



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 12, December 2021

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.569

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com



Changes and Analysis of Cotton Fiber Quality Indicators

Usmonova Shaxnoza Anvarovna, Taniberdiyev Farrux Rustamovich, Orumbayeva Surayo

Axmetjonovna, Akhmedova Mokhinur Fayzullo qizi, Rasulova Gulmira Bahrom qizi

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Technological process optimization engineer of R&D Center "Technopark" LLC (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

ANNOTATION: this article was conducted in the joint-stock company "Scientific Center of Cotton Industry". For this purpose, various types of cotton fiber grown in the Republic in 2019, including cotton fiber such as Porloq-4, Bukhara-8, Namangan-77, Khorezm-127 were selected and their physical and mechanical properties were selected in the modern German FCS (Fiber classifying system) system. were tested and changes in fiber quality indicators across regions were analyzed.

KEYWORDS: fiber color, yellowing rate, micronaire performance, reduces the spinning capacity of the yarn, subjective, classy style

I. INTRODUCTION

In the development of the classification system of cotton fiber in the comparison of the national system of quality assessment of cotton fiber used in the international market, significant differences were found in the basic principles of classification, nomenclature, indicators, tools and test methods, units of measurement. There are no criteria for transitioning from one classification system to another. As a result, even experts familiar with different principles cannot classify cotton fiber in the foreign market or use different systems to measure the approximate fiber quality level.

The existence of inadequate systems for assessing the quality of cotton fiber, both domestic and foreign markets, is also unprofitable for producers, as it sets different criteria for the consumer properties of the fiber and requires different, non-replaceable testing tools in laboratories.

The linear density of textile products, as well as cotton fiber, is expressed in tex or millitex units in the standards of the Republic and European countries, and is estimated depending on the length and type of fiber. According to modern standards, long-fiber cotton is divided into types I-III, and medium-fiber cotton is divided into types IV-VII, ie the linear density of the fiber increases depending on the order of growth of the type, while the length decreases inversely. If the fiber exceeds the limit in terms of linear density or length, then it passes into subtypes, which reduces the spinning capacity of the yarn and can lead to the production of poor quality finished products.

II. METHODOLOGY

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

Fiber color is characterized by the American standard Rd (%) and yellowing (+ b). The color of cotton fiber has always been one of the highest demands. Therefore, the reception of cotton fiber in the country is carried out only during the day, and laboratory assistants determine the color of the fiber by comparing it with subjective, classy style and special samples.



Sections of cotton fiber by selection varieties were studied by regions and diagrams were given based on the results obtained. In these diagrams, the maximum, minimum and average values of the obtained indicators are given. The diagrams are shown in Figures 1-3.

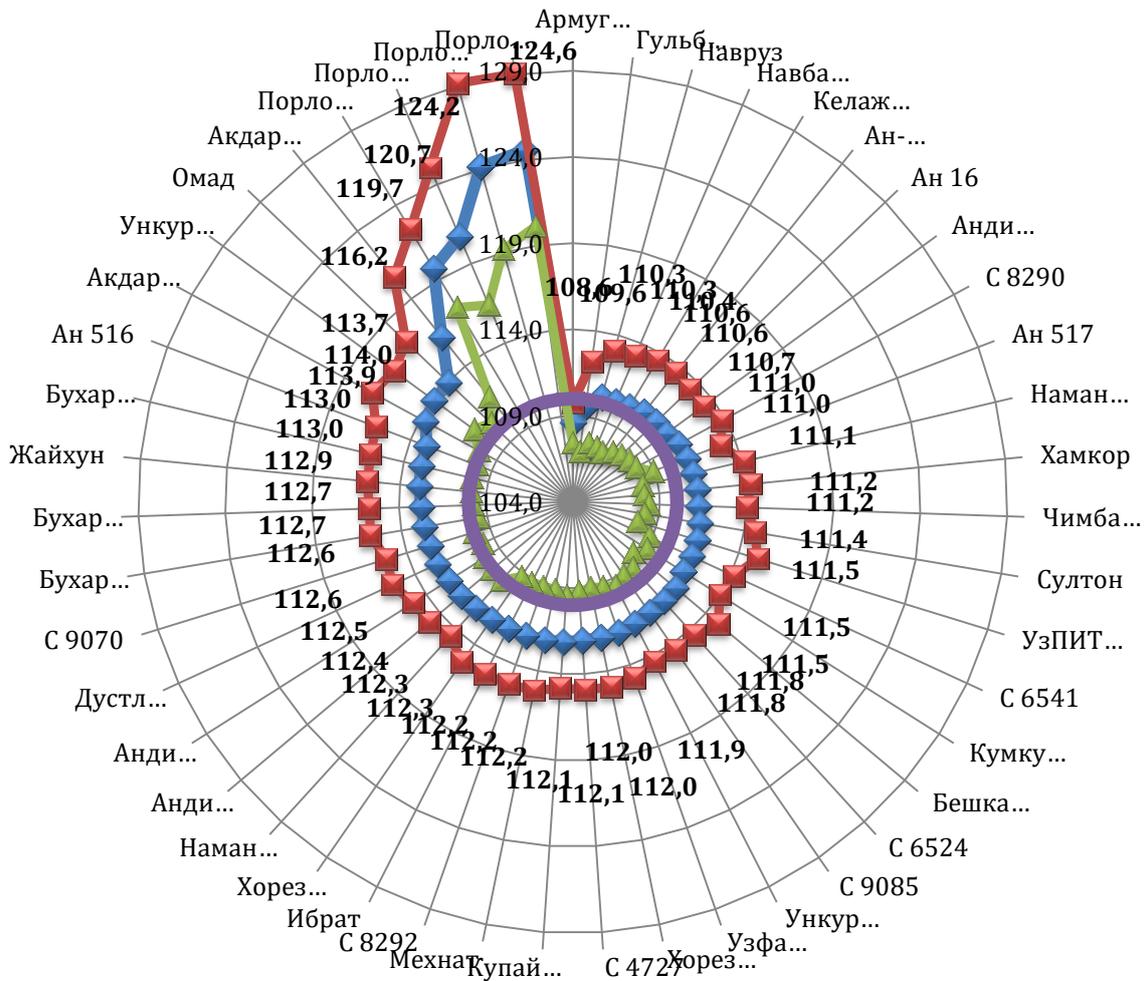


Figure 1. Distribution of the mean value of the UHML high mean length index in the cross section of selection varieties by regions.

III. RESULTS AND DISCUSSION

The results of experimental tests showed that the quality indicators of cotton fiber produced for the 2019 cotton harvest are shown in the table by regions of the Republic. In Kashkadarya and Samarkand regions, the micronaire index is in the optimal range of 4.4-4.5. In Karakalpakstan, Samarkand and Kashkadarya regions, the value of the average length is equal to the highest level of 4 types. In Tashkent, Samarkand, Bukhara, Jizzakh and Kashkadarya and Navoi regions, which have the highest rates of light reflectance, the average value exceeded 79%. The average reflection coefficient in the country was 78.76%. Values for this indicator (less than 77%) were observed in Fergana and Namangan regions. In terms of jaundice, it is significantly negative (8.0-8.2) in these areas.

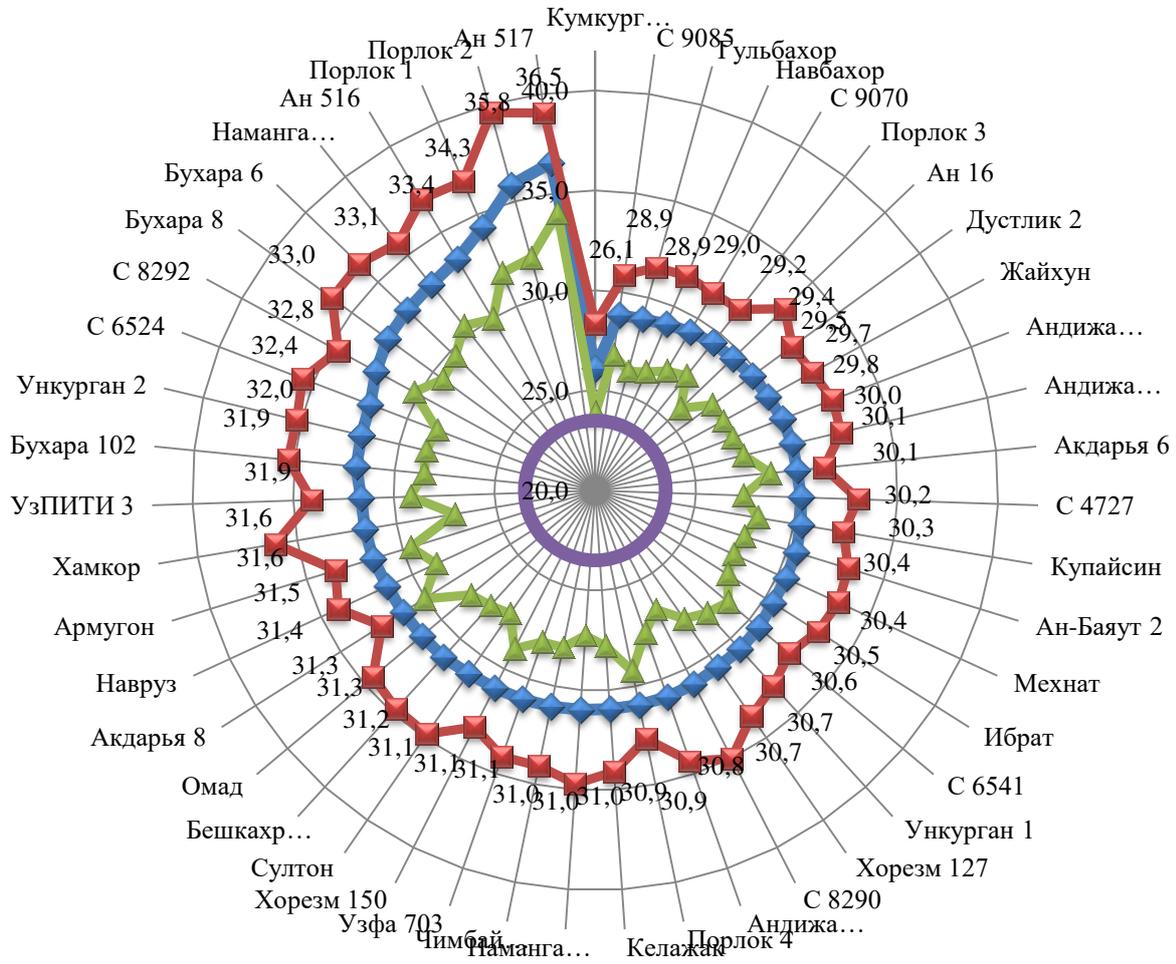


Figure 2. Distribution of specific breaking strength by regions in the selection of selection varieties.

In the country, this indicator is 8.57, but in Kashkadarya and Samarkand regions, despite the whiteness of the fiber, the level of yellowness is high (8.9-9.07), the yellowest fibers are in Surkhandarya (9.63). Trash cod indicator, which determines the contamination of fiber, has positive indicators: in ginneries of Kashkadarya (1.61), Syrdarya (2.43), Navoi (2.3), Surkhandarya (1.81) regions we can see 1-2 varieties of raw cotton.



(80.3), Chimboy-5018 (80.4) have the following selection cotton fibers. S-6524 (77.5), Andijan-35 (76.3), Andijan-36 (75.5), Namangan-34 (77.5), S-8290 (76.6) selection varieties show the lowest results.

Bukhara-6 and Bukhara-8 (out of 8.9), Bukhara-102 (8.8) are among the most planted and tested selection varieties in terms of yellowing due to their high performance.

According to the index of short fibers, the lowest values are Bukhara-6 (5.3%), Bukhara-8 (5.4), and the highest values are S-6524 (7.4), An-boyovut-2 (7.99), Andijan-35 (9.5) entering.

According to the test results, the Micronaire index is in the range of Bukhara-6 (4.5), Porloq-4 (4.2), Namangan-77 (4.4), Khorezm-127 (4.7). Bukhara-6 (35.4), Porloq-4 (35.2), Namangan-77 (31.0), Khorezm-127 (31.1), UHML Bukhara-6 (112.7), Porloq-4 (124.2), Namangan-77 (113.0), Khorezm-127 (112.1).

Namangan-77 (139.3-2162.8 SN), Porloq-4 (153.2-2261.7 SN), Khorezm-127 (145, SN) 0-2140,5 SN among selections Bukhara-6 (141,9.1-2212,4SN), selection variety is distinguished by good performance.

IV.CONCLUSION

In summary, after analyzing the quality indicators of fiber of different selection varieties by regions, 4 optimal varieties of Namangan-77, Porloq-4, Bukhara-6 and Khorezm-127 were selected. In addition, the average values of the predicted spinning properties in terms of fiber are high in Kashkadarya (146.41), Khorezm (144.5) and Namangan (145.8) regions, and relatively low in Syrdarya (130.8). was found to be.

REFERENCES

1. GOST3279-76 "Cotton fiber. Technical conditions" standards.
2. ASTM Section 7, D76-D4391. 2019.
3. GB1103 People's Republic of China Standard.
4. UzDSt 604: 2016 "Cotton fiber. Technical conditions" state standard.
5. Oz DSt 618: 2014 Cotton fiber. Standard for methods for determining maturity.
6. Oz DSt 620: 2020: 2014 Cotton fiber. Methods for determining the linear density and micronaire index.
7. Own DSt 629: 2014 Cotton fiber. Methods for determining the color and appearance.
8. Own DSt 614: 2015 Cotton fiber. Sample selection methods.
9. Own DSt 619: 2014 Cotton fiber. Methods for determining the specific tensile strength
10. Own DSt 632: 2014 Cotton fiber. Methods for determining the amount of defects and impurities.



**Impact Factor:
7.569**



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details