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Research Article

THE OPTIMAL PLANTING SCHEME FOR HIGH AND QUALITY HARVEST OF CUCUMBER HYBRIDS IN AN UNHEATED GREENHOUSE

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ABSTRACT

This article provides information on the results of studying the optimal planting scheme for obtaining high and quality yields from cucumber hybrids in an unheated greenhouse. In order to increase the yield of cucumbers and grow crops quickly, it is necessary to ensure the optimal planting scheme of the plant. Placement scheme and number of plants have an effect on increasing yield and improving its quality. Therefore, the study of feeding area and planting pattern will always remain the main focus of research. Studying the relationship of planted plants to each other is a theoretical basis for developing a feeding area and a planting scheme.

KEYWORDS

Cucumber, scheme, yield, plant, greenhouse, day, standard, hybrid.

INTRODUCTION

An important element of crop cultivation is the arrangement of plants, their feeding area and optimal density parameters. These parameters significantly affect temperature, air, water and nutrient regimes [2;

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3]. The effectiveness of mineral nutrition increases by providing plants with optimal moisture. The amount of nutrient space required for cucumber plants depends on the characteristics of the variety. An increase in the feeding area due to the expansion of the row spacing leads to the elongation of the stem, the number of leaves increases, and the increase in the distance between plants promotes the appearance of additional shoots [1; 4]. In excessively dense plants, it not only blocks the side branches, but also causes a decrease in maternal flowers [2; 3; 5].

LITERATURE REVIEW

In our experiments, 4 planting schemes of Sardar F1 and Orzu F1 cucumber hybrids were studied in unheated greenhouses: 80×30 cm, 80×40 cm, 80×50 cm (control) and 80×60 cm.

In the phenological observations of cucumber hybrids Sardor F1 and Orzu F1, planting schemes did not affect the appearance of sprouts. 3-4 days were enough for the initial emergence of sprouts for the crop and 5-6 days for mass emergence.

75% opening of maternal flowers in Sardar F1 hybrid was 45 days in standard 80x50 cm planting scheme, 47 days in 80x30 cm scheme, 46 days in 80x40 cm and 44 days in 80x60 cm planting scheme and averaged 45 days. In the Orzu F1 hybrid, the distance between plants is 80 cm, and when the distance between plants in a row is expanded from 30 cm to 60 cm, the opening of maternal flowers takes 48-45 days or they decrease from 1 day.

The coefficient of variation was small (v = 1.2%) in the Sardar F1 hybrid with 75% opening of maternal flowers. This is a good situation.

10% technical fruit set in Sardor F1 hybrid, as the distance between the seedlings in the row widens, the fruit set is accelerated. Their fruiting period was between 55 days (80x50 cm) and 48 days (80x30 cm) depending on the planting season. In the Sardar F1 hybrid, the average of the planting schemes was 51,5 days.

In Orzu F1 hybrid, it took 52 days for 10% of fruits to be technical in 80×50 cm standard option, 56 days in 80×30 cm, 49 days in 80×60 cm and 80×40 cm planting scheme information was equal to the standard option. The average of all planting schemes was 52 days for the Orzu F1 hybrid. The average indicator of the coefficient of variation of fruit processing was small (V = 4,5%). This is a good indicator.

According to the classification, the height (stem) of the cucumber plant is short - up to 80 cm; medium - 80-150 cm, long - 150-225 cm and very long are divided into groups longer than 225 cm. Since the varieties we tested had a stem length of more than 225 cm, they belonged to the very tall group.

DISCUSSION AND RESULT

The 70-day stem length of the Sardor F1 hybrid was 244,7 cm in the 80x50 cm standard variant, compared to 282 cm in the 80x30 cm planting scheme, 253,7 cm in the 80x40 cm, or 111,2 – 103,7% higher. When the plants in the row are widened, the height of the plant is slightly reduced. In the scheme of 80x60 cm, it was 228,3 cm or 90,0% compared to the standard. The Sardor F1 hybrid averaged 252,2 cm or 103,1% of planting plots.

Orzu F1 hybrid 70-day-old plant has a height of 235 cm in standard version (80x50 cm), and when the distance between plants in the row (80x30 cm and 80x40 cm) is shortened, its stem is 290,1 cm and 253.3 cm, or 65,1-18,3 up by cm. The plant height was reduced by 227 cm in the 80x60 cm scheme or 96,6% according to the

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standard. Orzu F1 hybrid plots averaged 251,33 cm or 107% more than the standard variant.

In a 70-day-old plant, in the Sardor F1 hybrid, the standard version of 80x50 cm had a leaf area of 71,5 dm2. It was 94,4% compared to the standard when the distance between the plants in the row was reduced by 10 cm, and 83,9% when it was reduced by 20 cm. When the distance between the plants in the row was expanded by 10 cm compared to the standard, the level of the leaves was 73,2 dm2 or 102,4% wider than the standard in the 80x60 cm planting scheme. In the Sardor F1 hybrid, the average of all planting schemes was 68,1 dm2 or 95,2 %.

In the Orzu F1 hybrid, the leaf surface area was 70,1 dm2 in the standard version of 80x50 cm, and when the distance between plants in the row was reduced by 10 cm, the surface of the leaf surface was reduced by 95,3% compared to the standard, and by 90,2% when it was reduced by 20 cm. When the planting scheme was expanded by 10 cm compared to the standard, the leaf surface area was 72,3 dm2 or 103,1% more than the standard. In the Orzu F1 hybrid, the average indicator of the leaf surface area of all planting schemes was 68,1 dm2 or 97,1% compared to the standard option. During the period of technical maturity of fruits, the total fruit weight on one bush plant was 5,6 kg in the standard variant of 80×50 cm, and compared to it, 4,2 kg in the planting scheme of 80×30 cm, 5,3 kg in the planting scheme of 80×40 cm, or 75,0-94,3% in comparison with the standard. In the 80×60 cm planting scheme, the fruits weighed 6,3 kg or 113,2% more than standard. The average of all planting schemes by total fruit weight is 5,2 kg, which stopped at 94,2% compared to the standard.

In the Orzu F1 hybrid, the total fruit weight was 5,6 kg in the standard planting scheme of 80×50 cm, and 1,6 kg in the planting scheme of 80×30 cm and 0,4 kg in the scheme of 80x40 cm. As the row of plants (80-60 cm) expanded, the total fruit weight increased – 6,1 kg, or it was 109,5% more than standard. The average of all planting schemes was 5,1 kg and was 92,3% compared to the standard.

CONCLUSION

The yield of the Sardor F1 hybrid was 139 t/ha in the standard variant of 80×50 cm and a much higher 164,5 t/ha or 117,8% in the planting scheme of 80×40 cm. As the number of plants per hectare decreased, productivity also decreased, and in the 80×60 cm planting scheme was 126,9 t/ha, or 91,2% compared to the standard. The average of all planting schemes by yield is 148,1 t/ha, or 106,1%.

The yield of the Orzu F1 hybrid was 140 t/ha in the standard variant of 80×50 cm and a much higher 161,3 t/ha or 115,2% in the planting scheme of 80×40 cm. As the number of plants per hectare decreased, productivity also decreased, and in the 80×60 cm planting scheme was 123,1 t/ha, or 87,9% compared to the standard. The average of all planting schemes by yield is 145,3 t/ha, or 103,8%.

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