



## EFFECT ON THE AMOUNT OF NUTRIENTS AND SALTS IN THE SOIL AT DIFFERENT SALINITIES

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### Abstract

In this article, the nutritional elements and the amount of salts in the soils of the Syrdarya region with different levels of salinity are studied, and the results of the scientific research are presented.

**Keywords:** Medium and strong saline soils, salt leaching, ground layer of the soil, nutrients, salt content.

### Introduction

Today, 25% of the world's countries where agricultural products are grown are lands with varying degrees of salinity. "Saline areas are mainly 30.5 million hectares in Argentina, 20.0 million hectares in Paraguay, 7.7 million hectares in Egypt, and 5.9 million hectares in the USA. 2 million hectares of the irrigated area of the Republic of Uzbekistan is saline, of which 31.0% is weakly saline, 11.9% is moderately saline, and 1.9% is strongly saline. One of the urgent issues is the improvement of the closed ditches designed to stabilize the land reclamation of various degrees of salinity, desalination of saline lands, increase soil fertility, and improve the land reclamation. The main part. To determine the amount of nutrients in the soil, it was determined in the 0-30 cm and 30-50 cm layers. The amount of nutrients in the soil from samples taken in spring in the non-saline field was 1.110 percent in the 0-30 cm layer, 0.998 percent in the 0-50 cm layer, 1.361 and 1.177 percent in the weakly saline field, corresponding to the above, the average was 1,312 and 1,080 percent in the field, as shown in Table 1.

In the non-saline field, the amount of humus in the autumn samples was 0.944% in the 0-30 cm layer, 0.881% in the 0-50 cm layer, or decreased by 0.117% in the 0-50 cm layer compared to the spring, in the weakly saline field it was 1.361 and 0.960, respectively. percent or 0.039 percent in 0-50 cm compared to spring, 1.293 and 0.848 percent or 0.016 percent compared to spring in medium salinity field was observed. Similar data can be observed in the amount of total nitrogen and total phosphorus.

**Table 1. The amount of nutrients in the soil, in percent**

Options	Soil layer, cm	Amount of compost		Total nitrogen content		Total phosphorus content	
		in the spring	in the fall	in the spring	in the fall	in the spring	in the fall
Not salted	0-30	1,110	0,944	0,117	0,100	0,188	0,135
	30-50	0,885	0,817	0,080	0,071	0,129	0,106
	0-50	0,998	0,881	0,099	0,086	0,159	0,121
Lightly salted	0-30	1,361	1,316	0,145	0,125	0,207	0,188
	30-50	0,992	0,960	0,112	0,097	0,174	0,152
	0-50	1,177	1,138	0,129	0,111	0,191	0,170
Medium salted	0-30	1,312	1,293	0,154	0,132	0,194	0,173
	30-50	0,848	0,834	0,123	0,115	0,163	0,150
	0-50	1,080	1,064	0,139	0,124	0,179	0,162

Soil samples were taken and analyzed in the 0-30 cm and 30-50 cm layers in order to determine the amount of mobile nutrients in the soil. In the non-saline field, the amount of mobile nitrate in the 0-30 cm layer of the soil in spring is 5.8 mg/kg, 3.2 mg/kg in the 30-50 cm layer, or 4.8 mg/kg in the 0-50 cm layer. was equal to 10.1 mg/kg in the 0-30 cm layer in autumn or 4.3 mg/kg higher than in spring, and 2.8 mg/kg in 30-50 cm compared to spring 0.4 mg/kg less or 7.2 mg/kg at 0-50 cm was observed, which was 2.4 mg/kg more than spring, data presented in Table 2.

**Table 2. The amount of mobile nutrients in the soil, in mg/kg**

Options	Soil layer, cm	N-NO <sub>3</sub>		P <sub>2</sub> O <sub>5</sub>	
		in the spring	in the fall	in the spring	in the fall
Not salted	0-30	5,8	10,1	48,4	30,0
	30-50	3,2	2,8	19,5	15,2
	0-50	4,8	7,2	36,8	24,1
Lightly salted	0-30	7,4	12,4	52,8	38,8
	30-50	4,0	3,7	29,3	20,9
	0-50	5,7	8,1	41,1	29,9
Medium salted	0-30	6,6	11,7	50,4	35,6
	30-50	3,6	3,1	27,2	21,2
	0-50	5,1	7,4	38,8	28,4

The same data as the non-saline field were obtained in the fields with weak salinity and moderate salinity.

These data indicate that high and high-quality crops require a high amount of nitrogen and phosphorus is sufficient.

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All cultivated fields of the Khorezm region have different levels of salinity, and the amount of water-soluble salts in the soil directly affects the growth, development and productivity of cotton. Therefore, it is very important to determine the amount of salts in a 1-meter layer of the soil, to study their movement through the layers, and on this basis, to determine the duration and norms of salt washing. Accordingly, observations were made to determine the amount of salts in the 1-meter layer of the soil and their shift and change from spring to autumn in the experimental field. Table 3 shows the results of this observational data, which shows that the spring soil has a chlorine-ion content of 0.007-0.014% of all salts in the 1-meter layer, which confirms that the soil is weakly, deeply saline, and the remaining total alkalinity is 0.018- 0.030 percent, sulfate 0.100-0.897 percent, dry residue 0.190-1.386 percent, and the data in Table 3.5.1 is confirmed.

**Table 3. The amount of water-soluble salts in the soil in non-saline conditions, as a percentage**

Soil layer, cm	Chlorine ion		Total alkalinity		Sulfate		Dry residue	
	the dates when the soil sample was taken							
	10.05.	10.10.	10.05.	10.10.	10.05	10.10.	10.05.	10.10.
0-10	0,008	0,020	0,030	0,030	0,131	0,637	0,230	0,344
10-30	0,012	0,016	0,030	0,024	0,100	0,523	0,190	0,550
30-50	0,012	0,016	0,024	0,030	0,322	0,509	0,516	1,156
50-70	0,008	0,020	0,018	0,024	0,573	0,864	0,880	1,094
70-100	0,010	0,016	0,018	0,024	0,823	0,451	1,260	1,190
0-100	0,010	0,018	0,024	0,026	0,390	0,597	0,515	0,887

In non-salinated land, the increase of dry residue begins at a depth of 30-50 cm, and in weak salinity, it begins at the plowing depth, and this situation was also manifested in medium salinity land. This situation indicates that the land is prone to rapid salinization if no reclamation is carried out, but if the mineralization of seepage water is 1-2 g/l, there is no need to lower it below 1-1.5 meters, the plant will use it.



**Table 4. The amount of water-soluble salts in the soil under slightly saline conditions, as a percentage.**

Soil layer, cm	Chlorine ion		Total alkalinity		Sulfate		Dry residue	
	the dates when the soil sample was taken							
	10.05.	10.10.	10.05.	10.10.	10.05	10.10.	10.05.	10.10.
0-10	0,006	0,034	0,030	0,024	0,164	0,377	0,276	1,000
10-30	0,008	0,034	0,030	0,030	0,134	0,393	0,234	0,830
30-50	0,008	0,026	0,018	0,024	0,747	0,683	1,214	0,804
50-70	0,008	0,018	0,018	0,036	0,789	0,741	1,134	1,344
70-100	0,008	0,014	0,018	0,030	0,663	0,604	1,204	1,460
0-100	0,007	0,025	0,023	0,029	0,499	0,559	0,812	1,088

**Table 5. Amount of water-soluble salts in the soil in average salinity conditions, in percent**

Soil layer, cm	Chlorine ion		Total alkalinity		Sulfate		Dry residue	
	the dates when the soil sample was taken							
	10.05.	10.10.	10.05.	10.10.	10.05	10.10.	10.05.	10.10.
0-10	0,012	0,050	0,030	0,036	0,588	0,550	0,920	0,886
10-30	0,012	0,038	0,024	0,036	0,606	0,950	0,942	1,470
30-50	0,016	0,032	0,024	0,030	0,897	0,811	1,386	1,246
50-70	0,018	0,032	0,018	0,030	0,781	0,698	1,208	1,088
70-100	0,012	0,028	0,018	0,024	0,873	1,079	1,338	1,622
0-100	0,014	0,036	0,021	0,031	0,749	0,818	1,159	1,262

### Summary

The degree of mineralization of syzyb waters and the depth of their location have a special place in soil salinity. It is known that many years of scientific research confirm that the process of salinization occurs much faster when the syzyb waters are located more than 2 m above the ground level. Therefore, it is important to ensure that the level of underground seepage water is below 2 m in all cultivated areas of the region.



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