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THE INDICATORS OF THE INITIAL FORMS AND HYBRIDS F_1 WITH GENETIC MALE STERILITY (GMS) BY THE NUMBER OF BOXES AND THE SUSCEPTIBILITY OF WILT

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Annotation

The article presents the problem of the number of boxes and the hit rate of the wilt, which is of enormous theoretical and practical importance. The sign of productivity of one plant consists of the main two characteristics - the number and size of the box. The population of the causative agent of verticillus vilt in nature exists as a dynamic system, a quantitative and qualitative composition, which is unstable depending on environmental conditions, is progressively updated. Involving in hybridization cotton varieties of domestic selection S-6541, S-6771, S-2610, At-Termiziy and Indian varieties 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 number of boxes and the susceptibility to verticilliosis wilt were the hybrids C-2610xS-5005, C-6771xS-6018, C-6771xS-6016, C-2610xS-6018.

Keywords: genetic male sterility, pollen fertility, pollen sterility, variety, hybrid, analogue, number of boxes, verticilliosis wilt, cotton.

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 number of boxes is one of the most important characteristics determining the productivity of one plant. And also in our studies, we studied varieties of local and foreign origin and F_1 hybrids for the stability of a verticillium wilt.

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 41º22 'north latitude and 60º54' 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, plant counts and crosses were carried out to determine the number of bolls and the susceptibility to verticilliosis wilt.

Research results

Wilt damage was determined on a 5-point scale (Methodology P.V. Popov, D.G. Minko, 1974)

By the number of boxes on the bush, Indian samples with GMS exceeded local varieties by 20-25%. Varieties S-6541, S-2610 and At-Termiziy were generally inferior to most Indian specimens. In these varieties, this indicator ranged from 15 to 18 pcs. It should be noted that the Indian samples were significantly inferior to the varieties of Uzbek selection in the size of the boxes. If the size of the bolls in Indian forms reached a maximum of 5 g, then domestic varieties had a size of bolls of up to 6.6 g. For F_1 hybrids, heterosis by attribute was not observed, all F_1 hybrids were inferior to local varieties by this characteristic. The largest box hybrid (6 g) was F_1 (C-2610 x S-6016), and this indicator for other hybrids ranged from 4.8 to 5.9 g.

The fork resistance of Indian samples, as in the previous year, was significantly lower than that of local varieties. Indian samples were struck by a wilt from 3.3 to 3.6 points, and domestic varieties from 2.1 to 2.6 points. Of the twenty hybrids studied, only 3 hybrids did

not show heterosis on this basis. The overwhelming majority of F_1 hybrids inherited the resistance to locality of local varieties. The relatively increased susceptibility of Indian samples with GMS to wilt is apparently due to the fact that various strains of verticillium are absent in the background of the institute, which are absent in India.

Conclusion

Thus, in the number of bolls on the bush, Indian samples with GMS exceeded local varieties by 20-25%.

By size of boxes Indian samples were significantly inferior to varieties of Uzbek selection. If the size of the boxes in Indian forms reached a maximum of 5 g., Then domestic varieties had the size of the boxes up to 6.6 g.

The stability of the Indian specimens was significantly lower than that of the local varieties. Indian samples were struck by a wilt from 3.3 to 3.6 points, and domestic varieties from 2.1 to 2.6 points.

Of the twenty hybrids studied, only 3 hybrids did not show heterosis on this basis. The overwhelming majority of F1 hybrids inherited the resistance to locality of local varieties.

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Table

The indicators of the initial forms and hybrids F_1 in terms of the number of boxes and wilt infestation

№	Varieties and combinations of F_1	Number of boxes pc.	hp	The size of one short barrels	hp	Wilt affect score	hp
1	2	3	4	5	6	7	8
1.	S-5061	18		4.6		3.2	
2.	S-6016	26		5.0		3.4	
3.	S-6018	28		4.3		3.1	
4.	S-5067	22		4.0		3.5	
5.	S5005	23		4.4		3.6	
6.	C-6771	24		5.6		2.6	
7.	C-6541	18		6.6		2.5	
8.	C-2610	18		6.3		2.1	
9.	At-Termiziy	15		6.2		2.4	
10.	At-Termiziy x S-5061	17	0.3	5.0	-0.5	2.6	0.5
11.	At-Termiziy x S-6016	18	-0.5	5.9	0.5	2.5	0.8
12.	At-Termiziy x S-6018	19	-0.4	5.2	-0.05	2.4	1.0
13.	At-Termiziy x S-5067	17	-0.4	5.2	0.09	2.7	0.45
14.	At-Termiziy x S-5005	18	-0.3	5.3	0	2.9	0.16
15.	C-2610 xS-5061	20	2.0	5.7	0.29	2.4	0.45
16.	C-2610 xS-6016	20	-0.5	6.0	0.54	2.3	0.69
17.	C-2610 xS-6018	22	-0.2	5.8	0.5	2.2	0.8
18.	C-2610 xS-5067	19	-0.5	5.5	0.3	2.7	0.14
19.	C-2610 xS-5005	22	0.6	5.7	0.37	2.8	0.06
20.	C-6541 xS-5061	20	2.0	4.9	-0.7	2.9	-0.14

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21.	C-6541 xS-6016	21	-0.3	5.2	-0.75	2.8	0.33
22.	C-6541 xS-6018	20	-0.6	4.8	-0.56	2.7	0.33
23.	C-6541 xS-5067	21	0.5	5.4	0.07	2.9	0.2
24.	C-6541 xS-5005	19	-0.6	5.5	0	3.0	0.09
25.	C-6771 xS-5061	21	0.0	5.0	-0.2	2.7	0.66
26.	C-6771 xS-6016	23	-2.0	5.6	0.66	2.6	0.8
27.	C-6771 xS-6018	24	-1.0	5.1	0.23	2.8	0.2
28.	C-6771 xS-5067	21	-2.0	5.2	0.5	3.1	-0.11
29.	C-6771 xS-5005	22	-3.0	4.8	-0.33	3.2	-0.2
	LSD_{05}=	1.9		0.3	0.85		