INFLUENCE ON SOIL VOLUME MASS AND VOLUME

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ABSTRACT

In this article, the use of various irrigation methods and procedures in the maintenance of soybean varieties in the conditions of the meadow gray soils of the Jizzakh region requires an abundant harvest of agricultural crops.

KEYWORDS: *Irrigation, Order, Method, Shade, Pasture, Crop.*

INTRODUCTION

It is explained by the high or low yield obtained from crops as a result of the effect of each agrotechnical measures used in agriculture, paying special attention to the change of its agrophysical and agrochemical properties, to the growth and development of cultivated crops.

Research object: In the experimental fields of Pakhtakor branch of the scientific research institute of cotton breeding, seeding and cultivation of agricultural technologies, "Orzu" and "Nafis" varieties of soybeans, the soil moisture levels are 70-70-60%, 75-75-65% relative to the standard.

The Purpose of the Study: It is to develop optimal irrigation methods and procedures for obtaining high yields from "Nafis" and "Orzu" varieties of soybeans, cultivated as a repeated crop after winter wheat in the conditions of meadow gray soils of Jizzakh region.

The Tasks of the Research are as follows:

Determination of the effect of cultivation of soybean varieties with different irrigation methods and procedures on agrochemical, water-physical and agro-physical properties of the soil;

to determine the water consumption used for the production of one centner of soybean crops in different irrigation methods and procedures;

to determine the effect of different methods and procedures of irrigation on the growth, development and accumulation of crop elements of replanted soybean varieties;

To determine the economic efficiency of using different methods and procedures of irrigation of soybean varieties planted as a repeated crop.

The Subject of Research

Agrochemical and agrophysical properties of soils, irrigation methods and procedures of repeated crop soybean varieties, water consumption, plant growth and grain yield.

Research Methods

In the researches, plant biometric measurements, laboratory analyzes of soil and plant samples, phenological observations were carried out based on the "Methods of conducting field experiments" method, and the data obtained from the research results were analyzed mathematically and statistically according to the "Metodika polevogo opyta" method of B.A. Dospehov.

Research Results

In order to determine the duration and rates of irrigation according to the soil moisture, in order to determine the initial condition of the volume, density and porosity of the soil in the experimental area, from three points along the diagonal of the field, at the end of the operation period, every 10 cm from the 0-100 cm scale according to the options. was determined by the Kaczynski method using cylinders.

In our research conducted in 2019, the volume mass of the initial soil of the experimental area was 1.36 g/cm3 in the tillage (0-30 cm) layer, 1.39 g/cm3 in the 0-50 cm layer, 1.40 g/cm3 in the 0-70 cm layer, and It is 1.41 g/cm3 in the 0-100 cm layer, and the porosity of the soil in these layers is 49.4; 48.3; 48.0; It was equal to 47.6%.

By the end of the period of application of the shade, the volume mass of the soil increases and the porosity decreases, and the main reasons for this are explained by the agrotechnical activities carried out in the research area.

In the conducted research, the volume mass of the soil was 1.41 g/cm3 in the 0-30 cm layer, 1.43 g/cm3 in the 0-50 cm layer in the irrigated options (1, 4, 7, 10) in a simple way (not mulched with a film). It is 1.44 g/cm3 in the 0-70 cm layer and 1.46 g/cm3 in the 0-100 cm layer, 0.5 across the layers compared to the initial state; 04; 0.4; It was found to be denser up to 0.5 g/cm3.

At the end of the application period of the soybean, the method of mulching with a film was used (3, 6, 9, 12). It is 1.43 g/cm3 in the 70 cm layer and 1.44 g/cm3 in the 0-100 cm layer, 0.4 across the layers compared to the initial state; 0.4; 0.3; Density up to 0.3 g/cm3, and 0.1 compared to non-mulched options; 0.2; 0.1; It was found that the volume mass of the soil decreased to 0.2 g/cm3.

The soil porosity of the researched area was 47.6% in the 0-30 cm layer, 46.8% in the 0-50 cm layer, and 46.8% in the 0-70 cm layer in the options irrigated (1, 4, 7, 10) in a simple way (not mulched with a film). 46.5% in the layer and 45.7% in the 0-100 cm layer, 1.8 across the layers compared to the initial state; 1.5; 1.5; It was observed that it decreased to 1.7%.

48.0% in the 0-30 cm layer, 47.6% in the 0-50 cm layer, and 46.8% in the 0-70 cm layer were used in options (3, 6, 9, 12). and 46.5% in the 0-100 cm layer, 1.4 across the layers compared to the initial state; 0.7; 1.2; It decreased to 1.1%, and compared to non-mulched options it was 0.4; 0.8; 0.3; It was found to be more than 0.8% (Table 3.1).

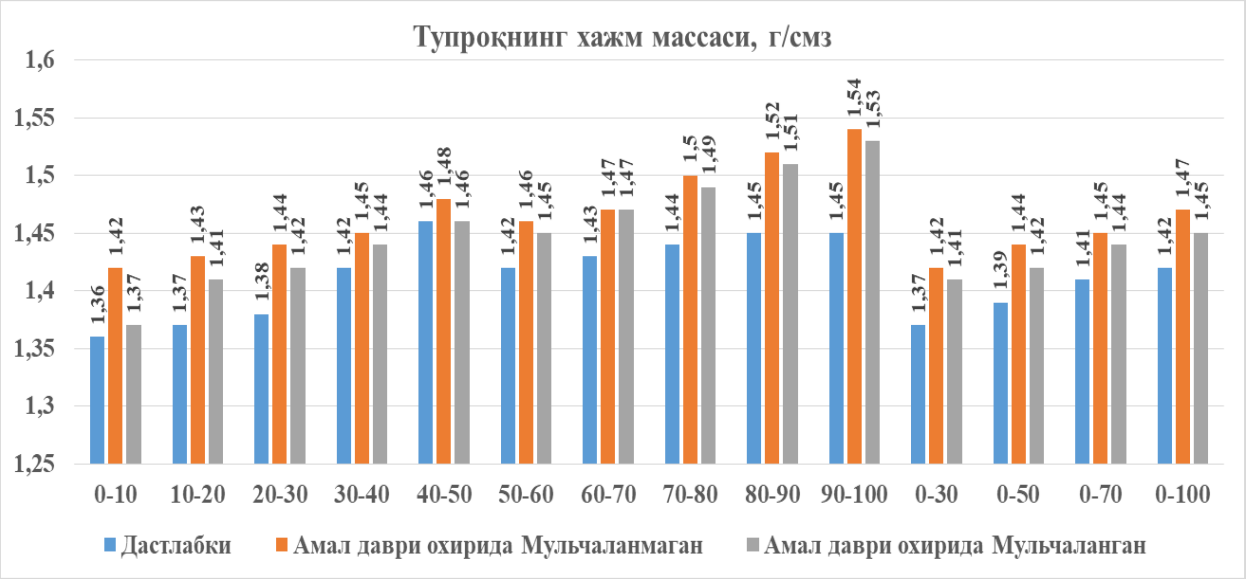

Figure 1. Volume and mass indicators of the soil of the experimental area (2019-2021 average)

It was observed that the field moisture capacity of the soil in layers 0-30, 0-50, 0-70, 0-100 cm was equal to 18.5-18.9-19.5-20.2% in average years compared to the absolute dry mass of the soil.

In order to find out whether the soil of the experimental field is supplied with nutrients, soil samples were taken at the beginning of the operational period (in summer) and at the end of the operational period (in autumn) and the amounts of humus, nitrate form of nitrogen, mobile phosphorus and potassium were analyzed.

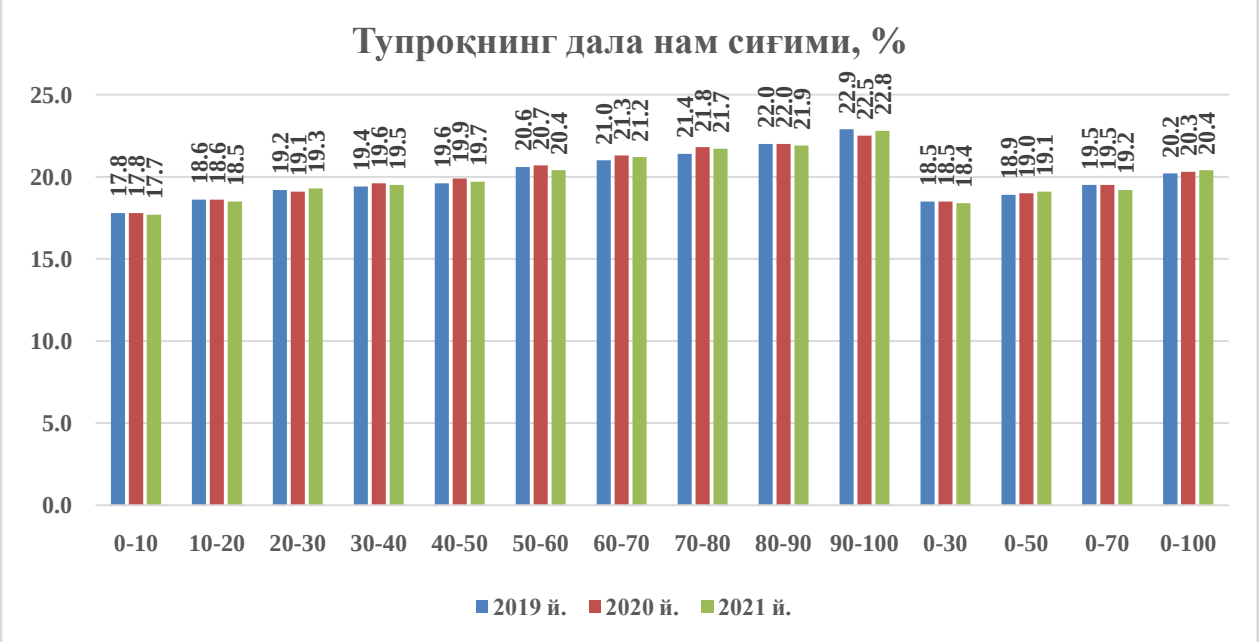

Figure 2. Limited field moisture capacity of the soil of the experimental area (2019-2021 average)

It can be observed that such a law has been preserved in the remaining years of our scientific research.

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