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Research Article

PROTECTION OF IRRIGATED AND NON-IRRIGATED AREAS FROM WATER EROSION

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Butayarov Abduqodir Tuxtaevich
Doctor Of Philosophy In Technical Sciences, (Phd), Uzbekistan

ABSTRACT

Today, one of the other agronomic properties of this type of soil is that the amount of total nitrogen in the soil depends on the amount of humus in the soil. its amount varies from 0.05% to 0.15%. Typical gray soils are a very favorable medium for nitrification. The main part of nitrogen is found in the soil in the form of nitrate and is in a form that is easily absorbed by the plant. In most cases, the amount of total phosphorus is greater than the amount of total nitrogen. And in the upper layers of the soil, it is 0.1%-0.2%.

Typical irrigated gray soils contain a lot of remains of roots and other parts of the plant, relatively low soil compaction, and humus is present in the plowed part of the soil. These processes have a negative impact on soil fertility. The possibilities of application to modern production, analysis of solving problems, elimination of excess water loss are the main tasks of today in the region.

KEYWORDS

Area, water, soil, global climate, research method, water velocity.

INTRODUCTION

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The field experiment was carried out in 2021 - 2022 in an experimental plot on an area of 1.1 ha. The mechanical structure of the soil is medium loam, typical gray, underground water is located 18-20 m below, it has been used for irrigated agriculture. The experiment was carried out in the following system (Table 1).

In the research, cotton was planted with a promising medium fiber. Irrigation was carried out in the order of 70-70-60% soil moisture relative to ChDNS. The experiment consisted of 9 options, each plot area was 240 m2, three rows, one tier. In the researches, all observation measurements and analyzes were carried out on the basis of the methodology manual "Metodika polevyx opytov s xlopchatnikom v usloviyax oroshenia" adopted by PSUEAITI (Former UzPITI), agrotechnical activities were carried out in the order adopted by the farm. The parent rock of the experimented area soil is unevenly formed, it is covered with typical gray soils that have been irrigated for a long time. According to soil scientists such as P. N. Besedin, P. Suchkov, there is information that one-third of Central Asian soil consists of gray soils.

It is known that typical gray soils are characterized by low humus content and carbonation.

In studied irrigated typical gray soils, humus content is 1.0-1.5%, total nitrogen is 0.08-0.1%, phosphorus is 0.2-0.3%. The solubility of phosphorous compounds is not significant due to the high carbonation of the soil, so the level of absorption by the plant is very low. According to scientists A.Kudrin, A.N.Rozanov, M.A.Pankov, typical gray soils are heavy sandy and medium sandy in terms of mechanical composition. Also, the volume mass of the soil is high and the porosity is relatively low. In these soils, biological processes are accelerated and the content of saturated cations is high. The process of nitrogenization of organic matter in the soil is fast, while the mobility of nitrogen is high, while the mobility of phosphorus is slow. The mobility of potassium is average compared to the mobility of nitrogen and phosphorus.

Another agronomic property of this soil type is that the amount of total nitrogen in the soil depends on the amount of humus in the soil. its amount varies from 0.05% to 0.15%. Typical gray soils are a very favorable medium for nitrification. The main part of nitrogen is found in the soil in the form of nitrate and is in a form that is easily absorbed by the plant. In most cases, the amount of total phosphorus is greater than the amount of total nitrogen. And in the upper layers of the soil, it is 0.1%-0.2%.

Typical irrigated gray soils contain a lot of remains of roots and other parts of the plant, relatively low soil compaction, and humus is present in the plowed part of the soil.

The climate of the region is highly variable, characterized by cold winters and hot summers. The average annual precipitation is 500-600 mm, most of which falls in the spring months.

Morphological description of the soil: Before conducting the field experiments, the experimental field was selected and sections

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were dug according to the soil profile in order to define the morphological structure of the soil. The experimental field is covered with typical gray soils that have been irrigated for a long time, according to genetic layers by B.S.Kamilov, A.S.Shamsiev and M.Ziyatov on 08.04.2015. (Part No. 1) is described as follows:

Ax 0-30 cm. Khaydov layer, typical gray soil, grayish (palevian) yellow color, the surface part is dry downwards and has moderate humidity, the middle sand has a mechanical composition, is less dense in structure, small-sized, earthworms, their tracks, and plant roots and remains are often destroyed. passes to the next layer in terms of density and color.

Ah.o. 30-50 cm. Subsoil layer, mechanical composition is medium sand, color is darker than upper layer, medium moisture content, more dense than upper layer, has small granular structure, many plant roots are found, there are worm tracks from underground organisms, small amounts of carbonates are found in the form of small aggregates , goes to the next layer by color.

V1 50-70 cm. The color is lighter than the upper layer, the humidity is moderate, it has a fine cut-like structure, there are capillaries with fine pores, there are many plant roots and worm tracks, it is denser than the upper layer, the mechanical composition is close to medium sand and heavy sand, and it goes to the next layer in terms of color.

V2 70-100 cm. The color is pale yellow, medium moisture, small lumps, medium density, plant roots and worm tracks are found, the mechanical composition is medium sand, it goes to the next layer in terms of color, density and moisture.

S1 100-120 cm. It is denser than the upper layer, pale yellow in color, moisture is more than the upper layer, the structure is fine-grained, the mechanical composition is medium sand, plant roots are rare, carbonate salts are found in the form of small hard bundles (1.0-1.5 cm), the density of the next layer is wins by

S2 120-160 cm. Flowing yellow color, structureless, mechanical composition is medium sand, humidity is above average, plant roots are very rare, carbonates are abundant in the form of lumps of hard, edged, gravel-like (2.0-2.5) (horny) appearance, deepening downwards. has a structure similar to the upper layer.

Old irrigated, typical gray soils with deep underground water are formed as a result of many years of irrigation due to irrigation, agro-measures used in farming, and external effects of climate. The studied soils are mainly washed to varying degrees, belong to the category of medium and heavy sandy loam soils. Depending on the level of leaching, the amount of humus and nutrients in these soils is different. It can be seen from the data that at the beginning of the growing period of cotton, the content of humus in the 0-30 cm tillage layer of the soil is on average 0.823%, the total nitrogen and phosphorus is 0.068-0.091%, and the nitrate content is 19.0 mg/kg, and the mobile forms of phosphorus and potassium are respectively 27.3 and was 277.3 mg/kg. In the 30-50 cm layer under the drive, these parameters are proportionately 0.598% of

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humus, 0.045 and 0.068% of total nitrogen and phosphorus, 10.3 mg/kg of nitrates, 16.4 and 163.3 mg/kg of mobile forms of phosphorus and potassium. will be around. 50-70 cm below the subsurface layers of the soil; At a depth of 70-100 cm, it is observed that the forms of mobile nutrients decrease sharply.

It is known that the summer months in Uzbekistan are mostly without precipitation. However, in June, the amount of precipitation was 19.8 mm, which was 7.7 mm more than in many years. No precipitation was observed in July. In August, the amount of precipitation was 3.6 mm, which was 1.1 mm more than the annual average, while in September (4.8 mm) it was close to the annual average.

It can be seen that in the year of the experiment, the observed amount of precipitation was the same and different from the seasons. Heat is one of the most necessary factors for plants. If any plant does not receive the necessary amount of temperature, it will not fully develop and produce.

According to the obtained data, the sum of useful temperatures in April was 2460C, which was 980C higher than the long-term average, while May was 590C higher. In the summer months, the sum of useful temperatures was 15970C. From these figures, we can observe that the sum of useful temperatures in the summer months is 1360C higher than the perennial one.

Precipitation in September amounted to 5.8 mm, which is 0.9 mm more than the annual average for September. In September and the first ten days of October, the weather is favorable, and the cotton crop can be harvested on time without wastage. In August and September of 2021, the average temperature was around 27.3 and 23.8 0C, which was good for the development (ripening) of bolls on the cotton bush. Precipitation in September was 5.8 mm, which is 0.9 mm more than the annual average. In September and the first ten days of October, the weather is favorable, and the cotton crop can be harvested on time without wastage. Relative humidity in April 2021 was 73 percent, or 12 percent more than the perennial, and by August and September, it was 55 and 66 percent, while the perennial was 48 and 49 percent.

In 2021, the sum of average useful temperatures was 159 and 350 oC in spring April and May, which was 11 and 35 oC more than the annual average, while it was around 503 and 555 oC in the summer months of June and July, compared to the annual average in June and July. 43 and 24 oS were accumulated a lot. In August and September, it was 536 and 415 °C, which was 66 and 115 °C more than the annual average.

Therefore, the weather conditions of 2021, in particular air temperature, amount of precipitation, relative air humidity, and the sum of useful temperature, indicate that it is favorable for optimal growth and development of cotton in the region and obtaining high and quality cotton harvest.

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amount of precipitation was 10.0 mm, which was 2.0 mm more than in many years. No precipitation was observed in July. In August, the amount of precipitation was 1.0 mm, which was 1.5 mm more than the annual average, while in September (4.9 mm) it was close to the annual average.

It can be seen that in the years of the experiment, the amount of precipitation observed by seasons was the same and not uniform. Heat is one of the most necessary factors for plants. If any plant does not receive the necessary amount of temperature, it will not fully develop and produce.

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