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Quality Storage Of Grain - A Guarantee Of Production Of Quality Products

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ABSTRACT

The complexity of organizing the storage of large batches of grain and grain products is due to their physiological and physicochemical properties. Grain is a living organism in which various life processes take place; the intensity of these processes depends on the external environmental conditions. If the external environment has a positive effect on the metabolism of grain cells, it will inevitably worsen the quality of grain and lead to a decrease in quantity. Without a well-organized and timely cleaning, it is impossible to ensure reliable storage of grain varieties and even their effective use in the national economy.

KEYWORDS

Grain storage process, storage facility, scientifically based measures, physiological and physicochemical properties of grain, the effect of microorganisms and pests on grain storage, grain quality and their physical properties, the creation of a favorable storage temperature.

INTRODUCTION

The process of grain storage is the final stage of grain production and includes the characteristics of the grain and the object of grain storage, as well as the physical, chemical and biological factors that affect the condition of the grain. Knowledge of the laws of the phenomena that occur in the grain heap allows you to take the necessary scientific measures to ensure the quantity and quality of grain. Storage of grain and grain products, as well as storage of other products, requires a large material and technical base and specialized personnel with a thorough knowledge in this area.

THE MAIN PART

The complexity of organizing the storage of large batches of grain and grain products is due to their physiological and physicochemical properties. Grain is a living organism in which various life processes take place; the intensity of these processes depends on the external environmental conditions.

If the external environment has a positive effect on the metabolism of grain cells, it will inevitably worsen the quality of grain and lead to a decrease in quantity. This is due to the fact that there are many difficulties in the storage of grain, which are present in all "consumers" other than humans, ie microorganisms and pests. As a result, as a result of exposure to microorganisms and pests, the quality of the product decreases. If grain storage is not organized properly, rodents (rats, mice) and birds will destroy and contaminate the grain. In addition, special cases during storage of flour and cereals change their consumer properties [1-4]]. Finally, the quantity and quality of all cereals can change due to their physical properties. Thus, it is necessary to protect the nature and storage of stored products from

biotic factors, as well as to create conditions that resist the rapid metabolism of grain cells. This problem can be solved only by preparing the product for storage and creating certain storage conditions. All this can be done by preparing storage facilities equipped with the necessary equipment and devices, taking into account the properties of grain products.

In the interests of the national economy and consumers, the following issues are raised in the field of grain storage.

1. Storage of grain products without destruction or with minimal loss of mass.
2. Preservation of grain products without deterioration.
3. Improving the quality of grain products in storage.
4. Reducing the cost of cocktails in the storage of grain products.

During storage, some quantitative and qualitative losses are inevitable, while others are the result of improper storage. Inevitable mechanical damage is unadulterated grain dust, which occurs when moving grain and grain products from one place to another. Loss of dry matter during grain respiration during storage is the only biological destruction.

However, the losses of the last two types are insignificant when stored properly, amounting to 0.3 ... 0.4% of the mass of the product per year. Only due to the nature of these losses, a natural rate of loss occurs during storage and transportation of grain and grain products. Properly organized storage process can lead to the scattering of grain, consumption by birds, rodents and pests, spontaneous to prevent mass loss due to heating and the growth of microorganisms. Deterioration of the quality of grain products and seeds can be caused by non-compliance with storage regimes, lack of

proper care [5-7]. Deterioration in product quality can result in significant damage. Loss of grain freshness during storage (changes in color, smell and taste) leads to deterioration of the quality of cereals, flour and bread, and sometimes makes them unfit for consumption.

Another reason for the decline in the quality of grain products is its excessive storage for a long time. Any product exhibits a certain long-term durability, even when stored in optimal conditions. If a product is intended to be stored for a certain period of time, it will lose its purchasing power. Many types of flour and cereals lose their quality in the second or third year of storage. In two or four years, the seed properties of the grain will decrease. Cereals and legumes intended for the production of food and compound feeds are more durable in the long run. However, over time (after 7-15 years), they usually have a decline in technological and food properties. Thus, the obsolescence leads to the inevitability of periodic exchange of stored cereals and seeds, as well as the need for their timely sale until a significant deterioration in quality. Preservation of quality without deterioration is a prerequisite.

Various technological measures are used to improve the quality of grain products during storage, ie to ensure good storage and durability. It is known that in many cases it is possible to improve the quality of flour by creating a certain storage mode. However, in agriculture, as well as in grain-receiving and grain-processing enterprises, the processing of seeds for grain, food and mixed fodder is of great importance. Systematic improvement of product quality is one of the important requirements of a market economy. The experience of grain receiving and storage enterprises shows that the costs of storage of grain products can be reduced by creating an improved technical base, introducing new

technological practices, streamlining the mass of grain and improving the skills of workers. In a market economy, the use of cereals for a specific purpose significantly reduces the proportion of losses. Problems in the field of grain storage show that it is difficult and difficult to organize their good storage.

Without a well-organized and timely cleaning, it is impossible to ensure reliable storage of grain varieties and even their effective use in the national economy. To clean the grain from impurities requires a large fleet of machines and mechanisms with different productivity, which are attached to the technological path.

Grain dryers of different models and productivity are used in grain receiving enterprises for drying grain mass during storage. Due to the fact that the harvest season in our country coincides with the hot and dry season, the moisture content of the grain is about 8-9%. Therefore, in most cases there is no need to use a dryer.

Ventilation of grain and grain products is necessary to create a favorable temperature regime for storage. To do this, use a system of transport mechanisms and grain cleaning machines or special active ventilation equipment. Chilled air can be used as a cooling agent using natural or refrigeration equipment. In order to achieve quality storage of grain in a timely manner, it is necessary to protect it from insects, canals, as well as rodents and birds belonging to the group of pests. This is done through the use of various chemicals. In addition to these basic technological operations, other special methods are used, which are only useful during storage. For example, legume seeds are sorted by color and size. Modern specialists in the field of grain storage are required to have excellent training in biological and technical areas. Ensuring the timely and quality

implementation of the above measures will ensure the next step, which is the processing of grain and obtaining quality products from it.

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