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TECHNOLOGY OF GRAIN PURIFICATION FROM VARIOUS FOREIGN PRODUCTS

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Abstract: Grain purification from various impurities is an important stage in the conservation of grain crops, which ensures high yield quality and storage stability. For long-term storage of grain, its primary processing is necessary after timely harvesting. Cleaning is carried out by combines. After the combine harvesters, the grain must be cleaned of small and large impurities, dried to a moisture content of 14% or less, depending on the harvest, and then sent for long-term storage in a special ventilated silo. It takes a lot of work to grow a crop, and in order for this work not to go awry, it is necessary to seriously approach the issue of its high-quality storage.
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One of the main processes at grain storage and processing enterprises is the grain cleaning shop. The advantage of these technological processes is the preparation of grain for storage and purification from foreign impurities contained in it.

Grain cleaning-at the same time, grain arriving at enterprises is consistently passed through elevators and sieves of special sizes. They are cleaned of foreign impurities, passed through separators, cleaned of mineral impurities, oats are separated, weed seeds are separated, the top of the grain is cleaned. Hydrothermal treatment - at the same time, the grains entering the enterprises are washed and stewed after cleaning. The activity of the technological process in the grain purification department includes the purification of grain from foreign impurities. The process of separating sprayed materials into groups that differ from each other in geometric features and physical properties is called the separation process. The machines used to perform this process are called coil separators. At grain storage and processing enterprises, the main type of mixture, which differs from grain in aerodynamic properties, is separated using air separators.

Although air distributors are mainly used in flour mills, grain and feed mills to clean grain from dust and light impurities, they are also used in grain mills to clean refined grains (rice, buckwheat, oatmeal)from husks, as well as for the control of cereals and waste. The pressure of the air flow against the grain depends on the mass of the grain, its size, shape, surface condition, the position of the grain in the air, and the relative speed of movement. The theoretical justification of grain separation using an air flow is given with the types of air separators, their structure, functions and technological schemes of parts of the structure.

The grain mixture, even after purification in separators, retains in its composition such organic and mineral impurities that are lighter or heavier than the grain and may not differ from the main grain in size and aerodynamic properties. For this reason, such mixtures cannot be separated by spray and air flow. In practice, these mixtures are called complex decomposable mixtures. When sending grain from the preparatory department of the mill to the crushing department, the presence of mineral impurities in it should not be allowed, because even a very small amount of them causes rancidity of the finished product. In addition, their presence in flour is also harmful to the body. Flour mills with complete equipment do not use washing machines that are washed and cleaned of mineral impurities, therefore it is necessary that the method of dry cleaning of grain from mineral impurities be highly effective.

The mixtures contained in wheat, which differ in size compared to wheat, oats, barley, rye, finely ground wheat, weed seeds, when cleaning from buckwheat impurities, disk or cylindrical equipment is used, they are called triers. There are two types of equipment. The first is used to separate broken, half-

hearted, short, field weed seeds from blueberry (dolls), the second cleanses wild oats and barley from similar impurities that vary in length. A feature of the technological process in the grain cleaning department is the effective course of cleaning the grain surface in a dry and wet way. Taking into account the structural and mechanical properties and soil and climatic conditions of wheat varieties grown in Uzbekistan, the process of cleaning the grain surface consists of several stages.

This is the cleaning of the upper layers of the grains from various microorganisms that have settled in the grains, in addition to reducing their ash matter during dry and wet processing. In this process, grain washing equipment can be used with high efficiency. Metallomagnetic waste inside the grain entering grain enterprises can fall out during harvesting, transportation and movement of grain from one field to another. In addition, as a result of equipment malfunction in the grain cleaning shop, as well as in the mill, the corrugated shaft machines may corrode and fall out during equipment repair in the workshops. Metallomagnetic waste causes various dangerous phenomena (fires), especially if it gets into cleaning machines. A magnetic separator is used to clean grain from magnetic waste. Grain storage and processing standards are set by the state.

On the basis of these standards, storage and processing processes are organized. Based on the analysis of the electrophoretic spectra (EPS) of gliadin, the proposed method for forming a grinding mixture with a known positive deviation from the addition of the main indicators of the baking properties of flour is not only visual, but also simple. implementation, since it does not require additional analysis of the quality of grain and finished products, which allows you to "save" on inexpensive grain, during processing of which it is impossible to obtain flour of proper quality.Production grinding tests were carried out in a varietal bakery with pre-cleaning of wheat grain in a mini-mill with a capacity of 2000 kg per day.

The control crushing of grain (without preliminary cleaning) was carried out in accordance with the recommendations of the “rules for the organization and conduct of the technological process at flour mills". During experimental grinding (with pre-cleaning), 4-5% of the shells were removed during the preparation of the grain for grinding.

Comparative crushing was carried out during the processing of grain of the same quality: the crushed batch included two varieties of spring wheat of type I, IV subspecies, III class. At the same time, the grinding batch had the following main quality indicators: humidity - 13.0%, vitreousness - 60%, ash content - 1.69%, crude gluten content - 28%, gluten quality-65 C.u. IDC, mixtures of weeds -0.9%, grain mixtures-4%.

During the control grinding, the grain fed through a magnetic device (Fig.4.1) from the receiving hopper by pneumatic transport, it passes sequentially through a pneumatic separator, a sieve separator, a stone cleaner, a Trier dummy cleaner, a cleaning machine, where it is located. it is light, large, fine and cleansed of mineral impurities, clays, respectively. The refined grain enters an intensive soaking machine, then is mixed on a screw conveyor and sent to a rest bowl for 10-12 hours. After quenching, the grain is fed through a screw conveyor through a magnetic device to the second cleaning machine, and then to a pneumatic separator, where it is finally cleaned of light impurities and enters the first ragged system of the roller machine of the grinding section. Six roller machines are installed in the grinding section of the mill, and grain and intermediate products are processed in three grinding and three grinding systems. The mill's products are sorted on a high-performance six-stage sieve, in each section of which there are also flour control sieves, which ensures its high quality; through magnetic devices, the finished products enter the flour and bran hopper.

During experimental crushing, the refined grain was soaked by 3% and softened for 24 hours, after which, instead of the second crushing, it was sent to cleaning machines, where 4-5% of the shell and peeling products were cleaned. they were sent to a pneumatic separator, where they were separated from the grain mass of the shell. The results of comparative grinding were evaluated on the basis of the quantitative and qualitative balance of flour by systems, as well as the total yield and ash content of finished products. In addition, the time spent on grinding grain batches was recorded and recorded. As a result of comparative tests, the following were revealed: - the ash content of grain as a result of peeling

decreased by an average of 0.1%; - the total yield of flour during experimental grinding according to the quantitative and qualitative balance of flour according to the systems 67.8%, with a control 66.0%; - during experimental grinding, the yield was 0.53% with an ash content of 34.5%, with a control 0.54% with an ash content of 30%; - with experimental grinding, the yield of flour of the first grade is 33.3% with an ash content of 0.72%, and with control-36 with an ash content of 0.71% %; - in the control grinding, it took 5 hours and 30 minutes to grind 10 tons of grain, and in the experiment-4 hours and 40 minutes. The actual mill capacity increased by 15%, and the total energy consumption decreased by 1.25%.

Grain seperator is a device for processing cereals, legumes, oils and other crops after harvest, as well as for the preparation of seed material. Raw materials are cleaned of foreign impurities with minimal grain loss.

The use of a separator to clean grain from impurities is necessary to prepare the harvested crop for storage, sale and processing. Regardless of the purpose of Use (Industry, food), the grain obtained from the field must be cleaned of all kinds of impurities in order to achieve the result.

Along with the main product, most of the mixtures that have undergone primary sorting have similar physiological characteristics: the same shape and mass. The principle of sorting such products is based not only on the visible light spectrum, but also on comparing the color of tulips and damaged seeds. When separating such mixtures, the quality of the photoelectronic separator is very high (even 99.99% purity is achieved).

Photoelectronic separators are the most gentle in cleaning the casing, which does not deliver ibrfcn to grain products. No mechanical processing, washing, calibration is carried out on the grain, which can damage the product. The photoelectronic separator is one of the final stages of the cleaning process. This is due to the fact that mechanical cleaning does not give the sorted seeds a level of quality cleaning.

Seeds are passed through a mechanical sieve according to indicators such as mass, shape, size, electrical conductivity and aerodynamic properties. But also, part of the weed seeds contained in the seed mass of crops have the same properties and go through all the previous stages of cleaning along with the main crop.

References:

1. Gulshad K., Khurshida A. GRAIN RAW MATERIALS AND THEIR CLASSIFICATION //Intent Research Scientific Journal. – 2023. – T. 2. – №. 5. – C. 61-64.
2. Gulshad, Kurbanbaeva, and Askarova Khurshida. "GRAIN RAW MATERIALS AND THEIR CLASSIFICATION." Intent Research Scientific Journal 2.5 (2023): 61-64.
3. Gulshad, K., & Khurshida, A. (2023). GRAIN RAW MATERIALS AND THEIR CLASSIFICATION. Intent Research Scientific Journal, 2(5), 61-64.
4. Kaypovna X. B. et al. HISTORICAL STAGES OF STORAGE AND PROCESSING OF GRAIN AND CEREALS //Intent Research Scientific Journal. – 2023. – T. 2. – №. 7. – C. 95-98.
5. Kaypovna, Xojametova Bibimaryam, and Kurbanbaeva Gulshad Sarsenbaevna. "HISTORICAL STAGES OF STORAGE AND PROCESSING OF GRAIN AND CEREALS." Intent Research Scientific Journal 2.7 (2023): 95-98.
6. Kaypovna, X. B., & Sarsenbaevna, K. G. (2023). HISTORICAL STAGES OF STORAGE AND PROCESSING OF GRAIN AND CEREALS. Intent Research Scientific Journal, 2(7), 95-98.