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The Basic Agrochemical Features of Samukh District Soils

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Abstract:

It is impossible to imagine modern agriculture without agrochemical means. Half of the crop production is obtained through agrochemicals. According to calculations, the use of chemicals protects 50-60 and sometimes 70% of plant products from diseases and pests. According to our estimates, more than 30% of the world's population, or more than a quarter, at the expense of mineral fertilizers are provided with nutrients. Currently, the world produces more than 300 million tons of fertilizers.

Keywords: fertilizer, agrochemical, mineral, humus, fertile.

One of the important conditions for the intensification of agriculture is the study of the agrochemical features of soil cover, the study of water-physical properties and the determination of methods, timing, and rates of application of mineral fertilizers [5].

Without knowing the agrochemical nature of the soil and the nutritional requirements of the plants to be planted, it is impossible to apply fertilizers efficiently in agriculture. Determination of the total reserves of nutrients in the soil can be achieved through the proper use of fertilizers and increasing the fertility of the soil. The study of the agrochemical properties of soils is important for increasing the productivity of agricultural plants and the efficiency of fertilizers. However, in many countries, especially in Africa, crop yields are quite low due to many reasons, including inorganic and organic-mineral fertilizer deficiencies [3].

In irrigated gray-brown soils, the variability of the main constituents corresponds to the prevailing conditions in irrigated dark-brown soils. There is a tendency for humus to shrink, both in the sowing layer and throughout the profile. In the sown area this figure decreased from 2.80% to 2.50%, and in the lowest layer from 1.29% to 0.49%. Comparing the years, it can be seen that humus content decreased by 0.30% and 0.80%, respectively. CaCO3 increased by 6.13% over the years under review, with no significant difference in total nitrogen and phosphorus.

Samukh district is an area as mainly irrigated agriculture. The majority of the region is located in the Kura lowlands. It is a large plain with some terraces and extending northeast. The plains are sloping as they approach the foothills. The cones brought by streams and streams from the small Caucasus Mountains consist of large river crevices, small stones, crystalline rocks, and sedimentary rocks. Their thickness ranges from a few meters to 300-400 meters. The cone depressions are sediments of different sizes. The cone shleyfs and cone depressions form the upper and middle part of the lowlands. Low part of the plain is mainly attributed to heavy clay and clay proluvial alluvial accumulations, but is occasionally encountered by river stone.

Humus (0-18 cm) in the upper layer of light gray-brown soils in the Samukh district is 2.20%, and the bottom layer (46-89 cm) is 0.30%. Nitrogen, which is easily hydrolyzed, is 54.6 and 32.6 mg / kg, phosphorus 17.6-16,8 mg / kg, and potassium is 188.2-186.4 mg / kg, respectively. [8].

Agrochemical studies carried out on light brown soils in the Samukh region indicate that these soils are poorly supplied with nutrients, and have a weaker alkaline reaction. At a depth of 1 meter of soil humus is 2.16-0.40%, total nitrogen 0.11-0.03%, absorbed ammonia is 9.9-2.8 mg / kg. The total phosphorus was 0.12-0.05%, the active phosphorus was 11.2-2.8 mg / kg, and the exchange potassium was 230.0-60.2 mg / kg [4].

When studying the agrochemical indices of light-brown soils in the Samukh region, it was found that these soils were carbonated from ancient times, poorly supplied with exchange potassium, phosphorus and various forms of nitrogen compounds. In the upper soil (0-20 cm) the total humus content was 2.03%, in the 80-100 cm layer was 0.35%, and the pH was 7.2-7.7.

Agrochemical studies on gray-brown soils in the Samukh region show that these soils are not sufficiently provided with assimilated forms of nitrogen, phosphorus and potassium. The pH was 7.4 in the 0–30 cm layer of water, and increased to 7.9 in the 60–100 cm layer. Total humus, nitrogen, phosphorus and potassium was 2.11; 0.13; 0.12; 2.39% in the 0-30 cm layer. However, a significant decrease in the surface area 0.73; 0.05; 0.07; 1.55% in the 60-100 cm layer. Absorption of ammonia nitrogen varied between 18.3-6.5, nitric acid 9.7-2.3, engine phosphorus 16.3-4.9, and exchange potassium 273.5-95.3 mg / kg [2].

Long-term research in the study areas has revealed that the number of nutrients easily absorbed by plants is decreasing from year to year. The main reason for this is the systematic failure to provide organic and mineral fertilizers. Under irrigation, it is grayish-brown, and in the without irrigated soul it is washed mountain-dark, with a granulometric composition is heavy claying and claying. In irrigated brown soils, the total humus, nitrogen, phosphorus and potassium is 2,2; 0.18; 0.17 and 2.53% in 0-20 sm layer, and suitable for 80-100 cm layer it is 0.40; 0.04; 0.07 and 1.4% respectively. The amount of easily hydrolyzed nitrogen, absorbed ammonia, water-soluble ammonia and nitrate, respectively, is as follows: 103,0-10,2; 21.0-4.5; 10.1-2.0 and 12.9-2.02 mg / kg. Optical phosphorus and metabolism of potassium 19.3-3.2 and 230.0-110.2 mg / kg, and phosphorus and kaolum-soluble 2,15-0.98 and 38.0- 9.02 mg / kg. The total absorbed bases are 29.5-21.2 mg / eq per in the 100 g soil [1].

In not irrigated soil, easily hydrolyzed nitrogen is 112.8 mg / kg in 0-20 cm thick, absorbed and water-soluble ammonia 23.7 and 11.8 mg / kg, nitrate nitrogen 15.7 mg / kg, decreased along the profile. Total humus and nitrogen fluctuate between 3.25 and 0.45% and 0.24-0.09%. Total, water-soluble and active phosphorus 0,17-0,10%; 2.39-1.08 and 20.0-4.0 mg / kg.

Total, water-soluble and exchange potassium 2,77 -1,71%, 44,6-15,3; Between 306,1-147,0 mg / kg. The total absorbed bases are 30.0–22.0 mg / eq / m in 100 g of soil. In both conditions, the reaction of the soil solution is weak alkaline.

Analytical base of the Azerbaijan Scientific-Research Institute of Cotton shows an analysis of the main agro-chemical characteristics of ancient irrigated gray-brown soils because these soils were not sufficiently provided with myriad forms of nitrogen, phosphorus and

potassium. The pH was 7.8 in the 0–30 cm layer of water and 8.4 in the 60–100 cm layer, further increasing to the lower layers. Total humus, nitrogen, phosphorus and potassium in 0-30 cm thickness; 2.13 ; 0.13; 0.12; 2.28%. But it was gradually reduced to the low surface of the soil by 0.81; 0.05; 0.06; 1.45% in the 60-80 sm layer. Ammonium nitrogen absorbs 18.5-5.2, nitric nitrogen 9,4-2,5, active phosphorus 15,3-4,0, and exchange potassium 253,0. changed between 102.4 mg / kg.

The reaction of the soil environment influences the access, richness and development of mineral nutrients to any agriculture crop during vegetation [6].

Mineral fertilizers play an important role in improving the environmental and agrochemical properties of soil fertility, productivity and quality of plants. Mineral fertilizers in agrarian landscapes and alternate plantings increase the environmental sustainability of agrarian landscapes by increasing the productivity of wheat by 25-50%, 45-100% of corn, 27-74% of sugar beet, and 28-65% of sunflower [9].

The physical, chemical and biological characteristics of the soil must be taken into account when cultivating crops. The specific weight of agriculture suitable for agriculture in the country varies considerably by region and even by district, but also in terms of relief, climate, water regime and so on. depending on the range make a significant difference.

Chemical services play an important role in increasing agricultural production and increasing economic efficiency of production. The experience of the countries of the world proves that it is impossible to obtain higher per hectare without organic and mineral fertilizers. When determining the fertilizer standard for any crop, many factors must be taken into account, including the degree to which soil nutrients are provided.

Of the absorbed bases of irrigated light-brown (light gray-brown) soils, calcium prevails and magnesium is the next. On the basis of absorption, sodium is generally not high. There are salts that are not saline and contain a small amount of water-soluble saline, and the dry residue is not higher than 0.12-0.35%.

The agrochemical characteristics of the gray-brown soils in the Samukh region under study are given in Table 2.3. 0-30 to study the agrochemical properties of soils before practice; In soil samples taken

from the 30-60 and 60-100 cm layers, the number of common and assimilated forms of food elements was determined.

Table 1: Agrochemical properties of the experimental area soils

Depth, cm	pH water solution	Total humus, %	Nitrogen			Phosphorus		Potassium	
			Total, %	Absorbed ammonia, N / NH_3 mg / kg	Nitrate Nitrogen, N / NO_3 mg / kg	Total,%	Active mg/kg	Total,%	Exchange mg/kg
0-30	7,8	2,15	0,15	18,0	9,7	0,13	16,8	2,39	263,5
30-60	8,2	1,17	0,09	15,3	6,4	0,09	13,8	1,85	201,0
60-100	8,4	0,85	0,06	6,5	2,6	0,07	4,5	1,51	105,3

Analysis of soil samples shows that gray-brown soils are not sufficiently provided with assimilated forms of nitrogen, phosphorus and potassium. As can be seen from the table, the pH was 7.8 per 0-30 cm in the water solution and 8.4 per 60-100 cm in the lower layers. Total humus, nitrogen, phosphorus and potassium are 2.15 ; 0.15; 0.13; 2.39% per 0-30 cm thick. However, there was a considerable decrease in the lower layers to 0.85;0.06; 0.07; 1.51% in the 60-100 cm layer. Absorbed ammonia nitrogen 18,0-6,5; nitrot nitrogen 9,7-2,6; active phosphorus 16,8-4,5; while exchange potassium is 263.5-105.3 mg / kg.

Thus, the agrochemical analysis carried out on the gray-brown soil shows that, according to the commonly accepted gradient in our republic (Gulahmadov A.N, Akhundov F.H, Ibrahimov S.Z, 1980) [7] soils are poorly supplied with nutrients. Therefore, it is important to use organic and mineral fertilizers in the soil for the growth, development, high yield and conservation of soil fertility.

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