

UOT 633

**PRECIOUS DESCRIPTION OF TRADEMARKS, CORRELATION INDICATORS
BETWEEN TRADEMARKS AND RELATIONSHIPS BETWEEN VALUABLE
TRADEMARKS****M.Sh. Toshmatova**

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Аннотация. В статье рассматриваются морфологические и физиологические характеристики ценных хозяйственных признаков хлопчатника (урожайность, выход и длина волокна, прочность, скороспелость и др.), а также установлены корреляционные зависимости между ними. В результате исследований выявлена положительная связь средней и высокой степени между качеством волокна и урожайностью, а также отрицательная корреляция между длиной волокна и продолжительностью вегетационного периода. Полученные данные имеют важное значение для комплексной оценки исходного материала и повышения эффективности селекционного отбора.

Ключевые слова. *Gossypium barbadense* L., хозяйственные признаки, качество волокна, урожайность, корреляция, взаимосвязь, селекция.

Abstract. This article analyzes the morphological and physiological characteristics of valuable agronomic traits in cotton (*Gossypium barbadense* L.), such as yield, fiber output, fiber length, strength, and earliness, as well as the correlation relationships among these traits. The study revealed medium to strong positive correlations between fiber quality indicators and yield, while fiber length and lint percentage showed a negative relationship with the duration of the vegetative period. The obtained results provide a scientific basis for the complex evaluation of valuable traits and for improving the efficiency of breeding selection in fine-fiber cotton.

Keywords. *Gossypium barbadense* L., agronomic traits, fiber quality, yield, correlation, relationship, breeding.

Introduction. Of the total cotton fiber produced worldwide, 20% is produced in China, 18% in the USA, 13% in India, 8% in Pakistan, 8% in the CIS countries, of which 5% is produced in Uzbekistan. According to the International Cotton Advisory Committee (ICAC), although the world's cotton fiber production has increased by 4% over the past decade, fiber yield has decreased by 1%. Due to the growth of the world's population and the limitation of irrigated arable land,

obtaining high and high-quality crops without expanding arable land is one of the urgent tasks of the world's agricultural countries.

In order to achieve higher cotton yields around the world, scientists in the USA, China, and India are conducting research to improve selection methods and to create new cotton varieties that meet modern requirements by determining the additive effect, degree, and direction of dominance of genes controlling quality traits .

The purpose of the research is to determine the variability of valuable economic traits in thin-fiber cotton hybrids and to study their dependence on the type and color of seed hairs , to create a family and a line with a positive set of traits, and to recommend them as a starting material for genetic-selection processes.

Materials and methods of research . The object of research was the T-52 line and families isolated from this line, which had different types and colors of grain fluffiness in plants created in the laboratory of the Scientific Research Institute of Cotton Selection, Seed Production and Agrotechnologies "Artificial Climate", and the fine-fiber cotton varieties Surkhan-14, Surkhan-103 and 9871-I were used as models. The research work was carried out on the basis of the methodological manual "Methods of conducting field experiments" [3; p. 351]. The quality indicators of the fiber were analyzed in the laboratory of the " Quality " center using the HVI system, and the statistical analysis of the results obtained was carried out using the Microsoft Excel program according to the method of B.A. Dospekhov .

Results and their analysis . In 2021, we studied the hybrid combination plants $F_6 (F_2 [F_4 (F_8 (F_1 T-817 \times 010972) \times T-817) \times Surkhan-16] \times (F_2 Surkhan-16 \times Surkhan-18))$ divided into 3 groups: 1- seeds with gray hairiness and hairless in the micropyle; 2- seeds with partially green hairs; 3- seeds with very few green hairs in the micropyle. Photos of seeds of plants of groups 1-3 are presented in Figures 7-9 in the appendix. $F_6 (F_2 [F_4 (F_8 (F_1 T-817 \times 010972) \times T-817) \times Surkhan-16] \times (F_2 Surkhan-16 \times Surkhan-18))$ The hybrid seed was planted according to the hair type and color.

In Table 1 The presented data showed that the weight of cotton per head of plants in group 1 was 3.1 g, which was 0.2 g lower than the indicators of group 2 and 0.5 g lower than the indicators of group 3. The variability limit of this characteristic was in the range of 1.9-4.8 in the groups. It should be noted that the highest homeostatic coefficient (23) was observed in group 1, which indicates that the characteristic was more stable in this group.

The fiber yield indicators in the studied groups did not differ significantly and amounted to 39.3-39.4%. It should be noted that this is a very high indicator for fine-fiber cotton. The range of variability of this characteristic, depending on the studied groups, was 33.3-46.2%. In groups 1 and 2, the homeostatic indicators were 761-784, and in group 3 they were slightly higher, amounting to 803. The fiber index indicators in the studied groups were 6.64-6.79. The range of variability of this characteristic was 4.85-9.42, and the difference was observed to be wider in groups 2. The highest homeostatic coefficient was observed in group 1 (70), slightly lower in group 2 (68), and the lowest in group 3 (59).

The fiber length index in group 1 was 41.8 mm, in group 2 it was 41.2 mm, in group 3 it was 2.9-2.4 mm lower than in groups 1 and 2, and amounted to 39.9 mm. The widest range of variability (37.2-46.0 mm) was noted in plants of groups 1 and 2. It was also observed that these groups had the highest homeostatic coefficient (1106, 1133). Along with the average indicators of valuable economic traits, the correlation coefficients between these valuable economic traits were also studied depending on the groups.

Table 1 presents data on the correlation coefficient between valuable economic traits in the studied groups. In plants of group 1, a negative insignificant relationship was noted between the weight of cotton per boll and fiber yield, and in plants of groups 2 and 3, a weak significant positive relationship was noted. This suggests that it is possible to select plants with large bolls from the population of plants in these groups without reducing the indicators of such an important trait as fiber yield. Cotton weight per boll, fiber yield, 1000-grain weight, and fiber length have a strong relationship.

Table 1
Combination F₆ (F₂ [F₄ (F₈ (F₁ T-817 x 010972) x T-817) x Surkhan-16] x (F₁ Surkhan-16 x Surkhan-18) (2021)

Valuable farm signs	G- 1	G- 2	G- 3
Weight of cotton in one sack , g	3.1 \pm 0.03	3.3 \pm 0.03	3.6 \pm 0.04
Limit of variability	1.9-4.8	2.1-4.8	2.3-4.8
Homeostatic coefficient	23	18	18
Fiber yield , %	39.4 \pm 0.12	39.3 \pm 0.11	39.3 \pm 0.11
Limit of variability	34.0-45.7	33.7-46.2	33.3-44.9
Homeostatic coefficient	761	784	803
Weight of 1000 seeds , g	105 \pm 0.62	105 \pm 0.51	103 \pm 0.57
Limit of variability	80-139	81-141	88-132
Homeostatic coefficient	667	1144	1062
Fiber index	6.79 \pm 0.04	6.78 \pm 0.04	6.64 \pm 0.04
Limit of variability	5.23-9.32	4.85-9.42	4.95-8.72
Homeostatic coefficient	70	68	59
Fiber length , mm	41.8 \pm 0.10	41.2 \pm 0.08	39.9 \pm 0.09
Limit of variability	37.4-45.9	37.2-46.0	37.2-44.9
Homeostatic coefficient	1106	1133	988
Correlation coefficient			
The weight of cotton in one bag is the fiber yield	-0.01	0.12	0.11
The weight of cotton in one bag is the weight of 1000 seeds	0.41	0.19	0.14
Cotton weight in one bag - fiber index	0.40	0.28	0.18
The weight of cotton in one bag is the length of the fiber	0.09	0.16	0.13
Fiber yield-1000 seed weight	-0.44	-0.34	-0.21
Fiber yield - fiber index	0.45	0.52	0.52
Fiber output - fiber length	-0.18	-0.11	-0.19
1000 seed weight - fiber index	0.59	0.60	0.71
1000 seed weight-fiber length	0.25	0.11	0.12
Fiber index - fiber length	0.06	-0.01	-0.03
Fluff type and color - weight of cotton in one bag	0.03	0.08	0.02
The type and color of hair - fiber output	0.03	-0.12	-0.003
Hair type and color - 1000 seed weight	0.08	0.13	-0.02
Hair type and color - fiber index	0.11	0.03	-0.007
Hair type and color - fiber length	-0.05	0.07	0.10

A positive correlation was noted between the weight of cotton per boll and the weight of 1000 seeds. Here, a moderately positive relationship was observed in group 1 plants, and weak positive relationships were observed in groups 2 and 3. The same situation was observed between the weight of cotton per boll and the fiber index. In the studied plant groups, an unreliable positive correlation was observed between the weight of cotton per boll and the fiber length traits in group 1 plants, and a weak positive correlation was observed in groups 2 and 3 plants.

moderate negative correlation was found between fiber yield and 1000 seed weight . In plants of the 3rd group, this indicator was slightly lower than in the plants of the 1st and 2nd groups . Regardless of the plant group studied, whether the fiber yield there was a moderate positive correlation between the symptoms . Fiber output has a positive effect on fiber index values. A weak positive correlation was noted between the weight of one thousand seeds and fiber length . Non - reliable positive correlation between fiber index and fiber length traits in plants of group 1 , and negative correlations in plants of groups 2 and 3 observed .

Table 1 shows n mostly insignificant values of correlation coefficients were observed , only in plants of group 2 Weakly reliable negative -0.12 and positive -0.13 correlations were found between type and color - fiber yield and hairing type and color - weight of 1000 seeds . Also, type and color of hair growth in plants of group 1 - fiber index A weak positive correlation of 0.11 was noted between the symptoms .

Conclusion . Based on the results of the conducted studies and the data of the histograms presented above, it can be concluded that, in the groups planted with the indicators and correlation coefficients of valuable economic traits depending on the type and color of the seed, the weight of cotton in one boll in plants of group 1 was 3.1 g, 0.2 g less than in group 2, and 0.5 g less than in group 3. The variability limit of this trait was 1.9-4.8 g in groups 1 and 2, and 2.3-4.8 g in group 3, which affected the manifestation of the weight of cotton in one boll in group 3. The fiber yield indicators in the studied groups did not differ significantly and amounted to 39.3-39.4%.

Fiber length indicators in group 1 were 41.8 mm, in group 2 41.2 mm, and in plants of group 3, fiber length was 2.9-2.4 mm lower than in groups 1 and 2, and was 39.9 mm. In the results of the study, mostly insignificant correlation coefficient indicators were observed, and only in the plants of group 2, a weak negative -0.12 and positive 0.13 correlation was noted between the type and color of seed hair fiber yield and the type and color of seed hair - weight of 1000 pieces of seed, respectively. Also, a weak positive correlation of 0.11 was noted between the type of fiber index and the color of the seeds in the plants of group 1.

In the groups of plants planted according to the type and color of the grain, it was noted that all previously studied plant groups were characterized by the type and color of the grain. The number of plants in the plant groups depended on the plant groups selected for planting. Analysis of the variability of the cotton weight in one boll according to the studied plant groups showed that the variability of this characteristic ranged from 2.0 to 4.7 g, regardless of the plant group. It was found that the largest number of plants were in classes with a fiber yield of 36.0-41.9%. No significant differences were observed between the fiber yield indicators by the generations of the groups .

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