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Change of Mechanical Composition of Soils after Flood of Sardoba Water Reservoir

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Abstract: In this article, the flooding of the Sarkoba Reservoir floodplain in the field experiments carried out within the framework of the project on selection and cultivation of crops in order to improve the eco-reclamation of irrigated lands after the floods described.

Keywords: Sardoba, reservoir, crop types, crop varieties, sand, strata.

Introduction

The Ministry of Innovative Development has announced a practical project to improve the eco-ameliorative condition of agricultural lands. Field research was carried out as part of a practical project to select crops and varieties suitable for the eco-ameliorative condition of irrigated lands created as a result of the flood of the Sardoba Reservoir, and to develop cultivation technologies.

Object of research

Jasortali Oybek farm, located 1.5-2 km from the reservoir of Sardoba district of Syrdarya region, was conducted in the experimental fields of “Bekzafarlik Chorvadorlar” farm of Bobur SFU in Oq Oltin district.

The purpose of the study

Evaluation of eco-ameliorative condition of irrigated lands damaged by floods of Sardoba reservoir, their short-term restoration, selection of crops suitable for the existing eco-ameliorative condition and development of cultivation technologies.

Research tasks

washing of irrigated lands under the influence of water and studying the thickness of the turbid cover.

determination of soil moisture, density and salt content under the plowed and plowed layer.

determination of the degree of mineralization of irrigation water.

selection of crop types and varieties depending on soil washing, salinity and density.

restoration of the washed-out fertile layer of the surface (tillage depending on the turbid layer, leveling of the washed lands, preparation of the land for planting) to introduce them into agricultural turnover in the short term.

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selection of crop types and varieties suitable for these conditions, development of cultivation technology.

Research results

In the experimental areas, the mechanical composition of the soil was determined by taking samples from newly formed and old soil layers on the genetic morphological structure of the soil (N.A. Kachinsky's Pipette method). The results of the analysis are presented in Table 1.

Table 1. Mechanical composition of the soil before tillage after flooding, %

Soil layer sm.	The amount of particles, %								
	1-0,25	0,25-0,1	0,1-0,05	0,05-0,01	0,01-0,005	0,005-0,001	<0,001	>0,01	Mechanical structure
Control									
0-32	12	9	7	12	10	12	9	31	Average
32-45	14	8	8	40	12	10	10	32	Average
Muddy sediment 10-15 cm									
0-15	18	5	5	20	14	23	15	52	Heavy
15-47	14	7	9	42	12	10	6	28	Light
47-63	14	11	10	36	12	10	8	30	Average
Muddy sediment 15-30 cm									
0-25	9	7	20	47	7	5	5	17	Sandy
25-55	11	10	20	32	10	16	7	33	Average
55-75	10	12	24	32	12	12	7	31	Average
Muddy sediment >30 cm									
0-60	12	10	26	40	4	3	0	7	Soil
60-90	11	10	18	34	14	10	8	32	Average
90-120	10	11	20	27	12	9	10	31	Average

The data in this table show that in the control area of the experiment (the area not affected by flooding), the amount of physical clay (<0.01 mm.) Particles in the 0-30 cm layer of soil was 27-30%. This figure was calculated in accordance with the composition adopted by N.A. Kachinsky on the assessment of the mechanical composition of the soil.

In the second experimental area with a thickness of 10-15 cm, the mechanical composition of the most superficial part of the soil, the mudslide formed as a result of the recent flood, was "Heavy" and the amount of physical sludge was 52%. The mechanical composition of the 15-47 cm layer of old soil under this layer was found to be **“Average”** and the physical clay in it was 28%, and in the next 47-63 cm layer the physical clay was 30%.

The third experimental area with a muddy sediment layer of 15-30 cm The mechanical composition of the 0-25 cm layer of soil formed under the influence of the latest flood was "Sand", in which the amount of physical mud was 17%. The “middle” condition of the old layers (depth 25-75 cm) under the new turbid sediment of the same experimental area remained unchanged.

The mechanical composition of the mud collected on the surface of the fourth experimental area with a new turbid sediment layer 0-60 cm was "sand" in a layer of 60 cm, the content of physical mud was 70%. The mechanical composition of the old soil (60-100 cm) under this layer was also "average", ie the amount of physical mud was 31-32%.

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Table 2. Changes in the mechanical composition of the soil after tillage (5.10.2020).

Soil layer cm.	The amount of particles, %								
	1-0,25	0,25-0,1	0,1-0,05	0,05-0,01	0,01-0,005	0,005-0,001	<0,001	>0,01	Mechanical structure
Muddy sediment 10-15 cm (chisel-treated area)									
0-25	15	10	12	18	10	18	17	45	Avarage
25-47	15	7	10	29	14	15	10	39	Avarage
Muddy sediment 15-30 cm (shudgor+chizel+boronabilanishlovberilgan)									
0-30	12	9	16	40	12	18	7	27	Light
30-55	10	10	18	34	14	16	10	40	Avarage
55-75	10	14	24	30	14	12	7	33	Avarage
Muddy sediment >30 cm (plow + chisel + harrow treated area)									
0-30	12	8	30	38	4	3	3	10	Soil
30-45	12	10	13	30	16	12	8	36	Avarage
45-90	10	12	18	30	14	10	10	34	Avarage

Based on the above analysis, as a result of different methods of tillage, the mechanical content of "sand" in the area of 10-15 cm of muddy sediment in the plowed layer of "medium soz" muddy sediment in the area of 15-30 cm of "light soz" muddy sediment> 30cm formed.new turbid sediments collected in the experimental fields formed different mechanical composition on the soil surface depending on the physical mud in the experiment. At the same time, the mechanical composition of the layer with muddy sediment of 10-15 cm on the surface was not aggravated, and on the soils with a muddy sediment layer of 15-30 cm thicker than 30 cm, the mechanical composition of "Sand" was formed.

In order to mix the newly formed turbid sediments with the old soil layers in the experimental fields, in early October 2020 in the 1st experimental field (muddy sediment 10-15 cm) at a depth of 20-24 cm chisel, chisel-storm was treated with ChKU brand, muddy sediment In Experimental Areas 2 and 3, which were 15–30 cm and> 30 cm thick, the soil was plowed with a circular plug AMR 2 / 3-45 and treated with a harrow.

In Experimental Field 1, when the soil was treated using a chisel-storm, it was noted that the new 10-15 cm layer was completely intermingled with the old 10 cm layer. When analyzing the mechanical composition of mixed tillage and subsoil soils, physical mud in the 0-30 cm layer (<0.01 mm particle size) was 45%, a decrease of 7% (52%) compared to the physical mud in the post-flood muddy sediment. detected.

The amount of physical sludge in the surface layer of the soil increased from 17% (before treatment) to 27% (after treatment) when the clay sediment was plowed to a depth of 28-30 cm in the experimental area with a thickness of 15-30 cm and treated with a chisel storm. it was observed that the light word was transferred to the mechanical composition.

Even in the experimental area with turbid sediment> 30 cm, the new tillage layer was thicker than 30 cm during the above-mentioned activities, so the tillage tools could not mix the new and old layers of soil, so the newly formed sand in the top 30-50 cm layer of soil (7-10%) layer of physical mud was preserved.

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References

1. Xamidov M, Jo‘raev U. Suv tanqisligini bartaraf etishda fitomelioratsiya tadbirlarining samaradorligi [Effectiveness of phytomelioration measures in overcoming water shortages]. O‘zbekiston qishloq xo‘jaligi jurnali. № 1 2017 yil. 49 bet.
2. Norkulov U. Vliyaniya kruglogodovoe ispolzovaniya zasolennыx zemel na vodno-solevoy rejim pochv [Influence of the year-round use of saline lands on the water-salt regime of soils]. «O‘zbekiston Respublikasi melioatsiya va suv xo‘jaligi rivojlanishining zamonaviy muammolari» mavzusidagi xalqaro ilmiy-texnik anjumanning materiallari 2008 y 27-29 noyabr 63-65 bet.
3. Uzbeksiton Milliy Akhborot Khabarlari agent league. https://uza.uz/uz/posts/sardoba-fozhiasi-bir-yil-ortda-qoldi_263104.
4. Eshonkulov, J. S. (2021). Methodology Of Application Of The Simplex Method In The Optimal Development Of Industrial Enterprises. *The American Journal of Applied sciences*, *3*(10), 9-14.
5. Burievich, T. B., Olimovich, A. S., & Turaevich, M. T. (2021). Groundwater consumption and cotton productivity. *Web of Scientist: International Scientific Research Journal*, *2*(09), 130-135.
6. Salakhiddinovich, Nasirov Bakhtiyor, and Charshanbiyev Umuroq Yuldashevich. "Efficiency of application of herbicides which are samuray 33% ek, zellek super 10.4% ek and triflurex 48% ek against weeds in cotton fields" *Web of Scientist: International Scientific Research Journal* 2.09 (2021): 136-139.
7. Salakhiddinovich, Nasirov Bakhtiyor. "Development of Irrigation Procedures for Shadow Varieties Planted After Autumn Wheat." *International conference on multidisciplinary research and innovative technologies*. Vol. 1. 2021.
8. Abdalova, G. N., Eshonkulov, J. S., Sulaymonov, S. O., & Abdullayeva, F. M. (2021). Improvement of cotton nutrition procedure and irrigation technologies. *ACADEMICIA: An International Multidisciplinary Research Journal*, *11*(4), 720-723.

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