NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 9, ISSUE 2, Feb. -2023

CORRELATION RELATIONSHIPS BETWEEN THE MAIN VALUE-ECONOMIC CHARACTERISTICS OF COTTON GROWN IN DIFFERENT REGIONS OF UZBEKISTAN

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Abstract
On the basis of determining the degree of variability, correlative dependence and resistance to wilt of introgressive ridges in different soil and climate conditions, the ridges with high yield, quick ripening, fiber yield of 41.0-43%, quality indicators and high adaptability were selected. "S-6782" variety, which has a high index of valuable economic traits among their populations, was selected as a variety resistant to adverse factors of the external environment when new medium-fiber introgressive varieties were grown under the same conditions in different soil-climatic conditions of our republic.

Keywords: cotton, duration of vegetation period, adaptability, geographical long hybridization, introgressive forms, variety testing, correlation.

The analysis of the effectiveness of the selection work carried out in the selection of agricultural crops in many countries of the world shows that the selection methods used in this process should be adapted to the local soil-climate, weather and technological and socio-economic conditions of each country. Therefore, in the creation of new varieties of agricultural crops, evaluating the potential of genotypes in several geographical locations at the same time, identifying forms with the possibility of wide adaptability is one of the promising directions. At this point, it is of great scientific and practical importance to create productive and promising varieties based on introgressive ridges that are productive, have high quality indicators and economic efficiency, and are resistant to adverse environmental factors.

Correlation relationships between the length of the growing season and other valuable - economic: We determined the correlation coefficients between the length of the growing season and some valuable economic traits in ten rows of Gossypium hirsutum L. medium fiber cotton grown in three different regions of Uzbekistan.

It is known that for purpose-oriented selection processes, it is necessary to study the correlation between various characters. Thus, the researchers found a close relationship between yield and the number of bolls in cotton (from 0.84 to 0.91), an average positive correlation was observed between boll size and yield (r = 0.32 to 0.61). A moderate to weak positive correlation (from 0.28 to 0.39) was observed between productivity and seed weight, and a weak negative correlation was observed between productivity and fiber yield. A high degree of correlation was observed between yield and 1000 seed weight. Average positive correlation between pod size and plant height; weak positive correlations were noted between seed weight and fiber length. Seed weight

and fiber yield are generally negatively correlated [ibid]. By identifying forms that embody different interactions, researchers influence the recombinogenesis that occurs in hybrids.

During 2019-2020, a weak positive correlation was observed between the duration of the growing season and the weight of raw cotton in one bag (r = +0.21 - +0.48) (see Table 5.1). In 2018, a different level of correct correlation between the indicated characters was shown in the tested ridges, from 0.19 (in Tashkent region) to 0.94 (in Fergana region). Close correlation was also observed in Kashkadarya region r = 0.54. That is, as the length of the growth period increased, the pod weight increased. It should be noted that the breeder is interested in a negative correlation between speed and some character.

In most cases, the correlation between length of growing season and 1000 seed weight was absent (r= -0.07 - +0.03), or both inverse and positive were weak (r= -0.21 - +0.28). The groups tested in Fergana region in 2018 were an exception and showed a high correlation r = 0.50. A moderate to strong positive correlation was found between length of growing season and fiber yield in all regions during the three-year trial (0.28 to 0.60).

Table 1 Correlation between growing season length and major economic traits of cotton lines

Symbol	Territory	years	Growth period continue0073	1 bag weight	1000 seed weight	Fiber length	The comparison is strong	Microneur	Productivity	Productivity
Growth period	**Tashkent**	2018	0.19	0.20	0.56	-0.09	0.28	0.74	0.15	-0.75
		2019	0.38	0.28	0.36	-0.05	0.12	-0.12	0.39	-0.33
		2020	0.31	-0.17	0.48	0.24	0.15	-0.24	0.31	-0.46
Growth period	**Fergana**	2018	0.94	0.50	0.35	0.32	0.50	0.20	0.91	0.08
		2019	0.32	0.03	0.49	0.29	0.59	0.33	0.32	0.19
		2020	0.48	0.04	0.49	-0.10	0.33	-0.02	0.47	0.35
Growth period	**Kashkadarya**	2018	0.54	0.13	0.60	-0.15	0.39	0.54	0.38	-0.73
		2019	0.21	-0.07	0.28	-0.11	0.38	0.48	0.26	0.42
		2020	0.31	-0.21	0.40	0.35	0.22	-0.11	0.03	-0.07

A very weak correlation was observed between growth period duration and fiber length: from no correlation (r= -0.05, r= -0.07) to a weak positive correlation (r=0.35). Very close correlations were observed between the speed and the specific tensile strength of the fiber (from 0.12 to 0.59). Correlation relationships between speed and fiber microneuri were shown differently in different test years - from weakly negative (r= -0.24), absence of correlation (r= -0.02), to strong positive (r=0.74 in the tested ridge groups in Tashkent region in 2018). A high correlation was also found

between the duration of the growing season and the fiber microneurium in the ridge groups tested in Kashkadarya region in 2018 and 2019 (r=0.48 and r=0.54, respectively)

In most cases, a weak positive correlation was observed between the length of the growing season and productivity (from 0.15 to 0.38). We observed a strong correlation between them in the ridge groups of Fergana region in 2020 (r = 0.54) and 2018 (r = 0.91). In the experiments in Kashkadarya region in 2020, there was no correlation between these signs (r = 0.03).

A weak inverse relationship between the duration of the growing season and productivity was found in Tashkent and Kashkadarya regions in 2018 (r= -0.75 and r = -0.73, respectively). That is, fast-growing forms showed high productivity. In a three-year trial in Fergana region, it was observed that the correlation between the indicated signs was weak (r = 0.19 and r = 0.35) or non-existent (r = 0.08).

According to three-year experimental data, fiber yield, productivity, fiber tensile strength, cotton raw weight per boll are strongly related to increasing growing season length, unlike plant growing area. In our experiments, early ripening was closely related to productivity, which was also confirmed by the inverse relationship between these characters, i.e., the shorter the growing season in the ridges, the lower their productivity.

Correlation between fiber yield and other economic parameters:

We determined the phenotypic correlation between fiber yield and some economic traits in ten rows of Gossypium hirsutum medium fiber cotton grown in three different regions of Uzbekistan. According to the data in the table, in all the test years in different growing areas in the studied ridges, there was an average positive correlation between the fiber output and the length of the growing season, and the correlation coefficient ranged from 0.28 to 0.60.

That is, with the increase in the duration of the growth period, the fiber output also increases. In most cases, there was no correlation between the yield of fiber and the weight of raw cotton in one sack, except in Fergana region in 2020. and in Kashkadarya region in 2018. weak positive correlations were observed (r=0.29 and r=0.23, respectively).

In cotton ridges, a weak and high negative correlation was observed between fiber yield and 1000 seed weight (-0.02 to -0.54) in contrast to the growing area. It should be noted that in the third trial year, the relationship between these characteristics did not exist in Tashkent and Fergana regions, that is, high fiber yield was observed in both small-seeded and large-seeded forms (see Table 2).

Breeders have always been interested in creating cotton varieties that embody high fiber yield and quality. Studying the interrelationship between these characters determines the target direction in the search for forms with a positive correlation.

According to the table, in the first two years of experiments, weak and moderately negative correlations were found between fiber yield and length in ridges.

2-Table Correlation between fiber yield and key economic traits in cotton ridges

Symbol	Territory	Years	Growth period continues	1 bag weight	1000 seed weight	Fiber length	The comparison is strong	Microneur	Productivity	Productivity
Fiber output	**Tashkent**	2018	0.56	0.09	-0.16	-0.05	0.35	0.50	0.05	-0.33
		2019	0.36	-0.01	-0.45	-0.35	0.006	0.30	0.03	-0.07
		2020	0.47	0.05	-0.02	0.39	-0.14	-0.16	0.05	-0.01
Fiber output	**Fergana**	2018	0.35	0.09	-0.45	-0.26	0.04	0.57	-0.05	-0.09
		2019	0.49	-0.03	-0.54	-0.11	0.22	0.83	-0.09	-0.02
		2020	0.49	0.29	-0.02	0.03	-0.01	-0.20	0.33	0.49
Fiber output	**Kashkadarya**	2018	0.60	0.23	-0.32	-0.30	0.20	0.71	-0.02	-0.47
		2019	0.28	-0.03	-0.21	-0.34	0.10	0.46	-0.09	0.17
		2020	0.40	-0.005	-0.20	0.06	0.07	-0.20	0.24	0.30

The correlation coefficient ranged from -0.05 (in Tashkent region in 2018) to -0.35 (in the same place in 2019). In 2020, in all three regions, the correlation coefficient changed in the positive direction (from 0.03 to 0.39). Perhaps this is due to the influence of the choice of forms embodying high fiber yield and quality.

The specific tensile strength of the fiber was in most cases weakly correlated with the yield of the fiber or no correlation was present. Only in the Tashkent region, in the first year of the test, a weak positive correlation was found between these signs (r=0.35).

It is an indicator that describes the thinness and length of the microneuro-cotton fiber. For Grades I and II cotton, the appropriate range is 3.5 – 4.9 microns/inch. Below 3.5 is considered non-fibrous and has low cellulose content. If it is higher than 4.9, the fiber is considered excessively coarse. In addition, the breeder should be interested in the negative correlation between microneurism and some other characters.

According to the table, in the years 2018 and 2019, i.e., the first two years of the test, an average positive correlation was found between fiber output and microneuri in most cases, and the correlation coefficient ranged from 0.30 to 0.57. In Fergana and Kashkadarya regions, a strong correlation between these characteristics was found in different years (r=0.83 and r=0.71, respectively). As observed with fiber length, the correlation coefficient shifted in the third test year, only in a different, negative direction. 2020 a weak inverse correlation was found between these traits in all three regions (-0.20 to -0.16).

Fiber yield had little correlation with productivity. In the third year of testing, in two cases in Fergana and Kashkadarya regions, weak correct correlation was found (r=0.33 and r=0.24, respectively).

During the trial years, in most cases, the yield of the ridges did not depend on the fiber yield. That is, both ridges with high fiber output and low ones can be productive. 2018 In Tashkent and Kashkadarya regions, an average inverse correlation was found between fiber output and productivity (r= -0.33 and r= -0.47, respectively). In Fergana region, in 2020. these signs were mutually positively correlated r=0.49.

Thus, in the correlation analysis between the fiber yield and some valuable economic traits, it was found that there is a correct relationship between the fiber yield and the length of the growing season, according to the data of the three-year test in cotton lines of genetic origin. That is, with the increase in the duration of the growth period, the fiber output also increases. There was no significant correlation between fiber yield and bag weight of cotton in most cases. In the studied ridges, there was an inverse relationship between fiber yield and 1000 seed weight, different from the area of cultivation. A weak to moderately strong inverse relationship was observed between fiber yield and length. The specific tensile strength of the fiber had a weak or no correlation with the yield of the fiber. A moderately strong positive correlation was found between fiber output and microneuri in most cases. Fiber yield was not significantly related to cotton yield and productivity. It should be noted that as a result of selections made on a number of characters such as fiber yield and weight of 1000 seeds, fiber yield and length, fiber yield and micron, we managed to change the correlation in the required direction.

Conclusions

1. It was found that fiber yield, productivity, relative tensile strength of fiber, weight of raw cotton in one boll are strongly related to the increase in the length of the growing season. It has been shown that there is no correlation between early ripening and 1000 seed weight in most cases. A very weak correlation was found between cooking speed and fiber length. Correlations of different degrees and directions were noted between the duration of the growth period and fiber microneuria. A negative correlation between the length of the growing season and productivity was characteristic for the studied ridges.

2. A moderately strong positive correlation was found between fiber yield and length of growing season. Different degrees of inverse relationship between fiber yield and 1000 seed weight were observed in the studied cotton lines, depending on the area of cultivation. A weak to moderately strong inverse relationship was noted between fiber yield and length. The relative tensile strength of the fiber was weakly correlated with the yield of the fiber, or no correlation existed. A moderately strong positive correlation was found between fiber output and microneuri in most cases. The yield of fiber was not closely related to the weight of cotton raw material in one boll, cotton yield and productivity. As a result of selections made on a number of characters such as fiber yield and 1000 seed weight, fiber yield and length, fiber yield and micron, we managed to shift the correlation in the required direction.

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