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EXPERIMENTS ON IRRIGATION

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Abstract:
Cotton's demand for water depends on many factors in its development at different stages. In this article, cotton and grain planting techniques and economic conditions are studied. In specific climate and soil- ameliorative conditions, scientifically based irrigation norms are of great importance for increasing cotton productivity with economic (economical) use of water . In this case, it is necessary to take into account the years of low water and severe shortage of irrigation water.

Keywords: ditch , irrigation, of wheat , vegetation , soil, soil.

YuK - 7 , located in the area for receiving additional water for irrigation in the T ajriba section an inter-farm ditch was chosen. The amount and mineralization of Zovur water was studied. According to this, it was observed that the water consumption of YuK - 7 well water changed from 0.15 m^3/s to 2.1 m^3/s . The amount of water consumed per month is 0.35 million m^3 from 5.3 to 9 million m^3 increased to

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Figure 1. A pump installed at the experimental site.
Use of Zovur waters for irrigation

A SNP 500/10 pump has been installed to draw water from Zovur for irrigation, and it is possible to irrigate an area of about 100.0 hectares with the help of the pump (the pump installed in the experimental site and the observations are depicted in Figure 3.1). Irrigation criteria of options SNR was calculated according to the Rijov formula. The amount of water supplied to the variants was measured using a " Chippoletti " water measuring device installed at the head of the well in the experimental area . The soil moisture before irrigation in the experimental areas was 70% compared to CHDNS . In these variants, during the season, irrigation was carried out 4 times in the first experimental field in the 1-2-1 system, and in the second experimental field 4 times in the 1-2-1 system. fresh water and the norms of its use during the irrigation period, the collector water was used as an additional source. In both options, the first irrigation did

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not use collector water, that is, the irrigation rate is 1400 m ^{3} / ha organized the In the second and third irrigation, the irrigation rate is 1300 m ^{3} / ha , in the fourth irrigation 1500 m ^{3} / ha , the general seasonal irrigation norm during the growing season was 5500 m ^{3} / ha . In option 2, the norm of the first irrigation is 1400 m ^{3} / ha , in the second irrigation it is 1400 m ^{3} / ha , of which the water from the ditch is 600 m ^{3} / ha organized the In the third irrigation in the 2nd option, the irrigation rate is 1400 m ^{3} / ha of which 700 m ^{3} / ha organized the In the fourth irrigation, in the 2nd option, the norm of irrigation is 1500 m ^{3} / ha , of which 500 m ^{3} / ha is from the water of the ditch. , the irrigation rate is 1500 m ^{3} / ha in both options (Tables 1-2 **).**

Table 1 Irrigation carried out in option 1

The number of watering	Fresh water, m ^{3} / ha	Collector ditch water , m ^{3} / ha	Irrigation rate , m ^{3} / ha	Term
1	1400	-	1400	2 1 .05-2 8 .05
2	1300	-	1300	1 5 .06-2 1 .06
3	1300	-	1300	10.07-1 6.07 _ _
4	1500	-	1300	0 4 .08-0 9 .08
total	5500	-	5500	

Table 2 Irrigation carried out in option 2

The number of watering	Fresh water, m ^{3} / ha	Collector well water , m ^{3} / ha	Irrigation rate , m ^{3} / ha	Term
1	1400	-	1400	1 9 .05-2 5 .05
2	800	600	1400	1 3 .06-1 7 .06
3	700	700	1400	0 8 .07-1 4 .07
4	1500	500	1500	0 3 .08-0 8 .08
total	4400	1800	5700	

The most in the soil the need to maintain optimal moisture, sufficient supply of irrigation water is a decisive factor for obtaining a high and stable yield from cotton.

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Cotton's demand for water at different stages of its development depends on many factors: water-physical properties of the soil, quality of irrigation water, depth and mineralization of seepage water, year (weather) conditions, etc. .
specific climate and soil- ameliorative conditions, scientifically based irrigation norms are of great importance for increasing cotton productivity with economic (economical) use of water. In this case, it is necessary to take into account the years of low water and severe shortage of irrigation water.
Data on changes in soil moisture (at 0-30, 0-70 and 0-100 cm layers) during the growing season are presented in Figure 2.
The given data show that in all research years, soil moisture at the beginning of the vegetation period was at the optimal limit (72-76% compared to CHDNS) in the arable (0-30 cm) layer , and moisture in the 0-70 cm and 0-100 cm layers a little more It was 89.35-90.9 and 95.8-97.3% compared to CHDNS . Thus, at the beginning of the growing season, soil moisture in the conditions of operational salt washing ensured the development of the cotton plant. In accordance with the growth of this plant, the root system deepened. This helps in the continuous supply of moisture to the plant in the deeper active layer of the soil. At the beginning of vegetation, it was observed that different soil moisture was maintained in the studied options.

Irrigation method option I

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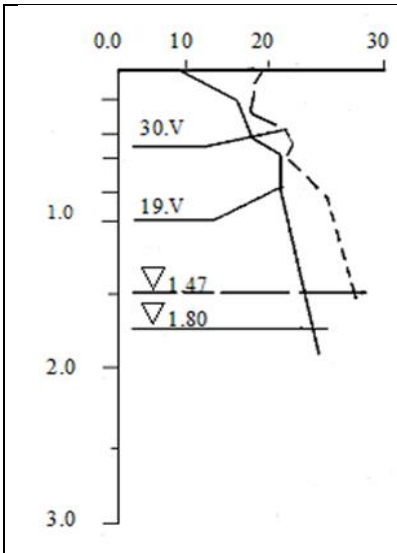
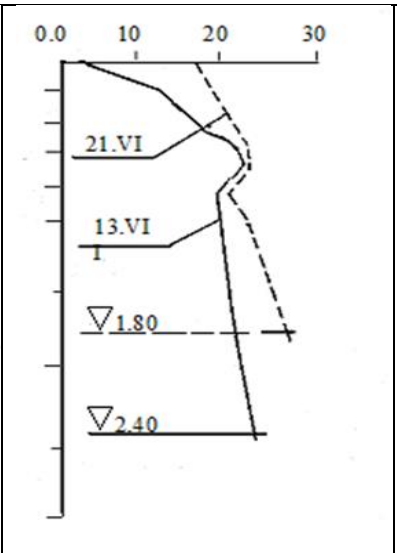
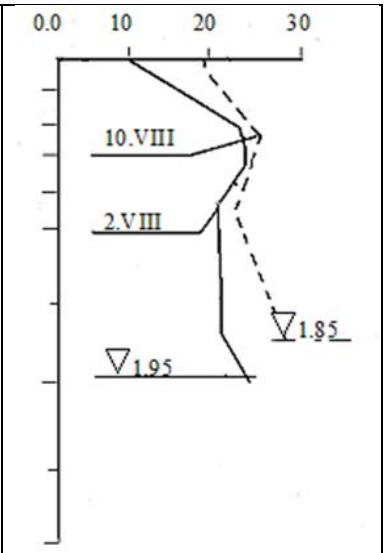
<td> 

1-Watering soil moisture %</td>
<td> 

2-Watering soil moisture %</td>
<td> 

4-Watering soil moisture</td>
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<tr>
<td colspan="3">Irrigation method option II</td>
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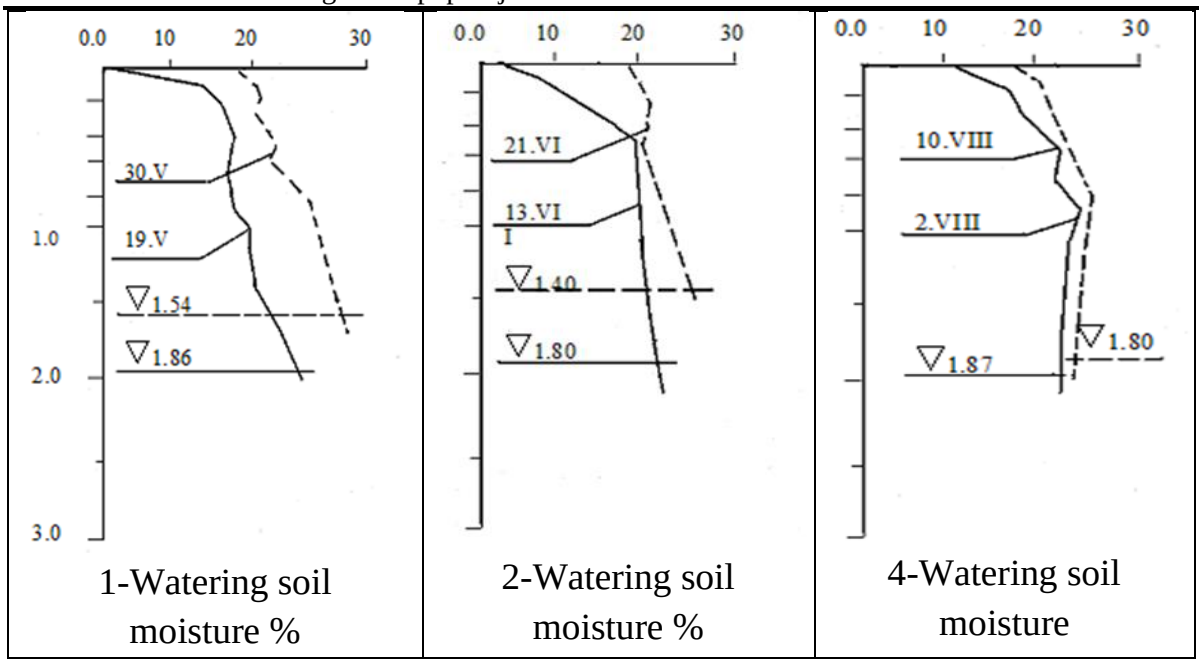

1-Watering soil moisture %

2-Watering soil moisture %

4-Watering soil moisture

2 . Dynamics of soil moisture during the growing season,%

Before the first irrigation, the soil moisture in the 0-70 cm layer of the soil changed by 13.5-13.9 % by mass or 68.9-70.4% by CHDNS . So, in 2020, the soil moisture before the first irrigation in a one- meter layer is 16.5 % by mass or 78.2% by CHDNS provides . These values were 15.8 and 74.9 % in 2021, respectively .

When irrigating cotton with ditch water, the mineralization of seepage water is relatively high. If at the beginning of the growing season of 2020, the mineralization of seepage water in this option was 4.1-4.29 g/l , at the end of the growing season of 2021, it increased from 4.31 g/l to 4.53 g/l . Therefore, only in the growing season of 2020, the amount of solid residue in seepage water increased by 0.20 and 0.24 times in this option (Table 3.7).

Mineralization of Syzot waters, g/l Table 3

Option number	Solid residue g/l	Chemical composition						
		HCO' 3	Cl'	SO' 4	Ca"	mg"	K'	no
2020 is at the beginning of the growing season								
1	4.166	0.4	0.58	2,186	0.4	0.3	0.05	0.25
2	4.29	0.3	0.59	2.2	0.5	0.4	0.05	0.25

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2021 at the beginning of the growing season								
1	4.28	0.47	0.56	2.3	0.4	0.28	0.03	0.24
2	419	0.45	0.54	2.2	0.42	0.3	0.035	0.25
2020 is at the end of the growing season								
1	4.16	0.4	0.58	2,186	0.4	0.3	0.05	0.25
2	4.41	0.3	0.59	2.2	0.5	0.5	0.05	0.27
2021 at the end of the growing season								
1	4.31	0.47	0.55	2.3	0.4	0.27	0.08	0.24
2	4.53	0.5	0.54	2.4	0.43	0.3	0.09	0.27

Table 3 shows the salinity and chemical composition of the water taken from the wells and used as additional water during the experiment . It can be seen that their mineralization level is from 4.402 g/l on solid residue It varied up to 3,897 g/l . The mineralization of stream water was equal to 1.13 g/l .
According to the data, sulfate and calcium are the main anions in the composition of well water, while calcium and sodium are the cations .

4 - table. Mineralization and chemical composition of well water used for irrigation (g/l)

Years	Date received	Mineralization , (solid sediment), g /l	Ion content, (g/l)					
			HCO'	CL'	SO' $_4$	Ca"	mg"	Na'+K'
2021	1 8 .06	4,402	0.48	0.58	2,186	0.54	0.143	0.46
	13.07 _	4,265	0.484	0.59	2.12	0.56	0.143	0.36
	08 .08	4,373	0.496	0.6	2.0	0.49	0.2	0.58
20 22 and	20.06 _	4,234	0.484	0.58	1.96	0.57	0.179	0.46
	14.07 _	3,905	0.489	0.57	1.89	0.4	0.216	0.34
	09.08 _	3,897	0.485	0.55	1.98	0.38	0.192	0.31

In some cases, it is also observed that the amount of harmful sodium is higher than calcium , which in turn reduces the mineralization of such ditches by

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biological methods and the use of these waters for irrigation of agricultural crops. relevance requires .

Ways of using Zovur water for irrigation There are many ways of using Zovur water for irrigation of agricultural crops, and in today's practice mainly continuous and periodic use of Zovur water for irrigation is used. In some irrigation systems, the water from neighboring fields is continuously used to irrigate certain fields, while in other irrigation systems, in certain fields of the year when there is little water, a ditch is used to eliminate the shortage of irrigation water. its waters are used temporarily, i.e. periodically . Application of one or another type of use of ditch water for irrigation of crops mainly depends on the characteristics of ditch water, the region of its formation and soil improvement conditions of the irrigated area. For example, Togoldi drainage from irrigated fields to irrigate them due to the fact that the waters are not very salty can be used directly. As the drainage water produced from the irrigated areas of the plain is mostly salty, it is appropriate to mix it with fresh (river) water.

When using ditch water for irrigation, the main criterion should be to prevent the risk of re-salination of the irrigated soils. The high content of salts in the water used for irrigation leads to an increase in the salinity of the soil solution. Therefore, to watering to the saline washing mode of irrigation when using well water full compliance is recommended. The parameters of irrigation salt washing mode depend on the water-physical and chemical properties of the soil of the irrigated area and are set up to 30% higher than normal water used for irrigation. To irrigate Zovur waters with fresh river water Mixing and then using is the best way.

In conclusion , the effect of using collector water for irrigation is as follows ;
Protects water bodies from pollution.
It creates an opportunity to save fresh water used for irrigation
It allows you to get a bird from waste land
Eliminates crop loss in years when water is scarce.

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