

RESULTS OF THE STUDY OF THE INFLUENCE OF DEFOLIANTS ON THE VARIETIES OF COTTON ZERAFSHAN IN THE SOIL AND CLIMATIC CONDITIONS OF THE SAMARKAND REGION

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Abstract

The article presents the main results of field studies of the influence of defoliants on a new variety of cotton Zerafshan in the soil climatic conditions of the Samarkand region.

Key words: defoliants, desiccants, yield, cotton,

Introduction. Today, the use of various chemicals in agriculture is expanding. These include a large amount of mineral fertilizers to ensure soil fertility, various insecticides used in the fight against agricultural pests, diseases and weeds, fungicides, herbicides, transport that increase yields and accelerate plant growth, as well as defoliants for dropping plant leaves before harvesting. ... Many tools such as dehumidifiers are widely used.

Analysis of relevant literature

The vital activity of the plant organism is the result of this complex biological development. This development process is directly related to the quantity and quality of the external environment. The main external factors affecting the growth and development of a plant are temperature, humidity, light and nutrition.

Defoliantes are inorganic [1] or complex organic chemicals that are used to absorb cotton leaves. Desiccants, in turn, are chemicals that shed cotton leaves and are used to completely dry the stunted cotton stalks and completely open the pods.

Rafik Chaudhry [2] believes that cotton picking by machines requires chemical defoliation. In addition, in some countries, defoliantes are also used to accelerate the ripening of the pods and ensure that cotton ripens simultaneously. Sometimes the cold air acts as a natural defoliant and allows the cotton leaves to fall naturally. Only in Australia and Israel, 100% cotton fields are chemically defoliated. In the eastern United States, all cotton fields are defoliated, while the southern part of the territory is only 20%.

According to F.C. Elliof [3], if defoliation is carried out 35 days after the maximum flowering limit of cotton, the development of cotton fiber will be better. The optimal time for a Texas (US) defoliation condition is when young Cockney are 25 days old.

According to scientific studies by C.O. Gwathmey and R.M. Hayes [4], modern chemical defoliantes accelerate the loss of cotton leaves, as well as strengthen the stem of ripe pods and prevent the plant from growing again. These formulations have a positive effect on the efficiency of machine cotton picking by reducing weeds, seed damage and cotton picking times.

For the first time in Uzbekistan A.I. Imomaliev [5] studied the effectiveness of ammonia water in defoliation of cotton and found that it has high defoliant properties and its use led to the loss of more than 70% of the leaves.

In the conditions of Uzbekistan in 1977-1980. [6] A completely new direction in the artificial decontamination of cotton was created. Based on the results of theoretical studies carried out by scientists and specialists of the Institute of Chemistry of the Russian Federation and regular experiments on small areas, UDM series preparations for defoliation and drying of cotton - magnesium chlorate, calcium chlorate chloride and mineral fertilizers (ammophos, urea, calcium, etc.) ... use of mixtures based on ammonium nitrate and other fertilizers).

According to R.S. Nazarov [7], if cotton is dehydrated in a timely manner and at an acceptable rate with chemicals, the opening of cotton bolls will be accelerated, harvesting

will be premature, the quality of fiber will increase, and the breakdown of fibers and boxes will stop. For defoliants to have a full effect, the preparation of a plant leaf for isolation, that is, biologically inclined to release a leaf, must be determined separately for each field.

Sh.Teshaev [8] points out that during artificial defoliation of cotton, that is, during defoliation, changes in air temperature have a significant effect on the effectiveness of defoliants, during which it is desirable that the air temperature be about 22-26 0 C.

In the conditions of the Samarkand region [9] T. Ya. Babaev (1964) for the first time in his research studied the effectiveness of organophosphorus preparations of defoliants Butifos and Folex in connection with different schemes of cotton planting and gave recommendations on the optimal use of defoliants.

Defoliation or drying of cotton before harvest [10] is the most laborious process in cotton growing - a prerequisite for mechanized cotton harvesting. This measure will reduce the cost of the cotton grown and complete the comprehensive mechanization of all work in the cotton industry. The efficiency of cotton pickers depends on the timely and quality defoliation of the cotton.

K. Abdusattorov., H. Abdurakhmonovs [20], scientific research was carried out in the conditions of the Jizzakh and Samarkand regions, in the conditions of the Jizzakh region of the AN-Bayovut-2 variety, the defoliant Dropp 0.5 l / ha, and in the conditions of the Samarkand region, in the Akdarya variety -6, cotton Auguron - the highest results were obtained when the extract was applied at the rate of 0.20 l / ha, while the yield increased to 2.0-2.2 c / ha, and the quality of cotton fiber was slightly improved.

Research methods

Field experimental studies were carried out on a mid-season cotton variety "Zarafshon" in the conditions of medium sandy soils of the Samarkand region, where the depth of the underwater waters is 7-8 meters.

Experimental studies were carried out according to the method of conducting field experiments (2007), Guidelines for state testing of cotton defoliants (1995) and Methods

for determining the properties of cotton fiber. (1972) and GOST 3274.0-72, GOST 3274.5-72, GOST 2182.0-76. Statistical analysis of the data was carried out on the basis of such manuals as B.A. Armor "Methodology of field experience" (1979).

Before defoliation, the plant height, the number of green leaves on the bushes, and the number of open and half-open boxes in each variant were determined on 25 plants.

After 7 and 14 days of defoliation, the number of dried, semi-dry and green leaves, open and half-open boxes on 25 plants, marked with returns for each option, was determined. By analyzing the data obtained and calculating, the number of discarded leaves was calculated, as well as the opening speed and opening speed of the bolls.

Before each cotton picking, 50 boxes of cotton were selected from the 1st and 3rd replicates in accordance with the options in a general order, and the weight of one cotton per box and the technological properties of the cotton fiber and the quality of the seeds were determined. The yields obtained by timing were analyzed in terms of options and yields, and the range of yield quality was determined.

To determine the accuracy and reliability of the data obtained on cotton yield, the method of mathematical processing was applied by the method of calculating multifactor experiments according to V.P. Peregudov (1981).

Results and observations

It is known that the volume of crop production should be mainly by increasing their productivity and improving their quality. Therefore, it is important to study the relationship of plants with water, nutrients, seedling thickness and other agro technical factors and their needs.

Therefore, our experiment examined the effect of defoliants on cotton leaf loss and box opening depending on irrigation regime and pruning time, and observations were made based on the guidance data presented in Table 1-4.

Table 1. Influence of defoliant on the loss of cotton leaves, humidity before irrigation, relatively the lowest 65-70-60% moisture capacity, irrigation regime and chasing on 12-13 branches of the crop.

№	Parameters	After seven days of defoliation					
		Green leaves, %	Dried leaves, %	Semi-dried leaves, %	Fallen leaves, %	Defoliant effect, %.	Opening cotton boxes, %
1	Control -	92,4	-	-	7,6	-	49,1
2	Liquid XMD-8.0 l / ha	13,4	29 , 6	14 , 3	42,7	86, 6	60,1
3	UzDEF-6.0 l / ha	14,6	29,7	11,6	54,1	85,4	57,1
4	UzDEF-7.0 l / ha	13,5	29,4	13,2	53,9	86,5	56,0
5	UzDEF-8.0 l / ha	12,3	28,6	15,4	53,7	87,7	58,1
6	PolyDef-5.0 l / ha	15,4	29,4	13,7	51,5	84,6	55,0
7	PolyDef-6.0 l / ha	13,7	23,9	13,9	58,9	86,3	55,7
8	PolyDef-7.0 l / ha	12,8	25,6	14,8	56,8	87,2	53,3
		After fourteen days of defoliation					
1	Control -	89,0	-	-	11,0	-	56,0
2	Liquid XMD-8.0 l / ha	6,8	22,1	6,4	64,7	93,2	68,8
3	UzDEF-6.0 l / ha	4,0	18,6	3,2	74,2	96,0	62,7
4	UzDEF-7.0 l / ha	4,0	18,2	5,1	72,7	96,0	61,6
5	UzDEF-8.0 l / ha	3,2	19,5	4,3	73,0	96,8	64,2
6	PolyDef-5.0 l / ha	5,1	21,0	4,2	69,7	94,9	63,4
7	PolyDef-6.0 l / ha	2,8	18,3	3,5	75,4	97,2	64,1
8	PolyDef-7.0 l / ha	1,9	16,5	3,7	77,9	98,1	65,7

The results of the study showed (Table 1) that after seven days of defoliation, the effectiveness with the use of UzDEF ranged from 85.4% to 87.7%. The best results were obtained in variant 5 where the share of UzDEF was 8.0 l / ha. When using UzDEF 6.0 l / ha, green leaves accounted for 14.6%, then in option 5 where the share of UzDEF was 8.0 l / ha, on average, this indicator was 12.3%. The results of opening cotton boxes showed that when using UzDEF, the best indicators were obtained in option 5 and amounted to 58.1%.

Table 2. Influence of defoliant on the loss of cotton leaves, humidity before irrigation, relatively the lowest 65-70-60% moisture capacity, irrigation regime and chasing on 14-15 branches of the crop.

№	Parameters	After seven days of defoliation					
		Green leaves, %	Dried leaves, %	Semi-dried leaves, %	Fallen leaves, %	Defoliant effect, %	Opening cotton boxes, %
1	Control -	92,7	-	-	9,7	-	49,1
2	Liquid XMD-8.0 l / ha	7,4	27,3	16,1	49,2	92,6	60,2
3	UzDEF-6.0 l / ha	13,2	26,5	13,5	46,8	86,8	59,3
4	UzDEF-7.0 l / ha	12,5	25,8	15,2	46,5	87,5	61,0
5	UzDEF-8.0 l / ha	9,9	26,4	17,4	46,3	90,1	62,4
6	PolyDef-5.0 l / ha	14,1	27,9	14,2	43,8	85,9	62,0
7	PolyDef-6.0 l / ha	12,3	28,2	16,0	43,5	87,7	64,7
8	PolyDef-7.0 l / ha	10,4	25,6	17,2	46,8	89,6	65,6
		After fourteen days of defoliation					
1	Control -	82,3	-	-	9,7	-	57,1
2	Liquid XMD-8.0 l / ha	1,8	22,4	8,0	68,8	98,2	65,7
3	UzDEF-6.0 l / ha	4,3	18,2	4,7	72,8	95,7	64,8
4	UzDEF-7.0 l / ha	2,8	15,7	5,3	76,2	97,2	66,5
5	UzDEF-8.0 l / ha	2,7	16,3	7,2	73,8	97,3	67,9
6	PolyDef-5.0 l / ha	4,3	16,2	5,2	74,3	95,7	67,0
7	PolyDef-6.0 l / ha	2,6	16,8	6,1	74,5	97,4	70,2
8	PolyDef-7.0 l / ha	2,4	17,5	6,7	73,4	97,6	71,1

When using UzDEF (table-2), the effect of defoliant on the loss of cotton leaves, humidity before irrigation is relatively the lowest 65-70-60% moisture capacity, irrigation mode and chasing on 14-15 crop branches showed that the best results in terms of defoliant efficiency were obtained with the option 5 and it was 90.1%, the opening of cotton boxes was obtained in the 8th variant where the defoliant PolyDef was applied 7.0 l / ha and amounted to 65.6%. However, it should be taken into account that the best result in terms of defoliant efficiency was obtained with the use of Liquid CMD and amounted to 92.6%.

The results of a study on the influence of defoliant, moisture before watering relative to the lowest 70-75-65% moisture capacity (table-3), watering regime and chasing on 12-13 crop

branches after seven days of defoliation showed that dried leaves when using UzDEF ranged from 26.4 up to 26.5%, the effectiveness of the defoliant with options 3-4-5 averaged from 85.1 to 88.6%, opening of cotton boxes ranged from 43.3 to 46.5%. The best results were observed in option 5 where the share of UzDEF defoliant was 8 l / ha.

Influence of defoliants moisture before watering relative to the lowest 70-75-65% moisture capacity (Table 3), watering regime and chasing on 12-13 crop branches after fourteen days showed that dried leaves when using UzDEF ranged from 30.4 to 30.9 %, the fallen leaves were 61.3-64.7%, the defoliant efficiency was 93.2-95.1%, the opening of cotton boxes was 64.7-69.1%. The best results in terms of the effectiveness of defoliants and opening of cotton boxes were obtained in the 8th variant, where the share of UzDEF was 8.0 l / ha.

Table- 3. Influence of defoliants on the loss of cotton leaves, humidity before watering, relative to the lowest 70-75-65% moisture capacity, watering regime and chasing on 12-13 crop branches.

№	Parameters	After seven days of defoliation					
		Green leaves,%	Dried leaves,%	Semi-dried leaves,%	Fallen leaves,%	Defoliants effect,%	Opening cotton boxes,%
1	Control -	95,7	-	-	4,3	-	40,0
2	Liquid XMD-8.0 l / ha	10,1	28,0	17,1	44,9	90,0	45,1
3	UzDEF-6.0 l / ha	14,9	34,0	15,1	36,0	85,1	43,3
4	UzDEF-7.0 l / ha	14,0	35,5	14,0	16,5	86,0	46,1
5	UzDEF-8.0 l / ha	12,4	34,4	18,2	36,0	88,6	46,5
6	PolyDef-5.0 l / ha	19,5	28,5	16,0	35,0	79,5	48,1
7	PolyDef-6.0 l / ha	15,2	34,0	15,0	35,8	84,8	47,9
8	PolyDef-7.0 l / ha	14,9	35,0	16,0	34,0	85,0	49,9
		After fourteen days of defoliation					
1	Control -	89,1	-	-	10,7	-	49,1
2	Liquid XMD-8.0 l / ha	5,0	29,9	1	64,1	95,0	71,0
3	UzDEF-6.0 l / ha	5,9	30,9	1	61,3	93,2	64,7
4	UzDEF-7.0 l / ha	5,0	30,9	-	63,0	93,9	67,9
5	UzDEF-8.0 l / ha	6,4	30,4	-	64,7	95,1	69,1
6	PolyDef-5.0 l / ha	9,5	32,4	1	60,7	94,1	71,1
7	PolyDef-6.0 l / ha	6,2	33,2	-	62,5	95,7	72,2
8	PolyDef-7.0 l / ha	5,2	32,0	-	64,1	96,1	73,9

When analyzing the data obtained after the 7th days of defoliation (Table 4), with 14-15 branches of the culture where UzDEF was used from 6.0-8.0 l / ha, the efficiency of the defoliant was from 86.8 to 88.1%, opening of cotton boxes varied from 51.3 to 59.0%.

The use of defoliant PolyDef after 7 days of defoliation, the efficiency was 85.9-89.6%. When using PolyDef 5.0 l / ha, if the dried leaves accounted for 47.1%, then the fallen leaves accounted for 31.1%, the opening of cotton boxes was 50.7%. With an increase in the dose of PolyDef by 2 l / ha, dried leaves increased by 1.9%, respectively, fallen leaves by 2.0%, opening of cotton boxes by 8.3%.

The results of the study obtained after the 14th day of defoliation with 14-15 branches of the culture when using UzDEF, the defoliant efficiency changed from 9.7% to 10.3%, the opening of cotton boxes increased from 10% to 15.9%.

Table -4. Influence of defoliants on the loss of cotton leaves, moisture before irrigation relative to the lowest 70-75-65% moisture capacity, irrigation regime and chasing on 14-15 branches of the crop

№	Parameters	After seven days of defoliation					
		Green leaves,%	Dried leaves,%	Semi-dried leaves,%	Fallen leaves,%	Defoliants effect,%	Opening cotton boxes,%
1	Control -	87,0	-	-	8,6	-	
2	Liquid XMD-8.0 l / ha	8,9	44,1	15,3	31,7	91,1	51,1
3	UzDEF-6.0 l / ha	13,2	45,0	13,6	28,2	86,8	51,3
4	UzDEF-7.0 l / ha	12,5	49,0	9,6	28,9	87,5	58,1
5	UzDEF-8.0 l / ha	11,9	49,9	8,7	29,5	88,1	59,0
6	PolyDef-5.0 l / ha	14,1	47,1	7,7	31,1	85,9	50,7
7	PolyDef-6.0 l / ha	13,3	47,4	7,4	31,9	86,7	56,1
8	PolyDef-7.0 l / ha	10,4	49,0	7,5	33,1	89,6	59,0
		After fourteen days of defoliation					
1	Control -		-	-	9,2	-	60,2
2	Liquid XMD-8.0 l / ha	2,8	41,1	-	56,1	97,2	67,0
3	UzDEF-6.0 l / ha	3,3	38,9	1	55,9	96,7	67,2
4	UzDEF-7.0 l / ha	2,8	39,5	-	57,7	97,2	68,1
5	UzDEF-8.0 l / ha	1,6	40,3	-	58,1	98,4	73,1
6	PolyDef-5.0 l / ha	2,3	40,1	1	56,6	97,7	68,7
7	PolyDef-6.0 l / ha	2,1	38,8	-	59,1	97,9	69,1
8	PolyDef-7.0 l / ha	1,3	37,5	-	61,2	98,7	71,0

Conclusion

The data obtained showed that irrigation regimes and irrigation time in the experimental field had a direct impact on the effectiveness of the defoliant used.

When analyzing the data obtained 7 days after defoliation in the experiment, the efficiency of the defoliant application rates was average: the moisture efficiency of defoliant before irrigation of cotton was 65-70-60% compared to the lowest moisture capacity, the humidity before irrigation was 70-75-60% the efficiency of the options was 4.3–5.1%, and opening of cotton boxes was 1.0–1.2% lower.

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