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# Effect Of Zamin-M Biologically Active Substance On Seed Germination

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**ABSTRACT:**

The article describes the microbiological preparation of Zamin-M 2.0 before sowing seeds; 2.5 and 3.0 l / t, applied at a rate of 2.0 l / ha during the budding and flowering periods of cotton, provided data on the effect of increased seed germination and cotton yield. It was found that the germination rate of seeds in the variants treated with the microbiological preparation Zamin-M increased by 10.9-14.1% compared to the control variant, and 7.9% higher in the variant treated with Baikal EM 1.

**KEYWORDS:**

Cotton, seeds, stimulants, forgetfulness, growth, development, cotton yield.

**INTRODUCTION**

In global agriculture, the demand for growth regulating substances for plant care in the United States, the Russian Federation, China, Japan, India and Australia increased in the 1930s and 1940s, and today the demand in the global market is 2241 million. Equivalent to the US dollar. This means that growth regulators are widely used in the cultivation of agricultural products around the world. Growth regulators not only regulate plant growth, but also accelerate and improve the agrochemical processes that occur while maintaining and increasing soil fertility.

**THE DEGREE TO WHICH THE PROBLEM HAS BEEN STUDIED**

Sh.Abdualimov (2013) noted that the use of humic stimulants improved the growth and development of cotton, increased harvest, increased the number of combs, flowers and stalks, reduced shedding of elements, created an opportunity for early harvesting of cotton, increased yield and fiber quality.

In the research of S.S. Murodova (2018) it was proved that the treatment of microbial composition before sowing and during the growing season in saline soils has a positive effect on all biological parameters of plants - fertility, growth, development and productivity, as well as increases resistance to salinity stress .

In the research of F.Abdullaev (2015), F.A.Abdullaev, Sh.Kh.Abdualimov (2016) in the conditions of Tashkent region when treated with seeds and stimulants Gumimax and Kgmu in the period of flowering and flowering of cotton, germination of seedlings is accelerated by 10-15%. favorable conditions for growth and development were created, the net productivity of photosynthesis increased as a result of the increase in dry mass and leaf surface, and in the end the cotton yield was 4.2-5.4 higher.

I.Kh. Madrakhimov (2010) found that chemical and physical agents have different effects on the germination rate of seeds in field conditions. For example, it has been observed that the XS-2 stimulator and the EMM physical agent have a gradual effect on the germination rate of the seed. In the experiment, the highest values were obtained when using P-4, Samara and Gumat sodium drugs.

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**RESEARCH CONDITIONS AND METHODS**

In the experiment, the stimulator Baikal EM1 was compared and tested in 2015-2017 as a general control and as a standard. (Table 1). Each variant in the experiment consisted of 4 rows, the width between the rows of cotton was 60 cm, the length of the variants was 25 m, the width was 2.4 m, the area of one variant was 60 $m^2$, the variants were placed in 3 rows, 3 tiers.

Zamin-M microbiological preparation 2.0 before sowing seeds; 2.5 and 3.0 l / t, cotton was sprayed with a hand-held sprayer at a rate of 2.0 l / ha during mowing and flowering periods, mixed with 300 l / ha of water during mowing and 500 l during flowering. In this experiment, the microbiological drug Baikal EM 1 was applied to the seeds at a rate of 3.0 l / t and 3.0-3.5 l/ha during the mowing, flowering and budding periods.

**Table 1: Experimental system**

| № | Experiment options | Seed processing rate, l / t | Processing during the cotton growing season issuance rate, l / ha | |
|---|---|---|---|---|
| | | | budding | flowering |
| 1 | Control | Not processed | | |
| 2 | Baikal EM 1 | 3,0 | 3,0 | 3,5 |
| 3 | Zamin-M | 2,0 | 2,0 | 2,0 |
| 4 | Zamin-M | 2,5 | 2,0 | 2,0 |
| 5 | Zamin-M | 3,0 | 2,0 | 2,0 |

**RESEARCH RESULTS**

In Tashkent region, when the soil was sown with Zamin-M in 2015, heavy rains and torrential rains increased the moisture content of the soil and formed a crust. In 2016, dry weather was observed and seed water was provided for seed collection. A similar situation was observed in 2017, when unfavorable conditions for seed germination occurred. However, in the variants treated with Zamin-M, seed germination was found to be accelerated even in various adverse weather conditions.

During the experimental years (2015-2017), the germination rate of seeds was monitored daily. From the first observation, it was noted that the drug Zamin-M increased the field germination of seeds, and this positive situation became more pronounced in subsequent observations. In particular, in the 4th observation of the last period, the germination rate of seeds was 60.8% in the control variant, 68.7% in the use of Baikal EM1, 72.0 in the norm of Zamin-M 2.0 l / t, 2.5 l / t in Zamin-M. 74.9% of the norm and 71.7% of the Zamin-M 3.0 l / t (Table 2). Compared to the control variant, the use of Baikal EM1 was 7.9%, Zamin-M at the rate of 2.0 l / t, 11.2%, Zamin-M at the rate of 2.5 l / t, 14.1% and Zamin-M at 3.0 l / t. the norm was 10.9% higher than the norm.

In the variants treated with Zamin-M, the germination rate of seeds exceeded the control by 10.9-14.1%, while this figure was 7.9% when using the drug Baikal EM 1. It should be noted that the highest results in seed germination were obtained when treated with Zamin-M at a rate of 2.5 l / t.

**Table 2: Effect on germination of seeds when treated with microbiological preparation Zamin-M, Andijan-37 variety of cotton (2015-2017)**

| Experiment options | The norm of seed processing | Germination rate of seeds, % | | | | The difference from control |
|---|---|---|---|---|---|---|
| | | Observation 1 (May 6-8) | Observation 2 (May 9-10) | Observation 3 (May 11-12) | Observation 4 (May 13-12) | |
| Control | - | 15,3 | 29,0 | 39,1 | 60,8 | - |
| Baikal EM 1 | 3,0 л/т | 12,3 | 29,7 | 41,3 | 68,7 | 7,9 |
| Zamin-M | 2,0 л/т | 18,2 | 35,2 | 48,6 | 72,0 | 11,2 |
| Zamin-M | 2,5 л/т | 15,4 | 31,6 | 46,1 | 74,9 | 14,1 |
| Zamin-M | 3,0 л/т | 12,0 | 30,4 | 44,6 | 71,7 | 10,9 |

Thus, when pre-sowing treatment of seeds with biologically active substance Zamin-M produced locally, the germination rate of seeds was accelerated by 10.9-14.1% even in adverse weather conditions, and healthy and even seedlings were obtained.

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The desired yield can be achieved if the most important seed in the care of cotton is harvested in a healthy way.

Therefore, the Zamin-M stimulator created a basis for increasing cotton yield by positively affecting the growth and development of cotton, leaf surface formation, dry mass accumulation, photosynthesis productivity, and cotton weight per bucket.

During the experimental years, the yield was as follows: in 2015 it was 29.3-34.2 ts / ha in 2016, 45.6-49.2 ts / ha in 2016 and 48.6-56.2 ts / ha in 2017. According to the average three-year data, cotton yield in the control option is 41.2 ts / ha, 3.0 l / t for seeds with Baikal EM1 and 3.0-3.5 l / ha during the flowering period, 44.6 ts / ha, With Zamin-M 2.0 l / t for seeds and 2.0 l / ha for cotton during budding and 2.0 l / ha for flowering, 45.6 ts / ha, 2.5 l / t for Zamin-M seeds and 2.0-2.0 l / ha during the growing season at a rate of 46.5 ts / ha, and 3.0 l / t for Zamin-M seeds and 2.0- / l during the cotton growing season. The yield was 45.4 ts / ha at 2.0 l / ha, the additional yield compared to control was 3.4 ts in Baikal EM 1 and 4.2-5.3 ts / ha in Zamin-M.

**CONCLUSION**

In the research, the highest cotton yield was observed in the variant treated with Zamin-M at the rate of 2.5 l/t for seeds and 2.0-2.0 l/ for cotton during the flowering and flowering periods, with an additional yield of 5.3t/ or proved to be able to achieve a productivity increase of 12.9%.

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