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Research Article

THE QUALITY OF WHEAT GRAINS AND THE PROCESS THAT AFFECTS THEIR STORAGE

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ABSTRACT

In this article, the quality of wheat grains and the factors influencing the process of their storage, ie, the yield of grains is reduced due to cochlear disease, and a sharp deterioration in product quality and objective and correct physical, technological and biochemical properties of grain. The form of production of quality flour as a result of the assessment, its uniqueness, the correct organization and implementation of technological processes of cleaning, preparation and grinding of grain. The purpose of our research is to study the status and modernization of the project of JSC "Ferganadonmahsulotlari", the modernization of advanced production and existing grain cleaning technologies, the physical and chemical properties of local varieties of wheat. One of the main directions in improving the technology of flour production is the creation of an enterprise where grain is efficiently cleaned, moistened and well prepared for grinding, while consuming less electricity.

KEYWORDS

Wheat grain, quality indicators, black spot disease, physical-technological and biochemical properties, grain fineness, grain cleaning, grinding technological processes.

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INTRODUCTION

The largest area in the republics grain sector is devoted to wheat. At present, Uzbekistan pays great attention to expanding the area under wheat, increasing its production by increasing its yield, as well as improving its quality [1-7].

In our country today, high-yielding, protein-rich, fast-ripening, high-yielding, Kroshka, Polovganka, Zamin-1, Dustlik, Kroskodar, Yaksart, Tanya, Andijan-1 and a number of other varieties are grown in our country. An example of this is the fact that events are organized on the basis of scientific recommendations.

It should be noted that the area under grain crops in Uzbekistan has expanded to 1.4 million hectares. In our country, gaining "independence" of grain requires large areas of land [8-11].

It was decided to use irrigated, fertile, cotton-growing lands. Today, about 60 percent of winter wheat is planted in cotton, where the harvest is nearing completion.

MATERIALS AND METHODS

It is important to make a radical change in the implementation of economic reforms, increase wheat production, improve its quality, timely protect plants from pests, diseases and weeds, and adhere to the rules of grain storage.

Wheat is imported to Fergana Grain Products (JSC) mainly from Yazyavan, Qoshtepa, Altiyarik and Fergana districts. According to the results, the following types of wheat pests and diseases have been identified in these districts [12-19].

The following are the factors that affect the quality of wheat grains and the process of their storage. We know that black moth is one of the most dangerous diseases in the country, which causes great economic damage to cereals. Wheat disease is caused by blackleg, which reduces yields and dramatically reduces the quality of the product. According to the origin and manifestation of black moth disease, internal and external symptoms are divided into solid black moth and powdery mildew. One side of the husk (during milk ripening) is branched by hard black moth, the grains are completely useless and the skin is filled with fungal spores. Spores in damaged grains are transferred to healthy grains during harvest and cleaning. Improper or poor quality sowing of seeds can lead to severe disease. Dust moth disease occurs in 0.5-1% of crops. However, if the seeds are sown without treatment or with poor quality drugs, the spread will increase by 10-20%. Dusty blackcurrants cause dark dust to form on spikes and stalks [20-27]. It also stops the diseased plant from growing and reduces the weight and amount of grain in the grain. From one year to the next, the disease spreads only in the seeds. The most

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effective way to control this disease is to inoculate the seed with systemic fungicides.

Harmful entomocenosis of wheat. Since wheat has been cultivated since ancient times, many arthropods have adapted to eating it. In all, there are more than 200 insects that feed on wheat. But there are a few that are common, high-density, and high-intensity. These include mammals such as aphids, thrips, and pests, and rodents such as pyavitsa beetles, locusts, locusts, humus, and others. The eggs laid by the females in the autumn grain overwinter during the winter. In the spring, as the days heat up, the larvae emerge and begin to feed. After the fourth jump, they become wingless females. These females reproduce live. Subsequent joints are divided into wingless and winged distributors. During the season, juices give 10–12 generations. They are constantly sucking the sap from the green and soft parts of the plant. As a result, the plant turns yellow and dries out [26-31]. When severely damaged, the grain does not germinate. In nature, the larvae are reduced by the larvae of goldfish, golden-eyed and sirfid flies, as well as free-ranging aphidids. If no control measures are taken, it will reduce wheat yields by 35-40%. Wheat thrips is found in wheat fields in all regions. With the onset of puberty, mature thrips begin to appear. The larvae enter the shell of the spike and feed by sucking the bark and flower sap, and then the sap of the grain. As the crop nears harvest, the larvae begin to descend into the soil after feeding and remain there until next year. Gives 1 generation per year. If no control measures are taken, it will reduce wheat yields by 30-35%. Harmful weeds cause damage during the harvesting, threshing, threshing and ripening phases of wheat. Harmful mosquitoes overwinter as they grow up under plant debris and leaf litter. The third decade of March - April - begins to spread to the fields. During the tubing period, the damaged stalk does not produce spikes or becomes completely white. As a result of damage to unripe corn, the amount of protein and gluten in the grain decreases. Infection of 2% of grains with harmful weeds makes such grains unfit for flour production. Reduces wheat yields by up to 60%. Harmful weeds give birth once a year. That is why the quality examination of grain and grain products is one of the most important issues today [27-32].

Today, a new state standard ODSt 880: 2004 has been developed and approved for wheat grown, prepared and delivered in the Republic. This standard applies to wheat grains prepared by the state system and used for food and technical purposes. According to this standard, the sample of wheat grain should be 750 g/l. The water content should not exceed 14%, the content of impurities should not exceed 1%, and the content of other grains should not exceed 3.0%. As stated in the standards of the Russian Federation and the Republic of Kazakhstan, our standards for grain processing do not allow grain to be damaged by pests.

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The main purpose of our research is to analyze the types of pests and diseases of wheat growing in clusters and farms of Fergana region, as well as to study changes in grain storage processes. JSC "Fergana grain products" will study the modernization of advanced production and existing grain cleaning technologies, physical and chemical properties of local wheat. Orgonoleptic and laboratory methods are widely used to assess the quality of grains. The main organoleptic characteristics of grain are color, odor and taste. Biochemical, physical and microbiological processes take place during grain storage and change the consumption properties of grain. Often these are interrelated processes. In general, the biochemical processes that take place during the storage of grains reduce the activity of enzymes and significantly reduce the technological properties and nutritional value of grains [33-38].

The flour industry in Uzbekistan is slightly different from that in Central Asia, with most state-owned flour mills. The state manages wheat production and stores it in large silos, distributes grain gluten and distributes grain among large flour mills. Its quality is controlled by the state, including the issuance of certificates. Winter wheat, which is currently grown by flour and bread producers, contains low levels of gluten, which limits its ability to produce high-quality bread [37-39].

In order to improve the quality of low-tech flour, it is necessary to strictly adhere to all the requirements, standards and conditions of the technological process.

Quality flour is produced as a result of objective and accurate assessment of the physical-technological and biochemical properties of grain, its integrity, the correct organization and implementation of technological processes of cleaning, preparation and grinding of grain.

Technological properties of grain are mainly determined by its structure, the ratio of the mass of anatomical parts and the presence of chemicals: protein, starch, fiber and others.

Preparation of grain for grinding in the grain cleaning department should ensure the removal of foreign elements and other plant seeds, processing to the required quality standards for grain, which is sent to the surface for grinding. The amount of polluting primers should not exceed 4%, including pupae - up to 0.1%; harmful primes (golovnya, sporsh, gorchaga, vyazel, mishatnig) up to 0.05%. The grain mixture should not exceed 4% of the grain content, including the grown grains should not exceed 3%. In the preparation department, ash content is reduced as a result of wet and dry treatment of the grain surface. Along with the husk, the removal of various microorganisms and heavy metals on the surface of the grain also improves the ecological purity of the grain.

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As a result of processing in the grain cleaning department, chemical changes in the grain, removal of dust, mud, and partial surface layers, mainly lead to a decrease in its ash content. The total reduction of ash content after processing in the grain cleaning department is 0.1-0.15%. Ash is an important indicator of the grain's grain properties, as its quantity can indirectly reflect the quality of the intermediate and final product.

The amount of ash formed during the burning of a grain or flour shed is expressed as a percentage of the mass of the shed. The ash is of great importance in controlling the separation of the husk from the endosperm and in assessing the quality of the flour.

According to the Rules of organization of technological processes in flour mills, one, two and three varieties and wallpaper are produced. The chemical composition of wallpaper flour differs little from the composition of the grain. A part of the fruit and apricot shell is separated from the frost. As a result, the ash content of wallpaper flour is reduced by 0.07-0.01% compared to grain. Flour is relatively large and varies in size.

The ash content of flour at different stages of grinding varies from 0.55 to 1.40, up to 3% from some systems. The lowest ash content is in cereals (cereals) and flours of the first quality dunst (0.55%), most - in the grinding of bran of various systems [1].

The main attention in JSC "Fergana products" was paid to the following grain varieties: Yaksart local variety, Tanya variety, Krasnadar variety, Hazrati bashart variety.

Yaksart variety of winter soft wheat. Local variety. It belongs to the type of erythrospermum. This variety is suitable for cultivation in intensive technology. Growth period is 205-210 days. The accumulation coefficient is very high. The grain belongs to the category of strong wheat in terms of quality. Yield 85-90 s / ha, weight of a thousand grains 40-42 g. The grain contains 14.5% protein, 31.7% gluten and 86% gluten. Flour is highly resistant to dew, yellow, brown and stem rust and fusarium wilt, cold, heat and drought.

Tanya variety of winter soft wheat. Created by scientists of the Russian Federation. It belongs to the Lyutessens type. Semi-stunted variety, high resistance to lodging. Medium early ripening. The spike is cylindrical to pyramidal, the density and length of the spike are average. The grain does not fall out, the shells are ovate, 3.5-4.5 mm wide, 8.0-9.5 mm long. The shoulders are average, straight. Tissue tumors are 0.5 to 4.5 cm. The grain is in the form of a large ovoid. The high yield is 122 centners per hectare in the agro-farm. In terms of quality, it is included in the group of "expensive" wheat. Resistant to yellow and stem rust, flour dew, powdery mildew. Moderately resistant to brown rust, septoria and spiked fusarium wilt. Frost resistance is above average, drought resistance is high.

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Krasnodar variety of winter soft wheat. Created by scientists of the Russian Federation. It belongs to the Lyutessens type. Early maturing, medium height, resistant to lodging, gluten 26-28%, IDK 85-90, 2nd group, grain nature 850 g / l, weight of 1000 grains 40-42 g. Moderately resistant to rust in the field, resistant to cold and drought. Yields 75–90 centners per hectare.

Hazrati Bashir variety of winter soft wheat. Local variety. It belongs to the Grekum type. This variety is suitable for cultivation in intensive technology. Growth period 190-195 days. The accumulation coefficient is high. The grain belongs to the category of strong wheat in terms of quality. Yield 85-90 s / ha, weight of one thousand grains 40.9 g. The grain contains 14.0% protein, 30.7% gluten and 80.4% gluten. Flour is resistant to dew, yellow, brown and stem rust and fusarium wilt. high resistance to heat and drought.

Table 1. Quality indicators of refined grain

Wheat grain varieties	*Moisture,%*	*Foreign matter,%*	*Grain primes,%*	*Ash content,%*	**Gluten content,%**
Yaksart	At least 15,0	0,9	2,0	1,90	26-27
Hazrati Bashir	At least 15,0	0,9	2,0	1,90	26-27
Tanya	At least 15,0	0,9	2,0	1,90	26-27
Krasnodar	At least 15,0	0,9	2,0	1,90	26-24

As can be seen from Table 1, the natural weight of local varieties of wheat meets the requirements of some standards of flour mills.

The results show that the mentioned varieties are partially correct, one of the main reasons for which is the timely control of wheat pests and diseases.

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