

# **Analysis of the Influence of Different Cotton Selection Varieties and Their Storage Process on the Quality Indicators of the Spinning Process Products**

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**Annotation:** In this article, the quality indicators of the fibers extracted from different selection varieties of cotton without ginning and under production conditions from the upper, middle and lower layers of ginning are determined. In addition, the methods of development of the cotton industry and the role of America in it are highlighted.

**Key words:** Cotton, raw material, gloss, grade, class, cluster, film, seed, standard.

PQ-3408 dated November 28, 2017 of the President of the Republic of Uzbekistan "On measures to fundamentally improve the management system of the cotton industry" and "On the main indicators of the production and supply of cotton fiber from the cotton harvest of 2017 in January-August 2018" dated January 18, 2018 The Cabinet of Ministers made a decision in order to ensure the implementation of decisions No. PQ-3483, to further improve the cotton fiber sales mechanism. In it, it is indicated that the cotton fiber will be sold to the local textile enterprises that have the production capacity for its processing - through stock exchanges [1].

In the 2019-2020 cotton harvest, 25,923 million tons of cotton were grown worldwide, and the United States of America is the third largest producer of cotton in the world, after India and China. According to the International Cotton Advisory Committee, the state produced 4,377 million tons of cotton fiber during this period. Raw cotton is not sold in the US, so there are no standards for raw cotton. Raw cotton is processed as a mill in cooperatives, company-owned or private gins, processing costs are usually paid in cotton seed produced, but can also be paid in foreign currency.

When receiving cotton raw materials in the Republic of Uzbekistan, they are sorted by selective and industrial variety, class, length, and placed in bins. In the USA, cotton raw materials are stored in small modules in cotton fields and fields after picking.

Uzbekistan ranks sixth among the world's largest cotton producers. Relevant information was published on the website "Research and Market" [2].

According to the results of the study, India, China, Pakistan and the USA are the world's largest producers of cotton.

The US exports most of its cotton products because the country's textile industry is underdeveloped.

Asian countries dominate the cultivation of cotton and are among the largest consumers of cotton.

In recent years, Vietnam and Uzbekistan have become major consumers of cotton.

Overall, China, India, Pakistan, Bangladesh, Turkey, Vietnam entered the top eight, and Uzbekistan completed the ranking.

However, Uzbekistan was not among the eight leading cotton exporting countries listed in the study.

Receiving seed cotton, storing it in receiving facilities, transporting it to cotton gins and storing and processing it according to the established standard requirements, sorting, treating and packaging the seed seed according to the established requirements, storing it in warehouses and controlling its quality, and planting in farms and other agricultural organizations work is carried out on the basis of the decision of the

Cabinet of Ministers on the procedure for receiving, storing, preliminary processing, seed preparation, storage, distribution and quality control of seed cotton raw materials, which provides for the delivery procedure [3,4,5].

The elite seed cotton of regionalized, promising and new selection varieties of cotton is placed in new bags and stored in dry, clean and covered warehouses with a ventilation system. . The bags are placed on special bases, and the middle part of the gharam is left open.

The primary materials of seed cotton are stored in elite seed farms in the form of a limited liability company according to the requirements of regulatory and legal documents. Seed cotton is stored in the warehouses for 1.5-2 months, and after complete physiologicalization of the seeds in the raw cotton material, it is allowed to be processed in the seed production workshops.

Technological processes of initial processing of seed cotton include cotton transfer, drying, cleaning of small and large impurities, ginning, linting of seed, covering and transportation to temporary storage areas. All technological lines of the enterprise are adjusted and carried out in a soft mode in order to prepare the quality indicators of the seeds obtained in the initial processing of seed cotton garams based on the requirements of the state standards. Before the initial production of each batch of seed cotton, the order form 28-XL, which reflects the indicators of the expected products, is drawn up by the material responsible person of the seed cotton production facility and the head of the economic department of the seed preparation organization, and is given to production after approval [6,7,8].

The long fiber seed cottons are cleaned in roller gins and the ginned seeds are linted once. The 28-XL assignment letter is to be signed in 5 copies by the material responsible person of the place where seed cotton is prepared, the head of the economic department of the seed preparation organization, the chief accountant, the chief engineer, the chiefs of the raw material and finished product and technical control department.

Before the initial operation of each seed cotton gin, the technological parameters of the main and auxiliary equipment are adjusted, and in order to prevent mechanical interference of selective varieties, all equipment and aggregates are cleaned of residual products, and the seed seed received for 10 minutes is taken by the responsible specialists of the seed preparation organization, a deed is drawn up with the participation of the seed trade expert and the technical seed trade expert and transferred to the technical seed. The sequence of initial processing of selected seed cotton varieties is carried out according to the third, second, first and elite generation, and when moving to the processing of a higher generation seed group, the seed obtained during the first 10 minutes is allowed to be added to the seed group of the previous completed generation based on the document [9,10,11,12].

The products after cotton production are received by the merchandiser of the raw materials and finished products department, and the cotton fiber, lint, short fluff, lint, and other separations are pulled out separately for each batch of processed cotton. If the products obtained from the initial processing of cotton gins are less than the plan standards specified in the order 28-XL, and the production days are more than the standards of the grade or vice versa, the recipient of the processing facility must provide a written explanation for these deviations.

Seed preparation technology is carried out on the basis of the regulations developed by "Pakhtsanoat Scientific Center" JSC, and the quality of seed must meet the requirements of regulatory documents in the field of technical regulation.

A report on the completion of the cleaning works will be drawn up with the participation of the responsible employees of the seed preparation workshop, regional departments of the Center and the control inspectorate over the Agro-Industrial Complex under the Cabinet of Ministers.

An experiment on colored cotton is being conducted in the laboratory of the Ministry of Agriculture. The "Cotton Biotechnology" laboratory of the Scientific-Research Institute of Cotton Selection, Seed Breeding and Cultivation Agrotechnologies is conducting an experiment on the cultivation of cotton with an unusual color. The production of natural colored fiber increases the export potential of cotton [13,14,15].

Ecological changes are observed in the development of plants or changes in their size, shape, color, composition, and are a response to environmental stress (disadvantages) of different intensity. Ecological changes can be observed in the genetic uniform of the population by comparison of plants [5].

When we look at genetic variation between species, we are dealing with contrasting forms of a certain character of a plant. The characteristics or specific parts of a plant develop as a result of the influence of genes on chromosomes and as a result of the interaction of the plant and the environment during its processing [16].

Genetic variations are important for breeders, without which sustainable genetic improvements are impossible. The main task of breeders is to identify any positive traits that contribute to the increase in yield and quality of plants and to collect the genes of a variety that perfects these traits.

Recombinant DNA technology. This technology is also called molecular cloning or genetic engineering. They mean the process of experimentally transferring genetic material (DNA) from one organism to another, and there is no uniformity or universal set of methodologies. At the same time, obtaining recombinant DNA is often carried out alternately:

1. The desired genes from the donor organism are extracted from natural DNA and a new DNA clone is created.

2. This construct is introduced into the recipient. There it is replicated and passed on to offspring. This process is called transformation.

3. Cells are identified and cells with recombinant DNA are isolated.

According to modern standards, long-fiber cotton is divided into types I-III, and medium-fiber cotton is divided into types IV-VII, that is, the linear density of the fiber increases according to the order of growth of the type, and the length decreases vice versa. If the fiber is out of range in terms of linear density or length, it will pass to subtypes, resulting in reduced spinability of the yarn and the production of poor quality finished products.

Determining the linear density of cotton fiber is complicated enough. Therefore, the American fiber certification system introduced the microneur indicator, which is determined by the amount of air consumption from a group of parallel fibers. Air resistance is proportional to the cross section of the fiber.

Fiber color is characterized by the degree of Rd (%) and yellowness (B+) according to the HVI standard in America. The color of cotton fiber has always been considered one of the highest requirements. Therefore, the reception of seeded cotton fiber in cotton ginning enterprises of the country is carried out only during the day, and the laboratory workers determine the color of the fiber subjectively, according to the classifier's style and special samples.

We know that the cotton fiber is kept in storage for some time until the technological process of separating it from the seed is carried out. Over time, the quality indicators of the fiber stored in different layers of the gharum differ from the initial indicators at the time of reception. As a result of the yellowing of the cotton fiber, its strength, specific breaking strength, length of the staple mass decrease, the amount of short fibers and the mechanical damage of the fiber increase. Also, these indicators do not affect the physical-mechanical properties and spinability of the spinning products during the technological transitions of the yarn spinning process.

Based on the above, the physico-mechanical properties of spinning products were determined in the HVI 900 SA system during the technological processes of yarn spinning from the fibers separated from the upper, middle and lower layers of the cotton without gin, and from the upper, middle and lower layers of the gin in laboratory conditions, and the obtained test results are presented in Table 1.

Table 1.

Changes in quality indicators of spinning process products

No	Jealousy layers	Selective variety	Mic	Str, sN/tex	Len, inches	Unf, %	SFI,%	Elg, %
1.	Unaffected without	Shiny-4	4,5	33,5	1.18	87,7	4,8	8.3
		Andijan-35	4.4	32.4	1.13	84.2	6.1	7.5
2.	Jealousy upper part	Shiny-4	4,19	32,28	1.15	87,3	5,3	7.7
		Andijan-35	4.1	31.2	1.10	82.4	6.5	6.9
3.	Jealousy	Shiny-4	4,05	32,11	1.14	86,2	5,9	7.3

	middle part	Andijan-35	4.0	31.12	1.11	81.5	6.6	6.5
4.	Jealousy the lower part	Shiny-4	4,7	31,13	1.13	85,2	7,1	5.8
		Andijan-35	4.8	30.5	1.09	81.2	8.2	5.2

Analyzing the results of the research, in the process of obtaining yarn from unspun cotton, in the Porloq-4 selection variety, the microneural index of the fiber is 4.36, the specific breaking strength is 32.26 gk/tex, the high average length is 1.15 dm, the length uniformity index is 86.6%, short fiber index was 5.8%, elongation at break was 7.3%. In the Andijan-35 variety, the microneur index is 4.32, the specific breaking strength is 31.31 gk/tex, the upper average length is 1.11 dm, the length uniformity index is 82.33%, the short fiber index is 3.8, the elongation at break is 18.2% , in the process of obtaining yarn from cotton in the upper layer of the pile, the fiber microneur index is 4.19, the specific breaking strength is 35.28 gk/tex, the average length is 25.82 dm, the upper average length is 30.11 dm, the length uniformity index is 87, 3%, short fiber index was 6.9%, elongation at break was 6.5%.

As it can be seen from the analysis of the results of the research, as a result of the increase in the layers of cotton garm, it is possible to observe a sharp change in the quality indicators of the fiber in the process of extracting the yarn from cotton. In addition, we can see that the cotton fiber of the Porloq-4 selection variety has higher quality indicators than the Andijon-35 variety. It can be determined that this will bring great changes in spinning technology and economic indicators of production.

It can be concluded that the quality indicators of the products of the spinning process deteriorate as a result of the increase in yarn density.

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