

OPTIMAL TIMES AND NORMS OF PLANTING VEGETABLE (SWEET) CORN IN THE CONDITIONS OF THE ZARAFSHAN OASIS

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Abstract

The scientific article presents a study of the variety of vegetable (sweet) corn "Zamin" and hybrid "megaton F1" planting dates of April 1, 10, 20 and norms (47.6 thousand/ha (70x30 cm), 57.1 thousand/ha (70x25 cm), 71.4 thousand/ha (70x20 cm) as the main crops on meadow soils of the Samarkand region. In experiments conducted on April 10, 71.4 piece/ha with moderate planting according to the 70x20 cm scheme, favorable conditions have been created for the development of varietal and hybrid cultivation of vegetable corn and a high yield of 11.9-12.6 t/ha per hectare has been declared.

Keywords: Meadow gray soil, vegetable (sweet) corn, planting dates, planting rate, growth, development, yield.

Introduction:

The gap between the growing population of the earth and the limited opportunities for food production growth is the main reason that the problem of solving the food program is becoming more acute every year, resulting in environmental degradation, climate change, frequent recurring droughts and lack of water resources are among the most important problems that need to be addressed in terms of food security. [4; pp. 43-56; 6; pp. 295-299]. As a result, prices on world food markets are rising. In this regard, increasing the range of vegetable products, growing new types of vegetable crops is an urgent task of modern agriculture.

Currently, a number of new types of vegetable crops are cultivated in Uzbekistan - artichoke, okra, sweet potato, Brussels sprouts, lemon balm, vegetable (sweet) corn. It is important to expand the areas of vegetable (sweet) corn (*Zea mays saccharata* Strurt.) among new types of vegetable crops, to select varieties and hybrids suitable for soil and climatic conditions, to develop scientifically based agro technological measures for their cultivation [1]. ; 5-7 p.; 10; pp. 79-87].

Vegetable (sweet) corn is of particular importance as a food and fodder crop. The kernel of vegetable corn is used for food by cooking in the phase of milk-wax maturation, canning and freezing in fresh form. Vegetable (sweet) corn is rich in sugar and starch, and also contains some protein, essential oils for human health, vitamins B6, B1, B2, PP, C, K and provitamin A [5; pp. 108-112; 11; pp. 78-84].

The vegetable (sweet) corn crop is one of the most frequently grown crops, but agro technological measures, including sowing period and technical standards, are essential to achieving high yields and quality.

S. E. Sidorenko [8; 24 b.] In experiments conducted in the pre - Caucasus region, the yield of vegetable (sweet) corn depends on the sowing dates, and it was noted that the yield by sowing dates was higher at sowing on April 20 than at sowing on April 10 and 30, and in the conditions of Uzbekistan I. N. Saparniyazov [7; 22 p.] recommends April 20 as the main crop in the northern region, Ostonakulov, N. K. Khalilov, etc. [5; 108-112 p.] as a repeated crop, a period of June 1-20 is recommended for sowing vegetable (sweet) corn in the Central district, and May 25 to June 10 for sowing in the South district.

According to X. Yuldoshev [9; 116 p.], the light period of corn lasts 30-40 days, depending on the characteristics of varieties and hybrids. With a light duration of 9-10 hours, corn blooms quickly, and when it exceeds 12-14 hours, its growth period is significantly lengthened. Of course, it depends on the optimal thickness of seedlings, water availability of the cultivated field, economic and biological characteristics of the variety. With rare sowing of seeds, the yield of 1 plant will increase, but the yield will be less due to the small number of seedlings per unit area. Increasing the seeding rate to a certain level will also increase yield, but increasing the rate at a higher rate will lead to a decrease in productivity. It is noted that an increase in the number of plants per unit area reduces the productivity of one plant and leads to a decrease in product quality [12; 124 p.].

Materials and Methods:

Scientific research is being conducted to study the timing and norms of sowing vegetable (sweet) corn of the Zamin variety and the Megaton F1 hybrid as the main crop in the conditions of meadow-gray soils of the experimental farm of the Samarkand branch of the Information and Consulting Center of the Tashkent State Agrarian University.

Irrigated meadow serozems, a variety of vegetable corn Zamin and hybrids Megaton F1 were taken as the object of the study.

In the experiment, phenological observations and biometric measurements were determined in each variant and repetition (1 m²) on model plants "Methods of field experience" [3; 1-131 p.]. Agrophysical and agrochemical properties of the soil "Methods of agrochemical, agrophysical and microbiological studies in irrigated cotton areas" [2; 440 p.] made in the style.

In field experiments, the sowing dates of vegetable (sweet) corn as the main crop on April 1, 10, 20 and seeding rates of 47.6 thousand/ha (70x30), 57.1 thousand/ha (70x25), 71.4 thousand/ha. (70x20 schemes) were planted and placed in 18 variants, in 3 repetitions.

In vegetable (sweet) corn, phenological observations were carried out at the following stages of development: sowing, emergence, 1, 2, 3 - leaf, tasseling, budding, tillering, the beginning of milkiness, waxy ripeness (10%) and transition to the full (75%) phase. Biometric indicators were determined: the height of the plant, the height of the first (initial) shoot, pubescence, the number and level of leaves on the main stem, the number of segments, and the number of shoots.

Results and Discussion:

In our field experiments, in order to determine the effectiveness of the growth and development of vegetable (sweet) corn as the main crop and the timing and norms of sowing vegetable and grain crops, vegetable corn hybrids Zamin and Megaton F1 were sown in April 1 (control), 47.6 thousand/ha (70x30 cm), With a planting rate of 57.1 thousand/ha (70x25 cm), 71.4 thousand/ ha (70x20 cm), seed germination was noted after 10 days (April 10).) in the Zamin variety and after 11 days (April 11) in the Megaton F1 hybrid. Vegetable corn from a ground variety that has reached the fertilizer phase, sowing is extended by 1 day in the variant with planting at the rate of 47.6 thousand / ha In this variant, this pattern is observed for the following phases of development Compared to the variants, sown at a rate of 57.1-71.4 thousand / ha, the growing season 3-4 is extended to 89 days. The Megaton F1 hybrid had a growing season of 89-94 days in the planting variants on April 1 (control), and the growing season was extended by 2-5 days in the planting variant due to an increase in the seeding rate from 47.6 thousand/ha to 71.4 thousand/ha Sowing in varieties and hybrids of vegetable corn, germination in varieties planted on April 10, germination in the Zamin variety is 8 days, the growing season is 79-84 days, for comparison, it was noted that it ripened faster by 2-5 days. The hybrid Megaton F1 also observed these patterns, and in the variants planted on April 10, germination occurred after 9 days (April 19), and the growing season was 85-90 days.

A significant influence on the duration of the growing season in varieties and hybrids of vegetable corn is the timing and norms of sowing: when sowing on April 20, the growing season from germination to waxy ripeness is shorter compared to the variants planted on April 1-10, the Zamin variety was 75-80 days and the F1 hybrid was 83-88 days, the seeding rate was 47.6 thousand / ha, while the lengthening of the growing period in the hybrid by 2-5 days.

According to the results of phenological observations carried out in our field experiments, the growing season (85-89; 89-94 days, respectively, for the Zamin variety and the Megaton F1 hybrid) at planting on April 1 (control) for the Zamin variety and for

the Megaton F1 hybrid on April 20 (75-80; 83-88 days), the ripening period is longer compared to the sowing variants. There was also an extension of the growing season by 2-5 days, depending on the variety and hybrid, with an increase in the seeding rate from 47.6 thousand/ha to 71.4 thousand/ha.

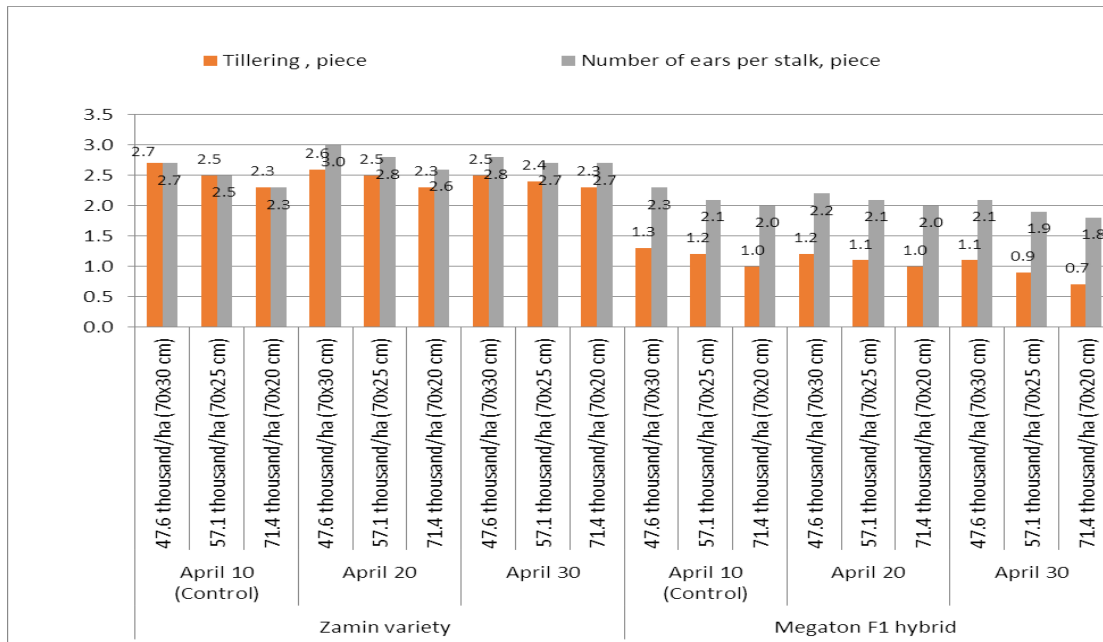
In our experiments, biometric measurements were carried out, such as the height of the plant, the height of the first cob, the number of leaves on the main stem, the number of joints on the main stem, the number of corn ear on one stem. .

According to the results of the analysis of biometric indicators in varieties and hybrids of vegetable corn, it was found that the height of plants differed in terms of sowing dates and norms. The tallest plants were 162.3-164.7 cm in the Zamin variety and 170.6-178.7 cm in the Megaton F1 hybrid in planting variants on April 1 and 10 at the rate of 71.4 thousand/ha. In our field experiments, the delay in sowing dates (April 20) and a decrease in seeding rates (47.6-57.1 thousand/ ha) led to a low plant height: 147.1-152.6 cm in the Zamin variety, 164.1-164.1 in the F1 Megaton hybrid was 166.4 cm.

When studying the height of the first cob formed on the main stem of a variety and a hybrid of vegetable corn, the highest values were noted when sowing on April 1 (control), 25.6-29.4 cm in the Zamin variety, 28.3-32.1 cm in the Megaton F1 hybrid on April 10 and 20, 24.3-28.3, respectively; 23.9-26.6 cm and 27.1-31.4 cm; 26.3-30.8 cm, it was noted that with an increase in the seeding rate (71.4 thousand/ha), the height of the first row of the variety and hybrid became higher (Table 2).

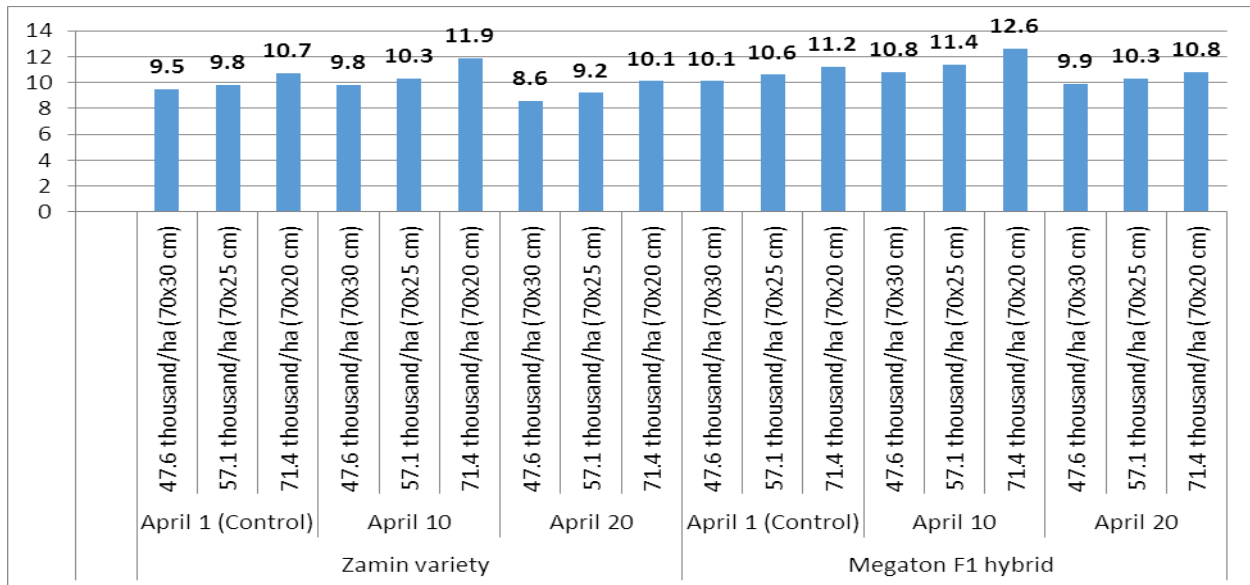
The patterns of plant length and height of the first shoot noted in field experiments, depending on the planting dates and norms, were also observed in subsequent biometric indicators, and it was found that 0.7-2.7 plants were planted per plant in the studied variety and hybrid (Fig. 1). It was noted that the number of leaves on the main stem was from 10.4 up to 12.4 pcs., the distance between the joints on the main stem is 10.8-12.7 pcs., and the number of stems in one corn ear is 1.8-3.1 pcs., depending on the planting.

Figure 1: Biometric indicators of vegetable maize variety and hybrid



According to the analysis, the highest yield of vegetable corn in terms of sowing dates and norms was obtained from the varieties of vegetable corn Zamin and hybrid Megaton F1, sown on 71.4 thousand hectares (70x20 cm) on April 10. The average yield of the Zamin variety was 11.9 t/ha, and the Megaton F1 hybrid was 12.6 t/ha. Sowing on April 20, in variants planted in late spring, due to poor pollination of plants with an increase in air temperature, as a result of an increase in the number of underdeveloped cobs, the lowest yield of cobs grain was obtained, according to the seeding rate of the variety and hybrid, respectively - 8.6-10.1 t/ha and 9.9-10.8 t/ha.

Figure 2: Yield indicators of vegetable corn varieties and hybrids



In our experiments, the variety and hybrid of vegetable corn on April 1 (control) provided high rates of plant growth and development when planting with different seeding rates, but changes in precipitation, air temperature and soil moisture at this time caused low seed fertility and a decrease in the number of stems in the studied variants occurred, as a result of which it was noted that the yield grain was 0.3-1.2 t/ha less than on April 10 for the Zamin variety and 0.7-1.4 t/ha for the Megaton F1 hybrid.

Conclusions: According to our field experiments, in the conditions of meadow-gray soils of the Zerafshan oasis, when obtaining a high grain yield from vegetable (sweet) corn of the Zamin variety and the Megaton F1 hybrid, high seed germination (90.3-91.7%) was noted. . Favorable conditions have been created for the growth and development of plants, 11.9-12.6 t/ha of high-quality vegetable corn and grain per hectare of the Zamin variety and the Megaton F1 hybrid have been obtained.

Conclusions:

Based on our conducted field experiments, the High germination (90.3-91.7%) of vegetable (sweet) corn in the conditions of Meadow Gray soils of the Zarafshan Oasis is ensured when obtaining a high grain yield from the Zamin variety and megaton F1 hybrid is sown in a 70x20 cm planting scheme in moderation of 71.4 thousand/ha on April 10. Favorable conditions are created for the growth, development of the plant, ensuring the receipt of a quality vegetable corn grain crop of 11.9-12.6 t/ha from a hybrid of the Zamin variety and megaton F1 hybrid.

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