202 respondents – customers of the monitored company to analyze their preferences and verify the expected success of the planned expansion of the product lines.

Our outcomes show that the most preferred products from their portfolio are meat and meat specialties, which is the reason for visiting the store for 62.4% of customers. Therefore, the recent expansion of the product portfolio of meat products and slaughter, specialties was a good step, as these are interesting for 80% of customers. Fresh milk, on the other hand, is not as popular, since almost half of the customers (47.5%) buy it just a couple of times a year.

A detailed analysis of the examined customers of the monitored store shows that most women (67.3%), adults between 25 and 34 years of age (32.2%) with regular income since they are employees (74.8%), members of families of two to three people (48%) or four to five people (44%), from the neighborhood of ten kilometers (74.8%), with monthly income over 1500 EUR (55.9%), are the consumers, visiting the shop of the monitored company a couple of times a month (56.9%) and the majority of them (83.2%) are aware and feel to be well informed about its current offer.

Statistical analysis pointed to the differences between the factors of consumption (gender, age, distance, social status, household, income, frequency, and awareness) and the preferences of respondents when buying the company's products (meal, milk, meat products, meat specialties, grease, pâté, and ready meal). Concerning this, the set of eight alternative hypotheses was examined with the result of accepting just five of them as variables.

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