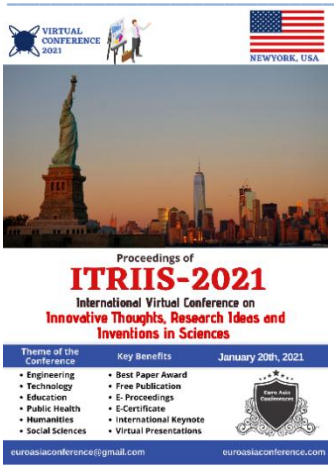


# CHANGE IN GRAIN QUALITY DURING STORAGE

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## Annotation:

Grain is the main food product. Providing the population with the primary food product throughout the year is the main task facing grain producers. The preservation of grain is influenced by such environmental factors as temperature, humidity, thermal conductivity, and the vital activity of microorganisms. Also, the quality and storage of grain is influenced by such parameters as respiration and moisture content of the grain mass.

## Key words:

Grain, technological properties, grain mass, self-heating, capillary moisture, microorganisms, preservation

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 gas exchange (breathing). In addition, 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.

There are three types of seeds of biological long-term stability: 1- seeds of microbiotics, shelf life from several days to 3 years (rye); Seeds of mesobiotics 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.

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 from 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.

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.

When the cereal mass heats up on its own, its color 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 color 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.

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