UO'K-631.6.633.5

THE EFFECT OF VARIOUS IRRIGATION REGIMES, AS WELL AS STIMULANTS ON THE YIELD OF FINE-FIBER COTTON

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Abstract: In the conducted research, the effect of the use of stimulators on the cotton yield of SP 1607 cotton variety with different irrigation.

Key words: stimulant, cotton, irrigation, cotton yield.

Introduction Today, in a number of developed countries in the context of global climate change, physiologically active substances, i.e. stimulants, are widely used in agricultural crops. At the same time, plant phytohormones have a positive effect on the production of high and high-quality yields, ensuring healthy germination, rapid growth and development of seedlings, as well as controlling physiological processes, improving the activity of enzymes, amino acids, nucleic acids, protein biosynthesis, accumulation and distribution of nutrients, photosynthesis, respiration and metabolism. It is also important to develop optimal timing and criteria for the use of stimulants while increasing the resistance of fine-fiber cotton to environmental influences and obtaining high and high-quality yields.

Literature Review:According to Sh. Abdualimov, Sh. Karimov, and M. Ziyatov [2], the use of biostimulants such as Uzgumi at 0.4 L/ha, Baykal at 3.5 L/ha, retardants such as Sojean at 90–100 g/ha, and defoliants such as Dalrost at 2.5 L/ha, Uzprep at 2.0 L/ha, and Fon at 2.0 L/ha in late cotton fields accelerates the growth and development of cotton by 10–15 days. These applications also enhance ripening and result in high-quality and abundant yields. [16; pp. 6–7]

In the experiments conducted by Sh. Kh. Abdualimov, F. A. Abdullaev, and D. Rakhimova [1], the application of the Uzgumi stimulant to seeds at 0.7–0.8 L/t before sowing and at 0.3–0.4 L/ha during the budding and flowering stages, Geohumat at 1.0 L/t for seeds and 1.6 L/ha during budding and flowering, Gummi 20 at 1.0 L/t for seeds and 0.5–1.0 L/ha during the same periods, Boms at 300–1000 kg/ha into the soil, and Relekt at 200–400 ml/t for seeds and 200–

400 ml/ha during the true leaf and budding stages, resulted in 10–15% faster seedling emergence compared to the control. Consequently, cotton yield increased by 3.0 to 6.3 c/ha.

In the studies conducted by A. E. Avliyokulov [3] in the Surkhan-Sherobod desert, high yields were obtained using the Termiz-14 cotton variety grown in irrigated takir and meadow-takir soils with shallow groundwater (1.5–2 m). Irrigation regimes of 70–75–65% relative to the crop water requirement (ChDNS), using 1–3–2 and 1–4–2 systems, with water volumes of 700–900 m³/ha before flowering and 800–1000 m³/ha during the ripening period (total seasonal water volume of 5400–6500 m³/ha), proved to be effective. [20; p. 52]

Research Methodology:All phenological observations in the study were conducted according to the guidelines provided in "Methods of Conducting Field Experiments" [4], "Методика полевых опытов с хлопчатником" [5], and Ryzhov S.N.'s "Ways to Increase Fertility of Irrigated Soils in Central Asia. Cotton Growing" [6]. Yield indicators were processed mathematically following B.A. Dospekhov's (1985) methodology.

The experiment was carried out in 8 variants. Variants 1, 2, 3, and 4 were irrigated using a 70–75–65% regime, and variants 5, 6, 7, and 8 with a 65–70–60% regime. In the 70–75–65% group, four irrigations were conducted with a total water usage of 3649.6 m³, while the 65–70–60% group received three irrigations totaling 2844.6 m³.

Cotton yield largely depends on the weight of cotton in a single boll. The influence of various agro-technical practices, irrigation regimes, and stimulant applications on the weight of cotton in a single boll was observed during the season.

In these studies, the impact of applying stimulants at different times and rates on the boll weight of fine-fiber cotton was examined. The cotton harvest was carried out in three pickings. Before each picking, the average weight of cotton in 100 bolls was measured for each variant.

Research results and their discussion

The obtained scientific data are presented in Table 1. Under the 2023 conditions, across various irrigation regimes where stimulants were applied, the weight of cotton in a single boll varied proportionally across all three harvests. In the irrigation regime of 70-75-65% relative to the crop water requirement (ChDNS), when treated with stimulants, the Uzbiogumin variant produced cotton bolls with an average weight of 2.1 g, which is 0.1 g heavier than the control. The Immunoaktiv stimulant variant had bolls weighing 2.2 g, 0.2 g heavier than the control, while the variant treated with Turkish stimulants also resulted in 2.2 g, again 0.2 g heavier than the control.

In the 65-70-60% irrigation regime, Uzbiogumin application resulted in a boll weight of 2.1 g, 0.2 g heavier than the control. With Immunoaktiv, the weight was 2.0 g, also 0.2 g higher than the control. Turkish stimulants resulted in a boll weight of 2.1 g, which was 0.2 g more than the control. These results indicate that boll weight varied under different irrigation regimes, with the 70-75-65% regime yielding 0.1 g more than the 65-70-60% regime.

The experiment demonstrated that applying stimulants to the fine-fiber cotton variety SP-1607 under various irrigation regimes had a positive effect on yield. It is important to note that in

variants treated with stimulants under different irrigation schedules and levels, cotton growth, development, and yield accumulation were more optimal. The cotton yield clearly varied based on irrigation frequency and stimulant effects.

For the SP-1607 fine-fiber cotton variety, irrigated at 70-75-65% relative to ChDNS, the Uzbiogumin variant yielded 42.7 c/ha, which is 4.3 c/ha more than the control. The Immunoaktiv variant yielded 43.2 c/ha, 4.8 c/ha more than the control. Variants treated with Foral BMO, Ecosil, and Brentax KSA stimulants yielded 43.3 c/ha, 4.9 c/ha higher than the control (Table 1).

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Turli sug'orish tartiblarida parvarishlangan ingichka tolali g'o'zaga stimulyatorlar bilan ishlov erishning paxta hosiliga ta'siri, 2024 yil

№	Experience options	Application rates during seed treatment, budding, flowering, and boll formation stages: ml/t; ml/ha; l/t; l/ha.	Cotton yield, s/ha	The difference from control, s/to	The difference compared to the irrigation regime,s/ to
Watering procedure compared to CHDNS 70-75-65 %					
1	Control	-	38,4	-	5,3
2	Uzbiogumin	0,8 l/t, 0,4-0,5-0,6 l/to	42,7	4,3	5,9
3	Immunoactive	30ml/t, 30-30-30 ml/to	43,2	4,8	5,6
4	1)Forol VMO+ 2) Ekosil,	1,0 + 1,0 l/to	43,3	4,9	5,8
	2)Ekosil + 3)Brentaks KSA	1,0 + 1,0 l/to 0,5 + 1,0 l/to			
Watering procedure compared to CHDNS 65-70-60 %					
5	Control	-	33,1	-	
6	Uzbiogumin	0,8 l/t, 0,4-0,5-0,6 l/to	36,8	3,7	
7	Immunoactive	30ml/t, 30-30-30 ml/to	37,6	4,5	
8	1)Forol VMO+ 2) Ekosil,	1,0 + 1,0 l/to	37,5	4,4	

2)Ekosil + 3)Brentaks KSA	1,0 + 1,0 l/to 0,5 + 1,0 l/to		

Fine-fiber cotton is watered at a soil moisture content of about 65-70-60% relative to Hdns, when treated with Uzbekiogumin-36.8 C / ha, when treated with control-3.7 c / ha, when using an Immunoactive stimulant-37.6 c / ha, when treated with control-4.5 c / ha, when treated with stimulants Foral BMO, Ecosil, brentax KSA-37.5 S/ha. 4.4 c/ha more cotton harvest was obtained than in the control group.

Conclusion: In the experiment, it was found that when thin-fiber cotton was irrigated in the order of 70-75-65% and 65-70-60% relative to HDNS when using stimulants Foral BMO, Ecosil, Brentax KSA, cotton yield was 37.5-43.3 c/ha, which is 4.4-4.9 c/ha higher than the control.

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