

SCIENTIFIC BASIS FOR CULTIVATING VEGETABLE (SWEET) CORN VARIETIES AS A SECOND CROP

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Abstract: *This paper presents data on the growth, development, and ear yield of vegetable (sweet) corn varieties cultivated as a second crop.*

Keywords: *vegetable (sweet) corn, variety, heterotic hybrid, State Register, maize grain, milk ripeness stage, tassel, main crop, growing season, plant height, number of lateral stems, height of first ear placement, number of ears per plant, ear weight, yield.*

Introduction

One of the urgent tasks in this field is to acclimatize vegetable corn varieties and hybrids developed in the Republic and adapted to local conditions, while taking into account the biological characteristics of early-maturing varieties suitable for cultivation as both main and second crops. It is also important to develop cultivation technologies for different soil and climatic conditions, sowing dates, and growing methods.

Vegetable (sweet) corn is suitable for cultivation on slightly saline soils and may be grown as both a main and a second crop. Because it has a short growing period as a vegetable crop, it uses less water than many other crops. Its ears are harvested at the milk-wax ripeness stage and are consumed boiled, canned, or frozen. After the ears are harvested, the plant stems remain green; due to the high sugar content and feed value of the stems and leaves, they are considered a nutritious feed source for livestock.

Experimental Results

The collection of vegetable (sweet) corn varieties was sown as a second crop on land vacated after the main crops on June 10, using a 70 x 20 cm planting scheme. The dates of seedling emergence, formation of the first, second, and third true leaves, tasseling, tassel flowering, ear formation, and the beginning (10%) and full occurrence (75%) of the milk and wax ripeness stages were determined.

Seedling emergence in the vegetable (sweet) corn varieties mainly occurred on June 18-20, that is, on the 9th-10th day after sowing. Relatively early emergence was recorded in the Sherzod and Zamin varieties (June 18-19), whereas the latest emergence was observed in the Evrika variety (June 21). The same intervarietal pattern was maintained during the formation of the first and second true leaves.

Among the studied varieties, tasseling was generally observed between July 28 and August 4. Ear formation was recorded in all varieties: in Sherzod and Zamin it mainly occurred on August 8-9, while in Mazza and Evrika it occurred somewhat later, on August 12-14. When the milk and wax ripening of the ears was studied, the earliest ripening was observed in the standard Sherzod variety on September 1; in the remaining varieties, ripening was recorded on September 3-8, or 2-7 days later than the standard variety.

The biometric indicators of the vegetable (sweet) corn varieties were also studied. Among the varieties, the tallest plants were recorded in the standard Sherzod variety (165.6 cm), followed by Zamin (161.2 cm) and Evrika (158.1 cm). The height of first ear placement ranged from 30.0 to 34.3 cm across the varieties. Tillering ranged from 1 to 4 shoots. The number of leaves on the main stem varied from 11.7 to 13.4, while the number of internodes ranged from 9.5 to 11.1.

The highest number of ears per plant was recorded in Sherzod (4.9 ears) and Zamin (5.3 ears), while Evrika and Mazza each formed 2.0 ears per plant. Earless plants were also observed in the studied set of varieties.

Productivity

In our experiments, productivity indicators of vegetable (sweet) corn varieties were studied. Differences were observed among the varieties in ear weight, number of kernel rows per ear, number of kernels per row, total number of kernels per ear, kernel weight, and grain output percentage.

The weight of one ear in the vegetable (sweet) corn varieties ranged from 245.5 to 314.4 g. The highest ear weight was observed in the Sherzod variety (314.4 g). When the number of kernel rows per ear was studied, it ranged from 12.8 to 15.3 rows among the varieties, with the highest number recorded in the Zamin variety.

The number of kernels in one row ranged from 32.5 to 39.7, while the total number of kernels per ear ranged from 458.3 to 526.3. Kernel weight per ear varied from 194.1 to 247.5 g. The cob core weight ranged from 46.4 to 66.9 g, and grain output from the ear was recorded at 78.7-81.9%. The highest grain output was recorded in the Zamin and Sherzod varieties. Overall, the 1000-kernel weight, which is one of the productivity indicators of vegetable (sweet) corn, ranged from 218.3 to 381.6 g among the varieties.

The silage mass yield per hectare of vegetable (sweet) corn was also studied in the experiment. The silage mass yield of the varieties ranged from 35.1 to 37.6 t/ha. Grain yield ranged from 5.0 to 5.8 t/ha, with the highest yield recorded in the Zamin variety (5.8 t/ha).

Conclusion

The results of our experiments showed that when vegetable (sweet) corn varieties are cultivated as a second crop, it is possible to obtain 85,000-105,000 ears per hectare, or 10-12 t/ha of marketable ears for vegetable use. When grown for seed grain, these varieties make it possible to produce 5.0-5.8 t/ha of grain. At the same time, it was observed that they produced 35.1-37.6 t/ha of succulent silage feed for livestock.

REFERENCES

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