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EFFECT OF PLANTING SCHEME AND BIOSTIMULANT RATE ON THE FORMATION OF LEAF OF FODDER BEET (UZBEKISTAN-83)

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Abstract
This article proves that the planting scheme and biostimulant rate have a positive effect on the formation of ball leaves of the fodder beet (Uzbekistan-83) variety. 70x25-2 and Tandem biostimulator were used at different rates, and Fitovak biostimulator was studied as an etolon for this biostimulator. Tandem biostimulator at a low rate of 0.4 liters per hectare led to an increase in the number of leaves, while Fitovak It has been proven that biostimulant (etolon) shows high performance when applied at the rate of 300ml/ha.

Keywords: Beetroot , biostimulant **,** norm, seed ,leaf, etolon.

Introduction

In the development of the livestock sector, the priority tasks are the effective use of the available fodder areas, the increase of the yield of nutritious crops and the organization of seed production in order to strengthen the feed base. Today, one of the urgent problems of this field is to improve animal husbandry at the level of modern requirements, increase the productivity of livestock, as well as create a feed base that meets the needs of animals.

PQ-120 of the President of the Republic of Uzbekistan dated February 8, 2022 "The program for the development of the livestock industry and its branches in the Republic of Uzbekistan for 2022-2026" serves as an important program for livestock farmers.[1]

Depending on the varieties of beetroot, 85-90% of water, which is rich in enzymes, is stored in its composition. sweet bushes have 0.14-0.16 nutritional units, and leaves have 0.10-0.12 nutritional units. Beet root has a higher nutritional value than sugar beet.[2]

The leaves of root crops are also important for livestock, their leaves are nutritious and contain a lot of vitamins .[3]

In the first year, the beet produces a thickened rhizome and 50-90 leaves. From seed to seed, the development process goes through 11 successive stages of organogenesis.[4]

Fodder beets are native to the Mediterranean region and were cultivated as root crops in Germany and Italy in the 16th century. The crop was introduced to the United States during

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the colonial period (Kipps, 1970). [6]. The upper and lower growth parts (leaves and roots) are used for animal feed, but the main food is tuberous roots (Ibrahim, 2005; Yel-Sarag, 2013). Therefore, it is necessary to carefully determine the optimal population that gives the maximum yield of leaves and roots. [7].

Materials And Methods

The scientific research work was carried out in 2022 in the fields of experimental scientific research and educational experimental farm of the Tashkent State Agrarian University.The soil of the experimental farm is a typical gray loam that has been irrigated for a long time. This soil contains about 0.715-0.920% humus, about 0.065-0.083% nitrogen, about 0.134-0.152% phosphorus and about 0.148-0.154% potassium.The mobile forms of nutrients in the experimental field are N–NO_3 3.1-4.7 mg/kg, P_2O_5 40.3-41.7 mg/kg, and K_2O 140.0-180.7 mg/kg. constitutes The soil is not saline, and this soil differs in water permeability, softening complexity. In the field experiment, Fodder beet Uzbekistan - 83 varieties with 15 variants, 3 replications were planted in 45 plots.The area of each plot is 28.0 m^2, the total area of the experiment is 0.12 ha. Fitovak (standard) 300 ml/ha, Tandem at the rate of 0.3, 0.4, 0.5 liters/ha before sowing beetsapplied.Based on the goals and tasks of the experiments, phenological observations and calculations were carried out on Uzbekistan-83 varieties of fodder beets.

Tandem drug is a concentrate of humic and fulvic acids with phytohormones Auxin, Cytokinin, Aversectin. Produced under the supervision of Agrobiotech (Germany). A modern, high-concentration humic preparation that simultaneously combines the functions of fertilizer, protection and plant growth. The active ingredients of the drug have high biological activity and are in a form that is almost completely absorbed by plants. The drug accelerates the formation of beneficial bacteria in the soil, thereby improving the structure and biological indicators of soil fertility, blocking the flow of radionuclides and heavy metals to the soil and plants. Environmentally safe for humans, animals, fish, insects.

Fitovak is an immunostimulant that strengthens the physiological and biochemical defense reactions of plants, activates the passive immunity in agrocenosis, and increases its seasonal resistance until the end of the growing season. Fitovak has a "bio" fungicidal property and can be used as a phytovaccine, stimulating plant defense reactions against various diseases and harmful insects. Fitovak immunostimulant protects plants from stress in adverse weather conditions, fungal, viral, bacterial diseases and small sucking and gnawing pests. Fitovak is environmentally friendly and can be used in fields where biolaboratory products are used.

Results And Discussion

In the field experiment on the effect of planting scheme and biostimulants on the productivity of Fodder Beet (Uzbekistan-83) variety, the indicators of one beet leaf and root fruit are as follows.Sown beetroot seeds produce 60 to 90 leaves in the first year, and the number of leaves

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and their surface area affect the yield of root crops. In the first year, beet seedlings grown from seed produce only a ball, and these leaves have 2-pair, 3-pair leaf release phases. [5]

Phenological observations made on June 1, 2023 show thatIn the control version of the 70x15 planting scheme, an average of 10.3 leaves were formed per plant, calculations were carried out every five days, and it was found that the number of leaves increased up to 3.5 pieces. Leaf formation continued until the end of the beet growing season, and at last count an average of 78.3 leaves were produced per plant.The number of leaves formed in the variant treated with the biostimulator fitavak, a growth regulator of the beetroot seed, compared to the control variant, in the second variant, an average of 12.8 leaves were formed per plant and 2.5 compared to the control variant, day interval and the number of leaves has increased to 2.1. At the end of the growing season, one plant had an average of 81.4 leaves and it was proved that it was 3.1 more than the control variant.

Tandem biostimulator had a positive effect on the physiological processes of the plant in our variants using different rates and increased from 0.5 to 2.4 compared to the etolon variant, and from 2.4 to 4.1 per day. At the end of the growing season, the number of leaves was one o The average number of seeds per plant reached 83.8, 89.5, 86.2 and compared to the second option, it was proved by phenological observations that it increased by 2.4, 8.1, 4.8.

In the control variant of the 70x20 planting scheme, an average of 14.9 leaves were formed per plant, and the number of leaves increased by 2.1 in the next observation. In the case of applying Fitavak biostimulant at 300 ml per hectare, it was found that 15.7 leaves were formed, 3.1 more than the control, and it increased by 2.8 during the next observation. Fitavak biostimulant per hectare

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Table 1

Effect of planting pattern and biostimulant rate on leaf formation of fodder beet, 2023

o	planting sche	Bistimulator rate, ml/ha	Leaf formation of fodder beet in one plant, date / piece													Total
			01.06	05.06	10.06	15.06	20.06	25.06	30.06	05.07	10.07	15.07	20.07	25.07	30.07	
1	70X15	Control	10.3	13.8	16.2	19.3	22.7	27.3	31.7	33.3	37.0	39.3	41.6	42.9	45.3	78.3
2		Fitovak-300	12.8	14.9	17.9	22.0	24.1	26.6	29.8	32.3	35.7	38.9	42.6	44.3	47.2	81.4
3		Tandem-300	13.3	15.7	18.1	22.3	24.8	26.9	30.1	33.3	36.6	39.8	43.0	45.2	48.6	83.8
4		Tandem-400	15.2	19.3	23.7	26.3	29.1	32.7	35.2	38.9	40.7	43.3	46.2	48.6	52.3	89.5
5		Tandem-500	13.8	16.3	19.0	22.7	24.8	27.1	30.3	32.9	35.7	39.7	43.3	46.6	49.5	86.2
6	70X20	Control	11.2	13.3.	16.1	19.7	22.7	25.0	27.3	30.1	32.8	35.0	33.7	43.6	46.7	80.3
7		Fitovak-300	14.3	17.1	21.6	24.2	27.8	31.1	33.3	35.9	38.8	42.2	44.4	47.5	51.3	84.6
8		Tandem-300	15.5	18.8	22.2	25.3	28.7	32.3	35.3	39.7	43.3	45.6	47.5	50.9	54.5	86.9
9		Tandem-400	19.6	23.3	26.9	31.7	35.9	40.0	44.7	49.0	53.2	57.7	63.9	66.4	69.2	91.2
10		Tandem-500	15.3	19.5	23.2	27.0	31.3	34.4	39.6	42.4	46.2	49.8	51.3	54.5	57.3	89.3
11	70X25	Control	14.9	17.8	21.6	25.4	27.9	32.0	34.3	36.5	38.9	43.04	46.7	49.1	53.5	81.2
12		Fitovak-300	15.7	18.8	22.9	26.5	29.1	33.3	35.4	38.8	40.9	43.6	47.1	49.9	55.3	84.3
13		Tandem-300	16.1	18.2	23.3	26.6	28.9	33.1	35.6	38.5	41.0	43.9	46.6	48.8	53.1	87.4
14		Tandem-400	16.9	19.9	24.2	28.1	32.3	36.7	39.3	43.8	46.2	49.7	51.7	54.9	57.6	90.2
15		Tandem-500	16.6	19.3	22.3	25.8	21.9	32.3	35.3	39.7	44.2	47.7	51.3	53.9	56.9	88.9

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Tandem applied 300, 400, 500 ml of biostimulant per hectareIt was found in the phenological observations that the number of leaves increased to 1.2, 5.3, 1.0 in the variants and to 3.3, 3.7, 4.2 in the next observation. The formation of leaves continued until the end of the growing period of kfodder beet, and at the last count, an average of 86.9, 91.2, 89.3 leaves were formed per plant.

In the control version of the 70x25 planting scheme, an average of 14.9 leaves were formed per plant, and the number of leaves increased by 2.9 in the next observation and finally reached 81.2. In the option that used Fitavak biostimulant at 300 ml per hectare, 15.7 leaves were formed, which was 0.8 more than the control, and it was found that it increased by 3.1 during the next observation. At the end of the vegetation period, the plant reached 81.2, and it was 3.1 more than the control option. . Tandem biostimulant, a biologically active substance that has a positive effect on plant growth and development, was used at the rate of 300, 400, 500 ml per hectare, compared to 0.4, 1.2, 0.9, and in the follow-up, the number of leaves was 2.1, 3.0, 2.7. the increase in the number of leaves was determined in phenological observations. The formation of leaves continued until the end of the growing season of the beetroot, and at the last count, an average of 87.4, 90.4, 88.9 leaves were formed in one plant. The fact that the number of leaves and the size and size of the planting scheme were affected by the biostimulant rates was reflected in the phenological observations made in the field experiment.

So, according to the results of the phenological observations in 2022-2023, 70x20 from the planting scheme and 400 ml/t of the tandem biostimulator, which has a positive effect on the growth of the plant, were applied to the number of leaves of the "Uzbekistan-83" variety of beets It was found that the options that used 400ml/ha during the water period had a positive effect compared to other options.

Application of Fitavak biostimulator at the rate of 300 ml/t to the seed and 300 ml/ha during the growing season has been found to have a positive effect. The wider the distance between them, the fewer the number of leaves, but the larger the surface was proved in the 70x25 planting scheme. The smaller the distance, the smaller the number of leaves and the smaller the leaf surface was proven in the 70x15 planting scheme. In the conducted observations, it was found that the 70x20 planting scheme was found to be acceptable, and the number of leaves and the surface were proved to be good compared to other planting schemes. The amount of productivity depends on the number of leaves and its surface. The option using Tandem biostimulator at 400 ml per hectare had a positive result compared to other options.

Conclusion

A positive result was obtained from the seeding schemes of 70x20-2 and biostimulators at the rate of tandem-400 ml/t and application of 2-3 pairs of leaves and 5-6 pairs of leaves. Fitovak (Etolon) biostimulant at the rate of ml/t has been found to show high performance when used in the phases of seed treatment and 2-3 pairs of leaves, 5-6 pairs of leaves.

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