ANALYSIS OF ANTROPOGENIC CHANGES OF STRUCTURAL AND AGGREGATE COMPOSITION OF IRRIGATED MEADOW-BROWN SOILS (ANTHROSOLS) IN THE REPUBLIC OF ARMENIA

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Abstract

From the results of the research, it becomes clear that the elements of the strict elements in these lands are generally unstable and the lands do not have a well-defined stereotype. As compared to irrigated meadow brown soils, the number of water-resistant aggregates is somewhat lower in the longitudinal irrigated soils, and the grid is different in size. It is clear from the studies that the arable lands are strongly crushed, because of the continuity of the soil and other mechanical cultures, as the soil structure is interrupted by cutting down and working on the working parts of the soil and processing tools.

In order to improve the sturdy and aggregate composition of irrigated meadow brown soils, increase fertility, efficient use and maintenance, it is necessary to develop and implement a full scientifically justified agro-technical system.

Аннотация

АНАЛИЗ АНТРОПОГЕННЫХ ИЗМЕНЕНИЙ СТРУКТУРНО-АГРЕГАТНОГО СОСТАВА ОРОШАЕМЫХ ЛУГОВО-БУРЫХ ПОЧВ (ANTHROSOLS) РЕСПУБЛИКИ АРМЕНИЯ

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Ключевые слова: *структура, водопрочные агрегаты, глыбы, пыль, скелет.*

Результаты исследований показали, что в целом элементы структуры в этих почвах не являются устойчивыми, и почвы не имеют явно выраженную структуру. По сравнению с лугово-бурыми орошаемыми почвами, количество водопрочных агрегатов в староорошаемых почвах несколько меньше, почвы сильно запылены из-за непрерывной вспашки и другой механической обработки почвы, так как структурные отдельности почвы соприкасаясь с отдельными рабочими частями и орудиями при обработке почвы дробятся.

Для улучшения структурного и агрегатного состава орошаемых лугово-бурых почв, повышения плодородия, эффективного использования и их охраны, должна быть разработана и внедрена соответствующая полная система научно-обоснованных агротехнических мероприятий.

Introduction

The Republic of Armenia is a typical mountainous country where one of the most urgent issues is the studies aimed at mitigating negative phenomena caused by anthropogenic impacts on the soil.Although land degradation due to climate changes and anthropogenic impacts is very diverse, one of the important factors contributing to the deterioration of irrigated meadow gray soils is the destruction of soil stroke and water-resistant aggregate composition due to the influence of anthropogenic factor, which naturally affects the fertility of soil and crop yields.

Material, object and method

The study covered the irrigated meadow brown soils of the Ararat Valley, and the changes in the structure and structure of the agrarian staff, which resulted from the economic, unprofessional activity of a person and global climate change.
The research object was the irrigated meadow brown soils of the Ararat Valley. Surveys have been made on the comparison of irrigated meadow gray soils and old irrigated meadow brown soils. Fieldwork has been done on field surveys, and laboratory studies with modern methods in the field of soil science [1]. Structural and aggregate composition of soil is determined by the method of Savinov.

Discussion of results

The Republic of Armenia is a typical mountainous country with poor land resources. The geological heterogeneity of the territory of the Republic and the nature of land-bearing maternal rocks, the complicated morphological and metabolic conditions of relief, the diversity of climate and vegetation, and, of course, the impact of the anthropogenic factor have contributed to the formation of spatial land cover. Depending on the differences in the altitude of the surface, the entire complex of soil-related factors is changing in the countryside, as the height of the land increases. Various genetic types, subtypes, genetics, species that have different backgrounds, structures, structures and agro-industrial characteristics have been formed and developed in the unique physico-geographical conditions of each upstream zone, moving from low to high elevation peaks. Land Survey studies have allowed to isolate 14 genetic types of soil in the territory of the Republic of Armenia, subspecies, genes, species, varieties and variants [2].

According to the abundant irrigated meadow brown areas occupy the lowest zone of the territory of the republic. The classification criteria for all genetic plots and sub-types separated in the country have been based on the criteria presented in the World Reference Base for Soil Resources (WRB). According to this classification, the irrigated meadow brown soils correspond to the name [3, 4].

Irrigated meadow- brown soils (Anthrosols) were formed at the altitudes of 800-950m above the Ararat plains at the altitude of alluvial, alluvial-prolevial, river-sand and sandstone, as well as in the active influx of anthropogenic factors, as well as ground and surface moisture. Their long-term irrigation and fertilization have contributed to the wind turbidity, increased bioactivity, and some nutrients, especially potassium enrichment. At the same time, at some polling stations under grounded groundwater, saline-alkaline horizons have been formed in the middle and lower layers of the soil. The irrigated meadow- brown soils are characterized by a considerable capacity of land cuts (80-120 cm), weak humus (1.5-3.0%) and significant carbonate content. The soil solution reaction is baseline, pH = 8.2-8.5. These lands are not stabilized for which reason they are easily crushed during long-term cultivation. Structural and aggregate composition is one of the most important components of the land. It has an important production significance. There are favorable water, air, heat regimes in the slopes. In such lands biological processes are active and a good nutritional regime is created. As a result of these, the best conditions for fertility are created in the soil, and the cultivated crops produce high yields. Structurization is a complex process that comes from a combination of natural factors. The root system of the herbs is crucial in the formation of soil soils, spreading in the soil, putting pressure on its particles, closer to each other, turning it into different shapes and sizes. In the agrolshafts, the formation of soil stems greatly contributes to the rhubarb, especially the herbaceous herbs. Low-grade microorganisms, especially actinomycetes, have the highest importance in stratigraphy, which dissolve the herbal remnants and convert humus to gluing the soil particles [5, 6,].

In the formation of a stable structure, the humus and the highly appreciated cations, especially Ca, are of great importance. Humus, as a colloid, Ca's Mg, and

other valuable high-grade cations, is subject to coagulation and transformation into a water-soluble adhesive. Sodium and other cations do not have the same ability to tackle. That's why the cations of Ca and Mg cations are water-resistant and Na-saturated, on the contrary. The composition and moisture of the soil mechanics are of great importance in the formation of the strake. Usually, they differ in macro- and microstructure. The substrate is the pupils of the soil whose diameter varies from 0.25 to 10 mm. Microprojects are the peculiarities of 0.25 to 0.01 mm diameter [7, 8].

Larger aggregates of 10 mm are called rigging. It is necessary to remind that aggregates of 2-3 mm in diameter and aggregates of 1-2 and 3-5 mm are considered valuable from the agronomic point of view for the normal growth and development of the agricultural crops, and consequently for stable and high yields.

The data on the strait and aggregate composition of irrigated meadow brown soils end oid irrigated meadow brown soils are presented below (Figure 1, 2, 3, 4). Figure 1 end figure 3 shows that in the structure of the irrigated meadow brown soils and their long-lasting irrigated varnishes, the tough, small tails (> 10 mm, 10-5 mm) and small particles (1-0.5 mm) dominate [9, 10, 11]: During aggregate analysis, these tails and grains are dissolved in water, decaying mainly by the powder form (<0.25 mm). In the upper horizons of the developed versions, a significant breakdown of the stereotype features occurs [12, 13]. For example, if the water treatment is 12.2% in the dump, then the water has increased up to 64.5% after processing, in other words, the amount of dust increases several times as a result of the non-water-resistant volatile toughness content.

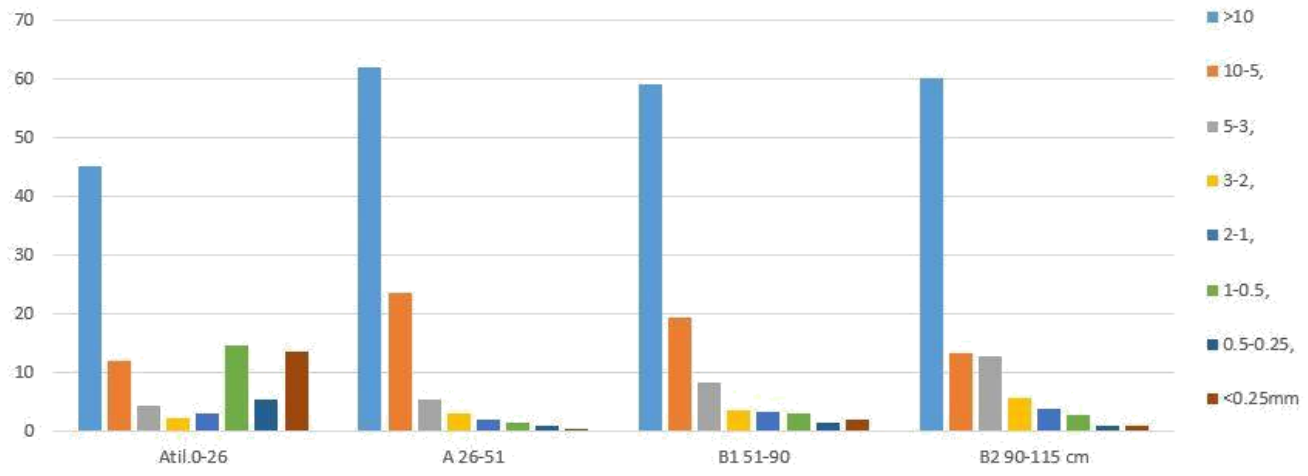

Figure 1. Structural composition of irrigated meadow-brown soils, (%)

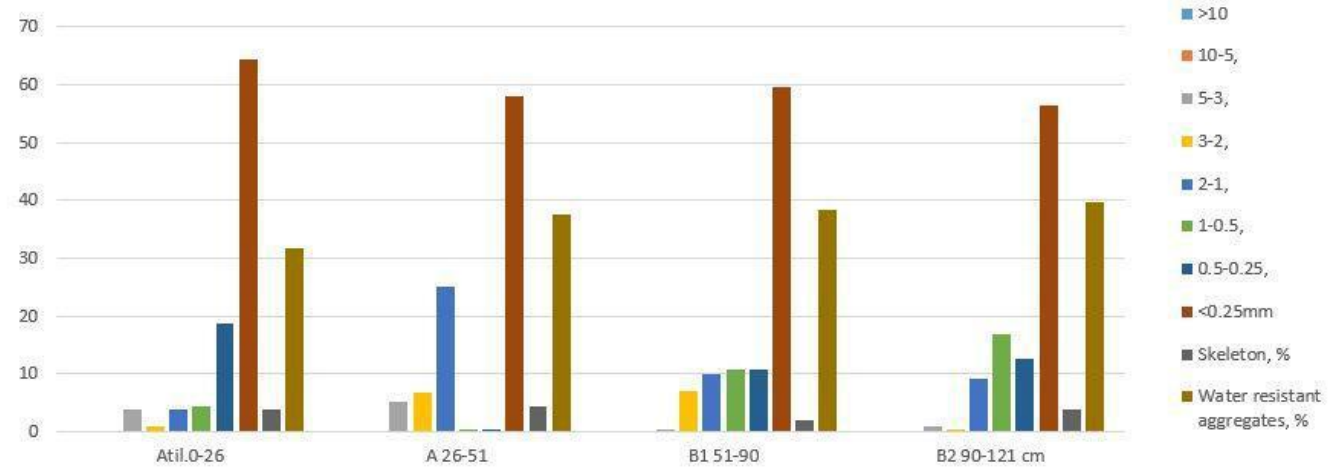

Figure 2. Aggregate composition of irrigated meadow-brown soils, (%)

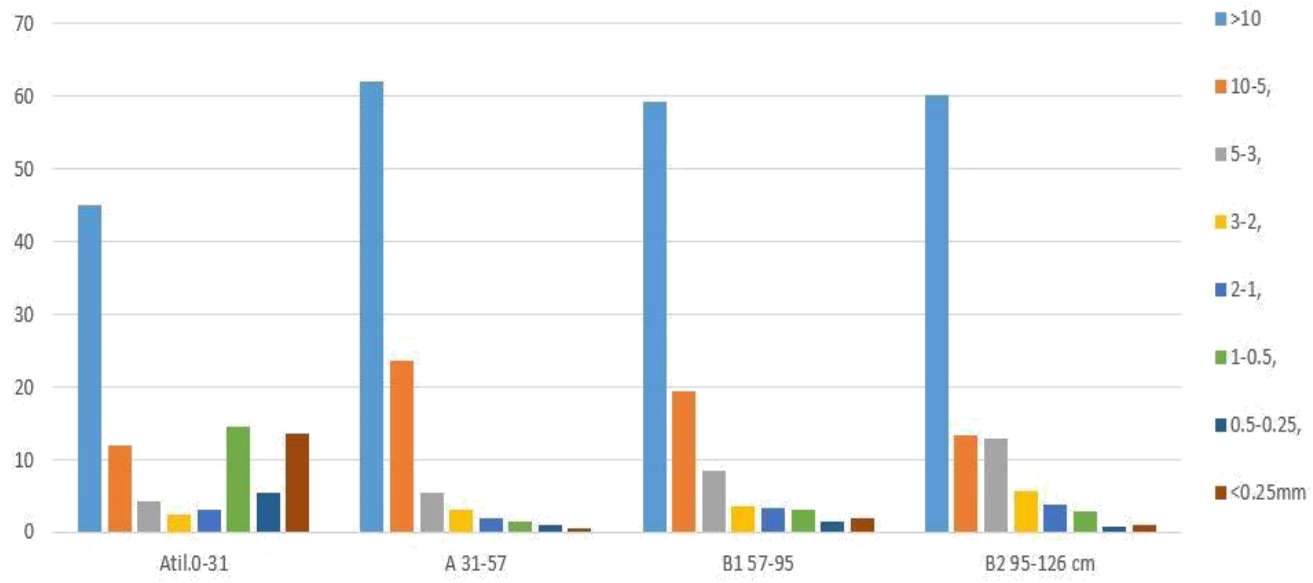

Figure 3. Structural composition of old irrigated meadow-brown soils, (%)

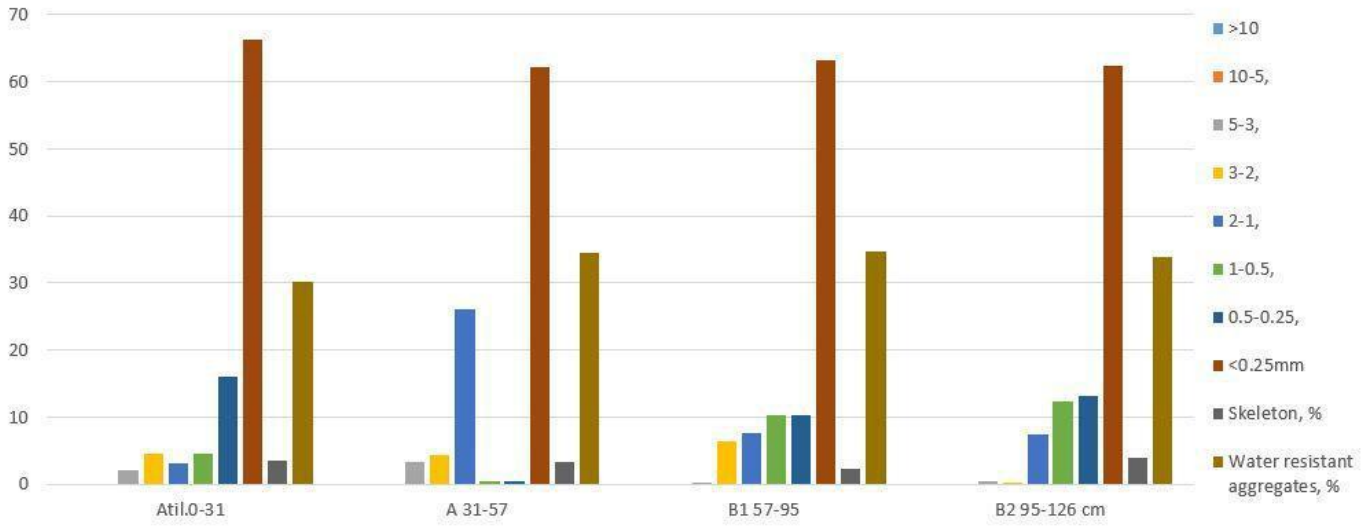

Figure 4. Aggregate composition of old irrigated meadow-brown soils, (%)

For example, the amount of dust increased up to 59.6% after the B1 horizon water treatment. It is clear from the studies that the arable lands are strongly dehydrated, because of the continuity of the soil and other mechanical cultures, as the soil

structure is interrupted by cutting down and working on the working parts of the soil and processing tools [14, 15].

Figure 2 end figure 4 shows that the skeletal skeleton is not high in the above mentioned lands, and in all versions it does not exceed 4.4%. The low content of the skeleton and the B1 horizons should probably be linked to the aggravation of mechanical composition due to long-term irrigation and phenomena of decomposition and disintegration of carbonate cemented particles.

Studies show that the elements in the irrigated meadow- brown soils are unstable and do not have a well-defined stroke [16, 17]. Figure 2 end 4 shows that the number of water-resistant aggregates varies from 30.2 to 31.7% in the treated land, and in the B horizons it reaches 39.6%. In the irrigated soils, the number of water-resistant aggregates in the A horizon declines slightly to 30.2 and in the B horizon - 33.8%.

Conclusion

1. As a result of intensive uncontrolled use of the irrigated meadow-brown soils of the Republic, agronomic stereotypes are subjected to degradation and dehydration.
2. The sturdy grass landscape is dominated by tough and small seeds.
3. During aggregate analysis, these tails and grains are dissolved in water, mainly turning into powdered grains.
4. Irrigated meadow-brown soils do not create enough conditions for their normal scattering, dusty storm, normal development of physical and chemical processes occurring in the soil, which ultimately adversely affects crop yields.
5. In order to improve the sturdy and aggregate composition of irrigated meadow brown soils, to increase the fertility of the soil, to use and maintain the soil, it is

necessary to develop and apply scientifically justified aggregate agro-technical measures.

Suggestions

In order to create favorable conditions for plant growth and development in the soil, it is necessary to regularly restore the degraded soil.

For the purpose of restoring and maintaining the degraded and dusty bridge of irrigated meadow brown soils, it is necessary:

- Use, if possible, a grounding platform, minimal drift and uneven sowing.
- By enriching soil with organic substances, add humus and organic fertilizers. It is necessary to apply the right soil processing system, the right sequence of crops. Never let the soil dry up and dry, as it causes large toughness. Culture should only take place during physical maturation, when it is well crushed and does not cause toughness.
- Use high molecular materials for the creation of an artificial strain that has the ability to graft the soil particles and produce strain peculiarities. In the territory of the Republic of Armenia, such as gypsum, salty, sulfur, pyrite, artificial stabilizing materials can be used, which can be used in conjunction with the electrolysis method for the chemical melioration of locally available terraces. On saturated soils, it is necessary to place glucose with sodium in calcium.

Fertilize all cultivated land with organic and mineral fertilizers below.

Waterproof crops for manure 60-90t / hectares + N 60-120 P60-90 K45-60 or N150-180P120-180 K60-90,

- for grain crops N120-180 P60-90K45-60,
- for perennial and annual herbs N60 P60 K60, Agro-technical measures will allow to create and maintain a stable bean-grass sturgeon in irrigated meadow grasses and thereby improve its fertility and increase the yield of cultivated plants.

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