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AGROCHEMICAL PROPERTIES AND CHARACTERISTICS OF POMEGRANATE PLANTED SOILS

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Abstract: Presents reviews of the work of local and foreign scientists on the importance of studying the agrochemical properties of the soil in determining the rate of pomegranate fertilization, and the pomegranate's demand for fertilizer. Information about the soil-climatic conditions of the research object is given and the results obtained on agrochemical properties are described. Recommendations on fertilization periods and norms are presented, taking into account the agrochemical properties of the soil.

Key words: Pomegranate, soil, nitrogen, phosphorus, potassium, supply of nutrients, stratified fertilizing.

Enter: It is important to know the level of supply of nutrients in the soil when determining the rates of fertilization of agricultural crops. Because in addition to the biological demand of crops for nutrients, the amount of nutrients in the soil is also taken into account in fertilizing. According to the amount of nutrients in the soil, it is possible to use fertilizers in a stratified manner.

In Turkey, M.Guneri, M.Yildiztekin, A.L.Tuna, I.Yokas [1] were emphasized the importance of fertilizing pomegranate with potassium and calcium, and considered that it is necessary to take into account its amount in the soil. In research, the effect of potassium and calcium elements on the quality and amino acid content of the fruit of the pomegranate plant was studied. Pomegranate fed with enough potassium and calcium increased fruit weight, juice yield and skin thickness, and improved fruit quality.

In India, scientists of the Department of Fruit Production of the Punjab Agricultural University, P.P.S.Gill, M.Kumar, N.P.Singh, W.S.Dhillop [2] conducted an experiment using NPK fertilizers in pomegranate crops at different rates. Application of 300:50:100 g of NPK per plant was found to be the most optimal option, and plant growth and productivity were the highest in this option. The color of the fruit, the number of grains and the thickness of the shell were better in the plant well fed with potassium compared to the control variety. It is emphasized that the agrochemical parameters of the soil are important in determining the application dose of fertilizers.

S.Davarpanah et al. [3] found that fruit cracking was reduced by 26-52% compared to control when pomegranate crops were moderately fertilized with calcium in Iran. In addition, fruit yield and quality were good when fertilized in moderation. This is due to the increase in the activity of amino acids and the improvement of other biochemical processes.

V.M.Prasad [4] studied the effect of nitrogen, potassium and boron on growth, flowering, fruiting and fruit quality of pomegranate plant in 2019-2020. Experiments were conducted in 10 variants and 3 repetitions. During biometric observations, pomegranate growth and fruiting processes were fully controlled. The agrophysical, agrochemical and biological properties of the soil are improved under optimally fertilized conditions.

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A lot of experiments have been carried out on determining the norms of pomegranate fertilization, taking into account the agrochemical properties of the soil, the effect of fertilizers on productivity [5-7]. According to the results of experiments, the rates and periods of fertilizing are different in different regions and differ from each other according to the soil and climatic conditions. The reviews on pomegranate fertilization given above also contain information on the use of calcium fertilizers for fertilization. The amount of calcium in our soils is sufficient, even excess. Therefore, it is important to determine the fertilization standards taking into account the soil and climate conditions.

Research methods: Special experiments were carried out to calculate the fertilization rates taking into account the agrochemical properties of the soil. Soil samples were taken and analyzed. The amount of humus, total nitrogen, phosphorus and potassium, nitrate nitrogen, mobile phosphorus, exchangeable potassium, carbonates, and gypsum in the soil was determined. The absorption capacity of the soil and the content of cations were also determined. On the basis of these data, recommendations on the rate of pomegranate fertilization were developed.

Results and discussions: The experimental area planted with pomegranate is located in the central part of the Mirzachol oasis and consists of irrigated gray-meadow soils. The amount of humus in the soils of the studied area in most cases does not reach 1%. This indicates that these soils are low in humus. The reason for the low content of humus and total nitrogen is explained by the reduction of organic residues as a result of soil salinization, and the low ability of nitrification.

Agrochemical indicators of the soil are one of the properties that determine its productivity. The amount of humus in the soil is higher in the surface layer (Table 1).

Table 1.

Agrochemical indicators of grassland soils.

Section №	Depth, sm	hummus %	SO_4 gypsum, %	SO_2 carbonates, %
24-1	0-30	1,139	0,173	9,17
	30-50	0,696	0,226	8,57
	50-100	0,528	0,207	9,14
24-2	0-30	0,945	0,182	9,15
	30-50	0,622	0,174	9,18
	50-100	0,345	0,192	10,16

In the soil hummus quantity every cut into pieces too don't drive in a row high to the indicator owner and 0.945-1.139 percent organization will do. Soil under the knife is 0.622-0.696%, down side while his amount up to 0.345 percent decreased.

Carbonates in the research area are distributed almost evenly on the soil profile and its amount is 8.5-10.0%. This indicates the weak alkalinity of these soils. The amount of gypsum ranges from 0.173% to 0.207%. An increase in its amount causes deterioration of soil properties.

The amount of total nitrogen depends on the amount of humus, and its amount is also high in the arable layer (Table 2).

24-1- equal to 0.072 percent in the 0-50 sm layer of the section. In both sections, its amount has decreased. The amount of total phosphorus reaches 0.3 percent in the 24-2 section. Also, the total amount of potassium was higher in the 24-2 section and increased to 1.44%.

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Table 2.

Amount of total and mobile nutrients in grassland soils.

Section №	Depth, sm	General, %			Mobile mg/kg		
		Nitro-gen	Phosp-horus	Potas-sium	N-NO3	P2O5	K2O
24-1	0-30	0.072	0.185	0.57	17.4	27.0	113.2
	30-50	0.046	0.145	0.47	13.5	13.0	96.3
	50-100	0,039	0,128	0,42	11,0	10,4	89,1
24-2	0-30	0,056	0,288	1,12	20,2	15,3	280,2
	30-50	0,038	0,254	1,14	15,4	10,9	170,1
	50-100	0,032	0,212	1,44	12,6	10,4	120,6

The amount of nitrate nitrogen was 20.2 mg/kg in the arable layer of section 24-2, its amount decreased to 11.0 mg/kg in the 50-100 sm layer of section 24-1. The amount of mobile phosphorus is 27.0 mg/kg in the arable layer of section 24-1, 15.30 mg/kg in section 24-2, and 10.4 mg/kg downward. This indicates that these soils are poor in mobile phosphorus. The main reason for this is that gray soils are rich in calcium carbonates and have a high probability of forming calcium phosphates. The amount of mobile potassium is distributed in proportion to the amount of total potassium. Its amount reaches 280.2 mg/kg. Since the parent rocks of gray soils consist of loess, the soils are well supplied with mobile potassium compared to other soils.

In order to determine the rate of fertilization of the pomegranate crop, it is necessary to have complete information about the soil properties. In saline soils, the rate of fertilizers is slightly increased. There is enough information about the properties of the soils of the research object, their improvement [8-17]. The task now is to organize the fertilization of the pomegranate crop on a scientific basis based on this information.

Conclusion: The analysis of the agrochemical properties of the soil of the research object shows that the soil is low in nutrients and these parameters must be taken into account when determining the fertilization rates. In addition, it is necessary to use fertilizers differentially, taking into account the age, variety, and planned yield indicators of the pomegranate crop.

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