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ORIGIN, EFFICIENCY AND PROSPECTS FOR CREATION INTENSIVE COTTON VARIETIES

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ABSATRACT. In this article described the origin and characteristics of new intensive varieties of cotton, as well as various methods of obtaining them. Efficiency of creation and introduction of early ripening (with a high rate of boll formation and opening of bolls), wilt-resistant varieties of cotton for obtaining an early and high-quality harvest of cotton lines in conditions of global warming, as well as degradation the soil and climatic conditions of the Republic's environment to increase the high-quality domestic-grown cotton (up to October 1) and the total yield of lines by 110-120%, increase the yield by 2-3 %and the quality of fiber, excluding the minting of plants from the agrotechnological process, since the new varieties have a main stem height of 95-110 cm. Overall economic efficiency from the introduction of new varieties in agricultural clusters and farms will be from 450 to 500 thousands sums per one hectare. The regionalized cotton varieties C-8286, C-8290, C-8295 and new cotton variety C-8296, created by the laboratory staff, differ from other varieties by early maturity, wilt-resistance and the yield.

Key words: *genealogy of varieties, intensive varieties, early maturation, yield, resistance to V.dahliaeKleb., quality of fiber, boll size, intensity of development.*

INTRODUCTION. Continuously production of cotton plant in Uzbekistan is carried out by increasing yields through the use of high agricultural technology, use of drip irrigation of lands, complete mechanization of cultivation and harvesting. Along with this, an important reserve for increasing the yield and, especially, improving its quality is also creation by breeders and introduction into producing of new, more advanced intensive varieties of cotton.

Cotton, which can be evaluated in different fields, has become a fiber plant which is traded in the world and produced a significant amount with the development of technology for processing its fibers. Its fibers can be used in many industrial areas (string, lamp roving, carpet yarn, medical cotton, plastic and gunpowder) where other cellulose is needed, especially in the textile and clothing sector [5].Cotton contributes raw material to textile sector, that's why countries economy depends on this crop. It provides seeds with potential of various products viz. lint, oil, hulls and food for animal[11].

The nature and magnitude of gene action decides the choice of breeding procedure for achieving desired genetic improvement in any crop. It is particularly important to have an idea of gene interactions for getting genetic advance for polygenic traits such as yield and fiber traits in cotton [3]. In selecting high yielding genotypes, correlation studied supply reliable information on the nature extent and direction of selection the knowledge of correlation coefficient between different yield attributes helps the breeder to find out the nature and magnitude of the association between these traits which are mast by used attain better yield of the crop [1].The prerequisite for successful cotton cultivation and high productivity starts with a selection of varieties and continues with the effectiveness of the cultural practices applied to the variety [4].Since long period genetic improvement of barbadense varietal lines has been very limited. Hence, to frame research priorities on improving potentiality of barbadense varietal base and developing hybrid-oriented populations based on them and utilizing them in deriving potential interspecific hybrids [8].The world population is increasing day by day therefore it is necessary to increase the productivity of crop to meet the requirement of textile industry. Understanding the genetic basis of important yield contributing traits is the pre-requisite and information about their relationship must be available to cotton breeder. All of yield related traits are correlated with each other in such a way that increase or decrease in one trait directly effects on other traits. So, estimation of genotypic and phenotypic correlations among these traits are helpful to initiate the breeding programs [9].Breeders are interested in developing genotypes that not only have superior yield but also show better adaptation to multiple environments. Hybrid breeding can be used to obtain more stable and better yields in agronomic crops [10].The success of breeding is also associated with the development of genetic control system for heterosis and its consolidation in generations, an increase in the efficiency of selection based on the revealed patterns of inheritance of important economically valuable traits such as early maturity, yield, product quality and other useful properties [2].

MATERIALSANDMETHODS.R

esearches carried out in the laboratory of selection of intensive varieties of cotton at the Research Institute of Selection, Seed production and Agricultural Technology of Cotton Culture. As the initial material were chosen varieties, lines and hybrids of cotton obtained from geographically remote wild and semi-wild forms. Field studies were conducted in a natural infected with *V.dahliae*Kleb background. Natural infectious background was initiated as a result of long-term cultivation of various varieties, forms, species and hybrid populations of cotton and the associated with these plants – the host and the parasite.

We studied new virulent mono-spore isolates of the *V.dahliae*Kleb, which were derived from various widespread varieties of cotton in different soil and climatic regions of the Republic of Uzbekistan according to the methodology of the head of the laboratory Wilt UzNIIZR, Doctor of Agricultural Science A. Marupov [7].

Hybridgenerations were studied individually for the purpose of comparative determination of the relationship between the type of branches and wilt-resistance, elements of early maturity and other economically important traits. Inautumn, 5-boxindicator samples were collected from all accounting samples to determine the weight of one cotton boll in cotton lines. The yield of cotton lines per plant was determined by the total collection of ripe and unopened bolls.

Origin and morphological characteristics of intensive cotton varieties. In the creation of early ripening, wilt-resistant varieties and forms of cotton with a complex of morphological-economical characteristics, it is necessary to mobilize the gene fund of cultural and closely related wild species, their genetic assessment as donors of resistance, as well as the use of germplasm introgression during remote interspecific crosses, which will allow obtaining new genetic material for the breeding process. One of the most classic methods of identifying pairs is matching them according to the principle of geographic and genetic distance. Therefore, the selection of parental pairs is the main breeding strategy. Pairs must be selected so that one of the parents is more early maturing, resistant to wilt than regionalized [6].

In genetic breeding work with cotton, great success in breeding has been achieved due to classical breeding methods, but at this stage is necessary to use new effective methods in breeding, as well as to improve the methods of hybridization and selection of plants in accordance with the latest achievements of genetic science.

On the basis of theoretical developments in early maturity, resistance to *V.dahliae*Kleb and breeding methods, we have created new medium-growing, early-maturing, highly productive, wilt-resistant cotton varieties C-8286, C-8290, C8295 and C-8296 in which the genetic correlations between wilt resistance and early maturity, yield and quality of fiber, weight of cotton lines' boll and other morphological characteristics. Created varieties and lines have a vegetation period of 95-117 days, a high rate of opening of bolls, with fiber yield of 37-40% and quality of IV-V type fiber, which are unique forms in their early maturity and productivity, with an early harvest, and also valuable initial forms for genetic and breeding research.

Genealogy of C – 8286

Genealogy of C – 8286
L – 3146 x L – 158

(N2 x ssp. purpurascens - 02800) x N2	Derived by the analytical method from the population variety L-02

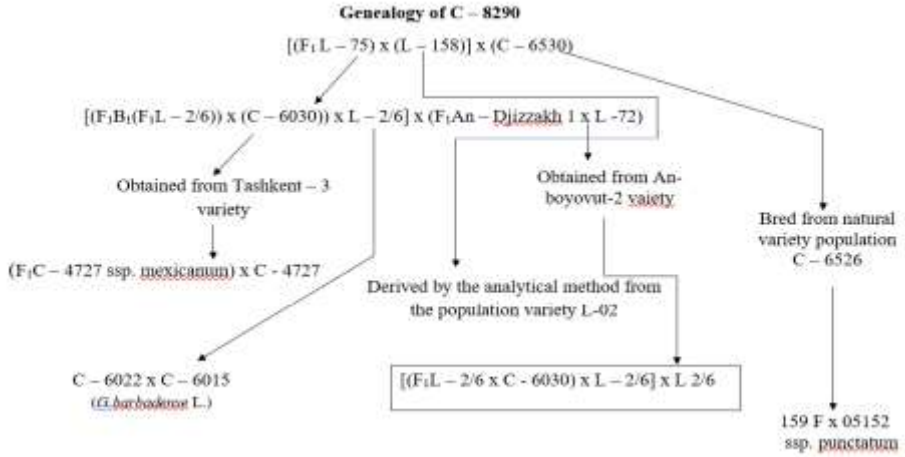
Early ripening variety C-8286 was created by the synthetic method from the hybrid combination L-3146 x L-158. The duration of vegetation period is 115-118 days. The shape of the bush is conical, the height of the plants is 95-105 cm, sympodial branches are of the 1,5-2,0 type, the stem is green, does not lodge. The height of the first boll branch is at the 5-6 node, has 1-2 monopodial branches. Leaves are medium-sized, 3-5 lobed, green and pubescent. The boll is large (6.2-6.5 gr.) elliptical in shape, with a spout, the number of valves is 4-5. Fiber yield 37.0-37.5 %, the length is 33.5-34.0 mm, relative breaking load 27.5-28.5 gs/tex, spinning index (SCI) 155-165, microneir 4.3-4.4. seeds are large, gray, weight of 1000 pcs. Seeds 122-125 gr. Oil content 20-21%. In the optimal agricultural conditions C-8286 variety gives at the first harvest not less than 43.0-44.0 c/ha. C-8286 was included in the State Register in 2008. It sows in the Samarkand region on an area of more than 11.0 thousand hectares.

Genealogy of C-8290.

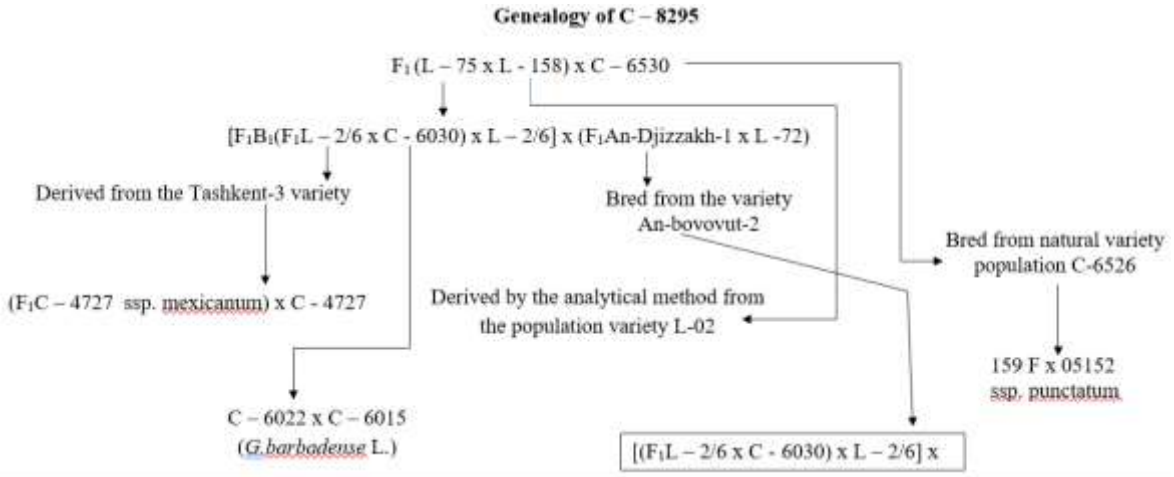
The early ripening variety C-8290 was created by the synthetic method from a complex hybrid combination [(L-75xL-158)] xC-6530. Duration of vegetation period is 115-117 days. The shape of the bush is conical, the height of the plants is 90-100 cm, sympodial branches are of the 1.0-1.5 type, the stem is green, it doesn't lodge. The height of the first boll branch is on the 5-6 node, has 1-2 monopodial branches. Leaves are medium-sized, 3-5 lobed, green and pubescent. Boll is large (6.0-6.1 gr.), rounded shape with a spout, the number of valves is 4-5. Fiber yield

37.0-38.0 %, length 33.2-33.5 mm, relative breaking load 27.0-27.5 g/tex, spinning index (SCI) 150-160, microneir 4.3-4.4. Seeds are large, gray, weight of 1000 pcs. Seeds 125-130 gr. Oil content 20-21 %. With good agricultural technology, the C-8290 variety gives 42.0-45.0 centers per hectare for the first harvest. C-8290 was included in the State Register in 2019. It is sown in Fergana and Jizzakh regions on an area of more than 75.0 thousand hectares.

Genealogyof C-8295.

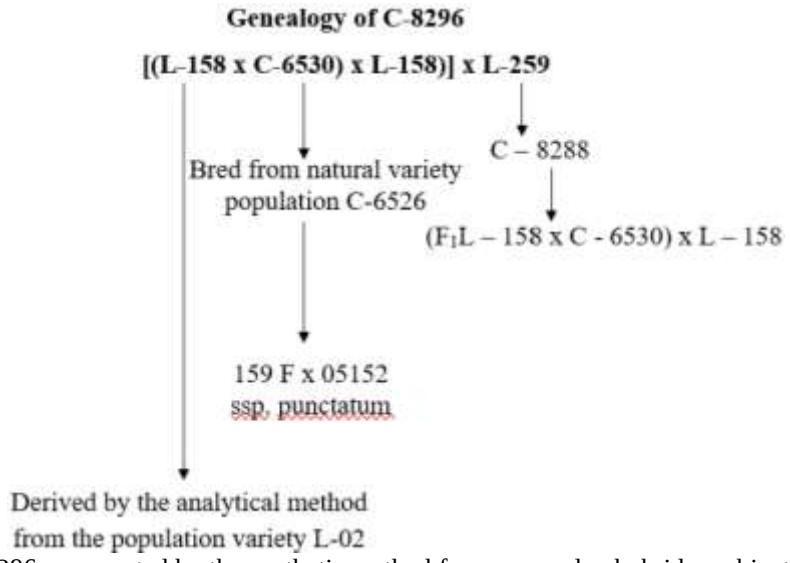


The early ripening variety C-8295 was obtained from variety C-8290. Duration of vegetation period is 115-116 days. The shape of the bush is pyramidal, the height of the plants is 95-105 cm, sympodial branches are of the 1.0-1.5 type, the stem is green, it doesn't lodge. The height of the first boll branch is on the 5-6 node, has 1-2 monopodial branches. Leaves are medium-sized, 3-5



lobed, green and pubescent. Boll is large (6.2-6.5 gr.), rounded-shape with a spout, the number of valves is 4-5. Fiber yield 36.8-37.0 %, length 33.1-33.2 mm, relative breaking load 27.5-28.5 g/tex, spinning index (SCI) 165-175, microneir 4.4-4.5. Seeds are large, gray, weight of 1000 pcs. Seeds 125-126 gr. Oil content 20-21 %. With good agricultural technology, the C-8295 variety gives 40.0-43.0 centers per hectare for the first harvest. Variety C-8296 was included in the State Register in 2020. It sows in the Namangan region on an area of more than 4.0 thousand hectares.

Genealogy of C-8296.



The early ripening variety C-8296 was created by the synthetic method from a complex hybrid combination [(L-158 xC-6530) xL-158)] xL-259. Duration of vegetation period is 115-117 days. The shape of the bush is conical, the height of the plants is 110-120

cm, sympodial branches are of the 1.0-1.5 type, the stem is green, it doesn't lodge. The height of the first boll branch is on the 5-6 node, has 1-2 monopodial branches. Leaves are medium-sized, 3-5 lobed, green and pubescent. Boll is large (6.1-6.2 gr.), rounded-elongated shape with a spout, the number of valves is 4-5. Fiber yield 37.0-38.0 %, length 34.0-34.1 mm, relative breaking load 27.5-28.5 g/tex, spinning index (SCI) 160-170, microneir 4.3-4.4. Seeds are large, gray, weight of 1000 pcs. Seeds 129-130 gr. Oil content 20-21 %. With good agricultural technology, the C-8296 variety gives 42.0-44.0 centers per hectare for the first harvest. Variety C-8296 is undergoing a production estimate in Namangan region and is sown on an area of more than 500.0 hectares.

CONCLUSIONS.

1. It was determined that the usage of geographically distant hybridization of cotton with implementation of wild and semi-wild forms makes it possible to obtain early maturing, high-yielding varieties of cotton woth a high rates of opening of bolls, as well as resistance to V.dahliaeKleb and high quality of fiber properties.

2. Implementation in production of new lines and varieties with features of high-yielding (not less than 40-45 c/ha), early maturation with a vegetation period up to 100-110 days and high quality of fiber type of IV-V with high resistance to *V.dahliae*Kleb., allow us:

- Increases thepossibility of getting an early (before October 1) and high-quality cotton lines harvest by 110-120 %;
- Increase the yield by 2-3 % and the quality of the fiber;
- Excluding the minting of plants from the agrotechnological process, since new varieties have a self-minted property, as well as the height of the main stem up to 95-110 cm.

3. Overall economic efficiency from the introduction of new intensive varieties of cotton lines from 450 to 500 thousand sums per 1 hectare.

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