



## GRAIN STORAGE AND PROCESSING.

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**Abstract:** This article discusses the problems of grain storage and processing technologies, solutions to problems.

Grain processing and storage are the necessary processes for their long-term storage and consumption in a stable state. The main processes of grain processing and storage at important enterprises in the agro-industrial sector are as follows:

### 1. Grain preparation and cleaning

Cleaning: Special mechanisms are used to clean grain from contamination (coke, chaff, deposits and other impurities). In this process, high-quality grain is achieved.

Compound cleaning: This is an important enterprise to remove chemicals, pesticides or similar toxic substances from the grain.

### 2. Processing

Flour and flour: Various products can be produced from grain, such as flour, kulchak, krushiga.

More special products: Flour and flour processing by Donny Processing. Grain processing creates snacks and simple products, grain-based foods, etc.

### 3. Storage methods

Classic storage: Donny is stored in bags and special containers to protect it from air and moisture. To keep the grain fresh, it is necessary to regularly check the temperature and humidity levels.

International technologies: Mechanisms, musakas and special storage rooms are used to preserve the grain in high quality. For example, special preservation and sterilization methods.

### 4. Proper distribution of transportation

Transportation and distribution of grain storage are very important. High-quality and safe transportation helps to preserve the quality of the product. Proper use of work processes helps grain producers ensure the quality of grain products and their long-term storage.

Every farmer knows that it is not enough to harvest a good harvest, you need to store it, because if the conditions are not met, losses can reach up to 70%. It is necessary to properly organize this process, prepare the premises in advance and make sure that it meets the requirements. Grain cleaning equipment from the Agrosep mash company allows you to take care of the quality of the grain. After harvesting, the grain goes through a full processing cycle, and then is sent to the warehouse. There may be intermediate stages between these two stages. For example, a temporary storage facility is needed for transporting wheat or other

crops. There are special rooms where raw materials are stored for both short and long periods. In addition, it is necessary to take into account the factors affecting its safety.

Choosing a suitable storage location A specialized grain storage facility of the classical form is an elevator complex in which optimal conditions are created and stored at different times of the year, including in winter. Specially equipped piles placed in the open air are used as temporary storage facilities. These piles are covered with tarpaulins to protect against rain and snow. It is impossible to permanently store raw materials in such places, as they quickly get wet. There must be an equipped grain storage facility at the location of the grain harvester. According to the approved rules, hangars are suitable for storing crops. A relatively inexpensive option. They are characterized by mobility and are quickly built. For the full operation of such buildings, loaders, reloaders and other additional equipment are required, and active ventilation must be installed. The service life before overhaul is 5 years; grain sleeves. These are bags made of polymeric materials, reaching a length of 60–75 meters, designed for 300 tons of raw materials. They are airtight, suitable for long-term storage, and the grain does not lose its original properties. First, the sleeve is loaded, then sealed, as a result of which a vacuum is created that bacteria and fungi cannot penetrate; elevators. They are stationary reinforced concrete structures, 5-11 thousand tons

buildings with capacity. With durability, regular maintenance and constant repair, they last about 100 years; silos. These are containers with a capacity of 20-1700 tons installed on special supports. Previously, grain storage was carried out, as a rule, in concrete silos, but now metal silos are more widely used. They are less durable, since they are designed to serve not 30 years, but 12 years, but are still widespread

How humidity affects quality It is important to remember this indicator as decisive for preserving all the original properties of the grain. Responsible farmers are ready to spend a lot of money to maintain constant humidity. So, in elevators where grain is stored and processed, it should not exceed the maximum values (depending on the conditions and type of harvest - 12-16%). For example, cereals retain all their properties throughout the year at a moisture content of 14-15%, for legumes the coefficient can be increased to 16%, and for oilseeds a much lower percentage is required - 6-8%. If the permissible value is exceeded even by 0.5-1%, a small amount of free moisture appears, which increases the risk of pests and bacteria. It is best stored if the moisture content of the dry mass is 1-2% below the maximum. Otherwise, the probability of infection by microorganisms is high. The moisture content of the crop is determined by the standard air-thermal method. For this, moisture meters operating on the principle of electrical conductivity are used for several minutes. The final parameters are affected by the amount of foreign impurities and the uniformity of moisture distribution in the mass. When calculating the cost of a batch, moisture indicators are also taken into account - for each percentage above the permissible limit, the physical weight decreases; if lower, on the contrary, they increase.

Storage and processing of grain. How to store grain in modern conditions? GRAIN STORAGE AND PROCESSING. HOW TO STORAGE GRAIN IN MODERN CONDITIONS? Every farmer knows that it is not enough to harvest a good harvest, you need to store it, because if the conditions are not met, losses can reach up to 70%. It is necessary to organize this process correctly, prepare the premises in advance and make sure that it meets the requirements. Grain cleaning equipment from the Agrosep mash company allows you to take care of the quality of the grain. After harvesting, the grain goes through a full processing cycle, and then is sent to

the warehouse. There may be intermediate stages between these two stages. For example, a temporary storage facility is needed for transporting wheat or other crops. There are special rooms where raw materials are stored for both short and long periods. In addition, factors affecting its safety should be taken into account. necessary. Choosing the right storage location A specialized grain storage facility of the classical type is an elevator complex in which optimal conditions are created and maintained at different times of the year, including in winter. Specially equipped piles placed in the open air are used as temporary storage facilities. These piles are covered with tarpaulins to protect against rain and snow. It is impossible to permanently store raw materials in such places, as they quickly get wet. There must be an equipped grain storage facility at the location of the grain harvester that meets the requirements. According to the approved rules, hangars are suitable for storing crops. A relatively inexpensive option. They are characterized by mobility and are quickly built. For the full operation of such buildings, loaders, reloaders and other additional equipment are required, and active ventilation must be installed. The service life before overhaul is 5 years; grain sleeves. These are bags made of polymeric materials, reaching a length of 60–75 meters, designed for 300 tons of raw materials. They are airtight, suitable for long-term storage, and the grain does not lose its original properties. First, the sleeve is loaded, then sealed, as a result of which a vacuum is created that bacteria and fungi cannot penetrate; elevators. These are stationary reinforced concrete structures, buildings with a capacity of 5-11 thousand tons. With durable, regular maintenance and constant repair work, they last about 100 years; silos. These are containers with a capacity of 20-1700 tons installed on special supports. Previously, grain storage was carried out, as a rule, in concrete silos, but now metal silos are more widely used. They are less durable, since they are designed to serve not 30 years, but 12 years, but are still widespread. Active ventilation is created inside the silo for optimal temperature. How humidity affects quality It is important to remember this indicator as a decisive factor in preserving all the original properties of the grain. Responsible farmers are ready to spend a lot of money to maintain constant humidity. So, in elevators where grain is stored and processed, it should not exceed maximum values (depending on the conditions and type of harvest - 12-16%). For example, cereals retain all their properties at a moisture content of 14-15% throughout the year, for legumes the coefficient can be increased to 16%, and for oilseeds a much lower percentage is required - 6-8%. If the permissible value is exceeded even by 0.5-1%, a small amount of free moisture appears, which increases the risk of pests and bacteria. It is best stored when the moisture content of the dry mass is 1-2% below the maximum. Otherwise, the likelihood of infection by microorganisms is high. The moisture content of the crop is determined by the standard air-thermal method. For this, moisture meters operating on the principle of electrical conductivity are used for several minutes. The final parameters are affected by the amount of foreign impurities and the uniformity of moisture distribution in the mass. When calculating the price of a batch, humidity indicators are also taken into account - for each percentage above the permissible limit, the physical weight decreases; if lower, on the contrary, they increase. Requirements for storage areas, sanitary rules

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