ISSN NO : 2770-0003
Date of Publication : 12-12-2021

Optimal Water-Nutrient Norms and Irrigation Regimes of Fine-Fiber St-1651 Cotton Variety in Light Gray Soils of Surkhandarya Region

Boynazarov Odil Sharofovich
Doctor of Philosophy in Agricultural Sciences:
Ashurov Shavkat Shodmonovich
Assessor
Bobirova Madina Bobir qizi
T.I.Q.X.M.M.I. 3rd year student of Bukhara branch, Faculty of Irrigation and Drainage:

Annotation: The article examines the fertilizer thickness irrigation system of fine-grained cotton variety ST-1651 in light gray soils of Surkhandarya region.

Keywords: Light gray soil, fine-grained ST-1651 cotton variety, fertilization standards, seedling thickness, irrigation system, yield.

Introduction

Surkhandarya region is the southernmost cotton-growing region of the country, accounting for 7% of the country's arable land. 85-90% of farms operating in the region are engaged in cotton and grain growing, 6-7% in animal husbandry, 5-6 percent specialize in areas such as horticulture and vegetable growing. Farmers of the oasis supply 8-9% of cotton and grain grown in the country, more than 11% of fruits and vegetables[1].

Despite the fact that Uzbekistan is located in the northernmost region in terms of cotton production, it is one of the main cotton-growing countries in the world, and it is no secret that our country annually produces about 3.3-3.4 million tons of raw cotton.

At present, mainly medium-fiber cotton varieties are grown in large areas in the country's cotton industry, but in the past, the cultivation of fine-fiber cotton varieties in the southern region of Surkhandarya region also played a special role. More than 315,000 tons of fine-fiber cotton is grown in the CIS countries, 116,000 tons in the United States, 36,000 tons in China, 31,000 tons in Israel, 24,000 tons in Peru, 295,000 tons in Egypt and 314,000 tons in Australia[3].

Before the introduction of large-scale planting of each new and promising cotton variety created by our breeders in the country, it is necessary to develop a set of optimal care agro-measures, taking into account the biological characteristics of this variety and higher than any new and promising cotton varieties only if this set of agronomic measures is strictly adhered to and a quality crop can be obtained. Irrigation and feeding are one of the main agricultural measures in the care of cotton varieties[2].

Taking into account the above problems, in the conditions of light gray soils of Surkhandarya region, the optimal irrigation of fine-fiber cotton variety ST-1651 and scientific research experiments were conducted in 2016-2018 to develop and implement feeding regimens.

Experimental methodology

The research was conducted in 2016-2018 on the farm “BEKTEPA MERSAJ” located in “Bandikhon fortress” of Qizirik district of Surkhandarya region, in the conditions of weakly saline light gray soils with a groundwater level of 1.5-2.0 meters.

In our experiments, taking into account the level of soil fertility, N-180 in the norms of two different mineral fertilizers; R-120; K-90 and N-230; R-160; K-115 kg / ha, soil moisture in two different irrigation regimes 65-65-65% relative to ChDNS; At 70-75-65%, two different seedling thicknesses of 80-90 and 110-120 thousand bushes per hectare were studied.

ISSN NO : 2770-0003
Date of Publication : 12-12-2021

Research results

One of the main factors determining soil fertility is its agrophysical properties, namely: limited field moisture capacity (ChDNS), water permeability, volume weight, porosity, granularity. The organic dependence of water nutrient regimes on plants on the agrophysical properties of the soil was studied on the basis of field experiments, and high yields were obtained from the studied cotton varieties. Soil volume weight in light gray soils of Surkhandarya region is 1.31-1.32 g/cm in spring 0-30 cm^3 layer, 1.34-1.34 g / cm^3 in the 30-50 cm layer, 1.36-1.37 g / cm^3 in the 0-70 cm layer, and 1.37-1.38 g/cm^3 in the 0-100 cm layer. Case - the analysis conducted at the end of the growing season shows that the irrigation regime in the irrigated variants at 65-65-65% is 0.04 g/cm^3 in the 0-30 cm layer, 0.05 g/cm^3 in the 30-50 cm layer, 0 in the 0-70 cm layer. , 05 g / cm3, 0.04 g /cm^3 in 0-100 cm layer, 0.04 g / cm^3 in 0-30 cm layer, 0.06 g in 30-50 cm layer, driving in 70-75-65% / cm^3, 0.05 g /cm^3 in the 0-70 cm layer, 0.04 g / cm^3 in the 0-100 cm layer. When the pre-irrigation soil moisture was 65–65–65% relative to the ChDNS, the volumetric mass of the soil at 70–75–65% differed by 0.01 g / cm^3 in the driving and subsurface layers.

The analysis of the research revealed that as a result of each agro-technical measure, a slight difference in volume weight was observed at the end of the season. Soil water permeability was determined based on 6 hours of observation. In a 2017 experimental field, the water permeability of the soil was determined at the beginning of the season.

The onset of water permeability at 65–65–65% and 70–75–65% of the experimental field soil ranged from 342–335 mm / h in 1 h, 776–740 mm / h in 6 h, and averaged 129.3–123 in 1 h. Was in the range of 3 mm / h. By the end of the application period, the water permeability was 168 m^3/ha at 65-65-65% and 166 m^3/ha at 70-75-65% compared to the beginning of the application period. As a result of the study, a similar pattern was observed, ie with an increase in the irrigation regime from 65-65-60% to 70-75-60%, an increase in the volume weight of the soil and a decrease in water permeability.

ST-1651 cotton variety was irrigated 2 times in 0-2-0 system at 65-65-60% of pre-irrigation soil moisture in ChDNS, 3 times in 0-2-1 system at 70-75-65% of pre-irrigation soil moisture in comparison with ChDNS .

In the experiment, the effect of mineral fertilizer rate, irrigation regime and seedling thickness on cotton yield was as follows for the three-year average yield. Irrigation of ST-1651 cotton variety with soil moisture at 65-65-65% relative to ChDNS, mineral fertilizers N-180; P-120; When applied at the rate of K-90 kg / ha, when the seedling thickness is left at 80-90 thousand bushes, the yield is 23.3 ts / hec, the same irrigation regime and mineral fertilizers were applied, and when the seedling thickness was 110-120 thousand bushes per hectare, the yield was 26.2 ts /hec. Pre-irrigation soil moisture is irrigated at 65-65-65% relative to ChDNS, mineral fertilizer norm N-230; R-160; Applying K-115 kg/hec, the seedling thickness was 27.0 ts/hec with 80-90 thousand bushes per hectare, and 30.2 ts/hec with 110-120 thousand bushes per hectare.

Pre-irrigation soil moisture is irrigated at 70-75-65% relative to ChDNS, mineral fertilizers N-180; P-120; When applied at the rate of K-90 kg / ha, with a seedling thickness of 80-90 thousand bushes, pre-irrigation soil moisture is 65-65-65% compared to ChDNS, 2.3 ts/hec compared to the irrigation regime, and when leaving 110-120 thousand bushes per hectare 2 , An additional 6 ts / ha of cotton was obtained. Pre-irrigation soil moisture is irrigated at 70-75-65% relative to ChDNS, mineral fertilizer norm N-230; R-160; K-115 kg / hec, when applied, the seedling thickness is 80-90 thousand bushes / ha, 4.6 ts / hec compared to 65-65-65% irrigation regime, and when leaving seedlings 110-120 thousand bushes / ha, 4.3 ts/hec/ to high yields (Table 1).

ISSN NO : 2770-0003
Date of Publication : 12-12-2021

Table 1.
Influence of water, fertilizer and seedling thickness on the yield of fine-fiber ST-1651 cotton variety.

B	Soil moisture relative to ChDNS, %	The norm of mineral fertilizers, kg / hec			Seedling thickness thousand / bush	Productivity over the years, ts / ga				Irrigation system	Three-year average seasonal irrigation rate, m^3/hec	Water consumption for 1ts yield m^3/ts
		N	P	K		2016	2017	2018	Avarage			
At 65-65-65% soil moisture relative to ChDNS												
1	65-65-65	180	120	90	80-90	23,1	23,8	23,0	23,3	0-2-0	2253	96,7
2					110-120	25,9	27,4	25,4	26,2			86,0
3		230	160	115	80-90	26,7	27,9	26,3	27,0			83,4
4					110-120	29,9	31,7	28,9	30,2			74,6
At 70-75-65% soil moisture relative to ChDNS												
5	70-75-65	180	120	90	80-90	25,4	26,2	25,3	25,6	0-2-1	2947	115,1
6					110-120	28,5	30,1	27,9	28,8			102,3
7		230	160	115	80-90	30,5	32,9	29,9	31,1			94,7
8					110-120	33,9	36,9	32,8	34,5			85,4

Conclusion

The results of the study show that the highest yield of fine-fiber cotton variety ST-1651 cotton was irrigated at 70-75-65% relative to the soil moisture ChDNS, mineral fertilizers N-230; P-160; It was observed when K-115 kg / ha was applied in moderation and when the seedling thickness was 110-120 thousand bushes per hectare.

Based on the results of the experiment, it can be concluded that in the conditions of light gray soils of Surkhandarya region in the cultivation of high-quality cotton of new fine-fiber cotton variety ST-1651 received pre-irrigation soil moisture at 70-75-65% relative to ChDNS, mineral fertilizers N- 230; P-160; It is necessary to feed K-115 kg / ha and take care of 110-120 thousand seedlings per hectare.

List of used literature

1. From the speech of Sh. Mirziyov during his visit to Surkhandarya. “Xalq so'zi” newspaper, Tashkent, 2017, №31.p.1 page.
2. Khalikov BM, Introduction of modern short-term crop rotation, resource-saving agrotechnologies of cotton and sorghum, ensuring soil fertility, its preservation and increase. A collection of articles based on the reports of the Republican scientific-practical conference “Improvement of agro-technologies for the care of cotton and cotton complex crops”. Tashkent, 2013, pp. 3-7.
3. Khasanov Nurmukhammad. Organizing and carrying out military-patriotic education in educational institutions of the republic of Uzbekistan. INTERNATIONAL ENGINEERING JOURNAL FOR RESEARCH & DEVELOPMENT. Vol. 5 No. Conference (2020): ICDSIIL-20

ISSN NO : 2770-0003
Date of Publication : 12-12-2021

4. KHASANOV NURMUKHAMMAD. USING OF INTERACTIVE METHODS IN MOTHERLAND LESSONS. СТУДЕНЧЕСКИЙ. Учредители: Общество с ограниченной ответственностью "Сибирская академическая книга" eISSN: 2541-9412
5. Khasanov Nurmukhammad Khaydarali Ugli. FACTORS OF EDUCATING YOUNG PEOPLE IN THE SPIRIT OF PATRIOTISM. INTERNATIONAL JOURNAL ON HUMAN COMPUTING STUDIES. Volume: 03 Issue: 4 |Jun 2021.
6. Khasanov Nurmukhammad Khaydarali Ugli. THE IMPORTANCE OF MILITARY WILL IN THE PROCESS OF TRAINING OF RESERVE OFFICERS. Academicia Globe: Inderscience Research. Vol. 2 No. 04 (2021): academiascience.
7. Nurmukhammad, Khasanov. "Patriotism is a sign of spiritual maturity." ACADEMICIA: An International Multidisciplinary Research Journal 10.7 (2020): 585-588.
8. KHASANOV NURMUKHAMMAD KHAYDARALI UGLI. "The Role of Family, Community and Education in the Development of Patriotic Spirit in Youth." JournalNX 7.1: 311-314.
9. KHASANOV NURMUKHAMMAD KHAYDARALI. "Patriotism is a Holy Duty of the Uzbekistan Youth." JournalNX 6.07: 281-283.
10. KHASANOV NURMUKHAMMAD KHAYDARALI UGLI. PATRIOTISM IS A HOLY DUTY OF THE UZBEKISTAN YOUTH. JournalNX- A Multidisciplinary Peer Reviewed Journal ISSN No: 2581 - 4230 VOLUME 6, ISSUE 7, July -2020
11. http://uza.uz/oz/business/khitoy-pakhtasi-29-12-2018
12. Methods of conducting field experiments. Tashkent – 2007. P. P. 61–33.