

# Important factors in improving the soil structure of the Republic of Karakalpakstan

**Babakhan Allanazarov\***; **Quwanishbay Ibragimov \*\***; **Janabay Ibrahimov\*\***; **Islambek Aymuratov**

C.B.S Senior Teacher

Samarkand Veterinary Medical Institute

Nukus Branch, Uzbekistan.

Assistant Of Karakalpak Institute of Agriculture and Agrotechnology

Uzbekistan.

Student: Samarkand Veterinary Medical Institute

Nukus Branch, Uzbekistan.

**Abstract:** The movement of groundwater towards the Aral Sea is slowing down, which is one of the main reasons for the drying up of the Aral Sea. The Amudarya used to be a large collector, but the main reason is the lack of water, shallowness and sand.

**Keywords:** Organic, Mineral, Microelement, Amudarya, Experiment, Microflora, Observation, Determination, Aral, Microorganisms.

## Introduction.

Degradation of the ecological environment in the republic, the formation of dust in the atmosphere, abrupt climate change. The drastic change in the current state of the biosphere is all due to the drying up of the Aral Sea.

We know that the overflow of the Amudarya forced the movement of groundwater to the Aral Sea, but, unfortunately, the river lost its flow, the movement of groundwater stopped and began to affect to the soil. Experimental results show that the salinity of the soil is increasing year by year which in turn has an effect on the microorganism in the soil. It should be noted that the amount of nitrogen in our soil is from 0.07 to 1.15 %, in some cases it decreases to 0.03% or increase to 0.2-0.25.

Purpose of the work. The richness of the microflora in most of the irrigated lands of the country and the availability of very favorable conditions for its existence have a profound effect on the quantity and quality soil humus.

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The amount of humus in the soil, ie the use of organic fertilizers or the use of natural sources, allows to increase the content of microorganisms in the soil, ie in the tillage layer, by 1.5-2 times.

In previous periods, the flooding of the Amudarya brought 16 tons of turbid soil mass per hectare, which enriched the soil composition with inorganic substances and improved the soil structure. Unfortunately, this situation is not repeated now. Therefore, there is an opportunity to improve the soil flora when we make effective use of the natural resources available to us and others.

## Information and methods.

In writing this scientific work, mainly agrochemical and soil analysis, years of observation and determination of C1, SO4 salts in the soil were used. The research of a number of other scientists has been studied in depth.

## Results and their analysis

The conducted scientific results show that the Republic is characterized by high nitrification capacity. Improving the soil of Karakalpakstan by planting legumes to increase the level of nitrogen nitrogen in the soil nutrient regime, including irrigated, ie well-washed soils, will allow us to overcome the current ecological environment.

Scientific experiments conducted in the soils of the Republic of Karakalpakstan show that nitrogen in the form of nitrogen consists mainly of nitrates, the amount of ammonia nitrogen in the soil in the summer months does not exceed 1-2 mg per 1 <2 soils.

This is due to the high biological properties of irrigated soils, nitrogen in the form of amides, amines and ammonia quickly mineralizes and turns into nitrates.

Nitrate compounds are mobile due to their good solubility in water. Accordingly, nitrogen in the form of nitrate has the ability to leach into the soil with water to a depth of 1-2 m and rise to the surface with water rising through the capillaries, to normalize this process by keeping the soil moisture at 60% or legumes, cereals it is possible to introduce crop rotation by planting crops.

Modern demand increases the biological activity of the soil after the washing of water-soluble salts from the soil layer, which is one of the main indicators of soil fertility efficiency. When we do this, the activity of azrob microflora in the lower layers of the soil is weak. Because it lacks oxygen and energy minerals. Eventually a deficiency of nitrogen and phosphorus in a form suitable for the plant is visible.

The results of the experiment show that the height of plants grown in the 0-20 cm layer of soil varies, in the case of cotton, the average of the experiment was 48.6 cm, when grown in a layer of 20-40 cm 29.8 40 Up to 25.6 cm when grown in a -60 cm layer. This depends on the number of microorganisms living in the strata and, therefore, it is necessary to study soil biology in our country. The soils of the cotton-growing regions of the Republic of Karakalpakstan are automorphic semi-hydromorphic soils are considered the saline zone.

### Conclusion

1. The sharp decline in the flow of the Amudarya has affected the movement of groundwater, increasing the level of soil erosion in the Republic of Karakalpakstan and Khorezm region.
2. The movement of groundwater towards the Aral Sea is slowing down, which is one of the main reasons for the drying up of the Aral Sea. The Amudarya used to be a large collector, but the main reason is the lack of water, shallowness and sand.
3. As a result of the gradual increase in the salinity of the soil from year to year, there is a decrease in the number and type of microorganisms in the soil.
4. Reducing these conditions will improve the soil flora by planting legumes in many areas, which will accelerate the activity of microorganisms that improve soil structure
5. Changes in the number of microorganisms in the soil layers have an impact on plant productivity, ie when the cotton plant is grown in 0-20 cm layer of soil, the height is 48.6. -60 cm layer was 25.6 cm.
6. Evaporation of water from the earth's surface into the air is 6 times higher than the annual precipitation, ie if 200 mm of precipitation falls, 1200 mm of water evaporates. To prevent this, it is possible to reduce the soil microflora and salinity levels by planting more shady, overgrown plant species.

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