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Growing Vegetable (Sweet) Corn Varieties and Hybrids as a Reproductive Crop

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Abstract – The article provides information on plant growth, development, productivity and vegetable soybean and grain bunch when vegetable (sweet) corn varieties and hybrids are grown as a primary, secondary crop.

Keywords – Main crop, secondary crop, vegetable (sweet) corn, cultivar, heterozygous hybrid, State register, corn grain, milk ripening period, bunch, growth period, plant height, number of side stalks, height of first stalk placement, number of stalks per bush, stalk weight, productivity.

I. INTRODUCTION

In countries with temperate climates, the effective use of agrotechnologies in the vegetable crops cultivation as a primary and secondary crop is important to ensure food security and efficient use of existing irrigated areas [7]. In particular, it is important to improve the growing vegetable (sweet) corn technology in Uzbekistan as a primary and secondary crop, to determine the optimal sowing period, plant nutrition, fertilization and irrigation standards, as well as research on the commercial and high-yielding varieties and hybrids selection [5]. In recent years, the country has focused on radically improving the vegetable crops productivity, product quality and economic efficiency through the effective use of irrigated lands through the introduction of science-based innovative agro-technologies in agricultural production [4].

Therefore, our research purpose is the technologies development for fast-growing varieties cultivation, taking into account the biological properties, suitable for the cultivation of vegetable maize varieties and hybrids in accordance with local conditions created in the country, taking into account their biological characteristics. 3].

The advantages of growing vegetable (sweet) corn in all country regions are as follows. Vegetable (sweet) corn is suitable for cultivation in weakly saline soils, and is grown as a primary and secondary crop [2]. Due to the short growing season as a vegetable crop, water consumption is saved compared to other crops, the soybeans are collected in the milk-wax ripening phase and boiled, canned and frozen and consumed [1]. After the stalks are harvested, the plant stem is green and is a nutritious fodder for livestock due to the high sugar content and nutrient content in the stems and leaves [6].

II. THE AIM OF THE STUDY

to study and analyze the growth, sorghum development and yield as a vegetable by growing vegetable (sweet) corn varieties and hybrids as a secondary crop.

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III. Research Object And Methods

Research objects were obtained seed grains of vegetable (sweet) corn varieties Sherzod, Zamin, Mazza, Eureka and hybrids Megaton F_1, Sentinel F_1, SpiritF_1, Soyan F_1, Baron F_1. Seed grains of vegetable (sweet) corn hybrids were sown on June 10 in a 70x20 cm scheme as a repeat crop on lands vacated from the main crops, germination, 1-2-3 leaf formation, germination, flowering of sorghum, sowing, milk, wax ripening (10%) and full (75%) occurrence periods were determined. The results were processed using Excel.

IV. Research Results

In the experiment, phenological observations and biometric measurements were carried out on a set of vegetable (sweet) corn varieties and modular hybrids plants.

Germination of vegetable (sweet) corn varieties mainly took place on June 18-20, i.e. on the 9th-10th day sowing. Relatively fast germination (18-19.06) was recorded in Sherzod and Zamin varieties. The latest germination was recorded in the Eureka variety (21.06). In addition, inter-varietal regularity was preserved in the the 1st true leaf and the 2nd true leaf production. Among the studied varieties, breeding was observed mainly between July 28 and August 4. Sowing was observed in all varieties, mainly in Sherzod and Zamin varieties on August 8-9, and in Mazza and Eureka varieties on August 12-14. In the experiment, when milk and wax ripening of soybeans was studied, the fastest soybean ripening was recorded in the standard Sherzod variety on September 1, 2-7 days later than in the standard variety on September 3-8 in the remaining varieties.

Early germination was observed in Sentinel F_1 (17.06) and Megaton F_1 (18.06) hybrids when phenological observations were made in vegetable (sweet) corn hybrids. Germination was recorded relatively late in hybrids such as SpiritF_1, Soyan F_1, and BaronF_1 (19-20.06). In the vegetable (sweet) corn hybrids studied in the experiment, the processes of 1st leaf production, 2nd leaf production, fermentation and milk and wax ripening occurred most rapidly in SpiritF_1 hybrid, and the maturation of sorghum (as a vegetable) was 28.08. In hybrids such as Soyan F_1 and Baron F_1 (3-5.09), the sorghum maturation was recorded relatively later. In the Megaton F_1 (10.09) hybrid, late maturing was observed.

Biometric parameters of vegetable (sweet) corn varieties were studied experimentally, and the tallest plants were grown in standard Sherzod (165.6 cm), Zamin (161.2 cm), Eureka (158.1cm) varieties, as well as Sentinel F_1 (178.1cm) and Megaton F_1 (176, 2 cm), noted in hybrids. The shortest plants were observed in the SpiritF_1 (102 cm) hybrid. The location of the first pot was 30.0-34.3 cm between varieties and 15.4-30.3 cm between hybrids. The accumulation was 1-4 in varieties and 1-3 in hybrids. In the studied cultivars and hybrids, the number of leaves on the main stem varied from 8.7 to 14.2. Joint spacing ranged from 7.5 to 11.4. The highest rate of sorghum formation in a bush is in Zamin (5.3 pieces), Sherzod (4.9 pieces), Eureka (2.0 pieces), Mazza (2.0 pieces), Sentinel F_1 (3.9 pieces) Soybean F_1 (2.1 units) and Baron F_1 (3.1 units) hybrids. Eureka (2.0 pieces) and Mazza (2.0 pieces) varieties and Soyan F_1 (2.1 pieces), SpiritF_1 (1.8 pieces), hybrids were relatively low-yielding. No sapless plants were observed in the studied cultivars and hybrids.

V. Productivity

In our experiments, the productivity indicators of vegetable (sweet) corn varieties and hybrids were studied, which differed from each other soybean weight, soybean grain rows, grains number in a row, grains number in soybeans, weight and grain yield.

In vegetable (sweet) corn varieties, the soybean weight was recorded between 245.5 - 314.4 grams.The highest weight of soybeans was observed in Sherzod (314.4 grams). When the grain rows number in the sow was studied, the inter-variety ranged from 12.8 to 15.3 rows. The largest rows number was recorded in the Zamin variety. The grains number in an inter-varietal soybeans row ranged from 32.5 to 39.7, the grains number in one row ranged from 458.3 to 526.3, and the grains weight in one row ranged from 194.1 to 247.5 grams. Grain yield from soybeans ranged from 78.7 to 81.9%, ranging from 46.4 to 66.9 grams. The highest grain yields from soybeans were recorded in varieties such as Zamin and Sherzod. Among the hybrids studied in the experiment, the highest performance was recorded in the Sentinel F_1, Megaton F_1, and Baron F_1 hybrids.

In general, 1000 grains weight, which is an productivity indicator of vegetable (sweet) corn, was 200.3 - 390.7 grams between varieties and hybrids.

In the experiment, the silage mass yield per hectare of vegetable (sweet) corn was also studied, while the silage mass yield between varieties and hybrids was 30.2-35.7 tons per hectare. Since the main purpose of growing vegetable (sweet) corn varieties

and hybrids is to grow vegetable soybeans, the highest rate in the study of vegetable soybean yield per hectare was observed in Sentinel F_1, (105.2 thousand units), Megaton F_1 (101.6 thousand units) and Zamin (105.3 thousand units) were observed. The weight of one soybean ranged from 245.5 to 370.0 grams between varieties and hybrids. 3.5-5.8 tons of dry grain per hectare was obtained from varieties and hybrids. The highest yield was recorded in Zamin (5.8 tons).

VI. CONCLUSIONS

Our experiments results analysis showed that by growing vegetable (sweet) corn varieties and hybrids as vegetables in a repeated period, it is possible to get 75-105 thousand pieces or 10-12 tons of vegetable soybeans per hectare. It is possible to grow up to 5.8 tons of grain per hectare if grown for seed. At the same time, 35.1-37.6 tons of succulent fodder silage per hectare was observed for livestock. Repeated cultivation of vegetable (sweet) corn varieties and hybrids as vegetables provides 65-70 million sums income per hectare, 125-130% yield.

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