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THE IMPACT OF MINIMIZING INTERNATIONAL PROCESSING ON THE GROWTH, DEVELOPMENT AND YIELD OF COTTON

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ABSTRACT

On the saline soils of the Republic of Karakalpakstan, field studies were carried out to identify the effectiveness of minimizing inter-row cultivation of cotton. According to the results of the study, it was established that when several operations are combined in one pass of the tractor, fuel costs are significantly reduced, soil compaction is reduced, and good conditions are created for the normal growth and development of cotton. With international processing, it is possible to combine inter-row cultivation and furrowing before vegetative irrigation.

KEYWORDS: *Soil, Processing, Minimization, Combining, Cultivation, Cotton, Cotton Growth And Development, Saving Fuel And Energy.*

INTRODUCTION

In cotton growing, the bulk of work is mechanized. Cultivation of cotton is carried out with the use of heavy tractors and agricultural machines, which cause, especially with their repeated use, excessive soil compaction. The bulk density of the soil increases, the water, air, nutritional regime of the soil deteriorates, which affects the activity of beneficial microorganisms, and, in general, adversely affects fertility, as a result, the yield of plants decreases. In the conditions of the Republic of Karakalpakstan, where most of the irrigated lands are saline and low-humus, soil compaction is especially undesirable.

The transition to the minimization of soil cultivation, by combining several operations for preparing the soil and caring for plants, with the implementation of two, three methods in one pass of the tractor unit is one of the important conditions for preserving the potential soil fertility, reducing labor and material costs.

As you know, the main purpose of inter-row cultivation is loosening the topsoil and combating weeds. The depth and frequency of processing are important. With a delay in the timing of inter-row cultivation, moisture is lost, soil compaction and debris increase, which creates unfavorable conditions for the formation of the root system, growth and development, and the yield of cotton.

Research method - field method.

The object of research is saline soils, the frequency of processing, cotton.

Research results and their discussion. The experiment studied two varieties of cotton, C-4727 and Chimbay 5018, the frequency of inter-row cultivation (8 and 5), incl. eightfold - studied as a control.

According to the results of phenological observations carried out on August 1 and September 1, it was established that in 2013 the height of the main stem of C-4727 variety with eightfold processing was 85.3 cm, and with fivefold processing 89.4 cm, the number of sympodial branches, respectively, 9.3 and 8.9 pieces, the number of bolls 4.7 and 4.8 pieces. For the Chimbay 5018 variety, respectively, they amounted to 80.4 and 81.2 cm, 9.0 and 9.1 pieces and 2.8 pieces. When observed on September 1, the height of the main stem and the number of sympodial branches remained almost unchanged, and the number of bolls doubled, i.e. for grade C-4727 with eightfold processing they amounted to 8.1 pieces, and with fivefold processing 9.1 pieces, and for grade Chimbay 5018, respectively, 8.2 and 8.6 pieces. According to table 1, it can be seen that the Chimbay 5018 variety lags behind the C-4727 variety in all indicators, i.e. these are the biological characteristics of varieties. With all the multiplicity of inter-row processing, the height of the main stem and the number of sympodial branches are almost the same, and the number of bolls of variety 4727 with eightfold processing was 8.1 pcs, and with fivefold processing - 9.1 pcs, i.e. increased by 1.0 pcs, and for the Chimbay 5018 variety, 8.2 and 8.6 pcs, respectively. The differences depending on the frequency of processing are insignificant, but by minimizing inter-row processing, energy and material costs are saved.

Thus, for the normal growth and development of cotton varieties C-4727 and Chimbay 5018, it is advisable to minimize inter-row cultivation, i.e. instead of eight times, it is necessary to carry out five times inter-row processing.

TABLE 1 INFLUENCE OF MULTIPLICITY AND INTER-ROW TREATMENTS ON THE GROWTH AND DEVELOPMENT OF COTTON

№ var.	Variants		on 1.VIII			on 1.IX		
	Cotton varieties	Frequency of inter-row processing	Main stem height, cm	Number of sympodial branches	Number of bolls, pcs	Main stem height, cm	Number of sympodial branches	Number of bolls, pcs
2013 y.								
1	C-4727	8	85,3	9,3	4,7	88,2	9,7	8,1
2	C-4727	5	89,4	8,9	4,8	92,6	9,6	9,1
3	Chimbay 5018	8	80,4	9,0	2,8	84,6	9,0	8,2
4	Chimbay 5018	5	81,2	9,1	2,8	84,5	9,6	8,6
2014 y.								
1	C-4727	8	68,5	8,8	1,7	79,6	9,2	7,5

2	C-4727	5	65,5	9,3	1,5	76,8	9,9	6,8
3	Chimbay 5018	8	53,0	8,8	1,4	68,9	9,8	6,4
4	Chimbay 5018	5	62,0	9,2	1,2	72,8	9,5	7,0
2015 y.								
1	C-4727	8	76,7	9,0	5,2	83,6	9,0	7,0
2	C-4727	5	81,3	9,0	5,7	87,1	9,1	7,3
3	Chimbay 5018	8	66,1	9,1	4,2	68,7	9,8	7,3
4	Chimbay 5018	5	72,7	8,5	5,7	75,5	9,1	7,6

The yield of raw cotton in terms of cotton varieties averaged 29.4-32.2 c / ha. With eightfold processing, the yield of raw cotton of the C-4727 variety was 30.8 c / ha, and with fivefold processing 32.2 c / ha, i.e. contributed to an increase in yield by 1.4 c / ha with significant savings in energy and material costs.

The yield of cotton of the Chimbay 5018 variety with eightfold processing is 30.5 c / ha, i.e. the additional yield was 1.1 c / ha. The data on the yield of cotton varieties C-4727 and Chimbay 5018 indicate that there is no need to carry out eightfold inter-row cultivation, since with fivefold processing no less was obtained than eightfold, even contributed to an increase in yield by 1.1-1.4 c / ha, with significant savings in energy and material costs.

CONCLUSIONS

In the conditions of saline lands of the Republic of Karakalpakstan, for normal growth, development and obtaining a high yield of raw cotton, instead of eightfold inter-row cultivation, it is necessary to carry out a fivefold inter-row cultivation. With fivefold inter-row cultivation, cotton does not lag behind in growth and development compared to eightfold, and the yield is 1.1-1.4 c / ha higher than in the control option.

TABLE 2 INFLUENCE OF THE FREQUENCY OF INTER-ROW CULTIVATION ON COTTON YIELD

Variants			Yield of raw cotton			Average	Deviation, ±
№	Cotton varieties	Frequency of inter-row processing	2013 y.	2014 y.	2015 y.		
1	C-4727	8	36,6	28,4	27,5	30,8	00
2	C-4727	5	37,9	29,0	29,8	32,2	1,4
3	Chimbay 5018	8	34,9	25,9	27,5	29,4	00
4	Chimbay 5018	5	36,0	25,8	29,8	30,5	1,1

C-4727 variety md = 0,8; 0,9; 0,67 c/ha.

P = 1,28; 2,0; 1,4%

Chimbay 5018 variety md = 0,8; 0,9; 0,67 c/ha.

P = 1,62; 2,7; 1,53%

USED LITERATURE

1. Ismailov U.E. Scientific basis for increasing soil fertility. Nukus. Bilim 2004. 186 p.

2. Ismailov M.E. Minimization of inter-row cotton cultivation. Nukus. "Miraziz-Nukus". 2012. 86 p.

3. Yuldashev S.Kh., Soloviev V.M., Kamilova M., Mavlonov Sh. Factors of cotton yield. Tashkent. FAN. 1982

4. Smetov I.U. Scientific foundations of the technology of cotton cultivation in the conditions of the lower reaches of the Amu Darya. Nukus. "Karakalpakstan". 1993.