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New Cotton Varieties - A Guarantee of a Rich Harvest

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Annotation: In the article: The newly created lines were studied in the "Selection Variety Testing" experiment at the Andijan Scientific and Experimental Station of the PSUEAITI in 2022-2024. The growth and development of the lines and their beneficial characteristics for the economy are presented. Currently, due to changes in weather and climate, the degree of adaptation of newly created varieties and lines to this environment, that is, the development of new lines, including changes in flowering and ripening periods as a result of the influence of weather and changing climate on plant development, is presented (Table 1).

The yield elements in plants at the beginning of the autumn season, i.e. the number of mature bolls and the number of those that ripen and open, are also presented. The effect of weather changes on economically valuable traits is also taken into account. In particular, information is provided on the number and quality of growth traits under the influence of changing weather conditions, such as the period of action, wilt infestation, cotton per boll, fiber yield and length.

Keywords: Cotton, variety, ridge,

cotton, seed, productivity, fiber yield, fiber length, fiber length, single boll cotton, flowering, opening, wilting speed, period of operation, climate, negative factors.

The creation of new varieties of cotton and their introduction into production are of great economic importance in the development of cotton farming in our republic. After our republic gained independence, the President of the Republic of Uzbekistan issued a decree “On additional measures to develop the seed production system in cotton farming and increase cotton yield” (No. PP-391, December 15, 2023) [1] on seed production and selection of cotton. Special attention is paid to selection and seed production, and specialists in this field are tasked with creating and fully implementing varieties of cotton that ripen in 110-120 days, have a fiber yield of 38-40 percent, a fiber length of 33-34 millimeters, and belong to the fourth type, meeting the requirements of the world market.

The adoption of normative decrees and laws of the Republic of Uzbekistan created the legal basis for this area. It was also determined that the state task is to comprehensively improve and establish work in the field of selection, seed production, variety renewal, the introduction of new early-maturing varieties with high fiber quality, and their rational placement in various soil and climatic conditions of our country.

To fulfill these tasks, breeding scientists create new lines based on state programs, and among them, those that are fast-maturing, high-yielding, and whose fiber yield and quality fully meet the requirements of light industry are recommended for state variety testing as new varieties.

Today, cotton is grown on a total of 33 million hectares in 84 countries. As a result of the influence of various negative factors in the field of cotton production, in the conditions of current climate change, it is observed that the productivity of cotton grain production is decreasing and costs are increasing sharply.

Currently, the creation of new cotton varieties that are fast-maturing, have a high rate of boll opening, are productive, disease-resistant, and have high fiber yield and quality, and the creation and introduction of modern agrotechnologies for their production are becoming the main issues facing scientists in the field of cotton growing.[4]

In accordance with this issue, 10 new line-sized varieties were studied in comparison with the Andijan-35 variety in a selection variety testing experiment conducted by breeders at the Andijan Scientific Experiment Station during 2022-2024.

Selection of newly created lists.

Each row and plot was placed in 100 m ^{2} plots, 4 replicates. Field observations were conducted during the implementation period. Field experiment design and implementation were carried out based on field experiment methods.[2] Agrotechnical measures were carried out according to the procedure adopted at the Andijan Scientific Experimental Station. When the cotton ripened and the bolls opened, a boll of 100 cotton seeds was collected as a sample for laboratory analysis and laboratory analyses were performed. (Table 2).

Based on the results of the experiment, when we analyzed the period of 50% flowering of the ridges in the development of plants (Table 1), it was observed that all the ridges, except for the 12th ridge, bloomed 1-4 days earlier than the model. Also, when we observed the period of 50 percent opening of the ridges, it was found that the ridges, except for the 12th ridge, open 1-3 days earlier than the standard. So, positive results can be seen on these signs.

When we analyzed the experimental rows for their economic value and observed the period of operation, it was found that rows with numbers 197-t, 109, 4, 12, 970, 972, 973, and 168 ripened and opened 1-4 days earlier than the standard variety. All rows were less affected by wilt disease than the standard variety. Cotton is grown mainly for its fiber, so the experiment also paid attention to the fiber yield and quality of the rows.[3] of the ridges was found to be higher in the 107, 4, 12, 972, 973, 166, 168, digital ridges than in the abdomen. When we analyzed the fiber length, it turned out that the number ranges 107, 109, 4, 970, 973, 160, 168 are above the standard.

Three-year (2022-2024) average value of varieties and varieties for the economy

No.	Types and ranges	The working day	Wilt total %	Productivity s/ha	1 bag of cotton weighs gr	Fiber yield %	Fiber length mm
1	Andijan-35 pattern	124	5.2	37.7	6.2	36.5	33.7
2	List 107	123	3.6	39.0	6.3	37.7	33.8
3	List 109	122	3.2	40.2	6.4	36.0	34.3
4	List 4	120	2.4	44.6	6.2	37.0	33.8
5	List 12	123	2.0	37.8	6.3	37.2	33.5
6	List 970	121	3.2	38.5	6.0	36.6	34.4
7	List 972	120	1.8	41.0	5.8	37.3	33.2
8	List 973	123	2.2	36.5	6.1	37.5	34.0
9	List 160	124	3.4	38.6	5.9	36.5	33.8
10	List 166	125	2.1	38.8	6.2	36.7	33.6
11	List 168	122	2.8	42.4	6.4	38.0	34.5

When we observed the number of buds opened from each plant, it was found that rows 109, 4, 12, 972, 973, 160, and 168 had 1-3 more buds than the standard. When we observed the number of buds opened from each plant, rows 109, 4, 973, 160, and 168 had more buds than the standard, while the remaining rows had results equal to or lower than the standard.

Three-year (2022-2024) average value of varieties and varieties for the economy

No.	Types and ranges	The working day	Wilt total %	Productivity s/ha	1 bag of cotton weighs gr	Fiber yield %	Fiber length mm
1	Andijan-35 pattern	122	5.2	38.7	6.2	36.5	33.7
2	List 107	121	3.6	39.0	6.3	37.7	33.8
3	List 109	120	3.2	40.2	6.4	36.0	34.3

4	List 4	118	2.4	44.6	6.2	37.0	33.8
5	List 12	121	2.0	37.8	6.3	37.2	33.5
6	List 970	119	3.2	38.5	6.0	36.6	34.4
7	List 972	118	1.8	41.0	5.8	37.3	33.2
8	List 973	121	2.2	36.5	6.1	37.5	34.0
9	List 160	122	2.3	38.6	5.9	36.5	33.7
10	List 166	123	2.1	39.8	6.2	36.7	33.6
11	List 168	120	2.8	42.4	6.4	38.0	34.5

the experimental lines (Table 2), it was found that lines 107, 109, 4, 12, 970, 972, 973, and 168 ripened 1-4 days earlier than the standard. The remaining line 165 was observed to be equal to the standard and line 166 was observed to be 1 day later than the standard.

When we monitored the damage of the rows to wilt, it turned out that all the rows in the experiment were less damaged than the standard ones and were more resistant to wilt disease.

When we analyzed the three-year average yield of the experimental lines, it was found that lines 1094, 1, 2, 972, 166, and 168 showed results 1-4 s/ha higher than the standard. In the remaining lines, this indicator was found to be equal to the standard.

When we observed the weight of the experimental arrays per unit area, there was almost no significant difference between the standard and the arrays. This means that scientific research in this area needs to be intensified.

Cotton is grown mainly for its fiber. Special attention was paid to this area in the experiment. Among the rows according to this characteristic, it was found that rows with numbers 197, 4, 12, 972, 973, 168, were higher than the standard. In the remaining rows, this indicator was found to be equal to the standard.

When we observed fiber length, one of the quality indicators of the fiber, we found that rows 107, 4, 970, 973, and 168 showed significantly higher values than the standard, while the remaining rows showed values equal to or lower than the standard.

Based on the results of three years of laboratory analysis of experimental ridges and samples taken from the template, early, wilt-resistant ridges with high fiber yield and quality were selected from among the ridges.

Among the selected lines, the 4th line, which is superior in terms of economic value, was recommended for State variety testing in 2024 under the name SP-214 , and the 168th line, which is recommended for State variety testing under the name SP-215 . And from the 12th line, it is recommended for State variety testing in 2025 under the name SP-216 .

References:

1. Resolution of the President of the Republic of Uzbekistan No. PP-308.
2. “Methods of conducting field experiments”, UzPITI, Tashkent, 2007.
3. Kh. Egamov, I. Abdurakhmonov. “Results of studying the economic benefits of new cotton varieties and their resistance to pests”. “Achievements, innovations, technologies and development prospects of agricultural science and textile industry”, dedicated to the 100th anniversary of the Institute. Collection of materials of the international scientific and practical symposium on the topic Tashkent 2022 326 pages
4. Egamov Kh. Abdurakhmanov I. Kasimov A. Bakhromov Sh. Komilov.B Creation of primary materials for cotton breeding Proceedings of the International Scientific and Technical Conference "Prospects for the effective use of genetic resources of agricultural crops and the application of modern advanced technologies of cultivation in ensuring food security " Part 1, May 10-11, Karshi, 2024, 183 pages.