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	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2021 **Issue:** 09 **Volume:** 101

Published: 30.09.2021 **http://T-Science.org**

QR – Issue QR – Article

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INFLUENCE OF SEEDLING THICKNESS AND FERTILIZER RATE ON COTTON YIELD

Abstract: *In agriculture, it is important to increase labor productivity, improve technological processes, and reduce costs as much as possible, save available resources.*

The purpose of the study is to scientifically substantiate the impact of seedling thickness and fertilization standards on cotton yield in the cultivation of cotton by sowing seeds under the film in light gray soils of Namangan region. The experiment consists of 6 options 3 turns, seedling thickness 138, 110, 90 thousand bushes / ha, application of fertilizers in the 1st norm pure nitrogen 210 kg per hectare, phosphorus 125 kg, potassium 105 kg 2nd norm nitrogen 250 kg per hectare, phosphorus 150 kg, and 105 kg of potassium were studied.

In this method, the growth and development of plants is accelerated in the cultivation of cotton. The yield of cotton is also the highest (39.7 ts / ha) in the variant used in the norm N-250, F-150, K-125 kg / ha, leaving the seedlings at 110 thousand bushes / ha. K-105 kg / ha was 1.6-2.3 ts / ha when used normally, N-250, F-150, K-125 kg / ha was 2.7-3.8 ts / ha when used normally. When the thickness of seedlings is 138 thousand bushes / ha, the yield of cotton decreases slightly when applied in the norm of N-200, F-125, K-105 kg / ha 33.6; N-250, F-150, K-125 at the normal application rate was 36.3 ts / ha.

Key words: *Seed, sowing, cotton, film, cotton, plant, germination, seedling, mineral fertilizer, growth, development, norm, yield, yield element, yield king, cultivation, option.*

Language: *English*

Citation: Tursunov, A. A. (2021). Influence of seedling thickness and fertilizer rate on cotton yield. *ISJ Theoretical & Applied Science, 09 (101),* 751-754.

Soi: http://s-o-i.org/1.1/TAS-09-101-106 ***Doi***: https://dx.doi.org/10.15863/TAS.2021.09.101.106

Scopus ASCC: *1100.*

Introduction

In agriculture, it is important to increase labor productivity, improve technological processes, and reduce costs as much as possible, save available resources.

Through the development, improvement and widespread introduction of agro-technologies that ensure high yields of cotton, it will be possible to obtain high-quality and high-yield cotton.

In Uzbekistan, a number of researchers have conducted research on the technology of growing cotton by sowing seeds under the film. In particular, in experiments conducted by S.Rahmonkulov and F.Hasanova (1997), seeds sown under film germinated in 6 days (14.5%) and in the control variant (in the open field) in 13 days 6.6%, i.e. 58.4% film; there were a lot of seedlings under it. The average daily temperature under the film was 1.7-7.7 C° more, and the total soil temperature before the cotton buds and full flowering phase was 168.3 C° more than when the seeds were sown in the normal way, resulting in an increase in yield by 6 quintals per hectare [10].

R. Kurbanov (2001), relatively good results in terms of soil properties were observed in the cotton growing area by sowing the seeds under the film in a wide range of film-coated variants on the topsoil. It has been concluded that when the surface part of the soil is covered with a film, the water utilization coefficient of the crop increases significantly as a result of a significant decrease in moisture evaporation from the soil surface [9].

In the research of S.Bahramov, Sh.Rakhmonov (2002) the efficiency of mineral fertilizers used in the method of sowing seeds under the film is greatly increased, because the temperature of the film-

covered buds is high for 70-80 days, the humidity is maintained at an acceptable level; the conversion of nutrients in it into a plant-like form is accelerated, the wastage of waste products by evaporation into the atmosphere is greatly reduced, and the fast-growing cotton plant quickly absorbs nutrients from the soil [2].

In the researches of I.Abdurahimov, Sh.Akmurzaev, E.Juraev (2006), in cotton growing by sowing the seeds under the film, it is emphasized that the time of sowing the seeds depends. Researchers point out that sowing seeds under the film is more effective when applied early. In the experiment, it was concluded that in the first half of March, when the seeds were sown under the film, the cotton crop ripened a month earlier, 20 days earlier when sown in the second half, and 10 days earlier when sown in the first ten days of April [1].

From the results of the above research, it can be seen that the yield of cotton has increased through the technology of growing cotton by sowing the seeds under the film.

The main findings and results

The research work was carried out under the conditions of light gray soils of the Namangan Scientific Experimental Station PSUEAITI, based on the established methods [5,6] and the obtained data on productivity were processed mathematically [7], the experiment consisted of 6 variants and 3 returns.

Seedling thickness in the experimental system is 138, 110 and 90 thousand bushes per hectare. Fertilizers were applied in two different rates (pure nitrogen 210 kg per hectare of norm 1, phosphorus 125 kg, potassium 105 kg. Pure nitrogen 250 kg, phosphorus 150 kg and potassium 125 kg per hectare 2 norm).

In the application of mineral fertilizers under the annual norm plowing 60% of phosphorus fertilizers, 50% of potassium fertilizers. Along with planting was fed 20% nitrogen fertilizer and 20% phosphorus fertilizer.

Feeding of plants during the growing season is divided into three parts, i.e. 1 feeding 3–4 leaves with 20% nitrogen fertilizer in the extraction phase. 2nd feeding with 30% nitrogen and 50% potassium in the milking phase. In the flowering phase of the 3rd feeding was fed with 30% nitrogen and 20% phosphorus.

Results and discussions

As a result of the study, the sown seeds began to germinate after 10 days, germinating with 15 kundato. 138.2 thousand bushes / ha in variant 1, 109.6 thousand bushes / ha in variant 2, 90.4 thousand bushes / ha in variant 3, 137.8 thousand bushes / ha in variant 4, 111.2 thousand taps in variant 5 close to the number of seedlings in the experimental system after single cotton seedlings / ha, in option 6 was 90.8 thousand tap / gani.

The number of seedlings left at the end of the growing season is 136.7 thousand bushes / ha in option 1, 108.3 thousand bushes / ha in option 2, 89.9 thousand bushes / ha in option 4, 135.6 thousand bushes / ha in option 4, 110.4 thousand bushes / ha in option 5, in option 6, it was 89.2 thousand cannons.

According to the results of the observation conducted on June 1, a significant difference between the options for plant growth began to be observed. In variants 1 and 4, where seedlings were left relatively thick, plant growth was more rapid than in variants, where seedlings were sparse (options 2,3,5,6). In options 1, 4, the plant height was 31.2, 32.9 cm, in options 2, 3, 5, 6 this figure was 27.6-30.7 cm, and the difference was 2.2-3.6 cm. On June 1, growth rates were 31.2 cm in variant 1, which was higher in height, and 27.6 cm, which was observed in variant 3, which was shorter. As of July 1, the growth of variant 4 plants accelerated to 90.0 cm, while the height of variant 3 plants was relatively low at 80.4 cm. As of August 1, the tallest variant was 92.5 cm, and the third variant was 83.6 cm. As of June 1, the number of Chinbarg was 8.9, 9.2 and 7.8-8.6, respectively. (Options 4, 6) The plants grew taller, the number of yielding horns was higher than the number of buds and buds.

The difference in plant height was 0.8-4.3 cm, the difference in the number of harvested horns was 0.5-0.7, and the difference in the number of pods was 0.4-0.6.

The number of combs formed in the plant was higher when the seedlings were left at 110,000 bushes / ha, and the difference compared to other options was 0.1-0.03. Such regularity was also noted in subsequent observations. On July 1, the height of the plants was 85.1 and 90 cm, respectively, in seedlings 1 and 4, where the seedlings were left thick. In other variants, the figure was 80.4–83.3 cm, with a difference of 4.9–6.7 cm. The number of fruit-forming horns formed in the plant was also slightly higher in the variants where the seedlings were relatively thick, at 11.6 and 12.4, respectively. The number of stems and flowers, in contrast, was higher in the relatively low number of seedlings than in the large number of seedlings left.

On August 1, mineral fertilizers also showed their effects. N-200, F-125, K-105 kg / ha were used normally and the number of seedlings was left at 138 thousand bushes / ha.

In variant 1, the seedlings grew 2.8–4.6 cm taller than in the variants where 110 and 85 thousand bushes were left, and the number of harvested horns was 0.5–0.7 more.

The number of nodules and stalks, on the other hand, was higher in the variants where seedlings were rarely left. Increasing the rate of mineral fertilizers (N-250, F-150, K-125 kg / ha) further accelerated the growth and development of plants. N-200, F-125, K-

105 kg / ha in these variants compared to options 1, 3 used in the norm. When the seedling thickness was 138,000 bushes / ha, the cotton yield was 33.6 ts / ha in variant 1 and 36.3 ts / gan in variant 4.

Table 1. Data on cotton yield

НСР $_{05}$ ц/га =1.19 НСР $_{05}$ % =3.26

B	Productivity in terms of returns, ts / ha			Productivity in terms of returns, ts / ha	Additional yield, ts / ha		According to the cotton harvest, ts / ha			
					Due to seedling thickness, ts / ha	NPK at the expense of the norm, ts / ha	1-term 15.09		2-term 29.09	
	I	II	III				ц/га	%	ц/га	%
1	34.2	33.9	32.7	33.6	-	-	30.8	91.6	2.8	8.4
2	37.0	36.2	34.6	35.9	+2.3	-	32.6	90.8	3.3	9.2
3	36.1	35.3	34.2	35.2	+1.6	-	32.3	91.8	2.9	8.2
4	37.8	36.1	35.0	36.3	-	+2.7	33.8	93.1	2.5	6.9
5	40.2	41.1	37.8	39.7	+3.4	+3.8	36.1	90.9	3.6	9.1
6	39.5	37.6	36.9	38.0	+1.7	+2.8	35.2	92.6	2.8	7.4

When the seedling thickness was 138,000 bushes / ha, the cotton yield was 33.6 ts / ha in Option 1 and 36.3 ts / ha in Option 4. In the variants with 110,000 seedlings per hectare, the cotton yield was 35.9 ts / ha and 39.7 ts / ha. Seedling thickness was 35.2 Sts and 38.0 ts / ha in 90,000 abandoned variants. The highest yields were obtained in the variants with 110,000 seedlings per hectare, and the application of fertilizers in the amount of nitrogen 200, phosphorus -125, potassium-105 kg / ha was 35.9 ts / gani.

When the fertilizer rate was increased to 250 kg of nitrogen, 150 kg of phosphorus and 125 kg of potassium per hectare, the yield was 39.7 ts / ha. When fertilizers N-200, F-125, K-105 kg / ha are applied in the norm, 110,000 bushes / ha of seedlings are left with additional yield compared to 138,000 bushels / ha. formed. When fertilizers were applied at the rate of N-250, F-150, K-125 kg / ha and the seedling thickness was 110 thousand bushes / ha, the additional yield was 3.4, 1.3 thousand bushels / ha was 1.3 ts / ha.

Increasing the rate of mineral fertilizers at different seedling thicknesses had a positive effect on cotton yield. In the variants used in the norms of fertilizers N-250, F-150, K-125 kg / ha, compared to the variants N-200, F-125, K-105 kg / ha, the cotton yield is 2.8 ts / ha, when the seedling thickness is 138 thousand bushes / ha, Increased by 3.8 at 110,000 bushels and by 2.8 ts / ha at 85,000 bushels. Thus, the optimum seedling thickness in the cultivation of cotton by sowing the seeds under the film was 110 thousand bushes / ha. At the same time, the cotton yield was the highest when fertilizers were applied in the amount of N-250, F-150, K-125 kg / ha.

Conclusion

As a result of the research, we came to the following conclusion: In areas where the technology of sowing seeds under the film is applied, the growth and development of plants is accelerated and ensures a tomorrow, high and quality harvest of cotton.

The analysis showed that. The highest results were observed when seedlings were left at 110,000 bushes / ha, and mineral fertilizers N-250, F-150, K-125 kg / ha were applied in moderation. In this variant, the height of the plants was significantly higher than in the other variants, and the number of fruiting branches and yielding elements formed in the plant was large. Cotton yield is also the highest (39.7 ts / ha) in the variant used in the norm of N-250, F-150, K-125 kg / ha, leaving the seedlings at 110 thousand bushes / ha. K-105 kg / ha increased by 1.6-2.3 ts / ha, N-250, F-150, K-125 kg / ha increased by 2.7-3.8 ts / ha.

The results of the analysis show that in the conditions of light gray soils of Namangan region, when using the technology of sowing seeds under the film; high yields of cotton are achieved as a result of application of seedling thickness of 110 thousand bushes / ha, mineral fertilizers in pure form of nitrogen 250 kg / ha, phosphorus 150 kg, and potassium 125 kg / ha.

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