Initial material and selection of tomato on early ripening in Uzbekistan

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Abstract: *The article presents the results of studies on the study of the initial material for the selection of early-ripening varieties of tomato in Uzbekistan. The best samples were Elan, Pladon, Rubin, Severyanin, Siberian early maturing, Barnaul canning, Cherry elite hybride, which, according to the general harvest, estimated as 23-55%, 4-69% higher than the Talalikhin standard 186 and have a set of positive qualities. Together with scientists from Russian Research Institute of Selection and Seed-Vegetable Crops, early-ripening varieties of tomato Sevara and Shafak were introduced, which are included in the State Register.*

Key Words: *tomato, early maturity, raw material, vegetation period, early harvest, crop mass, ripeness of ripening.*

1. INTRODUCTION:

Bringing early, ripening varieties of tomato is one of the most important directions in tomato breeding and has more economic significance.

The occurrence of precocity is associated with the adaptive response of organisms to environmental conditions and is characterized by the duration of the period from shoots to the beginning of maturation. Fast-ripening plants quickly undergo a full cycle of development and formation of viable offspring. Early maturity is a complex polygenic trait, which is in interrelation with other factors.

Already in the 30's, studies were conducted to determine the localization of genes that control the quantitative sign of early maturity. For this reason, Currence (1938) crossed between late-ripening varieties carrying the marker genes p, d, o, s (the second chromosome) and early maturing varieties with dominant alleles of the same locuses [5].

Carrying out the return crossing of F1 with the late-maturing parent, the author, on the basis of an analysis of the data obtained, concluded that under the influence of the genes of the corresponding zones, the beginning of fruiting as a whole accelerates for 19 days, 8 days of which are associated with zone d, 5 with zone p, and 4-8 - with the zone s. The obtained data allow us to assume that at least two regions of the second chromosome are responsible for the prematurity of tomatoes. One of them is located in the zone of genes d and p, the other - in the zone of the gene s.

Despite the complexity of the early signs of tomato, many breeders successfully carry out selection work in this area [1, 2, 3, 6, 7].

In the Research Institute of Vegetable-Melon Crops and Potato, the selection of early-ripening varieties of tomato was started in 1963 by the candidate of agricultural sciences Yermolova Y.V. under the guidance of Academician Alpatiyev A.V [3]. Early ripe grade of Early Uzbekistan was withdrawn and transferred to the State Test.

2. MATERIALS AND METHODS:

In order to identify the initial material for the selection of early-ripening varieties of tomato, we studied 102 samples of different origins in Uzbekistan. The studies were carried out according to the methodological guidelines for the selection of tomato varieties and hybrids for open and protected soil, methodological guidelines for studying and maintaining the world collection of vegetable nightshade crops, methodological requirements for, the methodology of the State Committee for Agricultural Studies, etc. For each variety, 20 plants were grown. The area of the registered plot is 5.4 m^2. Due to the absence of early-ripening varieties of tomato in the register, a sort of Talalihin 186 was taken from the region as a standard.

During the vegetation period carried out, phenological observations, a description of the morphobiological characteristics of plants, the recording of crops and etc.

Identified economical and biological efficiency by X. Daskalov (1967) and A.V. Alpatiev (1981). It was noted (Alpatiev AV, 1970) that periods of germination, flowering, ripening are controlled by different systems of genes and when they are hybridized they are inherited independently of each other. Due to the appropriate selection of parental forms, it is possible to create varieties that combine the shortest of these periods.

3. RESULTS AND DISCUSSION:

One of the main periods on which the pre-matureness of tomato depends is "shoots-flowering". It should be noted that the "number of days from the first shoots to the beginning of flowering" is controlled by 4-5 genes and the shorter period partially dominates the longer one (Fogle, Currence, 1950). The shortest was the period for samples Maikopskiy,Chelnok, Sever, Sub arctic 25, Nevsky, Siberian ripening, Rubin, Budyansky, Dann. In these samples, the duration of the "shoot-flowering" period is 62-64 days, against 69 days for the standard Talaikhin 186. In the samples, Geya local variety (Uzbekistan),Elan, Mesprit (China), Novichok, Bayan , Morning, Pladon this period was shorter by 2-4 days than the standard.

The shortest second period - "flowering-ripening" is characterized by early Uzbekistan, Severyanin, Cherry elite hybride varieties, which last 38-39 days, which is 1-2 days shorter than the standard variety. In general, the samples that have a short period of "flowering-ripening" were few.

According to the duration of the "shoot-start of fruit ripening" period, the samples studied were grouped as follows:

1. Ultra-long (93-99 days): VIR 100, VIR-173, Sever, Nevskiy, Ion-N, Siberian early maturing. Dubov, Barnaulsky for canning, Elan, Sub arctic 25, etc.Only 30.4% of the total number of samples.

2. Early-maturing (100-105 days): Early Uzbekistan, Severyan, Fonarik, Patrice, Rubin, Yamal, Zoren, Geya, Grot, Otradny, Alpateva 905a, Rhythm, Unavsky, etc. Only 33.3% of the total samples.

3. Medium-term (105-110 days): Lagidny, Kremenchug, JI-922-92, Perseus, Venets, Rif, Chelnok, Argo, Dar Zavoljaya, Slava of Moldova, Budyansky, etc. Only 30.2% of the total number of samples.

Average and medium-late varieties are 6.1% of the total number of samples and they are of little interest for selection for precocity. Valuable sources of precocity are samples related to the first and second groups with small and medium size fetuses. The most promising of them are included in hybridization and with their participation a genetically diverse material for further selection has been obtained.

The study of economic efficiency showed that few samples of the early harvest exceed the standard (Table 1). According to the results of the studies from the 102 samples studied, only 7 in the general and early harvest exceed the standard Talalikhin 186. These are the samples of Elan, Pladon, Rubin, Severyanin, Sibirskiy early maturing, Barnaulfor canning, Cherry elite hybride, which, according to the general harvest, are 23-55% on the early harvest by 4-69% higher than the standard Talalikhin186 and have a set of positive qualities.

Distinguished in terms of biological, economic speed, the samples are valuable sources of prematureness of tomato in Uzbekistan.

Table 1

Economic and biological characteristics of the early-ripe varieties of tomato (2013-2015 y)

Sort samples	Total yielding in ha.	% to standard	Early harvest q/ha	Index of early maturity%	Crop mass in gr	Same time maturity, %
Standard -tallalihin 186	494.0	100.0	269.0	100.0	74.0	54.0
Elan	766.0	155.0	454.0	168.7	84.0	59.0
Siberian early mature	715.0	144.7	384.0	141.3	82.0	54.0
Pladon	781.0	158.0	369.0	137.2	58.0	47.0
Severyanin	711.0	143.9	338.0	125.6	103.0	19.0
Rubin	583.0	118.0	328.0	121.9	45.0	56.0
Cherry elite hybride	611.0	123.7	314.0	115.7	31.0	51.0
Barnaulskiy for canning	607.0	122.9	279.0	103.7	47.0	45.0

As a result of joint selection work with scientists from the Russian Research Institute of Selection and Seed Vegetable Cultures, two early-ripening varieties of Shafak and Sevara were removed and handed over to the State Test. Below are their characteristics.

Variety Shafak - determinant, with an ordinary type of plants. Early ripening, vegetation period is 97 days. The average age. Leaves are ordinary, light green. The inflorescence is simple, with 4-5 fruits. The first inflorescence is laid over the 5-6th leaf, the subsequent inflorescence alternates one after another or through one sheet. Fruits of medium size (75 g), rounded, smooth, red. The taste is good. Designed for processing on tomato products.

The variety of Sevar - has a determinant, a type of plants. Early ripening - the period from mass shoots to the beginning of ripening of fruits is 98 days. Gustooblivstven. The leaves are large, dark green. The inflorescence is

simple, with 3-4 plods. The first inflorescence is laid over the 5-6th leaf, the succeeding ones are arranged one after another or through one sheet. Fruits are rounded, smooth, 4-5-chamber, average weight of 88 g, pink color, are intended for fresh consumption.

According to the general harvest, the variety of Sevar is 11.3%, and the variety of Shafak is 1.6% higher than the standard (Table 2). The index of the number of non-commodity fetuses in the standard variety was higher (16.7%) than in the varieties of Shafak and Sevara (6.0 and 6.8%).

According to the early harvest (for the first three harvestings), as the best variety was selected Sevara. It was 12.6% higher than the standard, the grade of Shafak in this indicator was 10.6% below the standard. However, the harvest in the Shafak variety was 259.7 q / ha, compared to 228.6 c / ha for the standard.

Table 1

Yielding of new early matured tomato sorts (2013-2015 years)

Sort	Total yielding c/ha	To the % standard	Non-productional crops q/ha	Yielding for the first 3 harvesting	
				q/ha	to % standard
Standard tallalihan 186	**274,3**	**100,0**	**45,7**	**137,5**	**100.0**
Sevara	**305,5**	**111,3**	**18,3**	**154,9**	**112.6**
Shafak	**278,8**	**101,6**	**19,1**	**122,9**	**89.4**

A distinctive feature of new early ripening varieties is the good commercial and taste qualities of fruits. Shafak and Sevara are listed in the State Register.

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