

EVALUATION OF THE INFLUENCE OF THE QUALITY OF DITCH WATER IN THE CULTIVATION OF REPEATED CROPS

U. A. Juraev 1,

O.U.Murodov 2,

O. M. Yusupova 3

1 Professor at Bukhara State Technical University, Uzbekistan

2 Senior Lecturer, Bukhara State Technical University,

Doctor of Philosophy in Agriculture Sciences (PhD), Uzbekistan

3 Student of Bukhara State Technical University, Uzbekistan

Abstract

This article provides information on the effectiveness of using Nanosilicon and AMINOSID Universal Si biopreparations in the Bukhara oasis grassland, which is alluvial, moderately saline, medium-sandy in terms of mechanical composition, with a groundwater level of 2.0-2.5 meters and a mineralization of 2.5-3.0 g/l, and irrigated with low-mineralized zaur waters and the use of Nanosilicon and AMINOSID Universal Si biopreparations.

Keywords: Drainage waters, mineralization, biopreparation, Nanosilicon, AMINOSID Universal Si.

Introduction

In recent years, water shortages have become a major challenge in all countries with irrigated agriculture, so finding additional water resources is an important task. In addition, in order to prevent the negative consequences of water shortages in agriculture and save river water, it is necessary to expand the productive use of local water resources - groundwater, wastewater and stormwater.

Results and Discussion

The effectiveness of using mineralized water is strongly influenced by factors such as the biological characteristics of the crop and its tolerance to salt, the water-physical properties of the soil and the degree of salinity, the mineralization and salt content of the water. The water consumption and mineralization of the Kungrad

salinity used for irrigation of secondary crops were presented using the reports of the regional land reclamation expedition under the Amu-Bukhara Irrigation Systems Basin Department for 2019-2022 (Table 1).

Table 1 Information on water consumption of the Kungrad River in Vobkent District

№	Water consumption and mineralization of Kunkurot well				
	June	July	August	September	October
Average monthly water consumption (m ³ /sec)					
1.	0,24	0,35	0,43	0,35	0,26
Mineralization of Zovur water					
2.	3,02	2,63	2,80	3,02	3,16

The length of the Kungiroto well serving the "Agrofayz Zynati" farm in the Vobkent district of the Bukhara region, which is the experimental area, is 5.7 km, the service area is 205.2 hectares, the water consumption of the well is 0.24-0.43 m³/sec (presented in the diagram in Figure 1).

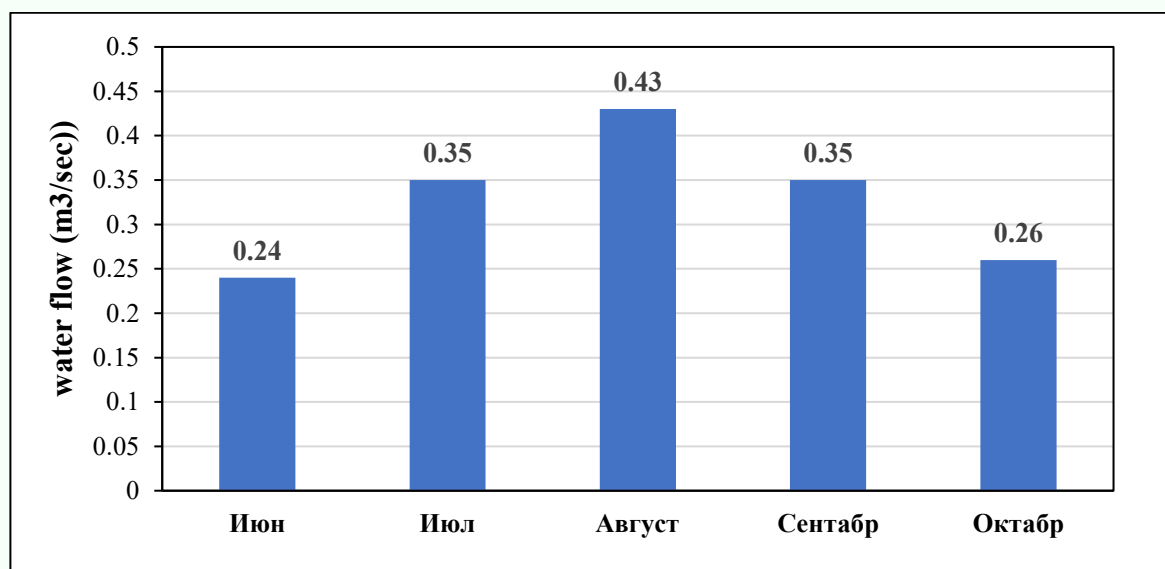


Figure 1. Average monthly water consumption of Zovur, m³/sec (valid period)
 The mineralization of Kungrad zavoor during the 2020-2023 irrigation periods in the experiments was as follows (Table 2). That is, during the 2020 period of repeated crops, the mineralization of Kungrad zavoor during the 1st irrigation was 2.6 g/l, which is 11-15 (Mm)L)1.5 according to the international SAR classifier.

Similarly, during the 2nd irrigation period of repeated crops, the mineralization of zavoor water was 2.8 g/l, which is 11-15 (Mm)L)1.5 according to the SAR classifier.

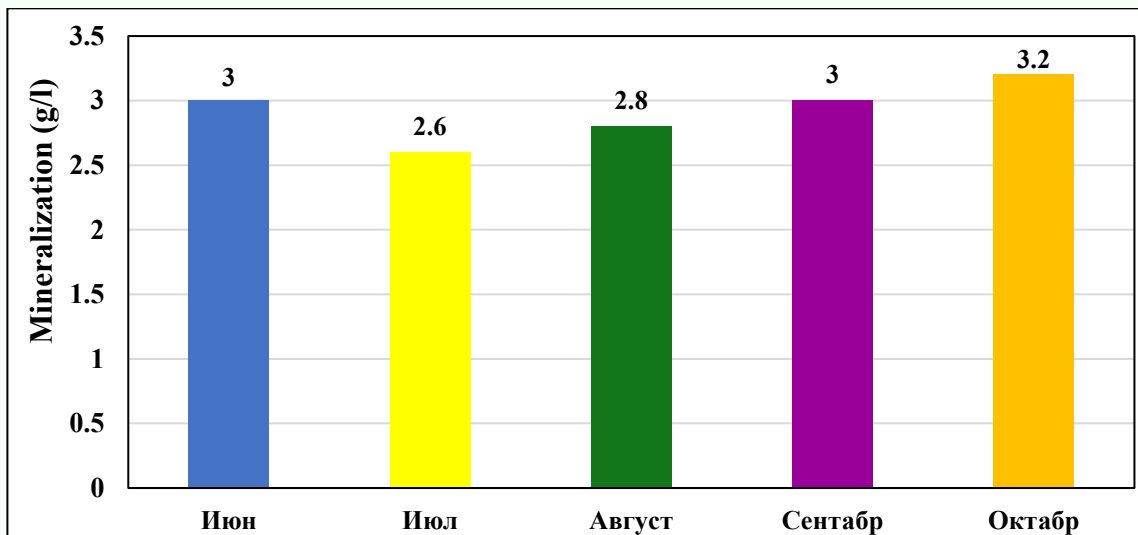


Figure 2. Monthly average mineralization of Zovur, g/l (valid period)

It was determined that the mineralization of the fertilizer used in the 1st irrigation, which was the period of repeated crops in 2021, was 2.8 g/l, and the mineralization of the fertilizer water in the 2nd irrigation period was 2.8 g/l. In the last year of the experimental year, 2022, the mineralization of the Kungrad fertilizer in the 1st irrigation during the period of repeated crops was 2.9 g/l, which is 11-15 (Mm)L)1.5 according to the international SAR classifier. The mineralization of the fertilizer water in the 2nd irrigation period of repeated crops was 3.0 g/l (shown in the diagram in Figure 2).

Conclusions

When analyzing the average yield of the tarik crop grown with an irrigated layer of 50-70-50 cm in 2020-2022, the grain yield per hectare in variants 1-2-3 was 25.7-31.1-29.1 centners in the sequence of variants. Also, the average yield in variants 7-8-9, when the tarik crop was grown with an irrigated layer of 30-50-30 cm, was 27.2-31.7-30.1 centners. In variants 4-5-6, where the repeated sunflower crop was grown in a 50-70-50 cm layer irrigated with rainwater and treated with Nanosilicon and AMINOSID Universal Si biopreparations, the average seed yield was 24.8-28.7-26.8 c/ha. In addition, in variants 10-11-12, where the repeated sunflower crop



was grown in a 40-50-40 cm layer irrigated with rainwater and treated with Nanosilicon and AMINOSID Universal Si biopreparations, the average seed yield was 25.8-29.8-27.9 c/ha.

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