

**WATER, FERTILIZER (NPK) STANDARD RATIO AND IRRIGATION PROCEDURES OF MEDIUM FIBER “ZARAFSHON” COTTON VARIETY**

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**СТАНДАРТНОЕ СООТНОШЕНИЕ ВОДЫ, УДОБРЕНИЙ (NPK) И РЕЖИМЫ ОРОШЕНИЯ СРЕДНЕВОЛОКНИСТОГО СОРТА ХЛОПЧАТНИКА “ЗАРАФШОН”**

**ЎРТА ТОЛАЛИ “ЗАРАФШОН” ҒЎЗА НАВИНИНГ СУВ, ЎҒИТ (NPK) МЕЪЁР-НИСБАТИ ВА СУҒОРИШ ТАРТИБЛАРИ**

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**ABSTRACT**

In this article, seedling thickness, water, fertilizer (NPK) norm-ratio of a new, promising, fast-growing cotton variety “Zarafshon” created at the Samarkand Branch of the Cotton Research Institute of Uzbekistan and in order to study irrigation procedures, laboratory and field experiments were conducted in the fields of the central experimental site of the Cotton Research Institute of Uzbekistan.

After the independence of our country, the area of cotton cultivation was reduced to a certain extent, and the area of grain and other agricultural crops expanded. To create quick-growing, high-yielding, disease and pest-resistant varieties of cotton in our Republic development and implementation of regionalized, promising and new cotton varieties in accordance with detailed methodological guidelines for planting periods, seed consumption, seedling thickness, water, fertilizer (NPK) rate-ratio, and irrigation procedures on the example of regions, districts, and farms in each region is one of the important and urgent tasks facing the specialists of the field. In order to comprehensively solve this important problem, field experiments were conducted in 2012-2013 (according to the QXA-9-012 project) in the conditions of typical gray soils of the Tashkent region.

It was ensured that our research was carried out strictly according to the methodology of “Field experiment methods” (T. 2007) developed at the Cotton Research Institute of Uzbekistan.

Experiment 7 options were placed in one tier in 3 returns. Each delyanka-pieces consists of 8 rows, 4.8 m wide, 100 m long, delyanka area 480 m<sup>2</sup>, шундан ҳисобий майдон 240 м<sup>2</sup> ни ташкил этди. In this case, the 4 rows in the middle were designated as calculation rows and 2 from the two sides as 2x2=4 protection rows. All phenological observations, soil analysis, and gross yield calculations were determined based on complete picking of the cotton crop. During our research, fertilizing in two different rates of N-190, R-133, K-95 kg/hect and N- 220, R-154, K-110 kg/hect, in three different irrigation regimes compared to ChDNS 65-65-60, 70- Studied at 70-60%, 70-75-60%. (Table 1).

**Table 1**  
**EXPERIMENTAL SYSTEM**

Variant	Varieties of cotton	Pre-irrigation soil moisture relative to ChDNS, in %	Rate of mineral fertilizers, kg/ha (s.h.)		
			N	P	K
1	C-6524	70-70-60 (control)	200	140	100
2	Zarafshon	65-65-60	190	133	95
3		65-65-60	220	154	110
4		70-70-60	190	133	95
5		70-70-60	220	154	110
6		70-75-60	190	133	95
7		70-75-60	220	154	110

According to the research program, the placement of cotton was determined in the 60x15-1-2 system, the theoretical number of seedlings was 80-100 thousand bushels/hect.

In the experimental field, the volume weight of the soil at the beginning of the season is 1.29 g/cm in the 0-30 cm layer of plowing in the spring<sup>3</sup>, 1.32 g/cm in the 0-50 cm layer<sup>3</sup>, 1.34 g/cm in the 0-70 cm layer<sup>3</sup>, It was 1.36 g/cm<sup>3</sup> in the 0-100 cm layer. Practice - according to our analyzes conducted at the end of the growing season, the volume weight of the soil in the 0-30 cm layer in the 65-65-65% watered options is 1.29 g/cm in the 0-30 cm layer<sup>3</sup>, 1.32 g/cm in the 0-50 cm layer<sup>3</sup>, 1.34 g/cm in the 0-70 cm layer<sup>3</sup>, It was 1.36 g/cm<sup>3</sup> in the 0-100 cm layer, It was observed that it increased by 0.01-0.02 g/cm<sup>3</sup> in the options irrigated in the order of 70-70-60%, 70-75-60%.

Soil water permeability was determined at the beginning and end of the season in the experimental field based on 6-hour observation. According to the results of the conducted research, it was observed that the soil water permeability at the beginning of the season was at an average level and was equal to 906 m<sup>3</sup>/h for 6 hours. When studying the water permeability according to irrigation procedures in the fall, it became clear that the water permeability of the soil increased to 65-65-60%, 70-70-60% and 70-75-60% compared to ChDNS under the influence of the number of irrigations and agrotechnical measures during the season. a slight decrease was observed. Compared to ChDNS, the water permeability was 820 m<sup>3</sup>/ha in 6 hours in the 65-65-60% irrigation regime, while in the 70-70-60% and 70-75-60% irrigation regimes, the water permeability was 801 and 763 m<sup>3</sup>/ha, respectively.

It was observed that the parameters of the limited field moisture capacity of the studied experimental field soils were 21.9% at 0-70 cm and 22.0% at 0-100 cm.

Pre-irrigation soil moisture requirements for the studied cotton cultivars

When the seed is planted in the ground, there must be enough moisture in it to get the cotton seedlings. In 2012-2013, rainfall was higher than in previous years, and soil moisture was sufficient for full seed germination.

Pre-irrigation soil moisture regulations (ChDNS) were followed and did not exceed  $\pm 0.5-1.7\%$ .

According to the results of the conducted research, in our experimental field, soil moisture before irrigation was 65-65-60% compared to ChDNS, and during the growing season, it was irrigated 5 times according to the 1-2-2 system. Soil moisture before irrigation is in the range of 60.7-66.4%, hand refractometer readings are 9.9% during sowing, 11.3-11.4% during the flowering-harvest period, and 12.4-12.6% during the ripening period. was changing.

It can be observed from the results of the conducted research that the soil moisture before irrigation is the highest for the "Zarafshon" cotton variety when it is 70-70-60%, fertilizers (NPK) (s.h.) at the rate of 190:133:95 kg/ha quality harvest was achieved. Hence, it was observed that these moisture regimes NPK norms depend on the biological characteristics of each variety.

Irrigation periods, number, system, duration, water supply, seasonal standards of cotton were determined in the work program. Cotton varieties were irrigated 5 times by year (2012-2013) in the order of 65-65-60% 1-2-2. In one irrigation, 811-1150 m<sup>3</sup>/ha, during the season 4999-5140 m<sup>3</sup>/ha of irrigation water was given, irrigation duration was 24-32 hours, irrigation interval was 17-24 days, 70-70-60% according to 1-3-2 system watered 6 times, 679-990 m<sup>3</sup>/ha was given during each irrigation, 5100-5110 m<sup>3</sup>/ha during the season, irrigation duration was 22-32 hours, irrigation interval was 13-22 days.

70-75-60% was irrigated 7 times according to the 1-4-2 system, 679-850 m<sup>3</sup>/ha was watered during each irrigation, 5274-5600 m<sup>3</sup>/ha during the season, irrigation duration was 22-31 hours, irrigation interval was 11- It was 18 days. Optimum duration and rates of irrigation yielded higher and better quality cotton than the options provided throughout the year.

The amount of water used to produce 1 centner of cotton according to the options was 118.9 m<sup>3</sup>/h in the control option, 109.1 m<sup>3</sup>/h when it was 65-65-60% (compared to ChDNS.), 109.3 m<sup>3</sup>/h, 70- 104.4 m<sup>3</sup>/ts at 70-60%, 107.9 m<sup>3</sup>/ts, 119.2 m<sup>3</sup>/ts at 70-75-60%, 120.0 m<sup>3</sup>/ts.

According to these studied options, the minimum amount of water consumption for growing 1t of cotton is 70-70-60% (compared to ChDNS.) irrigation system, and the rate of mineral fertilizers (NPK) is 104.4 m<sup>3</sup> in the option of 190:133:95 kg/ha was equal to m<sup>3</sup>/ts. It should be noted that with the increase of the irrigation regime (70-75-60%), the amount of water used for 1ts of cotton crop also increased.

According to the results of the conducted research, the following conclusions can be drawn. The studied medium-fiber, fast-growing cotton variety "Zarafshon" in the conditions of typical gray soils, the irrigation regime is 70-70-60% (compared to ChNDS.), 6 times in 1-3-2 system, each irrigation rate is 679-990 m<sup>3</sup>, seasonal irrigation rate is 5100-5110 m<sup>3</sup>, irrigation interval is 13-22 days and in the option of mineral fertilizer rate (NPK) of 190:133:95 kg/ha, the highest cotton yield of 48.9 t/ha was obtained on average in years (2012-2013), and the lowest water consumption for growing 1 t cotton crop ( 104.4 m<sup>3</sup>/h) was found to be observed in this option

**Table 4**  
**Dependence of seedling thickness, water, fertilizer (NPK) standards and irrigation methods on cotton yield of “Zarafshon” cotton variety**

Options are the order of humidity, % relative to ChDNS	a type of cotton	Standard proportions of NRK, kg/ha (s.h)			Pre-harvest seedling thickness, thousand bushels/ha (2012-2013 years) average	Irrigation rates, m <sup>3</sup> /ha (2012-2013) by average years		Irrigation scheme	Average yield ts/ha	lts of cotton. Water consumption (2012-2013 average) m <sup>3</sup> /h
		N	P	K		During the growth period	Seasonal irrigation standards			
1. Control 70-70-60	C-6524	200	140	100	77,9	679-990	5100-5110	1-3-2	42,9	118,9
2. 65-65-60	“Zarafshon”	190	133	95	77,5	811-1150	4999-5140	1-2-2	46,0	109,1
3. 65-65-60		220	154	110	77,5	811-1150	4999-5140	1-2-2	45,9	109,3
4. 70-70-60		190	133	95	78,0	679-990	5100-5110	1-3-2	48,9	104,4
5. 70-70-60		220	154	110	78,4	679-990	5100-5110	1-3-2	47,3	107,9
6. 70-75-60		190	133	95	78,3	679-850	5274-5600	1-4-2	45,6	119,2
7. 70-75-60		220	154	110	78,7	679-850	5274-5600	1-4-2	45,3	120,0

2012 й HCP<sub>05</sub>=0,51 u/ra S<sub>x</sub>=1,1 %  
 2013 й HCP<sub>05</sub>=0,94 u/ra S<sub>x</sub>=1,8

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