02

Physiology and storage characteristics of grain

I、Grain is alive

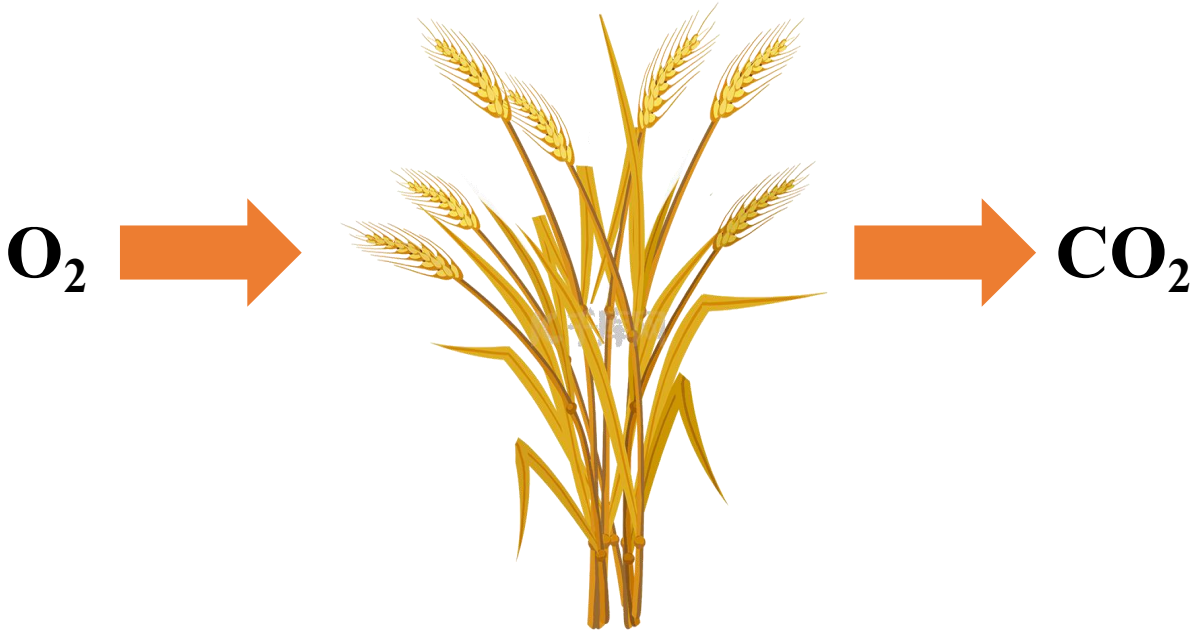
For food crops, what we harvest is the seed, that is, the food that we store (the food in question is the raw grain, rice flour and other processed grains are described later). The seed of a crop, after being removed from the plant, is a living organism for a long period of time, which will carry out life activities, including post-respiration ripeningTo grow old, until at last it loses its vitality and becomes a seed of death.

I、Grain is alive

The life of the grain is closely related to the state and storage conditions of the grain at the time of storage. Maintaining the vitality of the seeds is very important for the preservation of the fresh quality of the grain. As a seed grain in storage, maintaining the vitality is very necessary

II、Grain can breathe

During storage, they breathe like a human, taking in oxygen and exhaling carbon dioxide to keep the seeds alive. Respiration is the physiological activity necessary to keep the seeds alive. Once respiration stops, the seeds die.



III、Afterripening

The post-ripening of food refers to the process of continuing to develop and mature in a period of time after the harvest of food. The new grain is not fully mature when harvested in the field, and the development continues in the initial period of storage. At this time, the respiration of the grain is vigorous, and the germination rate is very low because it is not fully mature.

IV、Ageing

As has been said before, food is alive. Like people, there are new grains cooked after the process from robust to aging, with a high germination rate. With the lengthening of storage time, the germination ability is gradually lost, and finally the seed use value is lost.

V、Germinate

1. Germination refers to the phenomenon that the young embryos of grain and oil seeds recover to grow, and the young roots and buds break through the seed cortex to grow outward.

2. After the stored grain seeds germinate, the quality will be degraded, mainly due to the transformation of nutritional components, which will significantly reduce the rate of food quality, technology quality and processing of finished products, and it is not easy to keep.

1. The sourness of grain is mainly caused by free fatty acids (no sour taste), acidic phosphates, acidic proteins and a small amount of organic acids.

2. The main reasons for the sourness and bitterness of grain are as follows: the fatty acid oxides and peroxides in grain generate unsaturated fatty acid methyl ester polymers under the action of oxidase, which have high processing precision and are not easy to become bitter, and high fat content is easy to become bitter.

3. High temperature resistance, easy aging rice colloidal tissue is relatively loose, the resistance to high temperature is very weak, in the hot sun exposure or high temperature drying, will increase waist burst rate and discoloration, reduce the food quality and process quality, high temperature can also lead to the increase of fatty acid value of rice quality decline.

Reasons: The activity of enzymes (amylase, catalase) decreased, the viscosity decreased, the germination rate decreased, the salt soluble nitrogen content decreased, the acidity increased, the taste and taste became worse.

4. Easy to heat The newly harvested rice has strong physiological activity. After storage, heat accumulation is difficult to disperse, resulting in the phenomenon of heating in grain piles.

Reason:

high water content,

large bacteria,

small void

5. Yellow prone rice is not dried in time due to rainy weather during the harvest period, which causes the heat of the grain pile to produce yellowing, but also occurs during storage.

Reasons:

The temperature and moisture during storage, the higher the grain temperature, the greater the moisture, the longer the storage time, the more serious the yellowing.

The higher the water content of rice, the more heating times, the higher the content of yellow grain rice, the yellowing is also serious .