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THE INDICES OF THE INITIAL FORMS AND HYBRIDS F_1 WITH GENETIC MALE STERILITY (GMS) ACCORDING TO THE ELEMENTS OF THE LENGTH OF THE GROWING SEASON

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ANNOTATION

The article presents the problem of precocity having enormous theoretical and practical significance. Early maturity, as a biological phenomenon, attracts wide attention of researchers and is rightly associated with the length of the growing season. This issue is the subject of significant special literature of the genetic selection direction and is considered as a problem of the length of the growing season. Involving in hybridization cotton varieties of domestic selection S-6541, S-6771, S-2610, At-Termiziy and Indian variety samples with a sign of genetic male sterility S-5061, S-6016, S-6018, S-5067, S-5005. The researchers set the goal of studying the behavior of hybrids in F_1 and parents. The best of the studied F_1 hybrids with genetic male sterility (GMS) in terms of the length of the growing season were the hybrids C-2610xS-5061, C-6541xS-5061, C-6771xS-5061.

Keywords: genetic male sterility, fertile, sterile, variety, hybrid, analog, the length of the growing season, cotton plant.

INTRODUCTION

Cotton is a universal culture; its products are used in many industries. But mainly these plants are cultivated for the sake of fiber, which is a valuable raw material for the textile industry.

To meet the growing demand of the textile industry for high-quality cotton fiber, it is necessary to create and introduce into production more mature, productive, high-quality fibers that are resistant to diseases and pests, adapted for mechanized processing and harvesting new varieties of cotton. The success of plant breeding largely depends on the targeted selection of parental pairs for hybridization.

The length of the growing season is one of the most important signs determining the area of cultivation. In our studies, we studied the interphase periods of the length of the growing season and the height of the laying of the first sympodial branch.

RESEARCH METHODOLOGY

The studies were carried out at the research institute for selection, seed production and agricultural technology of cotton growing, located in the north-east of Tashkent with coordinates 41°22 'north latitude and 60°54' east longitude.

Studies were conducted in the laboratory of genetics of cotton immunity. The experiments were laid against a heavily infected natural wilt background, where for many years a monoculture of cotton was cultivated.

For research, the following varieties of local selection were involved as parent forms: C-2609, At-Termiziy, C-6771, C-6541, C-2610, as well as the following Indian breeding samples with a

sign of genetic male sterility: S-5061, S-6016, S-6018, S-5067, S-5005 as well as their hybrids obtained by the polyester topcross system. The bookmarks of the nurseries of the initial forms (where the crossing was carried out) and F_1 were made against a heavily infected natural vilt background, in triplicate, four rows, twenty hole plots according to the mother-hybrid-father principle (sowing scheme 90 x 20 x 1).

During the growing season, counts and crossing of plants were carried out to determine the length of the growing season.

RESEARCH RESULTS

The length of the growing season is one of the most important signs determining the area of cultivation. Uzbekistan, being the northernmost cotton-growing country, needs early ripening varieties and hybrids of cotton. In our studies, we studied the interphase periods of the length of the growing season and the height of the laying of the first sympodial branch.

The height of the bookmark of the first sympodial branch determines the precocity of plants. The higher the first sympodial branch is located, the more late are the plants. Indian varietal samples turned out to be late ripening in our conditions (table). If the length of the growing season in them ranged from 140 to 150 days, then in local varieties this indicator ranged from 121 to 126 days. The phases of "seedling-flowering" and "seedling-ripening", respectively, in Indian samples were long. In F_1 hybrids, the following picture was observed: F_1 hybrids inherited this trait intermediate in most cases with deviation to local varieties. And according to the interphase periods, Indian samples dominated the varieties of local selection. The same picture was observed in the flowering-ripening phase, where this indicator in hybrids ranged from 71 to 79 days. On the whole, the length of the growing season in F_1 hybrids was at the level of Indian samples, and the late ripening of forms with GMS dominated the early ripening of local varieties; therefore, the dominance coefficient for all hybrids was greater than zero and one.

CONCLUSION

Thus, the following picture was observed in F_1 hybrids: F_1 hybrids inherited this trait intermediate in most cases with deviation to local varieties.

And according to the interphase periods, Indian samples dominated the varieties of local selection. The same picture was observed in the flowering-ripening phase, where this indicator in hybrids ranged from 71 to 79 days.

On the whole, the length of the growing season in F_1 hybrids was at the level of Indian samples, and the late ripening of forms with GMS dominated the early maturity of local varieties. Therefore, the dominance coefficient for all hybrids was greater than zero and one.

Table. The indicators of the initial forms and hybrids F_1 on the elements of the length of the growing season

№	Varieties and combinations of F_1	hS	hp	from seedlings to 50% flowering days.	hp	from 50% of flowering up to 50% ripening, days	hp	Precocity days	hp
1	2	3	4	5	6	7	8	9	10
1.	S-5061	6.4		68		72		140	
2.	S-6016	7.0		76		76		152	
3.	S-6018	5.9		65		82		147	
4.	S-5067	7.0		74		77		151	
5.	S-5005	6.0		68		76		144	
6.	C-6771	4.2		60		59		119	
7.	C-6541	5.3		62		63		125	
8.	C-2610	4.4		59		62		121	
9.	At-Termiziy	5.0		62		64		126	
10.	At-Termiziy x S-5061	6.6	1.3	72	2.3	73	1.3	145	1.7
11.	At-Termiziy x S-6016	7.4	1.4	74	0.7	76	1.0	150	0.8
12.	At-Termiziy x S-6018	7.2	3.9	75	7.7	75	0.2	150	1.3
13.	At-Termiziy x S-5067	7.5	1.5	77	1.5	78	1.2	155	1.3
14.	At-Termiziy x S-5005	6.6	2.2	71	2.0	73	0.5	144	1.0
15.	C-2610 x S-5061	5.2	-0.2	69	1.2	71	0.8	140	1.0
16.	C-2610 x S-6016	5.8	0.1	76	1.0	79	1.4	155	1.2
17.	C-2610 x S-6018	5.7	0.7	71	3.0	73	0.1	145	0.8
18.	C-2610 x S-5067	5.6	-0.1	75	1.1	76	0.9	151	1.0
19.	C-2610 x S-5005	4.9	-0.4	72	0.7	74	0.7	146	1.2
20.	C-6541 x S-5061	4.5	-2.5	70	1.7	71	0.8	141	1.1
21.	C-6541 x S-6016	5.2	-1.1	74	0.7	76	1.0	150	0.9
22.	C-6541 x S-6018	4.7	-3.0	71	5.0	73	0.1	144	0.7
23.	C-6541 x S-5067	4.6	-1.8	73	0.8	75	0.7	148	0.8
24.	C-6541 x S-5005	4.7	-2.7	72	2.3	73	0.5	145	1.1
25.	C-6771 x S-5061	4.5	-0.7	70	1.5	72	1.0	142	1.2
26.	C-6771 x S-6016	4.6	-0.7	71	1.8	76	1.0	147	0.7
27.	C-6771 x S-6018	4.0	-1.2	70	0.3	73	0.2	143	0.7
28.	C-6771 x S-5067	4.3	-0.9	72	3.8	77	1.0	149	0.9
29.	C-6771 x S-5005	4.4	-0.8	71	0.6	74	0.8	145	1.1
LSD_{05}=		0.91	2.2	2.1	3.2				

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