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## CULTIVATED DIPLOID FORMS OF COTTON

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**Abstract.** In order to isolate valuable forms for practical use, we studied diploid collection samples species *G. herbaceum* L. and *G. arboreum* L. from the germplasm of the Research Institute of Soil Science and Agriculture. As a result of observations , samples with high indicators main household signs in two directions. First, for the textile industry - samples with a length of more than 28.0 mm. O they serve as raw materials for textile industry for elastic yarn. The second one is for other purposes (fiber yield 37.5-43.2% ).

Based on sample 0546, which distinguished himself yours heterogeneous properties Based on traits, the T-1980 line was developed through analytical selection . It has a diploid chromosome set and high levels of agronomic traits. The line is completely resistant to verticillium wilt and sucking pests, is high-yielding, early-maturing, and has a high fiber yield. High fiber hygrosopicity and tolerance to water stress were also determined for this line.

**Key words:** cotton plant, gene pool, diploid, collection, sample, line, woolly fiber, hygrowax, textile industry.

**Annotation.** In order to isolate valuable forms for practical use, we studied diploid collection samples of *G. herbaceum* L. and *G. arboreum* L. from the germplasm of SRICBSPA . As a result of observations, samples with high rates of the main economic traits in two directions were identified. First, for the textile industry - samples with a length of more than 28.0 mm. They serve as raw materials for the textile industry for elastic yarns. Second, for other purposes (fiber yield 37.5-43.2%).

On the basis of sample 0546, which was distinguished by its heterogeneous properties in terms of traits, the T-1980 line with a diploid set of chromosomes and high rates of economic traits was created by analytical selection. The line is absolutely resistant to Verticillium, sucking pests, high yielding, early maturing and with high fiber yield. And also determined the high hygrosopicity of the fiber of this line and resistance to water deficiency.

**Key words:** cotton, gene pool, diploid, collection, sample, line, woolly fiber, hygrowool, textile industry.

In some cotton-growing countries of the world, fiber is grown from cultivated forms of the diploid species *G. arboreum* L. and *G. herbaceum* L. From this point of view, it is possible to use such samples in the creation and introduction into production of high-quality fiber that is productive, early maturing, and resistant to diseases and pests.

Quote about logically genus *Gossypium* L. is divided into diploid ( $2n = 26$ ) and tetraploid ( $2n = 52$ ) species, distributed in both the Old and New Worlds. According to genetic data kinship and geographical distribution cotton plant has several genomic groups of diploids . Species belonging to one genomic group, such as cultivated species of the Old Testament cotton plant *G. herbaceum* L. and *G. arboreum* L. , related J. O. Beasley to the genome of A ( $A_1 - G. herbaceum$  L. and  $A_2 - G. arboreum$  L. ), easily crossbreed and produce fertile offspring ( Skovsted 1934) .

*G. arboreum* L. and *G. herbaceum* L. are most common in China, India, Pakistan, and Bangladesh. In these countries, diploid cotton is grown over large areas and produces valuable fiber (Gopi, Patil, 2017).

Currently, diploid cultivated species are grown in India and China in rainfed areas. Conditions (Saidaliev, Akhmedov, 2006). To increase productivity, in India, except for intra- and interspecific tetraploid cotton plant F<sub>1</sub> hybrids are also cultivated on large areas species *G. herbaceum* L. and *G. arboreum* L. Interspecific hybrids of *G. herbaceum* L. x *G. arboreum* L. *G. Cot Hybrid 7* and *G. Cot Hybrid 9*, grown in the state of Gujarat in Bagar and yielded 10-15 centners/ha of yield raw cotton. And the DDNG and MDSN.201 hybrids are grown in the states of Karnataka Tamil Nadu, Andhra Pradesh, Maharashtra, Gujarat, Madhya Pradesh (Saidaliev, 1992).

“*cernum*” form with a boll weight of 7.3 g, a fiber length of 46 mm, “*indicum*” form varieties with good fiber, a length of 34 mm, salt-resistant, closed boll, and *Dhummad* cotton varieties from the southern coast of Gujarat and other varieties with different morphological traits. These varieties were obtained by intraspecific hybridization of *G. arboreum* L. At the same time, varieties obtained from *G. herbaceum* L. hybrids are also grown in the central and southern zones. The Miziyo variety is grown under drip irrigation in the Gujarat and Mungaria regions, the early Mungaria variety in Karnataka, the Kurangani variety in fallow lands in Tamil Nadu, and the Pundra variety with strong fiber in Andhra Pradesh (Singh et al., 2003).

Also, when growing diploid cotton, heterozygous hybrids are used (Pathak, Patel, 2000).

Synthetic polyploids interbreed much more easily between themselves and diploid species. This is how they are created. Polygenomic hybrids that serve as donors for crossing with other varieties cotton plant (Arutyunova et al., 1988).

extensive breeding work on hybrids resulting from crosses between the Old World diploid species *G. herbaceum* L. and *G. arboreum* L. in the 1940s and subsequent years. He created a group of varieties (C-7008, C-7073, C-7075, etc.) with woolly fiber.

Studies on the inheritance of fiber yield in cultivated diploid cotton species and polygenic analysis of the trait show that in most cases the influence of non-additive genes prevails over additive ones and, in turn, determines the inheritance of the trait in a state of extreme dominance (Muminov et al., 2015).

The development of high-performance lines and varieties based on cultivated diploid cotton species (*G. herbaceum* L., *G. arboreum* L.) facilitates the development of non-traditional cotton growing industries. Because the fibers of these varieties have their own characteristics, they can be used in the production of various products. If fabrics with increased elasticity are produced from samples with the required fiber length ( $\geq 28.0$ ), then fibers from samples whose fiber length does not meet the requirements of the spinning industry ( $\leq 28.0$ ) are used to fill the inside of various products (blankets, pillows, warm clothes), and knitting warm socks is possible. Due to the high hygroscopicity of the fibers of these samples, they can be used for the production of various napkins and towels, baby diapers, and feminine hygiene products (Akhmedov, Khalikova, 2022).

To identify valuable varieties for practical use, we studied diploid collection accessions of the species *G. herbaceum* L. and *G. arboreum* L. from the germplasm of the Research Institute of Soil Science and Agriculture. As a result of long-term observations, several accessions with high levels of key agronomic traits were identified.

According to the data obtained, the maturation periods of the samples were 104-118 days, and the raw cotton weight per boll was 2.1-2.9 g. The fiber length of the samples ranged from 29.0-32.3 mm, and the fiber yield was 27.2-43.2%. Samples numbered 081 (43.2%) and 012138

(43.2%) are exceptional here, and their fiber yield is significantly higher. These samples can be used directly in practical breeding.

The key economic parameters of samples unsuitable for spinning according to textile standard requirements were studied. These samples had fiber lengths shorter than 28.0 mm. According to the table, the maturation periods for the samples ranged from 109.0 to 118.7 days, and the raw cotton weight per boll was 2.1 to 2.6 g. The fiber length of the test samples ranged from 25.2 to 27.8 mm, and the fiber yield was 37.5 to 43.2%. Due to their high yield, the fiber from these samples can be used for a variety of economic purposes. The fiber length of these samples is shorter than 28.0 mm. According to the table, the maturation periods of the samples were 109.0-118.7 days, and the raw cotton weight of one boll was 2.1-2.6 g. The fiber length of the trial samples ranged from 25.2-27.8 mm, and the fiber yield was 37.5-43.2%. Due to their high yield, the fiber from these samples can be used for various economic purposes (for the production of non-woven organic fabric, outerwear filling, sock buckles, belts, etc.). As can be seen from the data, samples of the *G. arboreum* L. species had a higher yield.

During long-term observations, sample 0546 was distinguished by its heterogeneous properties by the characteristics and among the plants of this sample took away high-yield and productive individuals. Based on these plants, the T-1980 line with a diploid set of chromosomes was created through analytical selection.

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