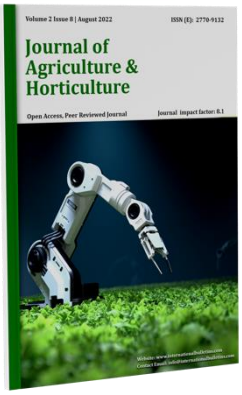

EFFICIENCY OF COTTON GROWING WITH BOMS PHYSIOLOGICAL ACTIVE SUBSTANCE WITHOUT THE APPLICATION OF MINERAL FERTILIZERS IN COTTON GROWING

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Abstract. Cotton growing is the main sector in Uzbekistan's agriculture, and the republic has accumulated a lot of scientific and practical experience in agro-technologies of cotton cultivation. The unique soil and climate conditions of the republic create natural difficulties in cotton cultivation. Early spring rains and early onset of cold weather in autumn, i.e. snow or rain in early October, make it difficult for the cotton crop to ripen and be harvested. For this reason, the selection of early cotton varieties and the development of intensive agrotechnical measures are of great importance in the cotton industry of Uzbekistan. Although almost all of the cotton varieties planted in the republic today are early varieties, due to the strong influence of the weather, the cotton harvest continues until November, and the production of high-quality cotton crops has become a problem. A lot of scientific research is being conducted in this regard. Especially in cotton farming of the republic, in recent years, positive results have been achieved with the wide use of physiologically active substances in the cultivation of high and high-quality crops. Physiologically active substances are added to the soil or applied to the seedbed before sowing and can be used during the cotton vegetation. We believe that the physiologically active substances used have a natural basis and can occupy a special place in the production of organic cotton. In this article, in the cultivation of cotton without the use of chemical mineral fertilizers, when the physiologically active substance Tevevit Boms is used at the rate of 300-1000 kg/ha in the period of preparing the land for planting, the germination of the seed, the growth of the cotton growth and development, as well as the possibilities of growing high-quality, ecologically clean cotton.

Key words. Cotton, typical gray soil, Tevevit Boms, physiologically active fire, seed germination, growth and development, stem length, crop branch, cob, flower, boll, cotton crop, organic cotton.

Relevance of the topic. Adoption of the decree by the President of our Republic "On additional measures to ensure the quality and safety indicators of agricultural products comply with international standards" serves as a special program. Currently, in the developed countries of the world, every issue related to human health is approached with special attention. In particular, the importance of "Organic products" in the production of food

products is emphasized. Organic products are agricultural products produced and grown without the use of chemicals and genetically modified organisms. The concept of production of products meeting the requirements of "Organic" and "Global G.A.P" in the world community, increasing their quality and safety indicators and expanding exports, development of organic agriculture and production of organic food products in the Republic of Uzbekistan has been developed. As a result of global warming, ecological change, sudden warming of temperature, low precipitation, drought, early spring or fall, and cool weather, plant care, outdoor exposure biostimulants are of great importance in increasing the resistance to secretions. The germination, growth and development of the seeds treated with physiologically active substances are improved, as well as the resistance to drought, salinity, and diseases increases, the natural fertility of the soil and the efficiency of using mineral fertilizers increase, high and the ground is created for the cultivation of quality crops. Physiologically and biologically active substances are organic additives that affect the course of physiological processes in the plant. They are applied to plants in the form of a working mixture, have a positive effect on their vital processes and provide the opportunity to obtain high and quality crops. Many scientists have studied the effect of treating the seed and cotton with various stimulants on sprout germination and cotton growth. G. Akhimbetova, Kh. D. Akhmedova et al., (2003) observed that the growth and development of 15 types of agricultural crops accelerated, resistance to diseases increased, and productivity increased when seeds were treated with biologically active substance chitosan before sowing..

Sh.Kh.Abdualimov, Kh.D.Akhmedova, S.Sh.Rashidova (2003) when treated with the stimulants T-86, Nitrolin, Tj-85 and XS-2, the seed of the Okdarya-5 variety of cotton increased field fertility and accelerated growth, had a positive effect on leaf surface, cotton yield and fiber quality In the experiments carried out by U.N. Madraimov (1995), I. Khusanov (2003), when the seeds were treated with Mival before planting, they germinated evenly and healthy despite adverse weather conditions. Mival allowed to plant hairless seeds on saline soils, accelerated flowering of cotton and increased fiber yield by 1-3%..

B.Rahmatov, M.Ikromova va b., (2013) tomonidan g‘o‘zaning fuzarioz vilt kasalligiga qarshi kurashda Fitovak stimulyatori bilan chigitga ekish oldidan va g‘o‘zaning vegetatsiya davrida ishlov berilganda ijobiy natijalar olingan. Bugungi kunda Buxoro viloyatida fuzarioz vilt kasalligi g‘o‘zaga kuchli zarar yetkazayotgani va unga qarshi kurashda Fitovak stimulyatori yuqori samara berishini R.Tillaev (2013) ham ta’kidlagan.

D. Khudayberdieva (2014) showed that the seed treated with carboxymethylchitosan increased the germination capacity and germination, the seedlings grew healthy, and the yield increased as a result of the development of the stem. B. Chutanov, S. Boboev and others. (2015) found that Bist biopreparation is highly effective in increasing the tolerance of cotton to wilt disease.R.Nazarov (2016) according to him, the rate of photosynthesis can be increased by controlling the nutrition of the plant through the roots in order to produce a high yield of crops.B.Umarov, M.Sattarov 2016 when microbiological preparations are applied to crops, the substances secreted by the plant root use carbohydrates, amino acids, organic acids and active enzymes for the growth and development of the plant, and provide amino acids, nucleic acids, vitamins and hormones, as a result, the plant favorable conditions are created for. From the literature analysis described above, the use of growth regulators in cotton growing and other areas of agriculture is expanding year by year, new types of stimulants are undergoing extensive experimental testing, and recommendations on the optimal application

period and norms it became known that it is being given. However, scientific research on the biological effectiveness of the new Tevevit Boms drug in cotton has not been carried out, and the acceptable norms and terms of its use have not been developed, which is the basis for this scientific research. **Experience styles**

The experiments were carried out in field conditions and were conducted in accordance with the manual "Field Experiment Methods" (T:2007) developed at the Scientific Research Institute of Cotton. The obtained data were mathematically analyzed by the method of B. A. Dospekhov [4] (1985).

The research work was carried out during 2018-2020 in the conditions of typical gray soils of the Tashkent region on the cotton variety "Andijan-37". The distance between cotton rows is 60 cm. The height of the experimental options was 25 m, the width was 2.4 m, the calculation area was 60 m2, and they were placed in 3 turns. The experiment was carried out on a field where alfalfa and winter wheat were planted for 3 years and mineral fertilizers were not applied after wheat. In the experiment, the seed was sown in the same order in all options using a special seeder, using 45 kg of seed per hectare.

Seed germination was calculated in days from seed germination to full germination on 10 m2 area (16.6 p.m.) for all returns in each option. During the cotton vegetation period, phenological observations were made on the first days of each month, and cotton height, the number of harvested branches, the number of true leaves, the number of bolls, flowers and pods, and the number of opened pods were all recorded. in options, 25 plants were counted in 3 returns, 75 plants. The yield of cotton was determined by hand-picking the ripe cotton in all the plants in the designated area of the experimental options for all returns, weighing it on a scale, and converting it into the calculation of one hectare.

In the control option for the study, cotton was used in accordance with conventional agrotechnology based on generally accepted agrotechnical measures and the annual norm of mineral fertilizers (NPK) was 200 kg of pure nitrogen, 140 kg of phosphorus and 100 kg of potassium per hectare. in the 2nd option, Boms drug was used at the rate of 600 kg/ha and mineral fertilizers at the rate of N-200, P-140, K-100 kg/ha. In the 3-5 variants of the experiment, Boms organic preparation is 300 per hectare; Mineral fertilizers were not used at all during the period of application of cotton, using 600 and 1000 kg standards. In the care of cotton in the experimental field, measures such as inter-row processing, watering, weed control were carried out in the same order in all variants.

Tevevit Boms is an organic fertilizer obtained as a result of humification of lignite and peat compost, in dry, black, granular form. It contains humic and fulvic acids, various macro and microelements. It transforms phosphate and potassium, the most important elements in the soil, from non-absorbable form to easily absorbable form. Restores soil fertility and increases humus content, improves microflora. Before planting the seed in the plowed field, it is put into the soil and mixed with the ground at a depth of 8-10 cm. It is recommended to use in the morning and in the evening when it is cool. Safety level IV class, low toxicity.

Analysis of experimental results

Sh.Abdualimov and others. (2017) in the experiment conducted with the Biodux stimulator, whose active ingredient is arachidonic acid, was treated at the rate of 3.0 ml/t before planting the seed, and 2.0 ml/ha during the cotton budding and flowering periods. , germination of seedlings accelerated by 10.1-13.3%, growth and development of the plant

accelerated, 44.0 s of cotton per hectare was grown, and 4.7 s/ha higher yield was achieved compared to the control.

Sh.Abdualimov, Sh.Karimov (2017) stated that Obereg's stimulator is 1.0 ml/t per seed, 10.0 ml/ha in the cotton budding and flowering periods, Fitovak is 200 ml/t per seed and in the budding period 400 ml/ha, when the sodium humate stimulator is applied to the seed at the rate of 2.2 kg/t, germination of seedlings is accelerated, rapid growth and development of cotton is observed, the number of bolls is 1.0-2.0 collected more per grain, the cotton yield increased by 3-5 s/h and the level of profitability increased.

Various organic-based biostimulants had a positive effect on sprouting, plant growth, development, and productivity. Therefore, to study the effects of Boms organic preparation on the germination, growth, development and yield of seedlings when applied to the soil before seeding, cotton mineral fertilizers were applied and fertilizer We conducted observations without dogs. Below we analyze the results obtained from these studies.

Germination of the seed. In the scientific literature, it is noted that the seed germination increased when treated with various physiologically active substances. For example, in the conditions of the Tashkent region, it was observed that germination accelerated when seeds were treated with Nitrolin and Uchqun preparations before planting (Niyazmetov, 2007). Similar data were found in other experiments using different stimuli.

In the experiment, the effect of the Tevevit Boms preparation on the germination of seedlings was studied when it was applied to the soil during the preparation of the land for planting. In experimental options, seed germination was observed in 6 periods, that is, from May 10 to May 22. In the initial observation, on May 10, it was found that in the control option, it was 75.7 pieces per 10 square meters, and in the options where Boms was used, it was 73.3-105.3 pieces. Later 12.05; 14.05; 17.05; On 20.05 and 22.05, it was observed that the germination of sprouts was higher than that of the control variant at the standards of 300-600 kg/ha of Boms. In the last observation on May 22, the number of germinated seedlings in the variants of the experiment where Boms 300-600 kg/ha was used was 231.7-234.0 units, which was 4.4-6.7 units more than in the control 227.3 units. done However, the number of germinated seedlings was 250.3 units, 23.0 units more than the control, in the variant where 1000 kg of Boms preparation was used per hectare. So, when 300-1000 kg of Boms were used per hectare, it had a positive effect on the germination of seedlings (table 1).

1-table

Effect of Boms on seed germination, Andijan-37 variety of cotton, Tashkent 2019

№	Experience options	Application rate to the soil before planting, kg/ha	The number of sprouts, units/10 m2						Difference from control, no
			10.05	12.05	14.05	17.05	20.05	22.05	
1	Control (NPK)	-	75,7	161,0	174,0	196,0	216,0	227,3	-
2	Boms+NPK	600	73,3	139,0	164,7	177,0	214,0	234,3	7,0
3	Boms	300	105,3	144,3	185,0	203,3	225,0	231,7	4,4

4	Boms	600	74,7	174,7	200,0	213,7	231,0	234,0	6,7
5	Boms	1000	82,0	153,0	200,7	210,3	233,0	250,3	23,0

Thus, in the period of preparation of the land for planting before sowing, the number of seedlings germinated in the field where the Tevevit Boms preparation was applied to the soil at the rate of 300-600-1000 kg/ha was 231.7-250.3 units, compared to the control 4.4-23 It has been found that when it is more than .0 grains, it has a positive effect on the germination of sprouts.

Effect of Boms drug on growth and development of cotton. In the experimental field, the effect of Boms drug on the growth and development of cotton during the vegetation period was studied (table 2). In the observation conducted on June 1, 2019, the length of the cotton was 9.2-10.8 cm, and the number of true leaves was 2.4-2.6, and no significant difference was observed between the variants. In the next observations, during the period of mass combing of cotton on July 1, in the control variant, the plant height is 39.6 cm, the number of harvested branches is 5.7 pieces, and the combs are 5.7 pieces, Boms is 600 kg/ha+ In the variants applied NPK and Boms 300-1000 kg/ha, the height is 39.2-40.7 cm, the number of harvested branches is 5.5-6.0 pcs., combs are 5.6-6.0 pcs. It was found that the length of the cotton was 0.9-1.1 cm lower, the number of branches was 0.3-0.2, and the number of combs was 0.1-0.3.

In the phenological observations conducted during the flowering-harvest periods of cotton (1.07 and 1.08.2019), it was observed that the height of cotton is lower and the number of harvested branches is less in the variants using Boms. , the number of flowers and pods was calculated to be greater than the control. For example, at the end of the growing season (1.09.2019), the height of the cotton was 94.4 cm in the control, 97.0 cm in the Boms+NPK option, and 91.6 cm in the Boms 300 kg/ha standard. 2.8 cm lower than the control, but 95.9-100.0 cm in variants using Boms' norms of 600-1000 kg/ha and 1.5-5.6 cm higher than the control. The number of harvested branches was 15.5 pieces in the control, and 15.0-16.0 pieces in the variants used by Boms. The number of pods was 8.8 in the control option, 9.7 in the option with Boms 600 kg/ha in the background of mineral fertilizers, only Boms 300-1000 kg/ha without mineral fertilizers. used in standards, 9.9-10.8 units or 1.1-2.0 units more than the control was observed in the cotton-treated variants. It should be noted that in the options where the Boms drug was used, the vegetative mass was low due to the fact that mineral fertilizers were not used during cotton care. This situation is explained by its low height and the small number of harvested branches. However, the number of generative organs increased even more in the variants treated with the Boms preparation during the period of cotton bearing and ripening, and the number of bolls in one bush of cotton was 9.3 in the control on September 20 before harvest. The number of pods in the option with Boms mineral fertilizers was 10.8 or 1.5 more than the control, 10.5 in the option with no mineral fertilizers and Boms 300 kg/ha , 11.2 pieces at the rate of 600 kg/ha of Boms, 10.2 pieces at the rate of 1000 kg/ha of Boms or 300-600 kg/ha of Boms, the number of pods is 0.9-1.9 pieces from the control was more.

In the experiment, the largest number of pods was observed at Bohm's standards of 300-600 kg/ha. It should be noted that the degree of opening of the cysts in the experimental

variants was 5.7 units or 61.3% in the control and 7.1-7.9 units or 68.6-70.5% in the variants treated with Boms. , was found to be accelerated by 7.3-9.2% compared to the control.

Thus, when Boms preparation was applied to the soil, the following was noted, with a specific effect on the growth and development of cotton: in the conditions of typical gray soils of the Tashkent region, cotton mineral fertilizer While there was no significant difference in the length of the bolls, the number of bolls, when only the Boms drug was used at the rate of 300-600 kg/ha without feeding the dogs (NPK), the number of bolls collected It was found that it was 0.9-1.9 times more and the opening of cysts was accelerated by 7.3-9.2%.

2-table

The effect of Boms preparation on the growth and development of cotton,
Andijan-37 variety, Tashkent region, 2019

№	Experience options	Application rate to the soil before planting, kg/ha	The length of the cotton, cm		Number of bags, pcs			From that it was opened	
			1.08	1.09	1.08	1.09	20.09	piece	%
1	Control (NPK)	-	83,7	94,4	5,6	8,8	9,3	5,7	61,3
2	Boms+NPK	600	84,5	97,0	5,4	9,7	10,8	7,2	66,7
3	Boms	300	82,7	91,6	5,2	9,9	10,5	7,2	68,6
4	Boms	600	85,9	100,0	5,4	10,8	11,2	7,9	70,5
5	Boms	1000	84,5	95,9	5,4	10,0	10,2	7,1	69,6

Effect of Boms drug on cotton yield. The effect of Boms drug on cotton productivity was determined in the experiment. First of all, when the weight of cotton per bag was measured across the options, it was 5.5 g in the control, 5.7-5.8 g in the case of Boms treatment, 0.2-0.3 g more than the control. was from Iraq. It was observed that the density of cotton seedlings was 71.0-73.0 thousand bushels per hectare and was close to each other in the experimental options (Table 3). The yield of cotton grown in the experimental field in the first harvest was 28.1 in the control option, 32.9 in the Boms+NPK option, 33.3 when Boms was applied at 300 kg/ha, 34.8 at the rate of Boms 600 kg/ha and Boms at 1000 kg/ha 5.2-6.7 s/ha more cotton was harvested than the control in Boms' norms of 300-1000 kg/ha while it was 32.1 s/ha in the norm. In the experimental variants, 6.8-8.3 s/ha were harvested in the second harvest (table 3).

Thus, 6.8 s/ha in the control option, 8.3 in the Boms+NPK option, 7.4 at Boms 300 kg/ha, 7.0 at Boms 600 kg/ha, and 7.0 at Boms 1000 kg/ha. 8.0 s/ha was harvested in the field, compared to the control option (complete mineral fertilizers) when cotton was treated with only Boms without mineral fertilizers. additional yield was 5.8 s/ha at the rate of 300 kg/ha of Boms, 6.9 s/ha at the rate of 600 kg/ha of Boms, 5.2 s/ha at the rate of 1000 kg/ha of Boms If, on the background of Boms mineral fertilizers, the yield was 6.3 s/ha more than the

control in the variant given at 600 kg/ha. In general, it was determined that the productivity index in the variants used by Boms was 14.9-19.8% higher than the control Boms qo'llanilganda paxta hosiliga ta'siri, g'o'zaning Andijon-37 navi, 2019 yil

№	Options	Application rate to the soil before planting, kg/ha	Weight of cotton in one bag, g	Seedling thickness, thousand bush/ha	Harvest by terms		Total yield, s/ha	Additional crop	
					1	2		s/ga	%
1	Control (NPK)	-	5,5	72,2	28,1	6,8	34,9	-	-
2	Boms+NPK	600	5,8	71,0	32,9	8,3	41,2	6,3	18,1
3	Boms	300	5,7	73,0	33,3	7,4	40,7	5,8	16,6
4	Boms	600	5,7	72,4	34,8	7,0	41,8	6,9	19,8
5	Boms	1000	5,7	71,0	32,1	8,0	40,1	5,2	14,9

NSR_{05}=2,2 s/ga, NSR_{05}=5,1%

So, in the conditions of typical gray soils of the Tashkent region, when Boms biopreparation is used at the rate of 300-600 kg/ha in the preparation of the land before planting, the yield of cotton is 40.7-41.8 s/ha, and the yield is 5. increased by 8-6.9 s/h and 16.6-19.8% higher yield was obtained.

Summary. In the conditions of the typical gray soils of the Tashkent region, in the cultivation of early, high-quality cotton crops without the use of mineral fertilizers (NPK), the drug Tevevit Boms is applied to the soil at the rate of 300-600 kg/ha during the preparation of the land for planting. It has been scientifically and practically proven that the application is an effective method, and the use of physiologically active substances produced from ecological natural products in the cultivation of organic cotton gives high results

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