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CORRELATIONSHIPS BETWEEN VALUE-ECONOMIC TRAITS IN DIFFERENT ECOLOGICAL AREAS OF NEW COTTON RANGES

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ANNOTATION

"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.

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

ЯНГИ ҒЎЗА ТИЗМАЛАРИНИНГ ТУРЛИ ХИЛ ЭКОЛОГИК-ҲУДУДЛАРДА ҚИММАТЛИ-ХЎЖАЛИК БЕЛГИЛАРИ ЎРТАСИДАГИ КОРРЕЛЯЦИОН БОҒЛИҚЛИКЛАР

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АННОТАТЦИЯ

Республикамизнинг ҳар хил тупроқ-иқлим шароитларида ўрта толали янги интрогрессив тизмаларини бир хил шароитларда етиштирилганда уларнинг популяциялари ичида қимматли хўжалик белгилари бўйича юқори кўрсаткичга эга бўлган "С-6782" нави ташқи муҳитни ноқулай омилларига чидамли нав сифатида танлаб олинган.

Калит сўзлар: ғўза, вегетация даври давомийлиги, мослашувчанлик, географик узоқ дурагайлаш, интрогрессив шакллар, нав синаш, каррелатция.

INTRODUCTION

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.

The purpose of the study is to determine the correlation between the main economic characteristics of introgressive cotton ridges in the conditions of Tashkent, Fergana and Kashkadarya regions.

Methods of analysis of experimental results. Experiments were carried out in Tashkent, Fergana and Kashkadarya regions of the republic by randomization method, in four repetitions. To determine the weight, fiber yield and quality of cotton per boll, samples of 25 bolls from the first joint interval of the second and third sympodial branches of the ridges, as well as bolls from individual selections, were collected. In laboratory conditions, the weight of cotton raw material in one sack was determined by dividing the weight of total cotton raw material by the number of sacks.

The quality of the fiber was determined on the "HVI" equipment in accordance with the OZ DSt 604-2001 standard.

Correlation of the ranges was determined using the following formulas.

$$r = \frac{\sum XY - (\sum X \bullet \sum Y)/n}{\sqrt{(\sum X^2 - (\sum X)^2/n) \bullet (\sum Y^2 - (\sum Y)^2/n)}};\ m = \sqrt{\frac{1-r^2}{n-2}};\ tr = \frac{r}{Sr}$$

where: r – correlation coefficient is between +1 and -1;

X,Y – quantitative indicator of signs;

x,y– the average indicator of marks;

m is the standard error of the correlation coefficient;

n – number of observations;

tr is the criterion for existence of correlation

Data were subjected to statistical processing according to B.A. Dospekhov. (3)

The data on determining the effect of genetic and external environmental factors on valuable economic traits of cotton were analyzed in the two-factor dispersion method.

RESEARCH RESULTS

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

Белги	Ҳудуд	йиллар	Ўсув даври давом	1 кўсак вазни	1000 дона чигит вазни	Тола узунлиги	Солиштирма уз.куч	Микронейр	Махсулдорлик	Ҳосил-дорлик
Тола чиқими	Тош-кент	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
Тола чиқими	Фар-ғона	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
Тола чиқими	Қаш-қадарё	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. In most cases, there was no significant correlation between the fiber yield and the weight of cotton raw material per bag. 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 necessary direction.

Correlation between productivity and other valuable economic traits:

The results of a three-year study of the correlation between the yield of cotton rows grown in three different regions of Uzbekistan and some valuable economic characteristics are given. As a result of the study of the relationship between productivity and the length of the growing season for three years in three different ecological regions, it was found that the region of cultivation and the years of the test affect the correlation coefficient.

Thus, in Tashkent, that is, in the relatively northern region, there was an average strong inverse correlation between the above-mentioned characters (r= -0.76 to r= -0.33), that is, forms with a relatively short growing season were more productive. (See Table 3).

It was found that the productivity of ridges in Fergana region has a very weak correlation with the length of the growing season or there is no correlation (from r= 0.08 to r= 0.35), that is, the productivity was shown by different forms of the length of the growing season. in degree and direction – from a strong inverse relationship r = -0.73, to an average strong direct relationship r= 0.42 was observed.

According to the data in the table, the correlations between the yield and the weight of cotton raw material per bag were either absent or very weakly negative. Thus, in Kashkadarya region, the correlation coefficient between these indicators in 2018 and 2020 was equal to r= -0.26 and r= -0.22, respectively.

1000 seed weight also had a weak or no correlation with yield (r= -0.21 to 0.09). Fiber yield did not affect yield in most cases. 2018 is an exception. In the experiments in Tashkent and Kashkadarya regions, the correlations between these signs were on average strongly inverse, equaling r= -0.32 and r= -0.47, respectively. Also, 2020 In Fergana region, it was observed that the correlation between fiber output and productivity was moderately strong (r=0.49).

3 – table Ғўза тизмаларида ҳосилдорлик билан асосий қимматли-хўжалик белгилари ўртасида корреляцион боғлиқликлар

Белги	Ҳудуд	йиллар	Ўсув даври давом	1 кўсак вазни	1000 дона ч.вазни	Тола узунлиги	Солиштирма уз. кучи	Микронейр	Тола чиқими
Ҳосилдорлик	Тошкент	2018	-0.76	-0.11	-0.17	-0.32	0.03	0.07	-0.53
		2019	-0.33	0.09	-0.03	-0.007	-0.41	-0.14	0.21
		2020	-0.46	-0.18	0.01	-0.001	-0.01	0.02	-0.08
Ҳосилдорлик	Фарғона	2018	0.08	0.04	0.09	-0.09	-0.03	0.21	-0.29
		2019	0.19	0.05	0.02	-0.02	-0.17	0.08	0.06
		2020	0.35	0.01	-0.21	0.49	0.21	0.10	-0.16
Ҳосилдорлик	Қашқадарё	2018	-0.73	-0.26	-0.04	-0.47	0.13	-0.28	-0.58
		2019	0.42	0.13	-0.21	0.14	-0.32	0.12	0.16
		2020	-0.08	-0.22	-0.16	0.04	-0.06	-0.21	0.34

There was no correlation between yield and fiber length, only in 2019. Experiments carried out in Tashkent and Kashkadarya regions made an exception to this. In these cases, the correlation coefficient was equal to -0.41 and -0.32, respectively, that is, a moderately strong inverse correlation was found between these signs. As a result of the study of the relationship between

the yield and the specific breaking strength, it was found that there is no relationship, or the relationships are weakly negative and weakly positive. Different types of correlations were shown between productivity and fiber microneuri: moderately strong inverse correlation (r= -0.53, r= -0.58), i.e. the higher the productivity, the lower the fiber micronuri, (in 2018 experiments.), dependence absence, (r= -0.08 to r= 0.06), or weak positive correlations (r=0.16 to r=0.34).

Thus, according to correlation coefficient analyses, moderately strong inverse correlations were observed between average yield and length of growing season over three years. It should be noted that the area of cultivation affected the correlation coefficient between these signs. The relationship between fertility and other studied characters was not significant.

Conclusions:

1. It was found that fiber yield, productivity, relative tensile strength of fiber, weight of raw cotton in one boll were 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.
3. According to the three-year correlation analysis of the studied ridges, medium-level inverse correlations between productivity and vegetation period were observed. The correlation coefficients between these signs were significantly affected by the regional factor. It was found that there was no significant correlation between productivity and cotton weight in one boll, 1000 seed weight, fiber yield and fiber quality indicators.

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