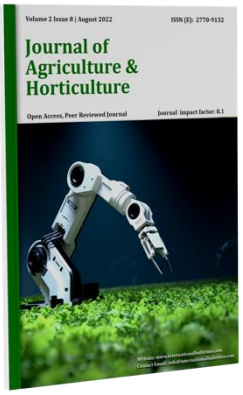

THE SIGNIFICANCE OF CONSTANT COVERING OF THE SOIL SURFACE.

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https://doi.org/10.5281/zenodo.16017998

Annotation

This article presents the causes and solutions to problems arising in irrigated agriculture due to soil surface coverage. According to it, the reasons for the loss of soil microfauna when using agricultural land, excessive water loss, susceptibility to water and wind erosion, loss of organic matter, soil salinization, soil compaction and deterioration of soil structure, as well as the degree of soil surface coverage efficiency for the above-mentioned problems are presented.

Keywords: mulching, symbiotic culture, plant residues, micro- and macrofauna, soil cover, nutrients, soil erosion, salinization.

Introduction: Since the 17th century, the term "soil surface cover" has entered the agricultural sector. This term is still used depending on the method of application; it is used in the form of covering the soil with mulching or as a symbiotic crop.

There are 2 ways to mulch the soil:

1. Organic (manure, straw, leaves, peat, wood chips, plant residues, etc.).
2. Inorganic (various types of films, paper, geotextiles, stone, gravel). [4, 5.]

Mulching the soil plays an important role in creating optimal conditions for growing crops. Especially when there is a need to protect against arid and sharp temperature effects. V.V. Dokuchaev, A.A. Izmayliy, and K.A. Timirzayev determined that during the dry period of vegetation, plants suffer from relative rather than absolute water scarcity. This can be explained by improper irrigation, uneven rainfall, and farmers' inability to retain moisture well. The most optimal solution for creating a favorable microclimate in the fertile soil layer is covering the soil surface.[2]

For the field to always be covered with plants or plant residues (mulch), it is important to preserve plant residues in the field and plant a second and even a third crop throughout the year. This protects the soils from overheating and the expulsion of water vapor. At the same time, mulching saves irrigation water to preserve a large amount of moisture in the soil. The type of mulching is selected depending on the type of crop grown, economic efficiency, and the width of the covered area.

In the conditions of irrigated, mechanical composition of lung and sandy soils of Central Asia, the protection of the upper part of the soil, combating excessive water leaching or excessive evaporation and wind erosion, is considered an important measure. [10]

Permanently covered soil protects from various types of erosion and intense solar temperatures, extreme heat and cold. This results in less moisture evaporation during intense heat, and even during dry growing seasons, there is moderate moisture for plants. In early spring, optimal germination temperatures are ensured in the cold, and early seed germination is a guarantee of an early harvest. [5, 9.]

At the same time, the outflow of rainwater from the soil surface decreases, and the seepage process increases. Water distribution across the surface layers of the soil improves, and soil damage from heavy rains and floods is reduced. The covering of the soil surface, as a physical barrier, forms an uneven surface. This prevents wind erosion and soil drying, reducing the speed of strong winds. [5, 6.]

A symbiotic crop is an additional crop planted along the rows of the main crop. Compared to the main crop, a crop with lower height and less nutrient requirements is selected. It is used to preserve soil moisture and structure, minimize field cultivation, and introduce organic matter into the additive.

Examples of such crops include grains (rye, barley, Sudan grass, wheat), and legumes (beans, mung beans, soybeans, buckwheat, and alfalfa). The advantage of grain crops is that they protect the soil surface from late autumn to early spring, after harvesting the upper part, throughout the summer, and their root system serves as a good nutrient in the soil for the next year. Leguminous plants enrich the soil with nitrogen throughout their entire growing season. [3, 8.]

Conclusions:

By covering the soil surface, the following can be achieved:

1. The habitat and food sources of soil macro- and microorganisms improve.

2. To maximize soil temperature optimization, the soil is isolated from intense heat and cold, and this favorable microclimate ensures normal plant root growth.

3. Because weeds are in constant shade, the process of photosynthesis slows down, and their seeds or reproduction slows down. This reduces the level of use of weeds and herbicides year after year.

4. By improving the infiltration process, soil moisture increases and the creation of more available water for agricultural crops for a longer period of time increases, and nutrient assimilation increases. [1]

5. By reducing evaporation, the number of irrigations is reduced, and water is saved. The accumulation of excess minerals in the soil - salinization - decreases.

6. The amount of organic matter in the soil increases year by year, and its fertility improves.

7. Minimal tillage improves soil structure and physical properties. [1, 6, 7.]

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