



Analysis of Measures to Control Grain Moisture and Reduce Energy Consumption in Grain Processing

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ABSTRACT

This article discusses one of the main quality indicators of grain, grain moisture and grain moisture control, grain moisture measurement methods, the role and importance of grain moisture in processing, and analysis of measures to reduce electricity consumption.

Keywords:

grain moisture, the process of moistening and moistening of grain, the relationship of grain with water during the period of moisture transfer to grain, measuring tools, energy consumption, technology.

The main part In order to provide the population with high-quality flour products, first of all, it is necessary to establish the technology of grain cultivation in the right way. Quality flour is obtained from high-quality, clean grain, and it helps to save a lot of labor and electricity during the storage and processing of clean grain.

Today, the world population's need for grain and grain products is about 70%. Therefore, further improvement of processing processes of grain and grain products is one of the main tasks. Technological regimes in grain processing depend on grain moisture. One of the important factors is the continuous control of grain moisture during the reception and processing processes of grain processing enterprises.

It is known according to GOST when receiving grain: Moisture - 14.5%, Ash content - 1.97%, Foreign impurities - 2%, mineral impurities - 0.2%, harmful impurities - 0.01%, Grain impurities - 5%, Natural weight - 750 g/l, Gluten

content - 23%. IDK quality - Ilgr, Clarity - 40%, it is necessary to establish. Injured - not allowed.

It is known that grain moisture is one of the main quality indicators in grain storage and processing. But there is a big difference between increasing grain moisture in processing and grain with high moisture in receiving grain. grain with high moisture content is not accepted for processing. Technological regimes in grain processing depend on grain moisture content. In most grain processing enterprises, a stationary method is used to measure grain moisture. This requires a long time. Today, modern grain moisture measuring equipment is used worldwide.

In grain processing enterprises, grain moisture is determined using laboratory equipment in stationary laboratory methods. For this, 30 grams of grain is measured and crushed in a laboratory mill. Crushed grains are pulled into bags of 5 gr. Pants are dried with the cover open in SESH-3 equipment at a temperature of 140C0 for 40 minutes. The grain

is cooled in a desiccator for 10 minutes, then the grain moisture is determined by measuring its mass. In addition, grain moisture is determined by a modern rapid method. For this, "FAUNA and WILL" etc. equipment is used. In this equipment, before determining the grain moisture, the code corresponding to the grain whose moisture is being determined is determined by the P button, and then 4/1 part of the equipment is filled with grain. The grain is placed under the equipment with slow shaking. Then the equipment is filled with grain to the end. Grain moisture is determined by pressing the P button. When determining grain moisture, the allowed difference between control and initial determinations should not exceed 0.5%. Mistakes in grain moisture determination can cause great economic damage to the enterprise.

Grains with a grain moisture content of up to 14% are accepted to the elevator. Grain moisture content of 12-13% is accepted for mills. As a result of the moistening process during grain processing, grain moisture increases to 16.5-17%. (Flour products normally have 15% moisture.)

During grain processing, the strength of the grain endosperm is reduced and the strength of the fruit shell is increased. When grain is treated with cold water, its moisture content increases and the color of the finished product becomes clearer and the appearance of the product increases.

Condition of the "grain-water" system in the cold conditioning method

Stages and their duration	Effect on grain	Grain reaction
1	2	3
The first (6-12 hours)	Moistening of fruit and seed shells and feeding them to the sorption part	Swelling of shells and increase in grain size.
Secondly (8-12 hours)	Grain husk is the period of transition of water to the aleurone layer and the crust.	In the anatomical part, the biological system of the grain stops water. The compression of the grain, the increase in moisture content and, as a result, the generation of energy, the appearance of mechanical tension in the grain.
Thirdly (0.20-30,0 minutes)	Transfer of starch to the endosperm part of water in the form of diffusion	The softening of the grain endosperm leads to the formation of microcracks, swelling of proteins in the endosperm, changes in the size of the grain, and a radical change in all the contents of the grain.

It is observed that the grain and its husk absorb a certain amount of moisture in short periods of time before conditioning at various stages. This leads to acceleration of physiological processes.

Electricity consumption in grain processing is mainly spent in the process of grinding grain. If

the grain moisture is increased, the grain husk will soften, as a result, grain processing will be easier. As a result, electricity consumption is reduced

Specific norms of electricity consumption in flour mills are kW, hour for 1t of flour.

Grinding	With mechanical by transport products	Pneumatic transportation of products
Much grade and 72% soft wheat	55-65	86-102
Pasta flour is hard wheat	60-66	93-102
Single grade 85%	48-55	67-77
Wallpaper	21-24	30-34

Research results:

The results of the joint research conducted by the leading specialists of JSC "Galla-Alteg" flour plant and Tashkent State Agrarian University confirmed the efficiency of electricity

distribution once again. The power consumption of the wheat grain grinding plant according to the systems is 200 tons per day in two sections, and the total capacity of the mill is 400 tons per day.

Energy distribution in a mill with a capacity of 200 tons per day.

No		work
1	Grain cleaning department	18%
2	Dranle systems	22.5%
3	Polishing system	11.5%
4	В/ц В.Т.Ч grinding in an entoletor	25%
5	Pneumatic transport	12.0 %
6	Sorting griding process	0.64%
7	Veyka asperarcia	0.21%
8	Auxiliary equipment	10.0 %
Total:		100%

Conclusion

Grain moisture plays an important role in grain processing. The formation of microcracks as a result of the softening of wet processed grain endosperm is the process of crushing, etc. helps the comfortable operation of the equipment.

As a result of improper organization of the technological process of grain moistening, it leads to an increase in electricity consumption and a deterioration in the quality of the finished product.

Therefore, grains that do not meet the requirements of quality indicators should not be accepted for processing. If we achieve grain quality indicators in accordance with gost requirements, if we control the adjustment of processing equipment, if the equipment is lubricated on time, if the lighting equipment in the enterprise is used correctly, if the grain humidity is set correctly, if modern solar

batteries are used in enterprises, the consumption of electricity will decrease and we will be able to supply the population with quality flour products throughout the year. Foydalanilgan adabiyotlar

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