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WAYS OF INCREASING SOIL FERTILITY USED FOR VEGETABLE GROWING IN SAMUKH DISTRICT

©*Aliyeva A.*, Ganja State University, Ganja, Azerbaijan, aliyevaafaq87@gmail.com

©*Aliyeva G.*, Azerbaijan State Agricultural University,
Ganja, Azerbaijan, gunay.aliyeva.phd@gmail.com

ПУТИ ПОВЫШЕНИЯ ПЛОДОРОДИЯ ПОЧВ, ИСПОЛЬЗУЕМЫХ ПОД ОВОЩЕВОДСТВО В САМУХСКОМ РАЙОНЕ

©*Алиева А. А.*, Гянджинский государственный университет,
г. Гянджа, Азербайджан, aliyevaafaq87@gmail.com

©*Алиева Г. А.*, Азербайджанский государственный аграрный университет,
г. Гянджа, Азербайджан, gunay.aliyeva.phd@gmail.com

Abstract. The presented article gives ways to increase the fertility of soils used in vegetable growing in the territory of Samukh District. It has been determined that the soil is provided with uninterrupted nutrients as a result of the constant influx of plant residues and organic matter into the soil during the crop rotation. For this, the correct selection of predecessor plants must be observed. Scientifically based crop rotation has a great role in conservation of soil fertility and increasing soils' agrophysical, agrochemical and biological indices. Taking into consideration of agroecological factors in selection of appropriate predecessor crop for the crop rotation, fertilization and irrigation techniques increases crop yield and supports conservation of soil fertility.

Аннотация. В представленной статье приведены способы повышения плодородия почв, используемых в овощеводстве на территории Самухского района. Установлено, что почва бесперебойно обеспечена питательными веществами в результате постоянного поступления растительных остатков и органического вещества в почву при севообороте. Для этого необходимо соблюдать правильный подбор растений-предшественников.

Keywords: vegetable, humus, soil fertility, fertilizers, weeds.

Ключевые слова: овощи, гумус, плодородие, удобрения, сорняки.

Nature spends more than a hundred years to restore a centimeter of fertile soil layer. We cannot wait for the earth to recover on its own — it needs our help.

Throughout their lives, people have been producers of the blessings of nature and have benefited from its underground and surface resources. The time has come when it is very important for everyone, regardless of their identity, to protect the land like the apple of an eye and increase its productivity. Should not be indifferent to the destruction of an inch of soil, it should be considered a crime against society and human life. At the moment, people make extensive use of underground and surface resources around the world. As a result, nature significantly changes its ecological environment and is exposed to pollution. That is why, as a citizen, we cannot tolerate the destruction of nature for any reason, the destruction of every corner and monument. There has been a lot of talk lately about the use of synthetic fertilizers to increase soil fertility. Modern scientific experiments show that excessive use of synthetic fertilizers not only leads to the accumulation of toxic (harmful)

substances in the soil, reduces the biological activity of the soil, reduces its fertility, but also has negative consequences for human health, including all living things. According to long-term statistics, thousands of hectares of soil in developed countries have lost their fertility as a result of overuse of synthetic fertilizers, so they have been withdrawn from production, and many diseases have been recorded among the population of these countries. In general, synthetic fertilizers and pesticides should be avoided in agriculture, given the environmental conditions.

The level of reserves of organic and mineral substances in the soil, the reaction of the soil solution, the water content and physical properties are the main indicators of its fertility. The soil is considered fertile when it is at the optimal level. In such soils, plants grow well and produce high yields because they are well supplied with the necessary nutrients. Therefore, the main task in agriculture is to improve the soil conditions of plants and provide them with the necessary factors of life, water, nutrients, heat and air. There is various measure to improve each of these indicators separately.

Increasing soil fertility in crop rotation is intended for both long-term and sustainable fertility. Alternate plantings do not mean relocation of plants in the fields. Because it is known that different agricultural plants have different effects on the soil depending on their biological characteristics and cultivation techniques. There are plants that improve fertility, there are those that reduce it. There are plants that improve fertility indicators, and there are those that reduce it.

Samukh District is located between in the Ganja-Kazakh region in the western part of the republic, 40°89' and 40°38' north latitude, 46°13' and 46°87' east length. Ganja-Kazakh region is one of the most developed economic regions of the country in parts of vegetable growing [2].

The rich soil cover of Azerbaijan allows the cultivation of various plants and vegetables there the steady growth of the country's population also highlights the optimal use of soil potential. Thus, the population of Azerbaijan in the beginning of 2004 exceeded 8 million 40000 people. The population growth rate decreased year by year in the following years compared to 1.1% in 1995 and averaged 0.8% annually in 1999–2003. However, the population density is constantly increasing. In the last 7 years, the number of populations per square km has increased from 89 to 95 people [1].

In the mountainous part of the region there are nival-glacial, erosion-glacial and in the middle mountain there are gravitational, denudation, denudation-erosion relief forms [3]. Surface flows are high. Soil-forming rocks consist of coarse-broken-proluvial and alluvial-proluvial rocks? Clayey and clayey sediments. In the Ganja-Kazakh region, groundwater is deep and does not participate in the process of soil formation. Natural drainage of soils in the mountainous, central and western parts of the region, intensive irrigation, causes groundwater mineralization and gradually increases from mountainous areas to the Kur. Groundwater in the eastern part of the region is dominated by sulfate-sodium and chloride-sulfate mineralization [4–6].

Object and Methodology of Research

Taking into account the demand for vegetable products in our country, research was conducted in Samukh District and soil samples were taken from 0–10, 10–20, 20–30 cm depth and analyzed in laboratory conditions. The amount of common and assimilated forms of nutrients in mixed soil samples was determined.

In soil samples taken pH potentiometer, total humus according to I. V. Tyurin, absorbed ammonia D. P. Konev, nitrate nitrogen Grandval-Lyaju, total nitrogen, total phosphorus K. E. Ginsburg and G. M. Sheglov, active phosphorus by the method of B. P. Machigin, general potassium determined on a photometer [2].

Indicators of fertility factors of light brown soils in this area are shown in Table.

Table

FERTILITY FACTORS OF LIGHT BROWN SOILS

Depth, cm	0–10	10–20	20–30
Hygroscopic humidity, %	6,9	5,5	4,87
Humus, %	4,5	3,8	2,7
Total nitrogen, %	0,21	0,16	0,11
Biological activity, CO ₂ , mg/kg	120,70	106,3	83,6
Absorption capacity, m-ekv./100	17,9	19,6	21,7
Exchangeable potassium, K ₂ O, mg/kg	125,3	103,6	97,3
Active phosphorus, P ₂ O ₅ , mg/kg	11,92	10,78	2,98
pH, water retention	7,2	7,0	6,5

One of the most important measures to protect and improve soil fertility is the application of cultivation methods that do not destroy the structure of the soil.

In addition to nitrogen, phosphorus and potassium to obtain high and stable yields from these soils, the quantitative number of microelements is measured in thousands and millions of percent to increase the productivity of agricultural crops and improve the quality of the product obtained. Sufficient micronutrients are one of the main factors for the normal development of biochemical processes that have vital functions in living organisms, especially animal and plant organisms. Microelements are found in soil, soil-forming rocks, water, milk, animal and plant organisms and other organic residues. The study of microelements is closely related to the sciences of geology and biology. Water, rock, soil and the living world form the basis of these sciences and influence the formation of biochemical features.

Analysis and Discussion

The purpose of all this work is to study the physical and chemical properties of the soil, as well as to create favorable conditions for the development of trace elements in them. Because microorganisms are involved in the synthesis and mineralization of organic matter in the soil, attracting free nitrogen from the air to the soil and breaking down rocks to return their nutrients to the biological cycle. Microorganisms in the soil act as synthesizers and regulate the cleanliness of the biosphere in nature conversation. Microorganisms in the soil have been studied by determining the biological activity of the soil.

The role of scientifically based crop rotation in the maintenance of soil fertility and the increase of agrophysical, agrochemical and biological indicators is great. Agroecological factors, proper selection of predecessor plants, fertilization, irrigation, etc. it serves to maintain soil fertility while increasing crop productivity in the crop rotation. Due to the fact that different plants differ in their biology in the crop rotation, their need for nutrients is also different. Planting the same plant together for many years in a permanent crop reduces productivity as a result of unilateral use of nutrients, as well as new organic matter entering the soil, energy source released as a result of their decomposition and easily digestible nutrients. As a result, humus is destroyed as a food source for plant nutrition, plant diseases and weeds occur. As a result of the constant influx of plant residues and organic matter into the soil is provided with uninterrupted nutrients. In this case, the plant receives the necessary nutrients not from the decomposition of humus, but from organic matter decomposed into the soil. When applying crop rotation schemes, plants should be selected in such a way that they serve to protect soil fertility and weed the fields. For this, the correct selection of predecessor plant must be observed.

Intensive use of lands has led to their degradation, structural disruption, reduction of fertility elements. One of the important issues in modern times is the study if these problems and the development if ways to overcome them. Soil fertility is formed as a result of the interaction of natural and anthropogenic factors.

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