

## INVESTIGATION OF THE INFLUENCE OF FLOUR QUALITY IN THE PRODUCTION OF FLOUR PRODUCTS

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### Annotation

In this research paper, the dynamics and trends of the flour milling industry market have been studied, an extensive classification of flour has been studied, and knowledge about the factors determining the quality and technological properties of flour has been obtained.

**Keywords:** Flour, quality, bakery, pasta, classification of flour, assortment of flour

### Introduction

Currently, there are two main factors that have a positive impact on the indicators of flour production from grain crops. At the same time, the gross grain harvest is characterized by cyclist, which does not allow us to accurately predict growth. Another important factor is the decline in real incomes of the population, which leads to an increase in the consumption of cheap products, in this case bread.

The dynamics of the production of flour from grain crops in value terms repeats the dynamics of production in kind, while being characterized by a more pronounced growth. The volume of production in value terms was 3.7% higher compared with a slight increase in physical terms (+0.8%).

In the near future, flour production will develop under the influence of a decrease in real incomes of the population. As mentioned above, this factor has rather a positive impact on the market of flour from grain crops. At the same time, accelerated price growth cannot be ruled out.

According to the forecast of the Ministry of Economic Development, the index of food production in 2021 compared to 2019 will be about 110%. The volume of investments in the industry will increase by 10 % in comparable prices by 2021.

In order to strengthen the Russian grain and flour market, it is important to take such measures:

- To create a domestic specialized grain exchange;

- Legislatively link subsidies and assistance received by agricultural producers with the mandatory sale of 25% of the volume of all grown grain through the stock exchange to ensure the domestic market of industrial processing;
- Develop and implement a set of stimulating import substitution measures aimed at significantly deepening grain processing;
- Develop measures to offset fluctuations in flour prices for bakery enterprises by improving the system of interventions in the grain market;
- To financially stimulate the production of strong and valuable wheat varieties based on the use of intensive technologies with the necessary change in the structure of sown areas;
- Improve statistical accounting of the production of functional bread varieties, including retail, catering and small;
- To provide state funding for social advertising in order to bring objective information to the population about the beneficial properties of bread and bakery products, primarily for therapeutic, preventive and functional purposes, as well as to increase their share in production [2].

Analyzing the state of the flour milling market, we can say that, despite its abrupt dynamics, it still has positive growth trends. Wheat flour has the largest market share, so special attention should be paid to this type of flour. In the following paragraphs we will look at wheat flour in more detail.

Classification of flour. Flour is a product of grain processing of various crops (mainly wheat and rye) and is a powdered product.

The classification of flour is extensive. Classification features of flour are formed on the basis of properties characterizing consumer and nutritional value, depending on the structure, composition and technological features of flour.

The grain of a particular culture, depending on the most general anatomical features and biochemical properties characteristic of it, determines the type of flour, which is named according to the culture of this grain.

Distinctive technological advantages, depending on the intended purpose and physico-chemical properties of flour characterize its type. One of the important qualification categories of flour is its grade. It is determined depending on the quantitative ratio of the tissues contained in the grain. A change in this ratio causes a change in the composition and properties of flour [17].

There are two main types of flour: wheat and rye. They also produce corn, oatmeal, rice, soy, buckwheat and about 68% of the volume of the milling industry accounts for wheat flour, which ranks first in terms of consumption. Baking wheat flour is obtained from soft wheat grain.

Pasta requires more vitreous consistency and elastic dough, so it is produced from hard varieties. Rye flour is produced only by baking, since it contains a large amount of water-soluble substances (mucus, carbohydrates, proteins).

Other types of flour are produced only for the manufacture of special products and local products. Depending on the degree of grain processing, its chemical composition and the ratio of grain parts (such as germ, shell, endosperm), each type of flour is divided into grades.

The flour grade is determined by a set of indicators: organoleptic indicators (color, taste, smell), fineness of grinding, ash content. Flour of the highest grades is a crushed inner part of the grain endosperm. Flour of intermediate grades contains shell particles in small quantities, and flour of low grades contains a significant amount of crushed shells, aleurone layer and wheat germ.

In general, the classification and assortment of flour produced are presented in table 1.

View	Type	Variety
Wheat	macaroni (soft vitreous and durum wheat);	the highest (grits), 1st (half-grits);
	bakery	grits, higher, 1st, 2nd, wallpaper;
	bakery type (durum wheat)	2
Rye	bakery	sifted, peeled
Triticale	bakery	seeded, stripped
Corn	food of coarse	fine grinding
Barley	food barley	fine grinding
Soy food	It can be fat-free, semi-fat-free and non-fat	the highest, 1st
Buckwheat	dietary	single - grade
Rice	dietary t	single- grade
Oatmeal	dietary	single - grade
Pea	culinary	single - grade

Fortified flour is obtained by adding various synthetic vitamins.

Flour, which is produced from other grain crops, is used for the preparation of confectionery, national products, children's and dietary food, as well as a protein fortifier of other food products (pea and soy). The range of flour is constantly expanding and improving and here the main directions are the following:

- Production of flour from non-distributed or non-traditional raw materials. Obtaining "finished flour" from composite mixtures;
- Reducing the caloric content of flour, enriching it with vitamins, dietary fibers, trace elements, as well as developing ways to obtain the maximum yield of flour from a ton of raw materials;

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- Using the newest biological physico-chemical methods in flour production in order to obtain flour with the desired properties and composition, taking into account the requirements of individual industries.

The classification of flour is quite extensive and allows us to consider in more detail the features of each type, grade and type of flour, which in the future will allow us to determine the object of research.

The factors determining the quality of flour raw materials and production processes are those factors that influence the formation of the assortment and quality of flour. The quality of flour directly depends on the quality of raw materials. The raw material is called rye, wheat and other types of grain crops. And it is the raw materials that will determine the type and type of flour, which do not change after grinding.

Biological properties of grain and physico-chemical, can be conditionally divided into three groups:

- Baking properties of grain;
- State of grain mass;
- Milling.

Clogging, color, smell, humidity, pest infestation of grain stocks are indicators of the state of the grain mass. All these indicators, which determine the freshness of grain, will help to draw conclusions about how suitable it is for producing food products from it. Milling indicators include: ash content, grinding ability, density, grain strength, structural features of analytical grain, its size, alignment, mass of a thousand grains, vitreousness, nature, type composition, and so on. To find out how high quality the flour will be and how it will behave during grinding, just these indicators allow.

Baking properties include: the quality and quantity of gluten, the alignment of flour and its size, the physical properties of the dough, which indicators bread has when baking. It is also worth mentioning that all three indicators are related to each other, and quite closely. Wheat grain, which is sent to the grain cleaning department for processing, must have certain parameters.

Humidity should be no more than 12.5%, in some types this indicator can reach 13.5%. The content of weed admixture should be no more than 2%, grain admixture - no more than 5% in wheat, but in rye no more than 4%.

If the grain has a reduced quality, for example, it was sprouted or frost-bitten, or damaged by a bug turtle, then only after laboratory grinding, which will confirm that products can be made from this flour in accordance with standards, it can be added to flour in a small amount.

The flour production process consists of several operations:

- Make up a grinding batch;
- Grain is cleaned;
- Hydrothermal processing of grain is carried out during varietal grinding;
- Grains and intermediate products are crushed, that is, the grinding process itself is produced;

- Grinding products are sorted;
- Flour grades are formed;
- Quality control is carried out;
- Then it is packaged and packaged;
- The resulting flour is sent for storage and sale.

The most important and main operations in this process can be called the process of preparing grain for grinding, its grinding and the formation of varieties. To prepare the grain for grinding, it is also necessary to carry out several specific operations.

These include the following: they make up batches, then clean the grain from various impurities, process the grain surface and condition it. Magnetic, aerodynamic, vibro pneumatic separators, sieves, triers, stone-dividing machines and other devices are used to clean grains from various impurities. In order to clean the grain, give it a smooth polished surface, remove the grooves and the germ, brush and wallpaper machines are used.

We have studied flour of local foreign production, such as: "Baghdad", "Fergana" -from Uzbekistan and from Kazakhstan production. Our research has shown that during the storage of flour, the main raw materials in the production of the highest and 1st grade flour were subjected to spoilage. And this made us think about eliminating the negative environment, creating a more favorable sphere for raw materials.

The shelf life of flour varies, for example, wheat flour, which is not enriched with dry wheat gluten, can be stored for 12 months. Soy flour can also be stored for 12 months, but provided that the humidity is no more than 60%. And the enriched flour is stored for no more than 12 months, and the shelf life of this component that enriches it is necessarily taken into account.

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