

# Main trends and development forecast of bread and bakery products market

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## Abstract

Bakery products are very important in human nutrition and are the basis of any daily diet. Their social significance is determined by the traditions and habits of the population of the countries, accessibility for all groups of the population, diverse assortment, including bakery products for functional and specialized purposes. The up-to-date trend is to expand the assortment of functional bakery products, the use of which will provide the body's need for the necessary macro- and micronutrients for an active and healthy lifestyle. In the bread and bakery products market, consumer preferences are constantly changing. Consumers prefer products that contain less fat and sugar. The market is in demand for bakery products that are healthy, while taste remains an important success factor. Manufacturers include popular healthy additives (grains, seeds and legumes) in their products. Particularly popular at present are ingredients from Eastern Europe and Asia: yuzu, sesame, matcha, shiso. Tropical fruits (passion fruit, mango, bergamot) and fragrances (dried hibiscus, lavender and rose) are predicted to become popular. This causes the complexity of demand segmentation, features of merchandising and pricing policy, features of consumer behavior and consumption psychology, etc. An assessment is given of the dynamics of production and consumption of bread and exports of products, and a forecast is made for the development of the world market for bread and bakery products. The results of the analysis are necessary to assess the level of food safety and to develop a strategy that takes into account the current trends in the global bread and bakery products market. Prospective trends for sustainable production of frozen bakery products have been developed.

**Keywords:** bakery products, bread, world market, food safety, sustainable production, strategy, demand, consumption.

## Introduction

Bread is an essential product that contains almost all the components necessary to maintain human life and health: proteins, complex carbohydrates, calcium, iron, phosphorus, B vitamins, including thiamine, niacin and riboflavin, with a small amount of fat. In addition, bread is a convenient product for enrichment with vitamins, micronutrients and other healthy substances, which makes it possible to create an assortment that takes into

account the needs of people suffering from diseases, living in ecologically unfavorable regions, of different ages and national taste preferences. Therefore, the guaranteed provision of all categories of the population with high-quality bread and bakery products is the main factor in the social stability of various countries (more than 140 million tons of bakery products are bought in the world) ( Samuilenko, T.D., Akulich, A.V., 2021; Samuilenko, T. D.,

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Gurinova, T.A., Akulich, A.V., Tomashov, V.A., 2021; Shakhrai, T.A., Vorobieva, O.V., Viktorova, E.P., 2021).

There is competition in the market of bread and bakery products, a modern bakery plant, small and medium-sized bakeries need high-quality raw materials and a new, in-demand product assortment, which requires manufacturers to have a flexible and thoughtful strategy, the development of which requires constant monitoring of the market situation and comprehensive analysis. Therefore, for successful competition in this market, it is necessary to constantly pay attention to the study of global trends and take them into account when developing business plans, investment, innovative projects, as well as when building relationships with the state, consumers,

### **Material and methods**

Currently, bread and bakery products sector needs to expand the assortment, revise the pricing policy and improve the quality. Consumer preferences in products are important for each segment. One segment of the market requires bread made following the traditional recipes, another segment requires a new product in a convenient package made using antibacterial materials. The use of innovations in production and logistics allows to increase the share of this market and profit. In a competitive environment, a modern bakery plant, small and medium-sized bakeries need high-quality raw materials and a new, in-demand assortment of products. Companies are changing ingredients, using specific unique components, modern technologies and equipment that will ultimately change the way of baking, freezing, refrigeration, and packaging of bread and bakery products. The social status of bread is determined by the fact that it is included in the daily diet of every person and is able to satisfy up to 30% of a person's need for calories, serves as a source of proteins, vitamins, dietary fiber and minerals.

Bakery products are classified as specific consumer goods (FMCG – fast moving consumer goods), which determines their distribution of

scientific and educational organizations.

The COVID-19 pandemic has forced bakery production and sales practices to adapt to social distancing and increased sanitary standards (demand for flour confectionery and other consumer products has been on the rise).

Bakeries with their own production remain leaders in sales, despite the availability and low prices of chain stores. Private bakeries use high quality ingredients and offer fresh baked goods every day, which attracts customers. Cafes, cafeterias, bakery shops are a modern European trend.

The objective is to study the main trends in the dynamic development and forecast of the world market of bakery products, following the promising trends of its development, including the market of frozen bakery products.

goods: high frequency of purchases and turnover, building optimal logistics systems. At the same time, bread is a product of daily demand, which is consumed by the majority of the population and makes up a significant part of the energy value of food, as it contains sufficient amounts of essential macronutrients – proteins, fats and carbohydrates, as well as the main micronutrients – vitamins, minerals and other substances.

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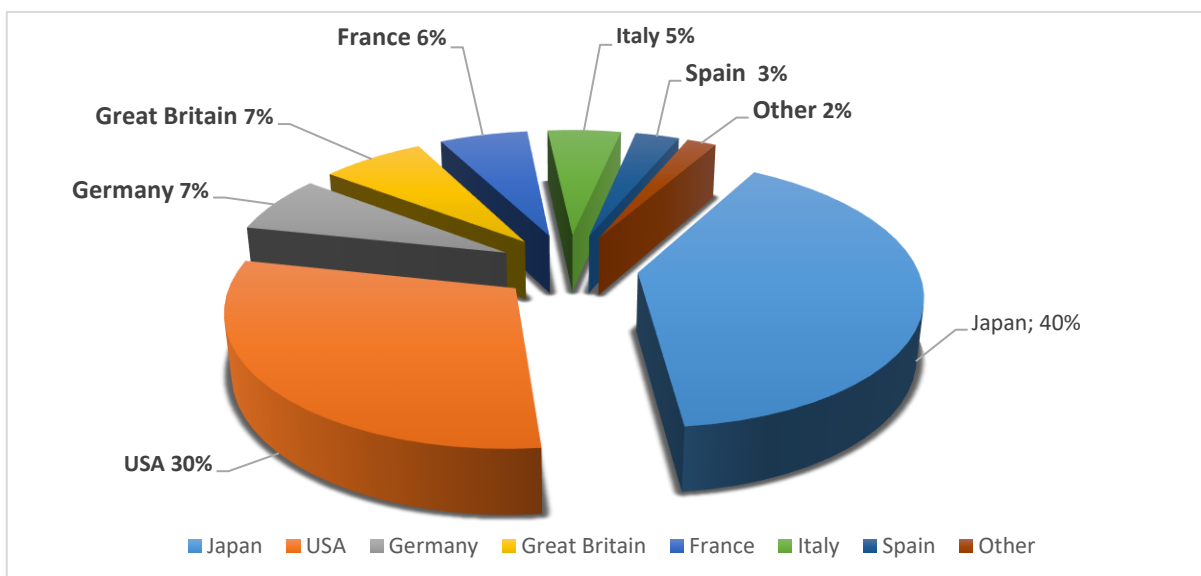
Within the study, general scientific methods of analysis and synthesis, generalization, comparison, abstract-logical analysis, etc. were used.

## Results and discussion

The global market for functional food products is about 40 billion US dollars, and the range of products is about 300,000. Functional foods include fortified foods, natural functional foods, and probiotic foods. They are intended for systematic use, reduce the risk of diseases associated with nutrition, compensate for the deficiency of nutrients due to the presence of food ingredients in their composition (these are soluble and insoluble dietary fibers, vitamins,

minerals, fructoligosaccharides, inulin, lactose, flavonoids, carotenoids, lipids containing polyunsaturated fatty acids, phospholipids, beta-sitosterols). Thus, functional foods are a group of products used to improve the functioning of body systems and maintain human health, which are not medicines (Yefimenko, A.G., Mitskevich, B., 2022).

The structure of the functional foods global production volume by country is shown in Figure 1.



**Figure 1. Countries represented on the global FPP market**

Source: suggested by the author

The data shown in Figure 1 show that the share of Japan is 40% of the world market of functional foods, the USA – 30%, Europe – 28%. Among European countries, in terms of production of functional food products, the largest share belongs to Germany – 7%, Great Britain – 7%, France – 6%, Italy – 5%.

The consumer market is formed by the following groups of functional foods: dairy products, grain-based products, beverages, fat-and-oil and fruit and vegetable products, meat and fish-based products, condiments. Dairy and

grain-based products, including flour confectionery and bakery products (iodized, high in dietary fiber, fortified with vitamins and minerals) dominate this market.

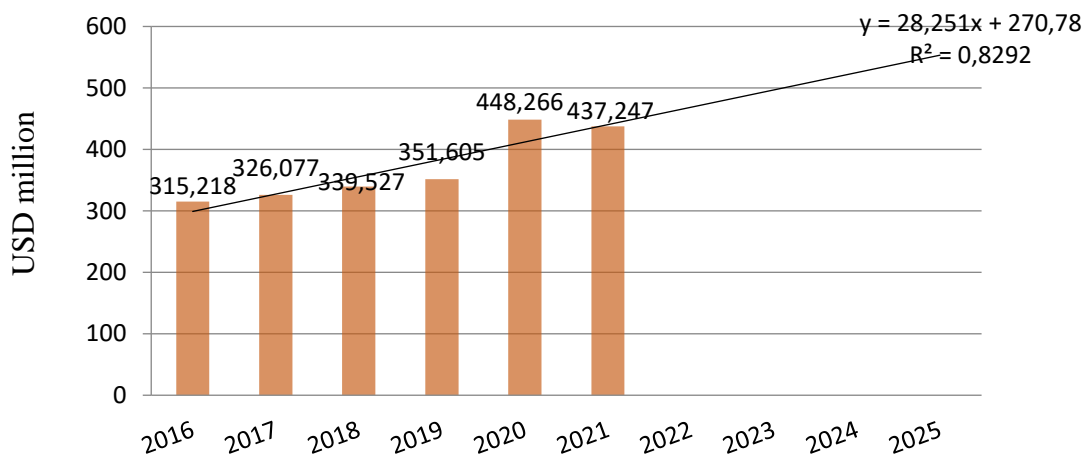
Considering global development trends and medical recommendations for healthy eating, it is necessary to inform consumers about the beneficial properties of functional bakery products, to form an understanding that bakery products are the most affordable healthy and nutritious food product. It is necessary to ensure the expansion of the consumption of bakery

products varieties using rye flour, including through functional products (Saiganov, A.S., Panteleyeva, I.I., 2019).

A prospective trend in the development of an assortment of functional bakery products of increased nutritional and biological value for dietary purposes is the use of natural food fortifiers (based on sprouted dispersed grains of rye or wheat), characterized by the presence of vitamins, minerals in a biodigestible form, essential amino acids, etc.

The largest international companies such as Grupo Bimbo, Gruppo Barilla, Lantmannen Unibake, Fazer Group, the Krispy Kreme bakery cafe chain and other franchisees are present in this market.

Let’s make a forecast for the global market of bakery products for the period up to 2025. Let’s set up a trend equation; for this purpose we chose a linear growth curve, since it more accurately repeats the dynamics of the original time series (Figure 2).



**Figure 2. Forecast of the global market for bakery products USD million**

Source: suggested by the author

Let us calculate the predicted value using the equation obtained on the diagram (Table 1).

**Table 1. Forecast of the bakery products world market, million USD**

Description	2021r.	2022r.	2023r.	2024r.	2025r.	Growth rate, 2025/2021, %
Bakery products production	437.247	468.53	496.788	525.039	553.29	126.5

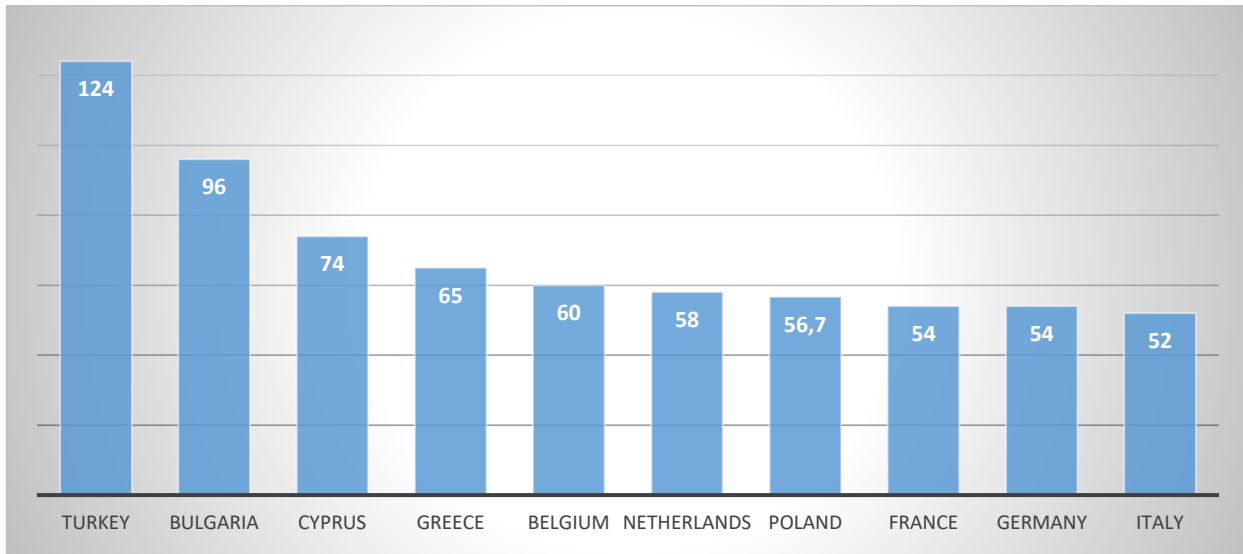
Source: build by the author

The data given in Table 1 showed that the growth rate of world production of bakery products by 2025 will increase by 26.5% compared to 2021, which reflects the positive dynamics of the studied indicator.

It should be noted that the volume of bread consumption per capita can be used to assess the standard of living in different countries or regions. There is a certain

dependence in the consumption of bread: the higher the standard of living, the less bread people consume, and vice versa. As a rule, as **the income grows, people consume less bread (or buy more expensive bread).**

The level of bread and bakery products consumption per person in different countries is shown in Figure 3.



**Figure 3. Level of bread and bakery products consumption per person in different countries, kg per year**

Source: suggested by the author

The data shown in Figure 3 show that high consumption of bakery products per person is observed in Turkey (124 kg per year), Bulgaria (96 kg per year), Cyprus (74 kg per year), Greece (65 kg per year), Poland (56.4 kg per year). The most popular bread in Bulgaria is pitka (an analogue of the Russian loaf (karavay)), which for many centuries has been and remains one of the main food products. In 2000 France consumed 153 kilograms of bread per year, today – 54, that is, almost 100 kilograms less than 20 years ago. **The Scandinavian countries are distinguished by a low level of bread consumption (32-45 kg per year).**

In addition to the amount of bread consumed, bakery traditions have developed in different countries. For example, small bakery prevails in Turkey, Greece (96.5%), Italy – 85%, France – 65%, Spain – 60%. A large proportion of industrial bakery is typical for Austria, Germany, Great Britain, the Netherlands and Belgium: approximately 60-85% of bread is baked at industrial enterprises. At the same time, there is a trend towards a decrease in the share of small bakeries and an increase in the share of large industrial bakery plants.

The saturation of the bakery market with new types of bakery products in Europe is determined by various types of bread, for

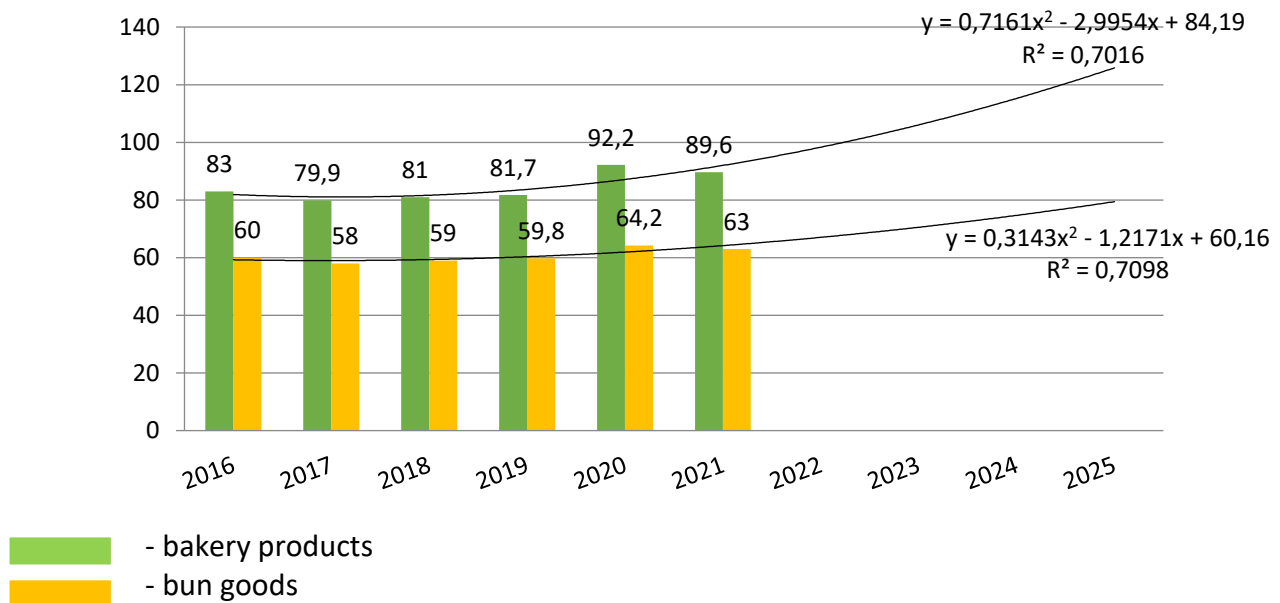
example, Greek sweet bread Tsoureki, Ciabatta Coppia Ferrarese, Turkish flatbread, etc. Another promising trend is the production of bakery products with a high content of omega-3 fatty acids.

Another trend in this market are preservative-free, cholesterol-free, soy-free, non-GMO, nut-free, low-sodium products (the last trend is suitable for diabetics, consumers with food allergies and gluten intolerance). The method of gluten-free bread production makes it possible to increase the nutritional value of bread while providing organoleptic and physico-chemical quality indicators, to ensure the preventive orientation of products that exclude allergic reactions caused by wheat protein, and also to expand the assortment of gluten-free products. The technical result consists in increasing the nutritional value of gluten-free bread in comparison with the prototype due to its enrichment with gluten-free protein, vitamins – E, B1, B2, PP; minerals – K, Ca, Mg, P, Fe; dietary fiber; ensuring the preventive focus of products. Gluten is important in the baking industry, determining dough characteristics such as elasticity and resilience when mixed with water, and serves as one of the criteria for determining the quality of flour. Partial list of foods high in gluten: wheat (up to 80%),

semolina (50%), barley/pearl barley (23%), oats (21%), rye (16%), rolled oats (12%), pasta (11%) and traditional bakery products (from 7 to 80%). There is a demand for gluten-free products due to the rise in celiac disease (intolerance to foods containing gluten). Gluten-free bakery products are widely represented at the world market and

their assortment is constantly expanding [2].

Let's make a forecast of the bakery products consumption for the period up to 2025. Let's set up a trend equation; for this purpose we chose a polynomial growth curve of the second degree, since it more accurately repeats the dynamics of the original time series (Figure 4).



**Figure 4. Forecast of the bakery products global consumption per person, kg per year**

Source: suggested by the author

Using the equations obtained on the graphs, we calculate the predicted value (Table 2).

**Table 2. Forecast of the bakery products global consumption**

Description	2021r.	2022r.	2023r.	2024r.	2025r.	Growth rate, 2025/2021, %
Bakery products, kg per person	89.6	98.3	109.1	115.2	125.8	140.4
Bun products, kg per person	60	67	70.5	74.6	79.4	132.3

Source: build by the author

The data given in Table 2 showed that the growth rate of bakery products consumption by 2025 compared to 2021 will increase by 40.4%, bun goods – by 32.3%.

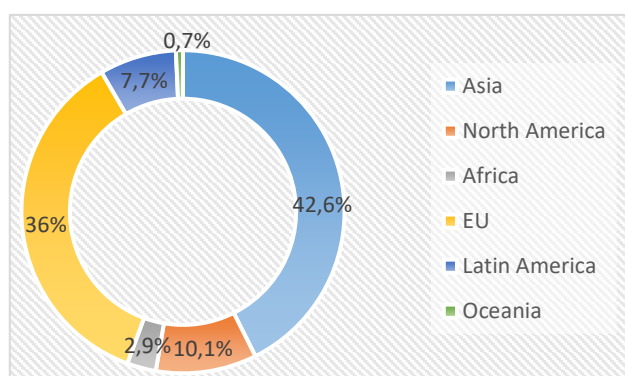
The market size for frozen bakery products is approximately 15 billion USD with an annual growth rate of about 8% and by 2025 will reach 25 billion USD. The market for frozen bakery products includes the following assortment: bread, rolls, pastries, cakes, pizza crusts (the share is approximately 30%), baked goods,

donuts, etc. These products are in demand due to the long shelf life (six months), availability, high degree of readiness and quality, environmentally friendly production process and prices. Frozen pizza, for example, is considered a daily meal option in many countries: France, Spain, Germany, Mexico, USA, Russia, Italy. Frozen food manufacturers are introducing and developing new types of products in demand for the healthy lifestyle category, which include gluten-free and organic

varieties. It is predicted that Europe (Germany, UK, France) due to the growing catering industry, including fast food restaurants, and tourism will provide the greatest growth in this production.

For the production of bread and bakery products, basic and additional raw materials are used. Basic raw materials include: flour, cereal products, baker's yeast (or chemical baking powder), salt and water. Additional raw materials are used to provide specific organoleptic and physico-chemical properties of bread and bakery products (sugar, fat, egg products, milk, nuts, etc.). More than 600 million tons of wheat, corn flour are processed annually in the world and consumed in the form of noodles, bread, pasta and other flour products.

The structure of world flour exports by continents is shown in Figure 5.



**Figure 5. Structure of world flour exports by continents, %**

Source: suggested by the author

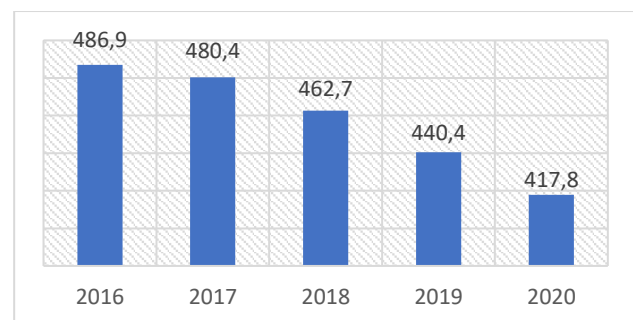
The data in Figure 5 show that Asia (42.6%), Europe (36%) and North America (10.1%) have the largest share in the structure of world flour exports in 2019. Latin America and the Caribbean accounted for 7.7% of flour exports, Africa – 2.9%, Oceania – 0.7%.

China is the world leader in flour production in 2019, the production volume is estimated at about 72 million tons (31% of the total flour production). Flour in China is used to a greater extent in the production of noodles, including instant noodles, which are then also exported. The United States is the second largest flour producer in the world: the production volume is

19.2 million tons (8.3%). However, in recent years, the production of flour in the United States has been declining, due to a change in consumer preferences in favor of dietary food and the refusal to consume high-calorie flour products. The dominant positions in the global production of flour also belong to Brazil, Russia and Turkey. The world leader in flour exports is Turkey which delivers **flour to 110 countries of the world**. The industry is developing due to the fact that many mill complexes have been built on the coast, which import duty-free grain by sea, with minimal transport costs. At the same time, the state subsidizes the production of a flour ton in the amount of 35 USD per ton (this is the cost of its processing).

The bakery industry is one of the developing branches of the food industry in the Republic of Belarus. Bread and bakery products are everyday demand products that play an important role in ensuring the food independence and security of the country. The main task of the baking industry is to provide the country's population with bakery and confectionery products in the right assortment, quantity and quality that would meet their daily needs.

In recent years, there has been a steady trend of changing the structure of the bakery market. Since 2000, in the production of bakery products in Belarus, as in other countries, there has been a trend towards decrease in production volumes. The dynamics of the production volume of bread and bakery products is shown in Figure 6.



**Figure 6. Dynamics of bread and bakery products production in the Republic of Belarus, thousand tons**

Source: suggested by the author

The performed analysis showed that the volume of production of bakery products in the Republic of Belarus for 2016–2020. decreased by 14.2%.

The companies introduced new technologies for processing raw materials, applied modern types of packaging, expanded the assortment of bakery products: toast breads, flatbreads, shaped buns, ciabatta, buns with vegetable fillings, with canned seaweed and other salad fillings, fruit and berry cheesecakes, buns with hard cheese, donuts for broth and other original products with non-traditional types of raw materials for baking. The production volumes of small-piece rich dough products, pies and patties, puff products, including frozen ones, crackers and bagels are increasing. There is a demand for pastries made from wheat flour, a mixture of wheat and rye flour, as well as using flour from other cereals, grain additives, and composite mixtures.

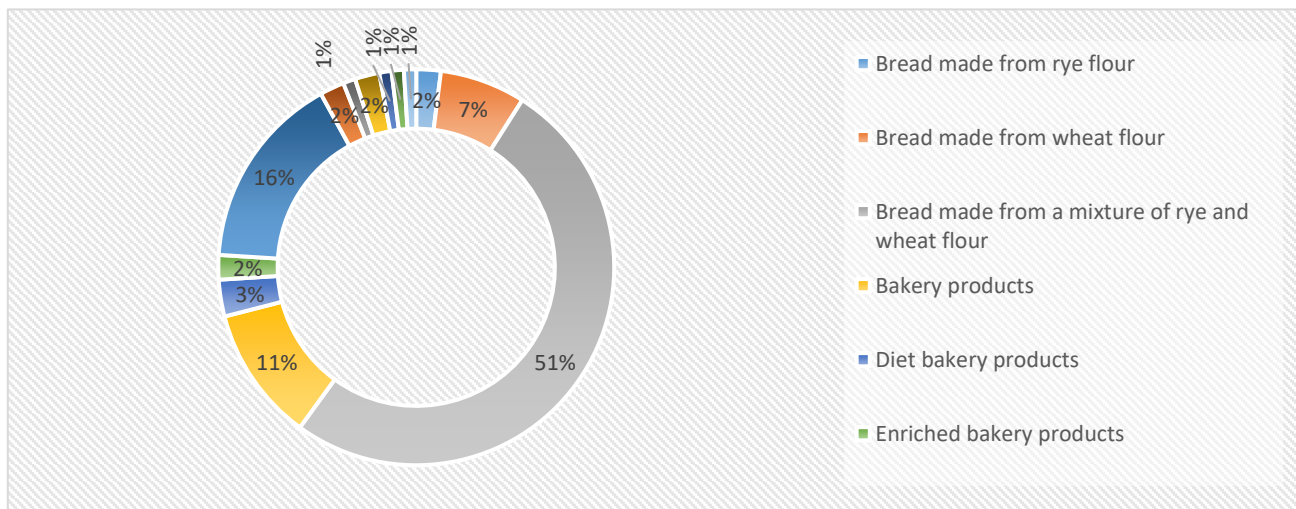
One of the new directions is the production of frozen semi-finished bakery products – dough pieces of a high degree of readiness, the production of extrusion products – cereals from exploded cereals, wide assortment of extruded

crisp breads. The priority is given to the production and expansion of the products assortment for medical and preventive purposes (bakery products produced on the basis of or using sprouted dispersed grains and whole grains with a high content of dietary fiber).

It has been established that consumption of bread and bakery products depends on a number of factors: traditions and habits of consumers, prices, the level of monetary income of the population, correlation with the consumption of other food products.

In recent years, there has been a decrease in the bread and bakery products consumption, which to a greater extent affects the special attention of consumers to a healthy lifestyle, which cannot be maintained without appropriate nutrition. The popularity of “regular” wheat and rye bread among the population is declining, while the consumption of low-calorie enriched bread, dietary and diabetic bread is increasing.

The structure of the market for bread and bakery products by type in 2020 (in physical terms) is shown in Figure 7.



**Figure 7. Structure of the market for bread and bakery products by type in 2020 (in physical terms), %**

Source: suggested by the author

The data given in Figure 7 show that the goods structure is as follows: 51% – rye-wheat bread, 16% – muffin and 11% – bun goods. At the same time, 5% belongs to healthy nutrition, dietary and enriched bakery products.

The size of bakery products is an important selection factor for consumers who want to enjoy while staying healthy and is on the rise. For example, mini muffins, cinnamon rolls and other products are becoming more popular

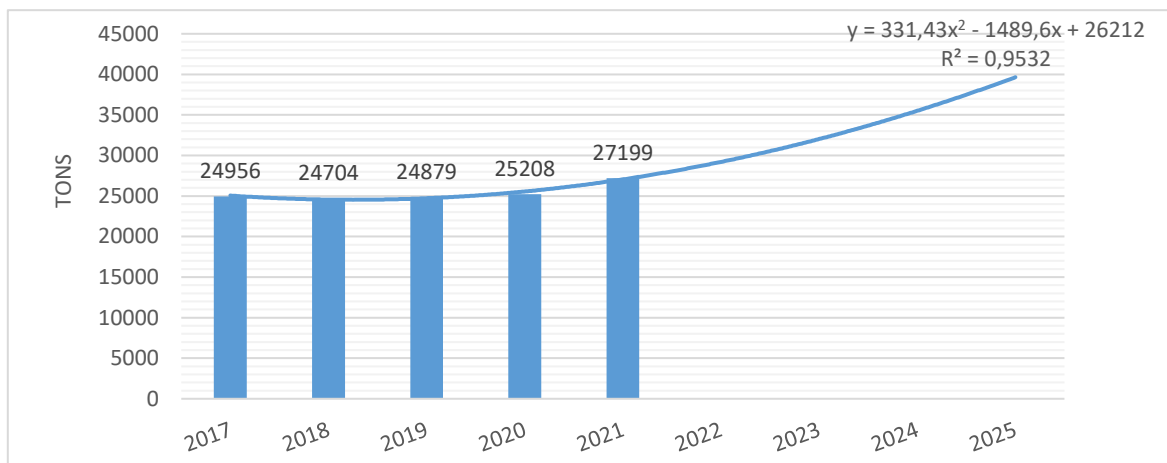


among consumers, which allows to control the size of the portion consumed and calories.

In the Republic of Belarus, among consumers and producers, a special place is occupied by the assortment and traditional technology of brewed bread varieties using liquid rye brews. There is a high demand abroad for the types of bread made from rye flour and a mixture of rye and wheat flour, as evidenced by the constant increase in their exports in fresh and frozen form

to Jordan, Israel, the countries of the European Union, the USA, Canada, etc.

Let's make a forecast of the bakery products export by the Republic of Belarus for the period up to 2025. Let's set up a trend equation; for this purpose we chose a polynomial growth curve of the second degree, since it more accurately repeats the dynamics of the original time series (Figure 8).



**Figure 8. Forecast of the bakery products export of the Republic of Belarus, tons**

Source: suggested by the author

Using the equation obtained on the graph, we calculate the predicted value (Table 3).

**Table 3. Forecast of bakery products export, tons**

Description	2021r.	2022r.	2023r.	2024r.	2025r.	Growth rate, 2025/2021, %
Bakery products export	27199	29206	32025	35507	39651	145.8

Source: build by the author

The data given in Table 3 shows that the growth rate of bakery products export of by the Republic of Belarus by 2025 compared to 2021 will increase by 45.8%.

At this stage of the economic development of various countries, business digitalization is a megatrend, the successful adaptation of which impacts the sustainable development of the food market, including bread and bakery products. A feature of the current stage of business digitalization is the expansion of the information field, when consumers make a

choice based on data presented on the Internet (or communities in social networks), which generally contributes to the expansion of the assortment, opens up additional opportunities for its development by creating new contacts with an unlimited number of potential consumers, suppliers of raw materials and services. In this regard, the implementation of the innovation development strategy involves the development and implementation of progressive business models using modern information and communication technologies.

## Conclusions

The global market for bread and bakery products is constantly evolving, offering the consumer traditional, original products, and is very stable. However, in the last decade there have been significant changes in this market. First, the average daily consumption of bakery products per capita, as statistics show, is constantly declining in the world. This trend is mainly due to change in the diet of the population, as a result of the saturation of the market with a wider and more diverse assortment of food products of different price categories, as well as the correlation between the consumption of these products and the level of income of the population in the analyzed period of time.

An important role is played by increased competition and an increase in the share of low-capacity bakeries, mini-bakeries, retail chains with bakery shops. This all led to a steady decrease in the production volumes of larger manufacturers and a change in the structure of their production. The main indicator by which it is possible to assess the impact of institutional changes in the bread and bakery products market is the dynamics of its assortment structure. Demand for bakery products is constantly changing due to changing dietary patterns, demographic structure and population, income levels and public awareness of the properties of products and their

availability at the market.

Consumption of frozen bakery products is common in Europe (in 2020, the market share was 56.5%), and will also increase in other countries and regions due to the new technologies in production, long shelf life, high degree of readiness and increased investment in studies of this industry. Refrigerated storage and transport and distribution channels are a prerequisite for the efficient operation of the supply chain in this market.

The market for bread and bakery products in Belarus is currently quite stable, although there is a decline in production. Despite the current situation, bakery products positioned as healthy (dietary and enriched), in particular, with the addition of grain products and a high content of dietary fiber, remain in demand; small-piece snack-type products intended for a snack during the day, food on the go, which include, in particular, crackers, croutons, crispbread, biscuits, crackers, as well as pies, patties and doughnuts. Discrete technologies are being actively introduced using dry and liquid semi-finished products, frozen semi-finished products, etc. Companies must intensify activities to expand the assortment, develop import substitution, create related industries, diversify product markets, including export products.

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