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## Factors Affecting Grain Storage Processes On Quality Indicators

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### ABSTRACT

In practice, the durability of the combine harvester is of great importance because during this period the seeds acquire a conditioning character during cultivation and meet the requirements of state standards for sowing quality. Technological longevity is a term in which baking, fodder or technical properties must be preserved during the grain harvesting period.

For cereal or polluting mixtures in accordance with current standards, seeds of wild plants and some cultivated plants that belong to them breathe during storage, they undergo the last ripening processes from the collection and bruising under certain conditions. These include all the patterns and features inherent in the main type of culture that makes up the grain mass.

### KEYWORDS

Economic characteristics of grain, its conditional character for growing seeds, state criteria for the quality of sowing, technological durability, admixtures of pollutants, metabolism, the vital activity of grain mass, physiological and biochemical processes, improper organization of storage of grain mass.

### INTRODUCTION

Grains and seeds of a particular plant are considered living organisms during collection, transportation and storage. Consequently,

constant metabolism is a necessary condition for the survival of living matter, which reflects the vital activity of the grain mass. The main

form of life is a gas exchange (breathing). Also, many lots of grain and seeds undergo physiological and biochemical processes called post-harvest ripening, and finally, as a result of improper storage of the grain mass, a germination situation occurs, which is practically unacceptable.

## MATERIALS AND METHODS

Buyers of grain and seeds (seeds, technological and consumer) the period during which they retain their properties is called their durability. Seed production has long-term biological and economic sustainability. First, at least one seed must germinate in the grain mass.

There are three types of seeds of biological long-term stability: 1- seeds of macrobiotics, shelf life from several days to 3 years (rye); Seeds of macrobiotics 2, tolerance 3-15 years (wheat); seeds of macrobiotics, resistant to 15-100 years (alfalfa seeds, etc.).

In practice, grain durability is of great importance. This is the period during which the seeds are conditioned for germination and meet the requirements of state planting quality standards. Technological longevity is the period during which the grain must maintain its intact, fodder or technical properties.

For grain or mixtures of contaminants in accordance with current standards, the seeds of the corresponding wild and some cultivated plants breathe during storage, where, under certain conditions, they undergo post-harvest maturation and germination. They can be considered as belonging to all the laws and characteristics of the main type of crop that makes up the grain mass.

It should be borne in mind that the moisture content of polluting seeds, therefore, the respiration rate in the early stages of storage is usually higher than the moisture and respiration rate of the main species. They allow the grain mass to self-moisten and heat up. For these reasons, immediately after harvest or grain harvest, the infected seed must be removed immediately upon delivery to the plant. If this is not possible, the grain should be cleaned in the first days of storage.

The temperature as a result of the active vital activity of the components of the grain mass is called spontaneous heating. Spontaneous heating occurs in the grain mass under the influence of various environmental factors. As a result of the rapid respiration of the grains and the heat generated by the seeds of wild plants, microorganisms, insects and channels, the heat is retained in the grain due to poor heat transfer. As a result, heating starts at this moment. When spontaneous heating begins, the temperature first rises to 55-65 °C in some parts of the grain mass, and then in all its parts.

The rate of development of spontaneous heating in grain heaps can be different. In some cases, the temperature rises to 50 °C a few days after the start of the process, and sometimes for a very long time.

This temperature difference is due to many reasons and can be divided into three groups: the state of the grain heap; condition and construction of warehouses; storage conditions of grain heaps and methods of monitoring them.

Grain dump condition. Characteristics of all conditions and indicators, in particular, the intensity of the heating process is greatly

influenced by its humidity, temperature, physiological activity and the composition of microflora... The low capillary moisture content of the grain mass (condensation of water vapour) significantly affects the intensity of heating. The more free water in the grain mass, the more intense the spontaneous heating.

Spontaneous heating of the grain mass is accompanied by moisture, and also depends on temperature. Experiments have shown that spontaneous heating develops very slowly at a temperature of 10-15 °C. At temperatures below 8-10 °C, the grain mass practically does not heat up. Spontaneous heating occurs mainly at high temperatures. Spontaneous heating by 23-25 °C increases several times, and the grain temperature quickly reaches 50-55 °C. The temperature then gradually decreases to ambient temperature, but the grain becomes completely unsuitable for use as seeds, food and livestock.

Numerous experiments have shown that microorganisms activity also causes spontaneous heating. The process will take place as follows. At the beginning of the process, microorganisms multiply rapidly, especially epiphytic bacteria and fungi; development of the process (temperature rise to 25-40 °C), constant multiplication of microorganisms, growth of moulds and actinomycetes, reduction of epiphytic microflora; -the process continues (the temperature rises to 40-50 °C) - epiphytes completely disappear, thermophilic bacteria accumulate, the total number of microorganisms decreases; - the end of the process - the microorganisms continue to decrease.

At the beginning of the self - heating process, only moulds remain not to multiply, but to change species. The exchange is dependent on temperature and humidity, and the process begins with the development of *Alternaria* fungi, which are then replaced by *Aspergillus* and *Penicillium*.

The state of the warehouses during self-heating of the grain mass. The condition and structure of warehouses are subject to spontaneous heating. The degree of waterproofing of the warehouse, thermal conductivity and structural elements, air circulation, etc. will also depend.

How well the warehouse is waterproofed, as well as the heat if it has walls, floors and a roof with low permeability, then the air is better controlled and as a result less self-heating. Poor insulation of walls, roof and floor allows additional moisture to penetrate the grain, which causes it to heat up.

The height of the grain pile depends on the condition of the grain mass to be determined. The dirtier and wetter the grain, the higher the pile should be so low. Silo from chilled and dried grain mass, the elevators can be placed at a height of 20-30 m.

Uncontrolled processing of the grain mass also leads to overheating may cause. Any heating process, even the initial heating stage, leads to a loss of dry matter and a decrease in grain quality. The rate of loss and degradation of dry matter depends on the end temperature of the spontaneous heating and how long the grain has been in the heating state. The self - heating process of grain causes the following changes:

- Signs of novelty (colour, smell, taste and lustre)
- As a result of changes in its chemical composition, technology, food products and changes in vaccine prices; - changes in the quality of seeds.

When the grain mass heats up on its own, its colour changes dramatically and becomes darker or dark brown. Grain at the final stage of heating is darkened by microorganisms. Studies have shown that the quality and colour of self-heating grains vary. The darker and more pigmented the grain is, the lower its nutritional, technological and nutritional value. However, it should be noted that the quality of seeds (germination, germinating feed) of grain decreases in the early stages of spontaneous heating.

It is known that grain products contain a lot of dry matter during storage and decreases. Thanks to this, a special natural reducer was introduced into the stored products. The natural reduction of stored food is specially formulated for both laboratory and production environments. These standards are used as a control in determining the number of products in grain enterprises. It should be noted that the quality of the products is preserved with a natural decrease. If a batch of grain is stored for more than one year, the natural loss is 0.04% for each subsequent year or the corresponding number of months.

## CONCLUSION

Numerous experiments show that if the storage process at any enterprise is organized on a scientific basis, organizational and technological measures are taken in a timely

manner, the decrease in the quality and quantity of products will be minimized.

This means that during the storage of grain, their moisture content, the absence of various impurities, and storage conditions are important, which affect the quality and durability of the grain mass.

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