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Influence of the Stimulant Humimax on the Yield of Sunflower

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Annotation: In the conditions of the Surkhandarya region, the use of growth stimulants Humimax to obtain an early and high-yielding re-crop of sunflower. With the use of growth stimulants Humimax (seeding rate 0.75 l/t; spraying of plants in phase 3-4 leaves 0.4 l/ha) had a positive effect on all seed, growth, development and productive seed.

Keywords: Sunflower, Stimulant, Humimax, Seed And Plant Treatment, Seed Germination, Growth And Development, Yield

Currently, the area under sunflower in the world is 28.23 million hectares, and in Uzbekistan - 56.5 thousand hectares. Ukraine, Russia, Argentina, Romania and China are the world's leading sunflower growing countries. In general, in 2021, 56.1 million tons of sunflower were harvested in the world, in Uzbekistan - 219.8 thousand tons [1; 5].

In our country, agricultural products are grown mainly on irrigated lands. The soil-climatic conditions of the country make it possible to obtain the second and third harvests from the areas freed from the grain harvest, sown in autumn by sowing intermediate, fallow, autumn intermediate crops.

The main climatic factors that determine the possibility of re-sowing, sowing autumn crops, are the duration of the warm period after harvesting grain sown in autumn, the amount of precipitation, temperature, and illumination. These factors are closely related to the maturity, yield and quality of the above crops.

After harvesting grain in the southern regions of the country will be 130-140 days, in other regions 110-120 days. The sum of positive temperatures for plants during this period is 2400-3200 0C in the southern regions and 1300-1600 0C in other regions, which is even more than half of the annual heat reserves.

In the conditions of the republic, especially in the southern regions, it is possible to sow and cultivate crops with a short growing season on areas freed from winter wheat.

However, due to unfavorable weather conditions, excessive water shortage, and drought, it is not always possible to achieve the expected results from crops sown after winter wheat. For this reason, obtaining early and high yields from winter wheat crops remains an urgent problem. Of course, you can grow a fabulous crop by applying certain agrotechnical measures. However, in any case, the use of growth regulators on various crops planted after winter wheat is essential to achieve a positive result.

In recent years, many scientists have carried out research on this topic and have collected a wide range of different experimental material.

Sh.Kh. Abdualimov [2] noted that growth regulators increase the germination and germination of seeds of agricultural crops, accelerate the ripening of the crop, and also have a positive effect on physiologically active substances in increasing plant resistance to drought, salinity, various diseases and pests.

When treating seeds before sowing, a number of biochemical changes in seeds, such as starch hydrolysis, increased enzyme activity, disrupt the dormancy period of seeds, accelerate germination [4], and accelerate seed germination as a result of improved nutrient supply [3].].

Research Methods

The amount of humus in the soil of the experimental field was determined by the method of I.V. Tyurin, total nitrogen and phosphorus by I.M. Maltseva and L.I. Gritsenko, mobile phosphorus by B.P. Machigin and exchangeable potassium by P.V. Protasov.

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The experiments were carried out in the conditions of bald meadow soils of the Surkhandarya region. Seeds of sunflower variety Jahongir, sown on winter wheat, were treated with stimulants in different doses before sowing and during the appearance of 3-4 pairs of leaves.

Observations, calculations and analyzes in field experiments were carried out in accordance with the methodological manual of UzPITI "Methodology for conducting field experiments" [2]. During the use of chemicals, the "Brief Guidelines for State Tests of Growth-Regulating Substances" were used, and the data obtained were processed mathematically and statistically according to the method of B. A. Dospekhov.

Results of the Study

In the experiment, observations were made until the complete germination of all seedlings and variants.

According to the data obtained, 70.9% of seedlings sprouted on the control variant, planted without seed treatment. On 3-4 variants, treated with sunflower seeds at the rate of 0.5 l/t before sowing with the Humimax stimulant, 82.0-82.6% of seedlings sprouted and 11.1-11.7% more than in the control.

On 5-6 variants, treated with sunflower seeds at the rate of 0.75 l/t before sowing with the Humimax stimulant, the germination of seedlings was 84.1-85.0%, which is 13.2-14.1% more than in the control.

In addition, the germination of seedlings on 7-8 variants, treated at the rate of 1.0 l/t before sowing sunflower seeds with the Humimax stimulator, was 81.6-82.4%, which is 10.7-11.6% higher than the control. When treated with sodium humate at the rate of 0.8 kg/t before sowing, 80.2% of seedlings sprouted and increased by 9.3% compared to the control.

In the experiment, higher data on the germination of seedlings were noted when the transplanted sunflower seeds were treated with the Humimax stimulator at the rate of 0.75 l/t, which is 14.1% more than in the control.

According to the results of the experiment, it was found that transplanted sunflower seeds treated with the Humimax stimulant had a positive effect on the germination of seedlings within 1-2 days.

It can be concluded that 0.5 g per transplanted sunflower seeds with the Humimax stimulant; When treated at doses of 0.75 and 1.0 l/t, seed dormancy is disturbed, the relative activity of enzymes increases, and the supply of reserve nutrients to seeds and seedlings is accelerated.

The obtained scientific data on the effect of stimulants on the dynamics of seedling germination are directly related to the growth of sunflower at a later date.

According to the results of studying the effect of treatment with the stimulant Humimax on the intensity of growth cycles (2011) on transplanted sunflowers, 37-38 days from germination to 3-4 pairs of leaves, 24-25 days from the period from 3-4 pairs of leaves to flowering, maturation from flowering 43-44 days before the period, the total growth period was 113-118 days, while the acceleration of these indicators by 1-5 days was found in accordance with the growth periods compared to the control. In the experiment, higher data showed that when transplanted sunflower was treated with the stimulant Humimax at the rate of 0.4 l/ha for 3-4 pairs of leaves, the duration of the growing season was 113 days, which is 5 days earlier than that of the untreated one. control option.

In the experimental years, it was noticed that the growing season of sunflower varied slightly depending on weather changes.

In our experience, it has been established that during transplantation, sunflower forms 3-4 pairs of leaves; dry matter accumulates during flowering and maturation.

According to the results of the experiment, repeated sunflower was treated at the rate of 0.8 kg / t per seed with sodium stimulant Humat, used as a standard for controlling dry weight in the 3-4-leaf period, 9.7 g when treated only with the stimulant Humimax. before sowing; 0.75; 13.0 when processed at the rate of 1.0 l/t; 17.7; 12.8 g, 0.5 g each before sowing into seeds with the stimulant Humimax; 0.75; 1.0 l / t and 13.4 when processed at the rate of 0.4 l / ha for 3-4 leaf periods; 17.8; 13.7 g, 1.2 g when applied at a dose of 0.4 l / ha when extracting 3-4 pairs of leaves with the Humimax stimulant. turned out to be big.

In the experiment, it was noted that the mass of vegetative and generative organs increased rapidly when dry mass was detected by the time of sunflower flowering. During this period, the dry weight of one plant was 140.4-172.8 g, and that of the stimulant-treated variants was 3.3-32.4 g compared to the untreated control variant. they were found to accumulate more dry weight.

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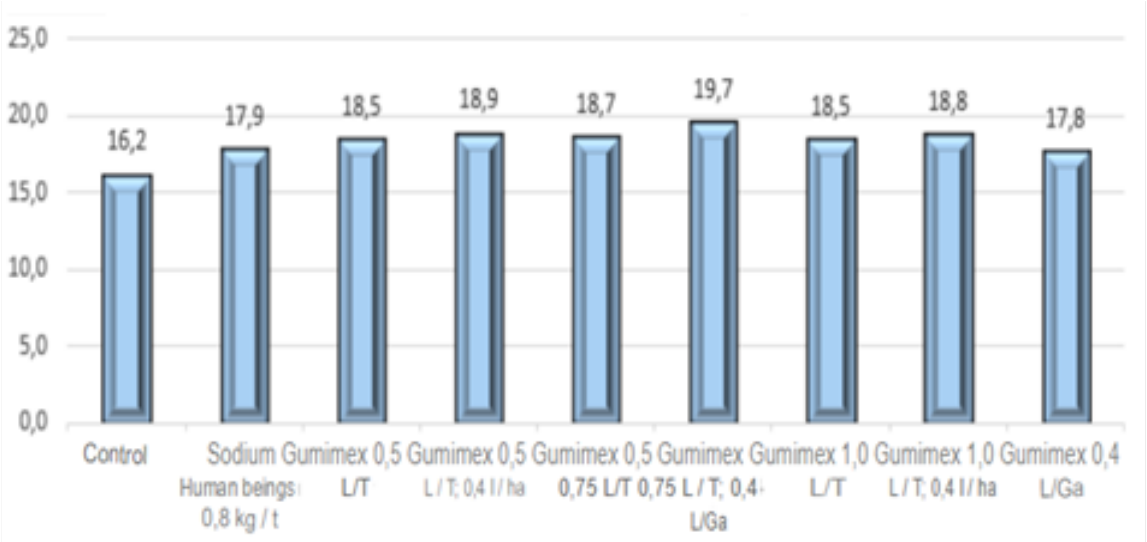
The total dry weight in the control at maturity was 167.7 g, 187.4 g when the seeds were treated at the rate of 0.8 kg/t with sodium stimulator Humat, 0.5 per seed only with the stimulator Humimax; 0.75; Total dry weight 210.4 when processed at the rate of 1.0 l/t; 220.5; 206.8 g, 0.5 g per seed with the stimulant Humimax; 0.75; 1.0 l / t and only 217.4 at a rate of 0.4 l / ha with the formation of 3-4 pairs of leaves; 231.4; 210.0 g of sunflower were treated with the stimulant Humimax at the rate of 0.4 l/ha in 3-4 pairs of leaves and 183.4 g at the rate of 0.8 kg/t of seeds with the stimulator Humate sodium, with the introduction of 19.7 g, with the stimulator Humimax only 0.5 per seed; 0.75; 42.7 when processed at the rate of 1.0 l/t; 52.7; 39.0 g, 0.5 g per seed with the stimulant Humimax; 0.75; 49.7 when processed at the rate of 0.4 l/ha with a yield of 1.0 l/t and 3-4 pairs of leaves; 63.7; 42.2 g, and sunflower gained 15.7 g more dry weight when treated with the stimulant Humimax at the rate of 0.4 l/ha for 3-4 pairs of leaves.

It should be noted that high rates of increase in dry mass of plants were observed mainly at 0.45 l/t before sowing the stimulant Humimax and 0.4 l/ha when 3-4 pairs of leaves were removed in 7 years.

According to our data (2009-2011), repeated sowing of sunflower seeds and treatment with the stimulant Humimax in the period of 3-4 pairs of leaves had a positive effect on the increase in grain yield (Fig.).

According to the study, the seed yield on the control variant averaged 16.2 q/ha. When seeds were treated with standard sodium humate at the rate of 0.8 kg/t, it amounted to 17.9 centners/ha, which is 1.7 centners/ha more than the control variant.



Picture. The effect of the use of gumimax stimulants on repeated sowing of sunflower seeds (2009-2011 yy.).

When processing sunflower seeds with humimax stimulator 0,5; 0,75; 1,0 l/t norm (var. 3; 5; 7) respectively, the average seed yield was 18,5; 18,7; 18,5 ts/ha, increased from control to 2,3; 2,4; 2,3 ts/ha.

Also, sunflower seeds are treated with a humimax stimulator in the norm of 0,5; 0,75; 1,0 l/t and 3-4 pairs of leaves when removing 0,4 l/t (var. 4; 6; 8) seedhosili was 18,9; 19,7; 18,8 ts/ha, from the control it was observed that these indicators were more than 2,7; 3,4; 2,6 ts/ha.

When the Sunflower was treated with a humimax stimulator in the period of 3-4 pairs of leaves in a norm of 0,4 l/ha, the average seed yield was 17,8 ts/ha, with an additional yield of 1,6 ts/ha compared to the control.

On the basis of the above data, it can be concluded that with a humimax stimulator before sowing on the seeds of the repeatedly planted sunflower, the germination rate increased by 0,75 L/t, in the period of 3-4 pairs of leaves to 0,4 l/ha, when processed in the norm, the germination rate increased, the growth, development of the plant was

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