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EFFICIENT ORGANIZATION OF HARVESTING AND PROCESSING OF COTTON SEEDS

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ABSTRACT

The article gives recommendations for the development and implementation of innovative technologies for storage, fiber extraction and spinning of machine cotton picking in the system of cotton-textile clusters.

Keywords: Cotton-textile clusters, cotton picking machines, storage of raw cotton, yarn, spinning technology.
It is advisable to carry out the process of mechanized cotton harvesting in a short time and introduce technological systems for the production of high-quality fiber in order to exclude factors that negatively affect the properties of the fiber during storage of raw cotton.

In the United States, 98 percent of cotton is harvested by machines. Before starting the cotton harvest, carrying out special agronomic measures in the fields and to prevent spontaneous heating during storage of wet cotton, special care should be taken so that the maximum permissible moisture content of raw cotton does not exceed 12% [3].

Foreign state-owned enterprises also experience problems with the uninterrupted supply of raw materials to spinning mills and with the storage of cotton seeds collected and packed in special polyethylene [4].

When studying the work of scientists who conducted research in this area, it was found that the density, temperature and shelf life of packaged raw cotton negatively affect the quality of fiber and seeds. When the density of packed cotton seed ranged from 117.7 kg / m³ to 160.2 kg / m³, the temperature increased from 25.5 to 42 °C. This is often the case in the case of raw cotton, where the components of the raw cotton are at different moisture levels, especially in green cotton, where green organic pollutants are present [4].

The technology of storing raw cotton in baskets has been introduced in the USA. The advantage of this method is the possibility of long-term storage of raw cotton at a moisture content of 18%. The disadvantages of this method are that the density of cotton seeds does not exceed 150 kg / m³, which leads to large storage areas and corrosion due to the fact that the baskets are made of metal. To prevent them, it is proposed to make baskets from non-ferrous metals [4].

To date, Bajaj Steel Industries LTD (India) has developed technology for pre-cleaning tools, conveyor systems, automatic transmission systems, feed systems, flow regulators for synchronizing and controlling many processes on automatic cotton processing lines [5].

A comparative study of processing lines for processing long staple and medium staple cotton varieties requires inappropriate aspects of these lines, in particular, improving the quality of cotton fiber, reducing damage to cotton fiber and reducing equipment maintenance costs.

During the primary processing of raw cotton, additional measures are required to prevent deterioration of the varietal characteristics of the fiber, fiber yield, fat content and decrease in seed yield, storage of raw cotton in trailers and warehouses and ensuring their active ventilation. Another way to solve these problems is to prevent spontaneous heating of raw cotton by introducing a storage of raw cotton into polymer-coated warehouses [6].

Research has shown that different industrial varieties are stored together when storing hand-picked cotton in stacks. This is because the buds do not open naturally at the same time. In the future, as a result of an increase in the volume of mechanized cotton harvesting in the republic, it is possible to achieve the preservation of the same industrial varieties of raw cotton stored in small batches. When harvesting seed cotton for harvesting machines, it is necessary to eliminate a number of shortcomings in subsequent processes, storage and processing. That is, raw cotton harvested on harvesting machines will need to be intensively dried in accordance with the defined conditions and stored in metal baskets.
with the regulated technological processes during processing. However, this process is more difficult to accomplish when the relative humidity is low during the hotter harvest season [7].

As a result, care must be taken to ensure that the wetting process is carried out correctly when processing cotton. Research has shown that the wetting process of machine-picked cotton adversely affects the properties of fibers, raw materials and finished products. It has been scientifically and theoretically proven that a high-quality finished product can be obtained if the wetting process is carried out correctly and the moisture content in the spun cotton fibers reaches 7.1%, and the moisture content in the fibers during the spinning process reaches 8.8.5% [8].

It is scientifically based on the fact that long-term storage of raw cotton leads to biological changes, deterioration of the properties of fiber and seeds, a decrease in fiber yield and negative impact on subsequent processes [9].

Conclusion. Having studied a number of scientific studies on the correct organization of the process of harvesting and processing raw cotton, the following conclusions and recommendations can be drawn:

- In order to properly organize the mechanized cotton picking in the country, it is necessary to improve the packing of raw cotton in cotton fields. Instead of storing the harvested raw cotton in bales, cotton-textile clusters need to implement technologies based on our own climatic conditions, storing the cotton picked in rolls and small bales and transferring it to downstream processes based on our own climatic conditions;
- As a result of theoretical and experimental studies, it is necessary to develop optimal technological parameters for the primary processing and spinning of cotton and recommend the optimal options for cotton and textile clusters that will maximize the preservation of the natural properties of fibers and raw materials;
- In the system of cotton and textile clusters, it is necessary to introduce the practice of spinning based on innovative resource-saving innovative technologies for the production of fiber and spinning.

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