IN VARIOUS LAYER THICKNESSES EFFECT OF APPLICATION OF BAYSTAR DEFOLIANT ON THE YIELD OF COTTON VARIETY S-7303

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Annotation:
This study examined the effectiveness of the Baystar defoliant and its impact on the yield of the medium-fiber cotton variety S-7303 under different plant densities. The experiments were conducted at planting densities of 70–80 thousand plants/ha, 100–110 thousand plants/ha, and 130–140 thousand plants/ha. At each density level, low, medium, and high rates of defoliant were applied, and leaf drop dynamics, boll opening degree, and final yield indicators were analyzed. The results demonstrated that the optimal combination of plant density and defoliant rate is a crucial factor in improving both the quantity and quality of yield. These findings are of practical importance for improving cotton cultivation techniques, particularly for medium-fiber varieties, in order to achieve higher yields, efficiently manage the defoliation process, and enhance productivity.

Keywords: distribution, layer, early-maturing , late-maturing , plant density , thousand plants/ha , standard, background, q/ha, defoliant, rate, first harvest, second harvest, baystar , entodefol , control.

Introduction:

In cotton farming productivity and fiber quality in increasing agrotechnician of events place is incomparable . Especially the vegetation last during applicable defoliation process cotton of the breasts one in rhythm ripening maturity , harvest harvest mechanization opportunities expansion with is significant . The current on the day Our Republic under the circumstances middle fibrous varieties ,

including S-7303 cotton variety wide extensive working to release enter This variety is agrobiological . to the characteristics see high productivity to the potential has although , defoliants application doses and seedling thickness mutual impact enough unexplored .

Defoliants effective application not only the harvest fast and good quality collecting in receiving and of the breasts ripening maturity to the process directly impact showing terms weight increases . With this together , chat thickness agrotechnician factor as of cotton vegetative and generative development , harvest of the composition formation and productivity indicators determinant main factor is considered .

This point of view from a different perspective street chat in thickness soft impact provider Baystar defoliant Application S-7303 cotton variety to productivity the impact scientific basically study current from issues is one . This research Baystar defoliant doses and street chat the optimal ratio of thickness detection , high harvest and good quality cotton fiber to take opportunities to expand service does.

Literature analysis

Ubaydullayev M. By take visited research results to the conclusions according to defoliation cotton leaves to spill with one in a row , in the aisles It also accelerates the opening , fiber output to pests against fight measures improve Cotton first my name weight increasing as a result general harvest amount improves and autumn-winter of events own within the term execution provides . [1 ; 588-589-b].

According to D. Allakulov, B. Rakhmatov, M. Ikromova, when the Fitovak stimulant is added to the SuyuqXMD defoliant, while reducing the rate of application of the defoliant by 50%, the defoliant loses its harsh effect and becomes soft, that is, the leaves fall off semi-dried and wilted, the opening of the bolls is accelerated, and its effectiveness increases [2 ; 99-101-b].

S. Kadyrov, T. Khudoyberdiev noted that when the defoliation period is delayed, the effectiveness of defoliants decreases. Because, as a result of the aging of the leaves in the lower and middle tiers of cotton plants, defoliants do not have a good effect, and in turn, leaf shedding becomes very difficult. In such cotton fields, when harvesting by machines, the productivity decreases and the level of cotton contamination increases [3 ; 204-210-b].

Research results:

It has been established in many experiments that the potential of cotton yield is very high. Accordingly, it is known from the literature that up to 200 quintals of cotton were obtained by providing special lamps with light day and night in greenhouse conditions. This makes it possible to achieve high yields of cotton varieties in the field by partially controlling abiotic factors. In particular, by ensuring optimal seedling density, it is possible to achieve increased yields by influencing the microclimate of cotton fields and air exchange between cotton bushes to a certain extent.

In 2022 , our research seedling thickness reaches 70-80 thousand bushels/ha designated in the background Control in the option It was found that the first harvest weight was 78.2%, and in the standard variant it was 84.6%, and the cotton yield was 31.6-32.4 s/ha . In the variants where three different rates of Baystar defoliant were used on this background, the above indicators were 83.0-86.8-84.1 percent, and the cotton yield was 33.0-34.2-33.4 s/ha in proportion to the variants. It was found that the above indicators were 83.0-86.8-84.1 percent, and the cotton yield was 33.0-34.2-33.4 s/ha in proportion to the variants.

Against this background, we can see from the table that when we applied the defoliant at a rate of 0.600 l/ha, the cotton yield was 2.6 t/ha higher than the control option and 1.8 t/ha higher than the standard option.

In the control variant of the background with a seedling density of 100-110 thousand bushels/ha, the cotton yield was 33.1 bushels/ha, which was 1.5 bushels/ha higher than the control variant of the background with a seedling density of 70-80 thousand bushels/ha. This once again confirmed in our research that seedling density can also affect cotton yield.

Against this background, in the variants where Baystar defoliant was applied at a rate of 0.500-0.600-0.700 l/ha, the cotton yield was 34.0-36.8-35.7 t/ha, in accordance with the defoliant standards, and the first harvest weight was 85.9-89.9-85.2%. According to the variants where the defoliant was applied, the highest yield was obtained in the variant where the defoliant was applied at a rate of 0.600 l/ha, and the first harvest weight was 15.0% higher and the cotton yield was 3.7 t/ha higher than the control variant.

In the control variant of the background with a high seedling density (130-140 thousand bushels/ha), the first harvest weight was 71.8%, and the cotton yield was 32.6 bushels/ha. It is worth noting that, compared to the background with a seedling density of 70-80 thousand bushels/ha, the first harvest weight was 6.4%

lower and the cotton yield was 1.0 bushels/ha higher, while compared to the background with a seedling density of 100-110 thousand bushels/ha, these indicators were 3.1% and 0.5 bushels/ha lower. This showed that the seedling density in cotton fields has a certain effect on the ripening and weight of the cotton crop.

In the variants of this background where defoliant was applied, the first harvest weight was 82.9-83.9-86.6%, in accordance with the defoliant standards, and the cotton yield was 32.7-34.1-35.2 t/ha. It was observed that the above indicators improved relatively at high defoliant standards, and an additional yield of 0.1-1.5-2.6 t/ha was achieved compared to the control, in accordance with the defoliant standards.

It was found that the highest yield was obtained when the seedling density of the cotton variety S-7303 was left at 100-110 thousand bushes/ha and the Baystar defoliant was applied at a rate of 0.600 l/ha, and the cotton yield of the remaining two backgrounds differed by 2.6-2.7 t/ha according to the above option.

We also found it appropriate to present an analysis of the cotton harvest in all the years in which the research was conducted. Because, based on the idea that no two years are the same, it can be seen that the results obtained on the cotton harvest also differed from each other. This is directly dependent on the weather conditions.

According to the results of a study conducted in 2022-2024 in the conditions of irrigated meadow sedge soils of the Fergana region, in the control variant without defoliation of the studied S-7303 cotton variety, the average cotton yield in three years was 32.3-34.4-33.5 bushels/ha, depending on the seedling thickness, and a relatively high yield was observed within the seedling thicknesses of 100-110 thousand bushels/ha.

It was determined that in the variant where the standard, that is, the Entodefol defoliant was used at a rate of 0.150 l/ha, an average cotton yield of 33.7-35.9-35.2 t/ha was obtained in three years, corresponding to the seedling thickness background, and an additional yield of 1.4-1.5-1.7 t/ha was obtained compared to the control variant.

When three different (0.500-0.600-0.700 l/ha) Baystar defoliant rates were applied according to the seedling density background, and when the seedling density was left at 70-80 thousand bushes/ha, the average cotton yield was 33.7-35.2-34.6 t/ha in accordance with the defoliant rates, and the additional yield compared to the control option was 1.4-2.9-2.3 t/ha.

In the background of the planting density of 100-110 thousand bushes/ha, this indicator was 36.0-38.2-36.9 s/ha on average for three years, resulting in an additional cotton yield of 1.6-3.8-2.5 s/ha compared to the control variant. It was found that the highest cotton yield was obtained from the variant with a defoliant rate of 0.600 l/ha, while a relatively low yield was obtained when the defoliant rate was 0.500 l/ha.

In the background of the seedling density of 130-140 thousand bushes/ha, the variants in which Baystar defoliant was used yielded 35.1-35.8-36.7 t/ha of cotton, which was 1.6-2.3-3.2 t/ha higher than the control variant. It was found that the variant in which the high rate of defoliant was used in this background slightly increased the yield compared to other rates, which once again confirmed the need to increase the rate of defoliant consumption as the seedling density increases.

Effect of defoliant rates on cotton yield depending on seedling thickness in cotton variety S-7303, 2022-2024

Table 1

Variant order	Experience options	Years of research			Average in 3 years	Additional yield	
		2022	2023	2024		s/to	%
70-80 thousand bushes/ha							
1	Control	31.6	32.4	32.8	32.3		
2	Entodefol-0.150	32.4	34.1	34.6	33.7	1.4	4.2
3	Baystar-0.500	33.0	33.8	34.3	33.7	1.4	4.2
4	Baystar-0.600	34.2	35.3	36.0	35.2	2.9	8.2
5	Baystar-0.700	33.4	34.6	35.7	34.6	2.3	6.6
100-110 thousand bushes/ha							
6	Control	33.1	34.7	35.4	34.4		
7	Entodefol-0.150	34.3	35.7	37.6	35.9	1.5	4.1
8	Baystar-0.500	34.0	36.7	37.3	36.0	1.6	4.4
9	Baystar-0.600	36.8	38.2	39.6	38.2	3.8	9.9
10	Baystar-0.700	35.7	37.1	38.0	36.9	2.5	6.9
130-140 thousand bushes/ha							
11	Control	32.6	33.2	34.6	33, 5		
12	Entodefol-0.150	33.5	35.1	37.0	35.2	1.7	4.8
13	Baystar-0.500	32.7	35.8	36.7	35.1	1.6	4.5
14	Baystar-0.600	34.1	36.1	37.2	35.8	2.3	6.4
15	Baystar-0.700	35.2	36.7	38.1	36.7	3.2	8.6

Conclusion:

In conclusion, it can be concluded that seedling density and defoliant standards directly affect the yield of the studied cotton variety, and that defoliation using Baystar defoliant at a rate of 0.600 l/ha and leaving the seedling density at 100-110 thousand plants/ha can lead to earlier opening of bolls and higher first harvest weight, which in turn can lead to higher cotton yield.

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