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Effects of New Stimulators and Use of Suspension on the Dry Mass Collection and Leaf Area Formation of Cotton

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Abstract

Sodium Humate, Obereg and Fitovak stimulants were found to have a specific effect on the process of dry biomass accumulation of cotton According to the experimental options, the dry mass of the plant root is 0.5-0.8 g, the stem was 2.5-2.7 g, the leaves were 3.6-3.9 g and the budding was 0.5-0.7 g, the total dry weight was 7.1-7.9 g, and it was found that the amount of dry mass increased in the variants using the new stimulants compared to the control variant.

The increase in dry mass was even more pronounced after cotton was treated with new stimulants during the budding period. This process continued during the flowering and fruiting periods of cotton, when the dry mass of the root was 3.5 g in the control variant, 3.4 g in Dalbron, 3.9 g in Sodium Humate, 3.9-4.7 in Obereg 1.0 ml / t. g, Obereg was 3.7-4.8 g in the 1.5 ml / t norm, Fitovak was 3.9-4.4 g, and root mass was found to be 0.2-1.2 g heavier under the influence of stimulants. This means that stimulants have a positive effect on the formation of the root system.

Sodium humate, Obereg, and Fitovak stimulants also had a positive effect on leaf formation and leaf area during the developmental stages of cotton. At the same time, the number of leaves in a bush increased by 2.2-8.2, leaf weight by 6.5-29.2 g, single leaf weight by 0.06-0.33 g, and its area was 166.8-373.7 cm^2 more, which had a positive effect on the acceleration of the photosynthesis process.

In the experiment of cotton of Navruz variety, when sodium stimulants, Oberegh and Fitovak stimulants were used at the right time and in the right norms, the process of photosynthesis was accelerated during the development of cotton and the net productivity of photosynthesis was 0.61-3.39 g / m^2 per day.

Determining the norms of feeding with a suspension prepared on the basis of urea fertilizer based on the norms of mineral fertilizers used in the care of cotton resulted in harmonized physiological processes and a positive effect on the dry mass accumulation of cotton as a result of favorable conditions for plant growth and development.

In the conditions of typical sierozem soils of Tashkent region, the determination of feeding cotton with a suspension made from urea fertilizer on the basis of mineral fertilizers is based on the acceleration of photosynthesis during the development of cotton and photosynthesis net productivity was 0.55-2.19 g / m^2 per day compared to water treatment more, and allowed the cultivation of a high and quality cotton crop.

Keywords: Cotton, stimulator, suspension, mineral fertilizers, nitrogen, phosphorus, potassium, dry mass, leaf area, photosynthesis

Introduction

Due to the fact that our country is the northernmost among the cotton-growing countries, it faces a number of problems in the production of seeds, healthy and flawless, the creation of favorable conditions for the growth and development of cotton, high and quality yields. In order to overcome these problems, scientists of our country are developing and improving resource-saving innovative agro-technological measures. One of them is the treatment of seeds and cotton during the growing season with growth-regulating substances and leaf feeding through suspensions, which is one of the important agro-technological measures in the cultivation of a rich, high-quality cotton crop.

The degree to which the problem has been studied. In our country, a lot of scientific research has been conducted on the treatment of seeds with nutrients and leaf feeding during the growing season, recommendations on the norms and timing of their application are given, which will be briefly discussed below.

Before sowing of cotton of Navruz and Andijan-37 varieties of cotton in typical sierozem soils of Tashkent region, Gumimax 0.8-1.0 l / t, Uzgumi 0.7-0.8 l / t, Kgmu 3-4 kg / ha and Germination of seeds at the rate of 0.3-0.3 l / ha of Gumimax, 0.3-0.4 l / ha of Uzgumi and 5-5 kg / ha of Kgmu during the budding and flowering periods of cotton is 10.0-14.1% accelerated, coordinated with the growth and development of cotton, it was found that the yield increased by 3.3-4.7 c / ha, while the net productivity of photosynthesis was higher than 0.4–2.1 g / m^2 [1].

In the light sierozem soils of Namangan region before sowing the seeds are treated with Gumimax stimulator at a rate of 1.0 l / ha and during the budding-flowering period of cotton at a rate of 0.3-0.3 l / ha and a suspension of urea fertilizer 5-7 kg / ha When cotton was mixed at a rate of Gumimax 0,15–0.2 l / ha, high yields and yields were obtained from cotton [23].

When Gumimax stimulator was applied to Navruz cotton seeds and plants during the growing season in the typical sierozem soils of Tashkent region, the dry mass of the plant increased, fiber yield, 1000 seed weight, fiber breaking strength and relative breaking strength improved [3].

Gumimax and Uzgumi stimulants are used in cotton cultivation before sowing and during the budding-flowering period in different doses and when mixed with a suspension of mineral fertilizers and sprayed on the plant, the cotton yield increases by 3.5-4.6 c / ha, an increase of 0,6 c / ha was observed [19].

In typical sierozem soils with humic-based stimulants Gumimax, Uzgumi and Kgmu, germination of seedlings and when the plant is processed at different rates during the flowering and flowering periods of cotton is accelerated by 10-15%, dry mass and leaf area increase, photosynthesis net productivity is increased, the yield was observed to be 4,2-5.4 c / ha [4].

When gibberellin acid was treated with various agricultural crops at a dose of 3.2 ml / ha and Stimulate biostimulators at 24.0 ml / ha, the plant roots were long and vigorous, while plant growth and development were improved and dry mass was increased [7].

Cotton gives good results when fed from the leaves at a rate of 11 l / ha with liquid fertilizer FSLN (phosphorus-suspended liquid nitrate) and 5 l / ha with liquid fertilizer KAS. A brief history of research on cotton leaf nutrition, the effect of plant leaf nutrition on the rate of photosynthesis, the results of preliminary studies on increasing crop yields, disease and pest resistance [18].

In order to grow high and quality crops from agricultural crops, it is necessary to increase the pure productivity of photosynthesis by managing plant nutrition through roots. That is, the increase in the net

productivity of photosynthesis in plants is directly related to the soil, when the plant is fed through the leaves, the absorption of nutrients from the soil decreases, and root feeding does not give good results to the crop [9, 10, 11, 16].

Methods and Materials

Our first field experiment was conducted in order to develop and implement technologies for the application of new stimulants for the cultivation of cotton, high yield, quality fiber and seeds. The research studied the methods of application to the plant in different doses before sowing and during the development of cotton with the stimulants Sodium Gumat and Fitovak produced in Uzbekistan and Obereg imported from Russia, provided by the State Chemical Commission of the Republic.

The research was conducted in 2009-2011 in the fields of the experimental plot of the Research Institute of Cotton Breeding, Seed Production and Agrotechnology in Kibray district of Tashkent region. In the experiments on small plots, the Navruz variety of cotton was planted. In this experiment, each variant was placed in 4 rows, and the cotton row spacing was 60 cm, the experimental variant area was 60 m^2, the width was 2.4 m, the height was 25 m, and the total area was 1980 m^2, variants were placed in 3 replications in the randomization method.

According to the guidelines, before sowing the seeds are soaked 3 times in the amount of 600 l of water per 1 ton of seeds, consuming 200 l of water every 3-4 hours. Then different doses of stimulants were prepared at the rate of 20 l of working solution for 1 ton of seeds, mixed with the seeds and soaked for 4-5 hours. After that, 4 seeds were sown in each 60x15-1 system and 40-45 kg of seeds were used per hectare. During stimulation of cotton with stimulants, it was sprayed mixed with 300 l / ha of water using a hand-held sprayer. In the field experiment, agro-technical measures for the care of cotton were carried out in accordance with generally accepted agro-technical rules. In particular, the experimental field was plowed, prepared for sowing, sowing seeds, rarefying, watering, fertilizing, processing between rows, pest control, weeding and other works.

Observations and laboratory analysis in the experiment were carried out on the basis of the manual "Methods of conducting field experiments" adopted at UzPITI [6]. Also, during the application of chemicals to seeds and plants used "Regulators of plant growth" [8] and "Guidelines for testing insecticides, acaricides, biologically active substances and fungicides" [12] and photosynthesis by the method of N.N.Tretyakov [21] net productivity was determined.

The second field experiments were conducted in 2006-2008 in the fields of the experimental plot of the Tashkent State Agrarian University. In the experiment, Bukhara-102 variety of cotton was planted. The experiment consisted of 12 variants, each variant was placed in 8 rows, and the cotton row spacing was 60 cm, the area of the experimental variant was 240 m^2, width 4.8 m, height 50 m, total area was 8640 m^2, and the variants were placed in 3 replications.

Ammonium nitrate (N 33-34%), superphosphate (N 5-6%, P_2O_5-22-23%) and potassium chloride (K_2O-60%) fertilizers were used in the care of cotton. Urea (N 46%) fertilizer was used to feed the cotton through the leaves. According to the experimental system, mineral fertilizers in cotton are N-150, P-105, K-75 kg / ha, N-200, P-140, K-100 kg / ha and N-250, P-175, K-125 kg / ha. The suspension prepared on the basis of urea fertilizer against the background of the application of the norms is 3.0, 5.0, 7.0 kg / ha in the period of 2-3 leafy plants, 5.0, 7.0, 9.0 kg / ha in the period of budding and at the beginning of the flowering period used in the norms of 7.0, 9.0, 11.0 kg / ha.

Results and Discussion

The effects of various factors on the leaf area and dry mass of cotton have been studied by many researchers. In particular, when different seeds and stimulants are used, the change in cotton leaf area and dry mass of hairy and dehydrated seeds is encapsulated with Vitavax 200 FF and treated with Vitavax 200 FF at a rate of 5 l / t before sowing, while the leaf area of one bush was 2115.7-2201.2 cm^2, the dry weight of cotton was also higher in these variants than in the control variant in which other seeds and seeds were planted without drug treatment. It was found that the weight of cotton is 4.1-4.8 g, the weight of the boll is 1.5-1.8 g, and the total weight of the plant is 9.6-11.3 g [20].

It is known that the organic mass accumulated by all plants in the world is billions of tons. Cotton is also one of the most active photosynthetic plants, as the transpiration coefficient in different varieties and types is known from the literature to be 300-650 or even higher. The intensity of photosynthesis depends on the number of pores on the leaf, the nature of the leaf's performance, the level of light and the level of soil, moisture, nutrients and other agro-climatic and technological processes that are considered external factors. The “work” of one plant organ can have a negative or positive effect on the “work” of another plant organ, a process known as the interaction of cotton organs. In this connection with the activity of the root the development of the leaf is of great importance. If this connection is consistent, the metabolism will go well, if not, it will be disrupted, resulting in fruit shedding and vegetative growth coming to the fore. Growth-accelerating factors also have a positive effect on development [15].

Optimal growth and development of cotton during the developmental stages is very important, because a high and quality crop is grown due to the optimal formation of the vegetative and generative organs of the plant. Therefore, in the experiment, the effect of new stimulants on the dry mass of cotton at the end of the budding, flowering and fruiting period was studied (Table 1).

It should be noted that the stimulants Sodium Humate, Obereg and Fitovak studied had a specific effect on the process of dry biomass accumulation of cotton. In the analysis carried out during the budding of cotton, it was calculated that it was divided into parts such as roots, stems, leaves and buds. According to the experimental options, the dry mass of the root is 0.5-0.8 g, the stem is 2.5-2.7 g, the leaves are 3.6-3.9 g and the stem is 0.5-0.7 g, the total dry weight was 7.1–7.9 g, and it was found that the amount of dry mass increased in the variants using the new stimulants compared to the control variant. It should be noted that the positive effect of the stimulants on the physiological processes when stimulants are used during the initial growth of the plant is due to a positive change in photosynthesis productivity, rapid growth of roots and stems and increased dry mass accumulation of the plant.

The increase in dry mass after treatment with the new stimulants during the budding period was even more pronounced. This process continues during the flowering and fruiting periods of cotton, the dry mass of the root is 3.5 g in the control variant, 3.4 g in Dalbron, 3.9 g in Sodium Humate, 3.9-4.7 in Obereg 1.0 ml / t. g, Obereg was 3.7-4.8 g in the 1.5 ml / t norm, Fitovak was 3.9-4.4 g, and root mass was found to be 0.2-1.2 g heavier under the influence of stimulants. This means that stimulants have a positive effect on the formation of the root system.

During this period, the steam mass of cotton was 13.8-21.0 g, leaf mass 16.2-22.0 g, buds 3.4-6.2 g, boll mass 3.7-4.9 g and cotton weight was 3.8–4.9 g, the new stimulants were found to be superior to the control variant in the variants used. However, in the variant in which Dalbron seed was used, the mass of cotton root, stem, and bud, as well as the total plant mass, were slightly (0.1 g) less than in the control. This suggests that although Dalbron has a positive effect as a seed, it does not have a significant positive effect on the rapid growth and development of plant life processes.

In the experimental variants, the total dry mass of a single plant during the flowering and fruiting period of cotton was 45.6 g in the control variant, 45.5 g in Dalbron, 52.5 g when Sodium Humate was applied at 2.2 kg / t, and 1.0 ml / t with Obereg. 58.8-60.0 g when treated, 57.1-61.1 g at the rate of 1.5 ml / t of Obereg, 55.4 g at the rate of 10 ml / ha of Obereg stimulator only during lactation, in variants treated with Fitovak stimulator 54.5-59.9 g. The data show that 6.9 g when treated with Sodium Humate, 13.2-14.4 g at the rate of 1.0 ml / t of Obereg, 11.5-15.5 g at the rate of 1.5 ml / t of Obereg, When Fitovak was used, it was noted that higher results were obtained compared to the control variant of 8.9–14.3 g.

The results of the analysis carried out at the end of the growing season of cotton show that in the experimental variants the dry mass of the root of a bush was 7.2-11.0 g, stem was 18.5-25.5 g, leaves was 25.4-33.9 g, bowl was 16, 0-21.3 g, cotton was 32.8-44.5 g and a total dry mass of one plant was 101.1-134.6 g.

It should be noted that in the variants using new stimulants, higher values were obtained than in the control variant on all vegetative and generative organs of the plant. In particular, the weight of cotton in the control variant was found to be 32.8 g, which is 3.0 g higher in Dalbron, 4.9 g in Sodium Humate, 2.7-11.7 g in different amounts of Obereg, 2.4-11.7 g higher in Fitovak.

Table 1. The effect of new stimulants on dry weight of cotton during development period, in g / plant,

Navruz variety, 2010

№	Options	Budding period, 29.06.2010				The total, one plant	flowering-fruiting period, 27.07.2010						The total, one plant.	The end of growth, 24.08.2010					The total, one plant
		root	stem	leaf	buds		root	stem	leaf	buds	boll	cotton		root	stem	leaf	boll	cotton	
1	Control	0,5	2,5	3,6	0,5	7,1	3,5	14,9	16,2	3,5	3,7	3,8	45,6	7,2	19,7	25,4	16,0	32,8	101,1
2	Dalbron 6,5 kg/t	0,6	2,5	3,9	0,6	7,6	3,4	13,8	16,5	3,4	4,3	4,1	45,5	8,6	18,5	27,4	16,8	35,8	107,2
3	Sodium Humate 2,2 kg/t	0,7	2,6	3,9	0,6	7,8	3,9	15,6	20,1	4,3	4,5	4,1	52,5	10,6	21,6	28,6	18,5	37,7	117,0
4	Obereg 1,0 ml/t	0,7	2,6	3,9	0,6	7,8	4,7	19,3	22,0	4,1	4,7	4,1	58,8	11,0	22,4	33,9	21,3	42,3	130,9
5	Obereg 1,0 ml/t +10 ml/ga	0,8	2,6	3,8	0,7	7,9	3,9	19,5	20,8	6,0	4,9	4,9	60,0	10,3	23,6	33,6	19,4	44,5	131,4
6	Obereg 1,5 ml/t	0,7	2,6	3,7	0,7	7,7	4,8	20,8	20,8	6,2	4,4	4,1	61,1	9,6	20,2	32,2	18,7	41,3	122,0
7	Obereg 1,5 ml/t+10 ml/ga	0,7	2,6	3,8	0,7	7,8	3,7	21,0	19,5	4,7	4,5	3,7	57,1	9,9	21,2	30,3	18,9	38,3	118,6
8	Obereg 10 ml/ga	0,5	2,6	3,5	0,6	7,2	3,0	18,5	20,0	5,5	4,5	3,9	55,4	8,7	19,5	28,4	16,6	35,5	108,7
9	Fitovak 200 ml/t	0,6	2,5	3,8	0,7	7,6	4,4	20,1	22,0	5,1	3,3	3,9	58,8	9,0	23,4	33,9	18,7	39,8	124,8
10	Fitovak 200 ml/t+400 ml/ga	0,7	2,7	3,8	0,6	7,8	4,3	20,8	21,1	5,1	4,1	4,5	59,9	10,4	25,5	33,7	20,6	44,5	134,6
11	Fitovak 400 ml/ga	0,6	2,5	3,6	0,6	7,3	3,9	17,5	20,8	4,3	4,1	3,8	54,5	8,0	20,4	30,5	16,1	35,2	110,2

In these variants, the total dry mass of the plant was also noted to be 6.1–33.5 g heavier than the 101.1 g in the control variant and it was 107.2–134.6 g. Among the new stimulants used in the experiment, the highest results were obtained when treated with Obereg at a rate of 1.0 ml / t per seed and 10 ml / ha at the time of budding, and 2.2 kg / t with Sodium Humate, was observed in the variants used at the rates of 200 ml / t and 400 ml / ha to seed with Fitovak during the budding period. This can lead us to conclude that this will have a positive effect on the productivity of these options.

In the next 2011 year of the experiment, following the same patterns as in 2010, all variants treated with the new stimulants showed high results in terms of dry mass during the developmental stages of cotton.

Thus, physiological processes are coordinated and seedling germination is accelerated as a result of the creation of favorable conditions for plant growth and development during pre-sowing treatment of seeds with Sodium Humate, Obereg and Fitovak stimulants, as well as during the period of cotton budding. The seedling sprout accelerated, which led to a positive effect on the process of dry mass accumulation of cotton.

It is known from the literature that the process of photosynthesis in the leaves of plants, the conversion of inorganic substances into organic matter under the influence of light, heat, water, etc., is a source of oxygen and nutrients for all living things in the world. The leaf blade is composed mainly of chloroplasts, which are chlorophyll granules, and the chlorophyll granules give the leaf a green color. The leaves, in turn, use light, water and nutrients from the roots.

In our experiment, the effect on plant growth, development, including leaf area formation, as a result of strong root development and increased absorption of nutrients in the soil when seeds are treated with new stimulants and cotton is feed from the leaves during the growing season studied. It is known that the leaf area is very important for the rapid physiological processes of cotton, its optimal growth and development.

In the experiment, the leaf area of cotton was determined by measuring the scales in the coin method of A. Nichiporovich, taking into account the number of leaves in cotton and its wet weight, calculated at the end of the growth period (Table 2).

Consequently, the number of leaves per bush during the budding period is 10.8-12.8, the wet weight is 10.7-12.5 g and the mass of one leaf is 0.99-1, 06 g, the leaf area was found to be 315.0–379.0 cm^2. At the same time, under the influence of the new stimulants used, the number of leaves in a bush increased by 0.2-2.0, weight of it was 0.7-1.8 g, leaf area was observed to be high 9.9-64.0 cm^2.

Table 2: Influence of new stimulants on the number, weight and area of leaves during the developmental stages of cotton when treated with new stimulants on seeds and plants, Navruz variety, 2010

№	Options	Budding period, 29.06.2010				Flowering and fruiting period, 27.07.2010				At the end of growth period, 24.08.2010			
		Leaf area, cm^2/plant	Number of leaves, pcs/plant	Weight of leaves, gr/plant. (in the wet state)	One plant weight, gr	Leaf area, cm^2/plant	Number of leaves, pcs/plant	Weight of leaves, gr/plant. (in the wet state)	One plant weight, gr	Leaf area, cm^2/plant	Number of leaves, pcs/plant	Weight of leaves, gr/plant. (in the wet state)	One plant weight, gr
1	Control	315,0	10,8	10,7	0,99	1892,9	36,8	55,2	1,50	2352,9	44,8	73,3	1,64
2	Dalbron 6,5 kg/t	320,5	11,2	11,8	1,06	1901,4	37,5	57,6	1,54	2505,6	48,0	83,1	1,73
3	Sodium Humate 2,2 kg/t	361,6	11,0	10,7	0,97	1937,6	39,3	59,5	1,51	2690,4	48,7	93,9	1,93
4	Obereg 1,0 ml/t	346,6	11,5	10,7	0,93	2095,9	41,5	66,3	1,60	2519,7	51,5	96,1	1,87
5	Obereg 1,0 ml/t +10 ml/ga	369,4	12,2	11,4	0,94	2212,1	41,5	70,7	1,70	2726,6	53,0	101,6	1,92
6	Obereg 1,5 ml/t	356,0	11,5	11,4	0,99	2050,0	40,8	71,5	1,75	2658,8	51,5	92,9	1,80
7	Obereg 1,5 ml/t+10 ml/ga	379,0	12,8	12,2	0,95	2131,1	41,0	67,3	1,64	2702,4	51,2	88,8	1,74
8	Obereg 10 ml/ga	328,9	11,5	11,8	1,03	1911,3	39,2	59,8	1,53	2591,1	47,0	79,8	1,70
9	Fitovak 200 ml/t	334,3	11,7	10,6	0,90	1991,9	39,7	63,0	1,59	2593,2	52,5	92,0	1,75
10	Fitovak 200 ml/t+400 ml/ga	351,3	12,0	12,5	1,04	2222,5	43,5	70,8	1,63	2737,5	52,0	102,5	1,97
11	Fitovak 400 ml/ga	324,7	12,0	12,3	1,03	2089,2	42,8	65,4	1,53	2562,0	52,7	91,1	1,73

The scientific literature states that stimulants act on phytohormones to activate physiological and biochemical processes in plants, accelerate cell division, and accelerate plant growth. In particular, as a result of optimal cell division, strong growth in leaf length and width was observed from the earliest stages of cotton development [2].

In the experimental variants, the area of the leaf surface widened during the flowering period of the cotton, and the differences between the variants became more pronounced. This process was also observed during the flowering and fruiting period of cotton, and the number of leaves per bush was 36.8-43.5, the wet weight was 55.2-71.5 g, and one leaf weight was 1,50-1,75 gr, the leaf area of one plant was 1892.9-2222.5 cm^2.

In the variants of the experiment using Sodium Humate, Obereg and Fitovak stimulants, the number of leaves was 2.5-6.7, the weight was 4.3-16.3 g, and the leaf area was 18.4-329.6 cm^2. This means that favorable conditions are created for the optimal growth and rapid harvest of cotton.

At the end of the growing season of cotton, the leaf surface of a single plant was 2352.9 cm^2 in the control variant, 2505.6 cm^2 in Dalbron, 2690.4 cm^2 in Sodium Humate, 2519,7-2726.6 cm^2 in variants treated with Obereg at different rates and terms, 2562.0-2737.5 cm^2 in Fitovak, 152.7 cm^2 in Dalbron, 337.5 cm^2 in Sodium Humate, 166.8-373.7 cm^2 in Obereg, it was observed to be high 209,1-384.6 cm^2 in Fitovak.

As well as, the following results were obtained from the number of leaves per bush and their wet weight, the weight of one leaf. For example, by the end of the growing season, the number of leaves per bush was 44.8 in the control variant, 48.0 in Dalbron, 48.7 in Sodium Humate, and 47.0-53.0 units in Obereg, and they were found to be 52.0-52.7 units in Fitovak, 3.2 units in Dalbron compared to the control variant, and 2.2-8.2 units in the variants treated with the new stimulants.

The wet weight of leaves in one plant was 73.3 g in the control variant, while in Dalbron it was 83.1 g, it was 93.9 g in Sodium Humate, it was 79.8-101.6 g in Obereg, 91.1-102.5 g in Fitovak and 6.5-29.2 g heavier than the control variant in the variants treated with the new stimulants.

When the weight of one leaf was analyzed during this period, high results were obtained in the variants with optimal growth of cotton. For example; In the control variant, the weight of one leaf was 1.64 g, in Sodium Humate 1.93 g, in Obereg 1.70-1.92 g, in Fitovak 1.73-1.97 g, and with the use of new stimulants, the weight of one leaf increased by 0.06-0.33 g.

From the above results, it can be seen that the stimulants Sodium Gumate, Obereg and Fitovak had a positive effect on the formation and surface of the leaf during the developmental stages of cotton. At the same time, the number of leaves in a bush increased by 2.2-8.2, leaf weight by 6.5-29.2 g, single leaf by 0.06-0.33 g, and its surface area was 166.8 373.7 cm^2 more, which had a positive effect on the acceleration of the photosynthesis process.

In order to accelerate the process of photosynthesis in plants and create favorable conditions for their growth and development, it is necessary to ensure the rapid growth of leaves from early spring. In particular, it is necessary to create favorable conditions for the planting of early maturing varieties or for the rapid growth of the leaf blade. There must be enough light, heat, moisture, carbon dioxide, oxygen, and nutrients. Only then does the productivity of photosynthesis double. [17]

Cotton cultivation improves photosynthesis productivity by increasing its leaf area, which in turn allows the plant to absorb the nutrients it needs for a day and increase productivity. In order for photosynthesis to accelerate, the plant needs good air circulation, the seedlings should not be too thick, and each leaf should absorb more solar energy. If the care of cotton is not good, the seedlings are thick and the humidity is high, the productivity of photosynthesis in cotton decreases, i.e. the leaves on the lower branches live at the expense of the leaves using solar energy and as a result, the productivity of generative organs decreases, leading to an increase in vegetative organs.

In the experiment, the effect of new stimulants on the pure productivity of cotton photosynthesis was determined at the end of the flowering and flowering-growth period, and the following data were obtained.

The data show that the process of photosynthesis is accelerated during the flowering period of cotton, and in the experimental variants the net productivity of photosynthesis was 12.46-15.85 g / m^2 per day, and close to control was found to be 12.2 g / m^2.

That is, Dalbron was used only as a seed and eliminated the xanthomonas of cotton, but did not significantly affect the growth and development of the plant, as well as physiological processes.

When the new stimulants used, on the contrary, the net productivity of photosynthesis has increased. In particular, 1.43 g / m^2 per day was observed in the variant of Sodium Humate, 1.57-3.39 g / m^2 in Obereg and 1.51-3.26 g / m^2 in Fitovak.

When the net productivity of photosynthesis at the end of the flowering-growth period of cotton was analyzed, it was slightly lower than during the budding-flowering period. This can be explained by the morphobiological characteristics of the Navruz variety of cotton. However, in the differences between the variants on the pure productivity of photosynthesis in the control variant 9.34 g / m^2, 10.0 g / m^2 in Dalbron, 9.95 g / m^2 in Sodium Humate, in the variant used in 1.0 ml / t in Obereg seeds, it was 11.16 g / m^2 and 10.33 g / m^2 in the normal spraying rate of 10 ml / ha during budding, 200 ml / t in seeds with Fitovak 10.28 g / m^2 during budding, 200 ml / t for Fitovak seeds, 10.76 g / m^2 when applied to 400 ml / t during budding, the highest results were achieved. In this case, It should be noted the net productivity of photosynthesis was 0.61 g / m^2 per day under the influence of Sodium Humate, 0.99-1.80 g / m^2 when using Obereg, 0.94-1.42 g / m^2 in Fitovak.

Thus, in the experiment conducted in the Navruz variety of cotton in Tashkent region, when Sodium stimulants, Obereg and Fitovak stimulants were used at the right date and in the right norms, the process of photosynthesis was accelerated during the development of cotton and the net productivity of photosynthesis was 0,61-3.39 g / m^2 more per day, which allowed the cultivation of high and quality cotton.

Our second field experiment was conducted in the fields of the experimental plot of Tashkent State Agrarian University in 2006-2008, the effect of mineral fertilizer norms and suspension application on the formation of leaf mass and photosynthesis productivity of cotton dry mass accumulation was studied.

The dry mass accumulation of cotton varies during each developmental period of the crop, and if the dry mass accumulated before budding is only 5.0% of the dry mass accumulated during the whole period of application, after budding the crop develops until flowering and collects 50 per cent. By the time the plant matures, the growth of vegetative parts has almost stopped, and mainly due to the rapid development of crop parts the dry mass has accumulated.

Optimal growth and development of cotton during the growing season is very important. This is due to the fact that due to the optimal formation of the vegetative and generative organs of the plant, high quality crops are grown. Therefore, in our study, under the background of the norms of various mineral fertilizers, feeding cotton from the leaves using a suspension prepared on the basis of urea with 2-3 true leaves of cotton, at the beginning of the budding and flowering period, the effect of the dry mass accumulation of cotton was studied (Table 3).

It should be noted that typically has a specific effect to the process of dry biomass accumulation of cotton with a suspension prepared on the basis of urea fertilizer on the background of different mineral fertilizer norms, the plant feeds from 2-3 true leaves, at the beginning of the budding and flowering periods. In the analysis of cotton during the budding period, it was divided into parts such as roots, stems, leaves and buds.

On the background of application of mineral fertilizers N-150, P-105, K-75 kg / ha in the period of 2-3 leaves of cotton 3.0, 5.0, 7.0 kg / ha, In the fed variants from the leaves with a suspension prepared on the basis of urea fertilizer at the rate of 5.0, 7.0 9.0 kg / ha during the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period, the dry mass of the plant root is 1.10-1.22 g, the stem is 2.28-2.67 g, the

leaves are 3.15-3.42 g and the bud is 0.70-0.82 g, and the total dry weight of a bush of cotton was 7.3–8.2 g. On this background, leaf feeding of cotton at different stages of development with a suspension based on urea fertilizer increased the total dry weight of one plant ensured that it would be by 0.4-0.9 g compared to the water-treated control option. high. It should be noted that the rapid growth of roots and stems as a result of a positive change in photosynthesis productivity due to the positive effect of the application of the suspension on the physiological processes in the plant during the 2-3 leaf period of cotton and can be interpreted as increased accumulation of dry mass of the plant.

In the variants which the norm of mineral fertilizers N-200, P-140, K-100 kg / ha is 3.0, 5.0, 7.0 kg / ha in the period of 2-3 leaves of cotton on the background, during the budding period 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period 7.0, 9.0, 11.0 kg / ha at the rate of urea-based suspension, the dry mass of the root is 1.22-1.27 g, the stem is 2.25-2.82 g, the leaves are 3.25-3.53 g and the bud is 0.78-0.87 g, the total dry weight of the plant was 7.5-8.4 g.

In the variants which used in the background of application of mineral fertilizers N-250, P-175, K-125 kg / ha in the period of 2-3 leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg / ha, during budding was 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period 7.0, 9.0, 11.0 kg / ha in urea-based suspensions, the dry mass of the root was 1.10-1.35 g, the stem was 2.50-2.78 g, the leaves were 3.30-3.68 g and the bud was 0.72-0.90 g and the total dry weight of the plant was 7.8-8.7 g.

By the time of cotton flowering, the dry mass accumulation of the plant had accelerated, and it was clear that the differences between the experimental options also varied under the influence of the factors used.

In the Background which used the norm of mineral fertilizers N-150, P-105, K-75 kg / ha in the period of 2-3 leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg, during the budding, it was 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period was 7.0, 9.0, 11.0 kg / ha, in the variant which used at the rate of urea-based suspension, the dry mass of root was 3.3-4.1 g, stem was 11.9-14.0 g, leaf was 13.53-14.57 g, bud was 4.50-5.18 g, bolls were 3.18-4.88 g and cotton was 4.73-7.28 g, and the total dry weight of one bush of cotton was 41.1-50.0 g. On this background, leaf feeding of cotton with a suspension based on urea fertilizer at different stages of development of the plant increased the total dry weight of one plant ensured that it would be high by 4.9-8.9 g compared to the water-treated control option.

On the background of the application of mineral fertilizers N-200, P-140, K-100 kg / ha in the period of 2–3 leaves leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg / ha, during budding, it was 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period, it was 7.0, 9.0, 11.0 kg / ha. In the variant which used urea-based suspensions, dry mass of root was 3.9-4.3 g, stem was 13.2-14.3 g, leaf was 14.95-16.25 g, buds were 4.87-5.52 g, bolls were 4.83-5.58 g and cotton was 7.35-8.62 g, and the total dry weight of one bush of cotton was 49.1-54.6 g. On this background, the feeding of cotton with a suspension based on urea fertilizer through the leaves at different stages of development of the plant increased the total dry weight of one plant ensured that it would be high by 1.8-5.5 g compared to the control option treated with water.

On the background of the application of mineral fertilizers N-250, P-175, K-125 kg / ha in the period of 2-3 leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg / ha, during budding, it was 5.0, 7.0 9.0 kg / ha, and at the beginning of the flowering period, it was 7.0, 9.0, 11.0 kg / ha, and in the variant which used at the rate of urea-based suspension, the dry mass of root was 4.0-4.4 g, stem was 13.4-14.7 g, leaves was 15.28-17.38 g, buds was 5.25-5.65 g, boll was 4.97-5.65 g and cotton was 8.08-8.93 g, and the total dry weight of one bush of cotton was 51.0-56.7 g. On this background, the highest rates are 5.0 kg / ha during the period of 2-3 leaves, 7.0 kg / ha during the flowering period and 9.0 kg / ha at the beginning of the flowering period. The dry weight of the plant root was 0.4 g, the dry weight of the stem was 1.3 g, the dry weight of the leaf

was 2.10 g, and the dry weight of the bud was observed in the leaf-fed variant with a urea-based suspension compared to control option which treated with water, the dry mass weight was found to be 0.40 g, the dry weight of the boll was 0.62 g, and the dry weight of the cotton was 0.85 g, and the total dry weight of a single cotton ball was found to be 15.7 g higher.

Towards the end of the growing season, the dry mass accumulation of the plant was further accelerated, and it was found that the effect of the suspension prepared on the basis of mineral fertilizer norms and urea fertilizer was different.

On the background of application of mineral fertilizers N-150, P-105, K-75 kg / ha in the period of 2-3 leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg / ha, 5.0, 7.0 9.0 kg / ha at the beginning of budding and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period. In the options which fed with urea-based suspension by leaves, the dry weight of root 6.1-7.5 g, stem was 20.1-25.2 g, leaf was 23.1-27.1 g, boll was 10.6-15.3 g and cotton 31.2-38.8 g, the total dry weight of a bush of cotton was 91.1-114.0 g. On this background, the feeding of cotton with a suspension based on urea fertilizer through the leaves at different stages of development of the plant increased the total dry weight of one plant ensured that it would be high by 14.7-22.9 g compared to the water-treated control option.

On the background of the application of mineral fertilizers N-200, P-140, K-100 kg / ha in the period of 2–3 leaves of cotton, the dry mas was 3.0, 5.0, 7.0 kg / ha, during budding, it was 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period, it was 7.0, 9.0, 11.0 kg / ha. In the options treated with urea-based suspensions, the dry weight of root was 7.1-8.3 g, stem was 23.4-28.5 g, leaves were 27.2-29.0 g, boll was 14.3-18.0 g and cotton was 36.7-42.5 g, the total dry weight of a bush of cotton was 108.8-126.4 g. On this background, leaf feeding of cotton at different stages of development with a suspension based on urea fertilizer increased the total dry weight of one plant ensured by 3.3-17.6 g compared to the water-treated control option that it would be high.

On the background of application of mineral fertilizers N-250, P-175, K-125 kg / ha in the period of 2-3 leaves of cotton, the dry mass was 3.0, 5.0, 7.0 kg / ha, during the budding period, it was 5.0, 7.0 9.0 kg / ha and at the beginning of the flowering period, it was 7.0, 9.0, 11.0 kg / ha at the rate of urea-based suspension, the dry weight of root was 7.2-9.0 g, stem was 25.4-28.6 g, leaves were 26.4-29.2 g, boll was 17.0-18.0 g and cotton 40.6-42.7 g, the total dry weight of a bush of cotton was 120.0-127.5 g. On this background, the highest rates were 5.0 kg / ha during the 2-3 leaf period, 7.0 kg / ha during the flowering period and 9.0 kg / ha at the beginning of the flowering period. The dry weight of the plant root was 1.1 g, the dry weight of the stem was 2.7 g, the dry weight of the leaf was 0.7 g, and the dry weight of the boll was observed in the leaf-fed variant with a urea-based suspension, the dry weight was found to be 1.0 g and the dry weight of cotton was 2.1 g higher, and the total dry weight of a single cotton ball was found to be 7.5 g higher.

In the 2006 and 2008 experiments, similar patterns were observed, in all variants treated with a suspension prepared on the basis of urea fertilizer on the background of various mineral fertilizers, high results were obtained on the indicators of dry mass during the development periods of cotton.

Thus, in the cultivation of cotton, the determination of the norms of feeding with a suspension prepared on the basis of urea fertilizer on the basis of the norms of mineral fertilizers used creates favorable conditions for plant growth and development, as a result, physiological processes were coordinated, leading to a positive effect on the process of dry mass accumulation of cotton.

During photosynthesis in the leaves of plants, the conversion of inorganic substances into organic matter under the influence of light, heat, water, etc., is a source of oxygen and nutrients for all living things in the

world. The leaf plate is composed mainly of chloroplasts, the chloroplasts are made up of chlorophyll grains, and the chlorophyll grains give the leaf a green color. The leaves, in turn, use light, water, and nutrients from the roots [13].

According to the data obtained from the study of typical sierozem soils of Tashkent region, the norms of application of suspensions based on CAS and Urea are determined by the growth and development of the plant, regardless of the period of development of cotton, it has been found to have an optimal effect on leaf surface formation. Relatively high results were observed when the suspensions were used during the cotton budding and flowering periods, and the effect of the urea-based suspension was higher in all periods [5].

Table 3. Norms of mineral fertilizers and the effect of the application of the suspension on the dry weight of cotton during the development period, in g / plant, Bukhara-102 variety, 2007

№	Budding period, 2.07				Total	Flowering period, 5.08						Total	In the end of praxis period, 29.08					Total
	root	stem	leaf	bud		root	stem	leaf	bud	boll	cotton		root	stem	leaf	boll	cotton	
1	1,18	2,28	3,15	0,70	7,3	3,3	11,9	13,53	4,50	3,18	4,73	41,1	6,1	20,1	23,1	10,6	31,2	91,1
2	1,33	2,67	3,42	0,77	8,2	3,8	13,6	15,00	4,97	3,57	6,08	47,0	6,6	24,0	24,7	13,5	37,0	105,8
3	1,10	2,22	3,20	0,75	7,3	4,1	12,7	14,42	4,43	4,42	5,97	46,0	7,1	22,6	28,0	14,0	34,7	106,4
4	1,22	2,45	3,23	0,82	7,7	4,1	14,0	14,57	5,18	4,88	7,28	50,0	7,5	25,2	27,1	15,3	38,8	114,0
5	1,22	2,25	3,25	0,82	7,5	3,9	13,2	14,95	4,87	4,83	7,35	49,1	7,3	23,4	27,2	14,3	36,7	108,8
6	1,27	2,77	3,37	0,78	8,2	4,0	13,6	15,32	5,00	4,88	8,07	50,9	7,1	24,8	28,2	14,9	37,2	112,1
7	1,22	2,82	3,47	0,78	8,3	3,7	12,3	14,35	4,70	5,17	8,15	48,3	7,6	24,7	27,3	15,6	37,1	112,3
8	1,25	2,70	3,53	0,87	8,4	4,3	14,3	16,25	5,52	5,58	8,62	54,6	8,3	28,5	29,0	18,0	42,5	126,4
9	1,10	2,72	3,30	0,90	8,0	4,0	13,4	15,28	5,25	5,03	8,08	51,0	7,9	25,9	28,5	17,0	40,6	120,0
10	1,35	2,75	3,63	0,83	8,6	4,0	13,7	16,30	5,30	5,20	8,42	53,0	8,3	27,0	29,0	17,5	41,3	123,0
11	1,32	2,78	3,68	0,90	8,7	4,4	14,7	17,38	5,65	5,65	8,93	56,7	9,0	28,6	29,2	18,0	42,7	127,5
12	1,18	2,50	3,35	0,72	7,8	4,0	13,4	15,32	5,12	4,97	8,22	51,0	7,2	25,4	26,4	17,5	41,5	118,0

Stimulants rich in macro and micro elements, Gumimax 0.3 l / ha, Uzgumi 0.4 l / ha, Edagum 0.3 l / ha and Fitovak 300-400 ml / ha when used in leaf feeding of cotton, the growth and development of the plant is improved, the leaves thicken, the chlorophyll content increases and the process of photosynthesis is accelerated, resulting in a 12-15% increase in cotton yield [22].

In our study, on the background of different mineral fertilizers, it was observed that feeding cotton with a suspension prepared on the basis of urea at the beginning of the flowering period of 2-3 true leaves affected the formation of the leaf area of the plant. It is known that the leaf area is very important for the rapid physiological processes of cotton, its optimal growth and development.

In the experiment, the leaf area of cotton was determined by measuring on the scales in the “coin method” of A. Nichiporovich, according to which the number of leaves in cotton and its wet weight calculated at the end of the growth period (Table 4).

Our research has determined that the effect of mineral fertilizer application and urea fertilizer suspension on cotton leaf formation varies. We will discuss this in more detail below.

Consequently, the number of leaves per bush during the budding season is 11.7-13.3 pieces, the wet weight is 12.0-13.7 g and the mass of one leaf is 0.97-1.06 g, the leaf area was found to be 401.7–495.5 cm^2. In this case, the number of leaves in a bush of cotton under the influence of suspensions prepared on the basis of urea fertilizer on the background of applied mineral fertilizers was 0.8-1.6 pieces times higher than in the control variant of water treatment of cotton leaves, weight was 0.3–1.7 g, leaf area were observed higher than 20.1–82.4 cm^2 [14].

In the experimental variants, the leaf area expanded during the flowering period of the cotton, and the differences between the variants became more pronounced. This process was also observed during the

flowering and fruiting period of cotton, and the number of leaves per bush was 31.7-37.3 pieces, the wet weight was 46.6-55.2 g, and the weight of one plant was 1.40-1.56 g, the leaf area of one plant was 1306.8-1568.4 cm^2.

At the end of the growing season of cotton, in the option where applied Background of mineral fertilizers N-150, P-105, K-75 kg / ha in the period of appearing 2-3 leaves, the dry mass was 3.0, 5.0, 7.0 kg / ha, 5.0, 7.0 9.0 kg / ha during the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period. In the variants fed by leaves of cotton with a suspension prepared on the basis of urea, the number of leaves per bush was 36.8-42.0 pieces, wet weight was 65.4-71.4 g, one leaf weight was 1.68-1.70 g, the leaf area of one plant was 1658.3-1837.7 cm^2. On this background, the best indicator for the formation of the leaf area of cotton is 7.0 kg / ha during the period of 2-3 deciduous of plants, 9.0 kg / ha during the budding period and 11.0 kg at the beginning of the flowering period. The number of leaves per bush was 42.0, the wet weight is 71.4 g, the weight of one leaf is 1,70 g, the leaf area of a plant was 1837.7 cm^2.

On the background of application of mineral fertilizers N-200, P-140, K-100 kg / ha in the period of 2-3 true leaves of cotton, the dry mass was 3.0, 5.0, 7,0 kg / ha, 5.0, 7.0, 9.0 kg / ha during the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period. In the variants fed from the leaves of cotton with the prepared suspension, the number of leaves in a bush of cotton is 42.5-44.5, wet weight is 72.2-75.5 g, weight of one leaf is 1,70 g, the leaf area of one plant was 1809.4-1963.7 cm^2. On this background, the best indicator for the formation of the leaf surface of cotton is 7.0 kg / ha during the period of 2-3 true leaves, 9.0 kg / ha during the budding period and it was observed 11.0 kg / ha at the beginning of the flowering period in the leaf-fed variant with a suspension prepared on the basis of urea fertilizer at the rate of kg / ha, the leaf area of one plant was 1963.7 cm^2.

On the background of application of mineral fertilizers N-250, P-175, K-125 kg / ha in the care of cotton in the period of 2-3 true leaves of the plant 3.0, 5.0, Urea fertilizer at the rate of 7.0 kg / ha, 5.0, 7.0, 9.0 kg / ha during the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period. The number of leaves per bush is 44.2-46.8, the wet weight is 75.2-79.9 g, the weight of one leaf is 1,70-1.71 g, the leaf surface of a plant was 1923.8-2131.8 cm^2. On this background, the best indicator for the formation of the leaf surface of cotton is 5.0 kg / ha during the period of 2-3 leaves, 7.0 kg / ha during the budding period and 9.0 kg at the beginning of the flowering period observed in the leaf-fed variant with a suspension prepared on the basis of urea fertilizer, the number of leaves in one bush was 46.8, the wet weight was 79.9 g, the weight of one leaf was 1,71 g, a plant leaf surface area was 2131.8 cm^2.

It can be seen that the application of mineral fertilizers in different doses in the cultivation of cotton, as well as the date and norms of application of the suspension also had different effects on the formation of the leaf surface of the plant, which we can see from the data obtained.

In cotton cultivation, the increase in leaf area improves photosynthesis productivity, which in turn allows the plant to absorb the nutrients it needs throughout the day and increase productivity. In order for photosynthesis to accelerate, the plant needs good air circulation, the seedlings should not be too thick, and each leaf should absorb more solar energy. If the cultivation of cotton is not good, the seedlings are thick and the humidity is high, the productivity of photosynthesis in cotton decreases, i.e. the leaves on the lower branches live at the expense of the leaves using solar energy and as a result, the productivity of generative organs decreases, which leading to an increase in vegetative organs [13].

Table 4: Norms of mineral fertilizers and the effect of application of suspension on the number, weight and surface of leaves during the development of cotton, Bukhara-102 variety, 2007

№	Budding period, 2.07.2007 y				blooming-fructifying period, 5.08.2007 y				In the end of the growth, 29.08.2007 y			
	Leaf area, cm^2/plant	Leaf number, piece/plant	Leaf weight, g/plant(in wet position)	Weight of one leaf, g	Leaf area, cm^2/plant	Leaf number, piece/plant	Leaf weight, g/plant(in wet position)	Weight of one leaf, g	Leaf area, cm^2/plant	Leaf number, piece/plant	Leaf weight, g/plant(in wet position)	Weight of one leaf, g
1	413,1	11,7	12,0	1,03	1306,8	31,7	46,6	1,47	1658,3	38,8	65,4	1,68
2	401,7	12,5	12,3	0,98	1425,6	32,8	50,0	1,52	1712,1	39,5	66,9	1,69
3	433,2	12,5	12,3	0,98	1395,2	33,7	50,0	1,48	1758,0	41,0	69,3	1,69
4	451,4	12,8	12,5	0,97	1445,6	35,5	49,9	1,40	1837,7	42,0	71,4	1,70
5	445,0	12,7	13,0	1,02	1497,5	35,2	52,1	1,48	1809,4	42,5	72,2	1,70
6	458,7	13,0	13,0	1,00	1502,6	36,0	53,0	1,47	1824,5	43,3	73,9	1,71
7	467,7	12,8	12,9	1,01	1568,4	37,0	54,5	1,47	1950,1	44,7	76,0	1,70
8	459,5	13,0	13,0	1,00	1539,4	34,2	51,8	1,52	1963,7	44,5	75,5	1,70
9	426,0	12,8	12,7	0,99	1453,3	34,0	53,0	1,56	1923,8	44,2	75,2	1,70
10	469,8	13,3	13,5	1,01	1519,4	37,3	55,2	1,48	2054,5	45,3	77,0	1,70
11	495,5	12,8	13,7	1,06	1535,4	35,8	53,4	1,49	2131,8	46,8	79,9	1,71
12	440,5	12,0	12,5	1,04	1403,7	33,8	52,3	1,55	2021,3	44,8	76,5	1,71

In the period of our research, the effect of the suspension prepared on the basis of new mineral fertilizer standards and urea fertilizer on the pure productivity of cotton photosynthesis was determined at the end of the budding-flowering and at the end of flowering-growth period of the plant and the following data were obtained (Table 5).

According to the results of our research, the process of photosynthesis is accelerated during the budding-flowering period of cotton, on the background of the application of mineral fertilizers N-150, P-105, K-75 kg / ha. 3.0, 5.0, 7.0 kg / ha in the period of 2-3 leaves of cotton, 5.0, 7.0 9.0 kg / ha in the period of budding and 7.0, 9.0, 11.0 at the beginning of the flowering period in the leaf-fed variants with a suspension prepared on the basis of urea at the rate of 0, 11.0 kg / ha, the net productivity of photosynthesis was 11.91-13.51 g / m^2 per day. On this background, the highest indicators of the net productivity of photosynthesis of the plant are 7.0 kg / ha in the period of 2-3 leaves of cotton, 9.0 kg / ha in the period of budding and 11.0 kg at the beginning of the flowering period was observed in the leaf-fed variant with a suspension prepared on the basis of urea, which was found to be 1.60 g / m^2 higher than in the water-treated control variant.

On the background of application of mineral fertilizers N-200, P-140, K-100 kg / ha in the period of 2-3 leaves of cotton, it was 3.0, 5.0, 7.0 kg / ha, 5.0, 7.0 9.0 kg / ha at the beginning of the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period in options where fed with urea-based prepared suspension, the net productivity of photosynthesis was 12.98–14.01 g / m^2 per day. On this background, the highest indicators of net productivity of photosynthesis of the plant are 7.0 kg / ha in the period of 2-3 leaves of cotton, 9.0 kg / ha in the period of budding and 11.0 kg / ha was observed at the beginning of the flowering period in the leaf-fed variant with a urea-based suspension, which was found to be 1.03 g / m^2 higher than in the water-treated control variant.

On the background of application of mineral fertilizers N-250, P-175, K-125 kg / ha in the period of 2-3 leaves of cotton 3.0, 5.0, 7.0 kg / ha, 5.0, 7.0 9.0 kg / ha at the beginning of the budding period and 7.0, 9.0, 11.0 kg / ha at the beginning of the flowering period, the net productivity of photosynthesis was 13.53–14.32 g / m^2 per day. On this background, the highest indicators of the net productivity of photosynthesis of the plant are 5.0 kg / ha in the period of 2-3 leaves of cotton, 7.0 kg / ha in the period of budding and 9.0 kg / ha was observed at the beginning of the flowering period in the leaf-fed variant with a suspension

prepared on the basis of urea fertilizer, which was found to be 0.45 g / m^2 higher than in the water-treated control variant.

At the end of the flowering-growth period of cotton photosynthesis pure productivity per day in the background of the application of mineral fertilizers N-150, P-105, K-75 kg / ha 3.0, 5.0, 7.0 kg / ha during the 3-leaf period, 5.0, 7.0, 9.0 kg / ha during the budding period and 7.0, 9.0, 11.0 kg at the beginning of the flowering period, it was at the rate of 14.05-16.24 g / m^2 / ha, N-200, P-140, K-100 kg of mineral fertilizers in the leaf-fed variants with a suspension prepared on the basis of urea rate in the applied background, it was 15.04-17.08 g / m^2.

Table 5: Norms of mineral fertilizers and the effect of suspension application on the pure productivity of cotton photosynthesis, g / m^2 per day 2007

№	Dry mass, g/plant			Leaf area, cm^2/ plant			Photosynthetic pure productivity, g/m^2 per day					
	budding, 2.07.07, V_1	blooming-fructifying, 5.08.07,V_2	At the end of growth period, 29.08.07, V_3	budding, 2.07.07, L_1	blooming-fructifying, 5.08.07, L_2	At the end of growth period, 29.08.07, L_3	budding-flowering davri			flowering-at the end of growth period		
							V_2-V_1	$(L_1+L_2)/2*33$	g/m^2 per day	V_3-V_2	$(L_2+L_3)/2*24$	g/m^2 per day
1	7,3	41,1	91,1	413,1	1306,8	1658,3	33,8	28378,4	11,91	50,0	35581,2	14,05
2	8,2	47,0	105,8	401,7	1425,6	1712,1	38,8	30150,5	12,87	58,8	37652,4	15,62
3	7,3	46,0	106,4	433,2	1395,2	1758,0	38,7	30168,6	12,83	60,4	37838,4	15,96
4	7,7	50,0	114,0	451,4	1445,6	1837,7	42,3	31300,5	13,51	64,0	39399,6	16,24
5	7,5	49,1	108,8	445,0	1497,5	1809,4	41,6	32051,3	12,98	59,7	39682,8	15,04
6	8,2	50,9	112,1	458,7	1502,6	1824,5	42,7	32361,5	13,19	61,2	39925,2	15,33
7	8,3	48,3	112,3	467,7	1568,4	1950,1	40,0	33595,7	11,91	64,0	42222,0	15,16
8	8,4	54,6	126,4	459,5	1539,4	1963,7	46,2	32981,9	14,01	71,8	42037,2	17,08
9	8,0	51,0	120,0	426,0	1453,3	1923,8	43,0	31008,5	13,87	69,0	40525,2	17,03
10	8,6	53,0	123,0	469,8	1519,4	2054,5	44,4	32821,8	13,53	70,0	42886,8	16,32
11	8,7	56,7	127,5	495,5	1535,4	1820,1	48,0	33509,9	14,32	70,8	40266,0	17,58
12	7,8	51,0	118,0	440,5	1403,7	1820,1	43,2	30429,3	14,20	67,0	38685,6	17,32

The highest rates of photosynthesis net productivity at the end of the flowering-growth period of cotton are on the background of the application of mineral fertilizers N-250, P-175, K-125 kg / ha 3.0, 5.0, 7.0 kg / ha during the period of 2-3 true leaves, 5.0, 7.0 9.0 kg / ha during the budding period and 7.0, 9.0 at the beginning of the flowering period, Observed in leaf-fed variants with a suspension prepared on the basis of urea at a rate of 11.0 kg / ha, photosynthesis net productivity was 16.32-17.58 g / m^2 per day. On this background, the highest indicators of the net productivity of photosynthesis of the plant are 5.0 kg / ha in the period of 2-3 leaves of cotton, 7.0 kg / ha in the period of mowing and 9.0 kg / ha at the beginning of the flowering period was observed in the leaf-fed variant with a suspension prepared on the basis of urea, which was found to be 0.55 g / m^2 higher than in the water-treated control variant.

Thus, in the conditions of typical sierozem soils of Tashkent region, the determination of feeding cotton with a suspension prepared from the leaves on the basis of urea fertilizer based on the norms of mineral fertilizers used during the development of cotton in accelerating the process of photosynthesis and photosynthesis net productivity was 0.55-2.19 g / m^2 per day more than in the water-treated variant, which allowed to grow high-quality cotton.

Conclusion

Physiological processes were coordinated, seedling germination was accelerated, growth was accelerated as a result of pre-sowing treatment of seeds with Sodium Humate, Obereg and Fitovak stimulants, as well

as the creation of favorable conditions for plant growth and development during the budding period, which has a positive effect on the dry mass accumulation process of cotton.

Sodium Humate, Obereg, and Fitovak stimulants also had a positive effect on leaf formation and leaf area during cotton development. At the same time, the number of leaves in a bush increased by 2.2-8.2, leaf weight by 6.5-29.2 g, single leaf by 0.06-0.33 g, and its area was 166.8 373.7 cm^2 more, which has a positive effect on the acceleration of the process of photosynthesis.

In the experiment conducted in the Navruz variety of cotton in Tashkent region, the use of Sodium Humat, Obereg and Fitovak stimulants at the right time and in the right norms accelerated the process of photosynthesis during the development of cotton, and the net productivity of photosynthesis was 0.61-3.39 g / m^2 more per day, which allows the cultivation of high and quality cotton crop.

In the cultivation of cotton, the determination of the norms of feeding with a suspension based on urea fertilizer in accordance with the norms of mineral fertilizers used is due to the fact that it creates favorable conditions for plant growth and development, physiological processes are coordinated, which leads to a positive effect on the process of dry mass accumulation of cotton.

In the conditions of typical gray soils of Tashkent region, the determination of feeding cotton with a suspension prepared from the leaves on the basis of urea fertilizer based on the norms of mineral fertilizers used during the development of cotton in accelerating the process of photosynthesis as well as, photosynthesis increases the net productivity by 0.55-2.19 g / m^2 per day compared to the water-treated variant, which allows to grow high-quality cotton.

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