

THE INFLUENCE OF BIOSTIMULANTS ON THE YIELD OF CUCUMBER IN THE CONDITIONS OF ANDIJAN REGION

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ABSTRACT

This article describes the results of using biostimulants "Uchkun", "Gossipren" and "Verva" on the yield of cucumber variety "Orzu" in Andijan region. It was found that the pre-sowing treatment of cucumber seed with biostimulants promoted an increase in seed germination and growth processes. The biostimulator Uchkun turned out to be the most effective growth stimulator on the cucumber variety "Orzu". Averagely, the yield of cucumber when treated with biostimulants increased by 9.85%, 24.27% and 14.02%; the yield increase were 2.0; 6.2; 2.7 t/ha, respectively.

Key words: biostimulants, cucumber, germination, productivity, fruit, Gossiprin, Verva, Uchkun, Super Uchkun.

The object of the study was the biometric parameters of cucumber plants, yield and biochemical composition of fruits, methods of increasing the resistance of cucumber plants.

The subject of the study was parthenocarpic hybrids of cucumber variety Orzu. During the research, standard methods of setting experiments with vegetable crops (3) were used; tests were carried out with biostimulants Gossiprin, Verva and local biostimulants Uchkun, Super Uchkun.

Accompanying observations of cucumber plants in the process of research included taking into account the energy of germination and germination of seeds, biometric parameters of seedlings, the rate of passage of phenophases. The weight of the crop and its marketability were taken into account by the gravimetric method according to the variants of the experiment on a plot basis. In cucumber, as a crop of multiple harvesting, early productivity was determined by the yield for the first fruiting period (10, 15, 20, 30 days) (4). In our studies, this period was 20 days.

The product quality was assessed in accordance with the requirements of the standard (3). The biochemical composition of the products was determined according to standard methods: the dry matter content - by the thermostat-weight method, the sugar content - by the

Bertrand method, the vitamin C content - by the I.K. Murri method.

The results obtained were processed by the method of Analysis of Variance (ANOVA) using the statistical program STRAZ (version 2.1) and by the method of B.A. Dospekhova (4). The calculation of economic efficiency was carried out in accordance with generally accepted methods (Plokhinsky, 1970; Zakharchenko, 1971; Khokhryakov, 1984; Tverdyukov, 1993).

Experimental Schemes for the Research

The experiment studied hybrids of cucumber varieties Orzu. Sowing of seeds was carried out on April 20 in the open field. The holes were dug in a 70x40 two-line scheme with a distance of 35-40 cm between holes.

Planting density was 4.2 plants per 1 m². The plants were formed into 1 stem, tied up on a string to 2m high trellis.

The effectiveness of the action of biostimulants was studied by soaking Orzu cucumber seeds in drug solutions and subsequent plant treatments. When soaking seeds, the following schemes were used:

1. Control - water treatment;
- 2 - Gossiprene (200 ml / ha 0.1% aqueous emulsions);
- 3 - Uchkun (200 ml / ha with 0.1% aqueous emulsions);
- 4 - Super uchkun (200 ml / ha 0.1% water emulsions);
- 5 - Verva (200 ml / ha 0.1% aqueous emulsions);

The treatment of vegetative plants was carried out three times: the first - in the phase of 2-4 true leaves, the second - at the beginning of the flowering phase, and the third - in the phase of mass flowering.

Orzu - parthenocarpic, medium early, begins to bear fruit on the 46-47 day, vigorous, medium branching, female flowering type, dark green leaf. The fruit is 13-15 cm long, cylindrical, dark green in color. At the length of the fruit, the tuberosity is large, medium, rare, the color of the thorns is brown, but the fruit does not turn yellow for a long time. The base of the fruit is dull, the neck is weak, the peduncle is long. Bitterness is genetically absent. Plants have resistance to cladosporium disease (i.e. the brown leaf spot disease). They are tolerant to powdery mildew, because they

have a dark green leaf, fusarium (strong root system), ascochitosis, peronospora. It tolerates air temperature fluctuations very well.

The area of the accounting plot is 8.6 m², the experiment was repeated 3 times, the placement of variants was randomized.

These drugs have a wide spectrum of action and are intended for use in agriculture. They belong to safe substances, do not have a negative effect on humans and animals, and they do not accumulate in the soil and fruits. Designed for seed treatment before sowing in order to increase the energy of germination, as well as to increase the adaptive capacity of plants under unfavorable growing conditions.

The content of organic matter in the soil was 22.5-28.0 mg / 100 g of soil. The pH was in the range of 6.3-7.4. The content of water-soluble nitrogen varied significantly over the years - from 5.9 to 21.6 and potassium - from 14.6

to 29.0 mg / 100 g of absolutely dry soil, The provision with phosphorus was relatively stable over the years - 14-18 mg / 100 g completely dry soil.

The most favorable temperature regime developed in 2019 and 2020, when the average daily air temperature from March to April was +16 ... + 18 ° C.

Pre-sowing treatment with biostimulants contributed to the shortening of the emergence of seedlings, the enhancement of growth processes. Seed germination is the most important indicator of their quality. The lack of data on the germination of seeds is an actual indicator and can lead to large losses [3, p.178; 4, p. 256]. When treated with a biostimulator "Uchkun", seed germination began 4 days earlier than in the control (table-1). In variants with the use of Gossiprene, germination occurred 2 days earlier than in the control and at the level of the reference preparation Verva (table-1).

Table 1

The influence of plant growth stimulants on the germination and growth and development dynamics of cucumber variety "Orzu" (2019)

Growing phases	Control	Gossipren	Uchkun	Verva
Germination rate	30.04	28.04	26.04	28.04
Budding	05. 20	18.05.	16.05.	18.05.
Mass bloom	01.06	29.05	26.05	28.05
Fruiting	11.06.	09.06.	05.06.	07.06.

The data presented in table-1 shows that when treated with plant growth stimulants in all variants, all phases of development: budding, mass flowering and fruiting, occurred 4-6 days earlier than in the control variant. The budding phase during the treatment with the Uchkun biostimulator came 2 days earlier, and in the case of

Gossipren, they are observed at the level of the reference drug. Accordingly, the onset of mass flowering is also in the Uchkun variants 3 days earlier than Gossipren and 2 days earlier than Verva. Consequently, in these variants, fetal formation began earlier.

Table 2

Influence of biostimulants on yield of cucumbervariety "Orzu"(2019)

Variants	Numberoffruits / plant	Average weight of fruit, g	Productivity (t / ha)
1. Control	4	110	15,0
2. Gossiprene0,1% (200 ml / ha)	7	110	16,9
3.Uchkun0,1% (200 ml / ha)	10	120	21,2
4.Verva0,1% (200 ml / ha)	8	120	17,7
*HCP _{0,5} =7,25 **S _x =0,7			

Note: * Least significant difference; **average error

Conclusion

On average, the yield of cucumber increased from 10.58% to 41.27%, and the yield increase in the case of the use of the biostimulator "Uchkun" was 6.2 t / ha in comparison with the control variant and by 5.1 t / ha more than in the standard ... The use of the biostimulator "Uchkun" in the crops of cucumber variety "Orzu" in the Andijan region was the most effective in comparison with Gossipren and Verva. Thus, the biostimulator Uchkun is the most effective growth stimulator for Orzu cucumber for shortening the growing season. On the average, the increase in cucumber yield during pre-sowing seed treatment with the biostimulator Uchkun is 6.2 t / ha.

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