

Date: 19th July-2026

EGGPLANT RIDGES

Turayev Dilshod Shodavlatovich

Surkhandarya Scientific Experimental Station of the Research Institute of Vegetable Growing, Melon Crops and Potato Growing, Deputy Director for Research and Innovation

Abstract: This article presents information on eggplant breeding lines evaluated at the Surkhandarya Scientific Experimental Station in 2021. The research findings revealed that the breeding lines L-B-1, L-18-b, and L-26-b exhibited higher total and early yields than the standard cultivar Surxon Go'zali. These lines were also identified as being practically resistant to root-knot nematodes.

Keywords: eggplant, root-knot nematode, breeding, breeding line, resistance, cultivar, standard cultivar, earliness, yield.

Introduction. In recent years, greater attention has been devoted to vegetable production in our country, resulting in a significant increase in the share of vegetables cultivated by dehqan and fermer (farmer) households. Consequently, the development of new vegetable varieties that meet the needs of different categories of producers has become an important priority.

Vegetables play a vital role in ensuring the country's food security, as they are an essential source of vitamins, mineral salts, and organic acids. Among the most widely cultivated and economically important vegetable crops is eggplant (*Solanum melongena* L.).

Eggplant fruits are highly valued for their distinctive flavor, excellent post-harvest keeping quality both on the plant and during transportation, and their suitability for the processing and canning industry, making them an important vegetable crop.

In this regard, scientific research on eggplant breeding is also being actively conducted in the Surkhandarya region. In particular, the Surkhandarya Scientific and Experimental Station of the Research Institute of Vegetable, Melon Crops and Potato Breeding has been developing promising hybrid varieties characterized by early maturity, high yield potential, adaptability to the region's warm climatic conditions, and resistance to major diseases.

Materials and Methods

Three breeding line samples developed by the SPE and KITI Surkhandarya Scientific Experimental Station were used as the research material in this study.

The experiments were conducted in accordance with the guidelines outlined in Methodological Guidelines for the Study and Maintenance of the World Collection of Solanaceous Vegetable Crops (Tomato, Pepper, and Eggplant) (Leningrad, 1977).

The experimental plot area was 6.3 m². Each plot consisted of 30 plants arranged in three rows. The breeding lines were evaluated by comparing them with the standard cultivar according to the procedures specified in the methodological guidelines.



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Results and Discussion: During the study, economically important traits of eggplant, including plant morphology, fruit characteristics, yield performance, and resistance to root-knot nematodes, were evaluated.

The growing period of the studied eggplant lines ranged from 101 to 106 days, while the standard cultivar required 102 days to complete its growing cycle. All evaluated lines exhibited early maturity during the growing season. The L-B-1 and L-18-b lines matured one day earlier than the standard cultivar Surxon Go'zali, whereas the L-26-b line matured four days later than the standard cultivar.

The morphobiological characteristics of the early-maturing eggplant lines based on plant architecture are presented in Table 1. The results demonstrated that all cultivars and breeding lines were morphologically uniform and exhibited a semi-erect growth habit. Plant height was lower in all breeding lines compared with the standard cultivar. The stem internodes were green in color and free of prickles (spineless).

Table 1.

Morphological and Biological Characteristics of New Early-Maturing Eggplant Lines, 2021

No	Ridges	Ball shape	Branching of the Bush	Tup balandligi	Fruit shape	Fruit appearance	Fruit length, sm
1	Surxon go'zali	dense	Semi-erect grower	60,9	Roll	Black purple, smooth	15
2	L-13 B-1	dense	Semi-erect grower	54,2	Roll	Dark purple, smooth	13
3	L-18 b	dense	Semi-erect grower	55,1	Roll	Black purple, smooth	14
4	L-26-1	dense	Semi-erect grower	72	Roll	Black purple, smooth	13

The fruits of the breeding lines were cylindrical in shape, purple in color, with a smooth surface, and possessed light green flesh. The fruit length of the breeding lines was evaluated in comparison with that of the standard cultivar, Surxon Go'zali.

Among the breeding lines, the highest total yield was recorded in line L-18-b, reaching 112.1 t/ha, which was 27.4% higher than the standard cultivar. The total yield of the standard cultivar was 88.0 t/ha (Figure 2).

Regarding early yield, the highest values were observed in lines L-18-b and L-26-1, with 43.7 and 43.4 t/ha, respectively. These values were 22.5% and 21.6% higher than that of the standard cultivar. The early yield of the standard cultivar was 35.7 t/ha. The remaining breeding lines also exhibited higher total and early yields compared with the standard cultivar.

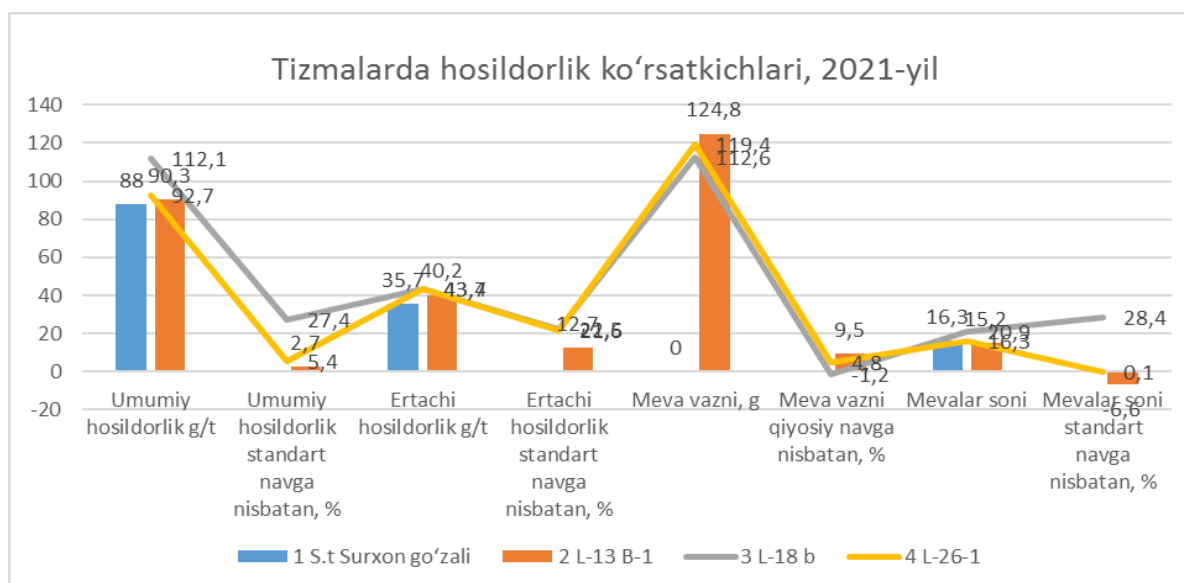


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The fruit weight in lines L-13-B-1 and L-26-1 ranged from 124.8 to 119.4 g, which was 10.8–5.4 g higher than that of the standard cultivar. In terms of the number of fruits, line L-18-B exhibited a 28.4% increase compared with the standard cultivar.

Diagram 1

Conclusion: According to the results of the conducted research, it was observed



that the performance indicators of all studied lines were not lower than those of the standard variety. In particular, the higher yield productivity of the L-13-B-1 and L-26-1 lines was mainly attributed to the greater fruit weight, whereas the L-18-B line demonstrated superior performance due to a higher number of fruits. These lines are considered suitable for further continuation of breeding programs and are recommended for cultivation in farming and agricultural enterprises.

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