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RESULTS OF SELECTION OF GREENHOUSE TOMATOES AT THE RESEARCH INSTITUTE OF VEGETABLES, MELONS AND POTATO GROWING

[1] Turayev J.M , [2] Lyan.E.E

[1,2] Research Institute of Vegetables, Melons and Potato growing, Tashkent region, Uzbekistan

Abstract: This article provides characteristics of varieties and hybrids of indeterminate tomatoes characterized by high productivity, resistance to diseases, large-fruited, medium-fruited and small-fruited with high taste, transportable, distinguished by international standards, competitive in the domestic and foreign markets, suitable for both glazed and film greenhouses.

Keywords: Breeding, nursery, varieties, hybrids, lines, tomatoes, flower cluster, kilo, gram, yield, quality, meter, square, glazed, film greenhouses.

Introduction

The main direction of tomato breeding at the Research Institute of Vegetables, Melons and Potatoes is the creation of new promising varieties and heterotic hybrids of tomato for cultivation in various crop rotations of protected soil in glass or film greenhouses. Selection is carried out for a complex of economically valuable traits that ensure high productivity and resistance to the most common diseases. transportable with high taste and commercial qualities.

The practice of many foreign countries with developed vegetable growing shows that expanding the area of protected soil and year-round cultivation of vegetables creates favorable conditions for the accumulation and development of pathogens, provides opportunities for overwintering, as well as the emergence of new, more virulent races.

In this regard, the introduction into production of hybrids with complex disease resistance will help obtain more stable yields and reduce the cost of cultivation. In addition, when working with such hybrids, biological methods of pest control can be used more effectively.

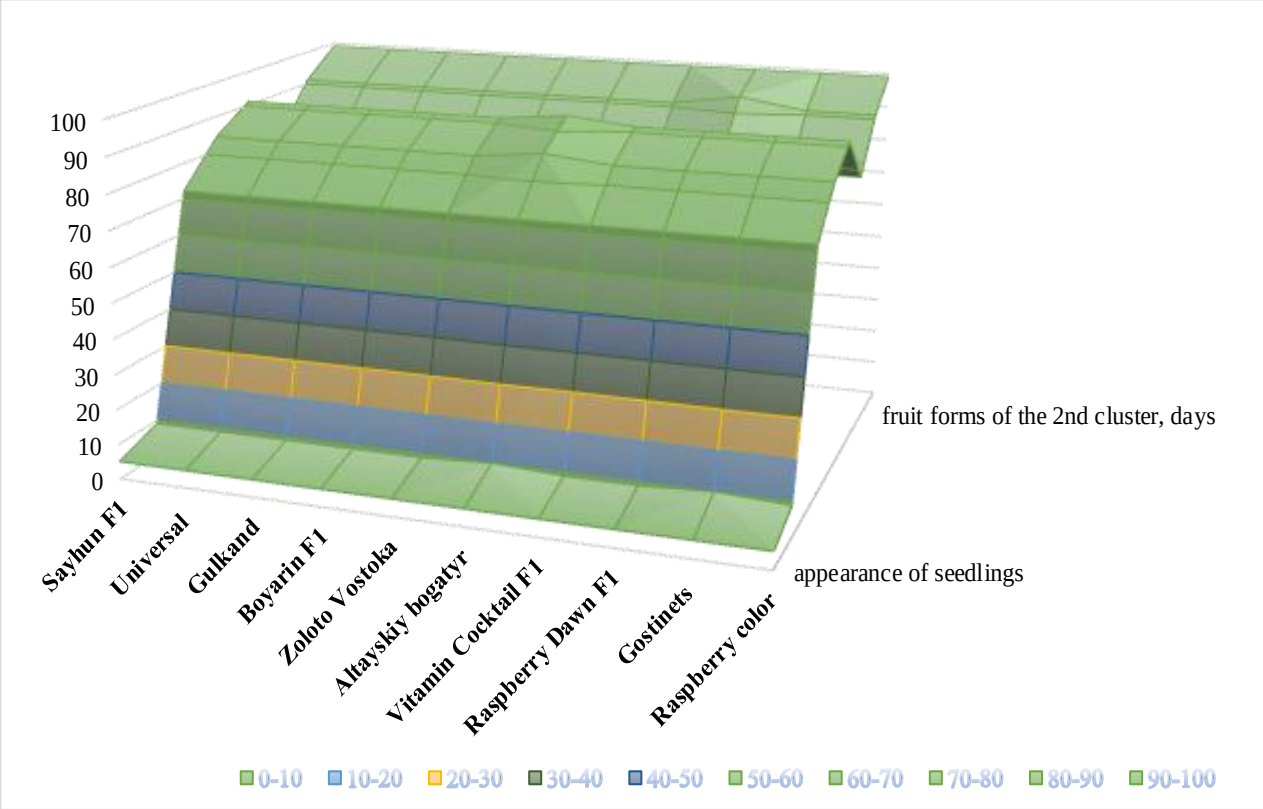
We have carried out breeding work on the resistance of indeterminate tomatoes to diseases relatively recently, since the mid-90s of the last century.

Breeders of the Research Institute of Vegetables, Melons and Potatoes use mainly the classical method, crossing selected lines, obtaining F1 hybrids, establishing an indo-selection nursery, and preparing seeds that have the characteristics of the desired forms, which are planned to be combined in a future variety. Next, breeding nurseries of indo-selections F_2, F_3, F_4, F_5, F_6 are established, and so on until constant offspring are obtained through linear individual selection. Then competitive station testing of new promising breeding lines in comparison with the standard, after successful competitive station testing of new varieties and hybrids of promising varieties, the sample is entered into the State. Its originator carries out the primary propagation of a new variety.

For this purpose, we studied tomato varieties in a collection nursery in winter-spring rotation (2023).

Sowing seeds in cassettes for this rotation on January 5, planting 50-60-day-old seedlings in the first ten days of March with drip irrigation, ending the culture at the end of July.

Agricultural technology generally accepted by the greenhouse vegetable growing laboratory.



The registration area of the plot is 6 m^2. Repeat once, forming into one stem with a garter with twine to the trellis.

Figure 1 shows phenological data: date of appearance of mass shoots, tying of 1-3 clusters. Differences between varieties and hybrids were observed already in the early phases of growth and development.

Thus, the appearance of the first true leaf in Sayhun F_1, Universal, Gulkand, Boyarin F_1, Zoloto Vostoka, Vitamin Cocktail F_1, Raspberry Dawn F_1, was noted on the 5-6th day, in the remaining varieties on the 9-10th day, mass flowering of the third inflorescence in F_1 Sayhun, Universal, Gulkand, Boyarin F_1, Zoloto Vostoka, F_1 Vitaminka Cocktail, F_1 Raspberry Dawn, St Sayhun F_1 on 70-72 days, in other varieties on 79-80 days.

The varieties and hybrids differed in growth and development, so on the 120th day from mass germination (10.05) the plants Universal, F1 Vitaminka cocktail, had a main stem height of 206 cm, the smallest was noted in Gulkand - 120 cm, F1 Saihun - 180 cm, the remaining varieties had an intermediate height of the main stem. The promise of any tomato variety in protected soil is its productivity.

Fig. 1. Phenological observations of tomato varieties and hybrids in the spring rotation of 2023.

As can be seen from Fig. 2, higher yields were obtained from the following varieties: Universal - 13.8 kg/m2, Gulkand - 10.4 kg/m2, F1 Vitaminka cocktail - 12.4 kg/m2, Zoloto Vostoka -10, 6 kg/m2, Boyarin - 10.1 kg/m2, the lowest was noted for F1 Raspberry Dawn - 9.2 kg/m2, for the Sayhun F1 standard - 15.1 kg/m2, the remaining samples had an intermediate level. In terms of average fruit weight, Gulkand stood out, 180 grams, the smallest average fruit weight was noted for F1Vitaminka cocktail - 48 grams.

Based on the biochemical composition of the fruits, the following varieties were identified: Universal, Gulkand, as well as the standard Saihun F1; according to the accumulation of nitrate nitrogen in the fruits, it was below the maximum permissible concentration in all tomato samples and ranged from 73-112 mg/kg.

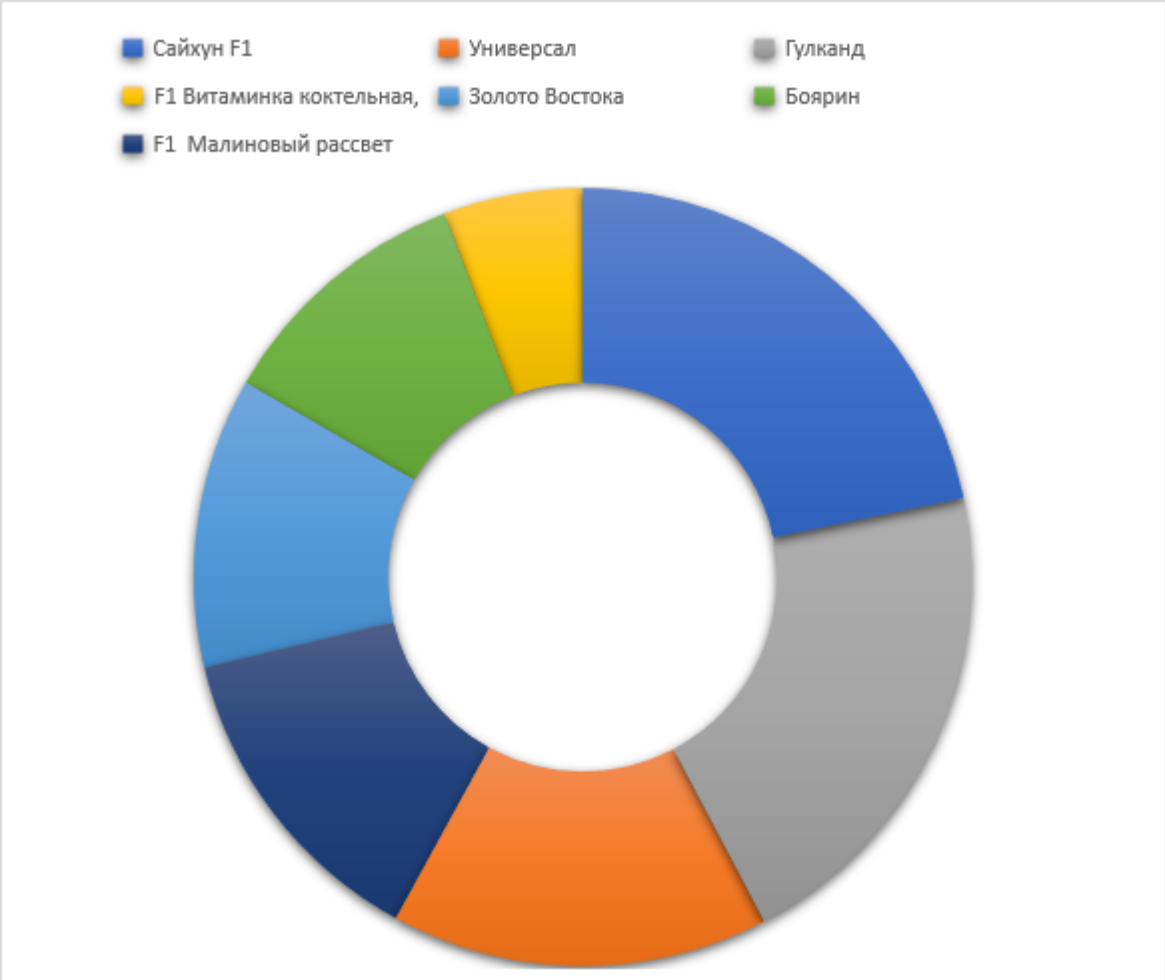


Fig.2. Harvest and its qualities of tomato varieties in the spring rotation of 2023

A very important indicator of the prospects of a tomato variety is its productivity, quality and disease resistance (Table 1).

Table 1.

Biochemical composition of tomato fruits relative resistance to major diseases in 2023

Variety samples and hybrids	Total sugar, %	Ascorbic acid. mg%	Nitrogen nitrate, mg/kg	Est. to sick in points			
				BTM		Apex rot, fruit rot	
				%	point	%	point
Sayhun F1	5,0	15,8	74	0	0	0	0
Universal	5,0	15,1	73	0	0	0	0
Gulkand	5,9	15,6	78	0	0	10	0,5
Boyarin F1	4,7	14,1	92	10	0,5	10	0,5
Zoloto Vostoka	3,9	14,4	104	20	1,0	20	10
Altayskiy bogatyr	4,5	14,0	112	20	1,0	10	0,5
Vitamin Cocktail F1	4,6	15,4	84	0	0	0	0
Raspberry Dawn F1	4,5	15,3	85	0	0	0	0
Gostinets	4,1	14,6	108	0	0	10	0,5

In terms of the biochemical composition of the fruits, they stood out: in terms of total sugar, Gulkand stood out - 5.9%, the least noted in Zoloto Vostok in the standard Saihun F1 - 5.1%. In terms of ascorbic acid content, the highest was noted in Saihun F1 - 15.8 mg%, the lowest was noted in Altai Bogatyr - 14.0 mg%, in the standard Saihun F1 - 15.8 mg%, the rest had an intermediate ascorbic acid content.

The content of nitrate nitrogen in all studied varieties was below the MPC and was at the level of 73-112 mg/kg * MPC for tomatoes in protected soil is 150 mg per 1 kilogram of fresh fruit. Nuritdinov A.I. et al. 1988).

Conclusion

1. Thus, in film unheated greenhouses 2023, the most promising varieties turned out to be Saihun F1, Universal, Gulkand, F1 Vitaminka Cocktail, F1 Raspberry Dawn, which turned out to be more productive, resistant to diseases and unfavorable microclimate conditions.

2. Of great importance is the ability of a variety or hybrid to set fruit at elevated temperatures, which are observed in our conditions already in the month of April. In connection with this, the same varieties stood out: SayhunF1, Universal, Gulkand, BoyarinF1, Zoloto Vostoka, F1 Vitaminka cocktail, F1Raspberry Dawn; they will be used in the future as source material for selection.

References

1. Алпатьев А.В. Рекомендации по селекции и семеноводству овощных культур, возделываемых в защищенном грунте. М1979.

2. Лян Е.Е., Ким В.В., Хакимов Р.А. Сортоиспытания томатов в зимне–весенний период вегетации в Узбекистане. Корейское общество международного сельского хозяйства. 25(4)/2014.

3. Екатерина Лян, Вероника Ким, Создание сортообразцов томата Coctail–журнал: Euro Afro Studies International journal, том II. 2 августа 2020 г. стр. 175-180.

4. Turaev J. M., Lyan E.E., Kim V.V.Economic and Biological Characteristics of Tomato Varieties, Hybrids When Growing in Film Unheated Greenhouses

5. Прокопов В.А., Петра И.К., Петра Е.И. Помидоры в зимне-весеннем обороте практическое руководство. G. Картофель и овощи. № 1. 2017. с.13.
6. Сулейменов А., Джантасов С. Сорта и гибриды томатов для защищенного грунта, районированные в Республике Казахстан. Источник: https://agro-mart.kz/sorta-i-gibridyi-tomata-dlya-zashhishhennogo-grunta-rayonirovannyie-v-Respublike-Kazahstan/.
7. Терешонкова Т.В., Горшкова Н.С., Игнатова С.И. Селекция гибридов F1 томатов черри и коктейль с использованием линий от межвидовых скрещиваний. // Современное состояние и перспективы развития селекции и семеноводства овощных культур: Материалы докладов, сообщений международного симпозиума. 9-12августа 2005 г. - Москва РААС, 2005, т.1, с.198.
8. Нуритдинов А.И. и др. Качество овощей и интенсификация сельскохозяйственного производства, Ташкент 1988).