SOIL EROSION: CAUSES, TYPES, CONSEQUENCES, PREVENTION METHODS

ЭРОЗИЯ ПОЧВ: ПРИЧИНЫ, ВИДЫ, ПОСЛЕДСТВИЯ, МЕТОДЫ ПРЕДОТВРАЩЕНИЯ

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Annotation. The definition of soil erosion implies the destruction of the surface layer of the earth due to the effects of precipitation and wind. According to calculations, over the past two centuries, erosion has destroyed nearly 2 billion hectares of arable land.

Key words: soil, fertility, measure, erosion, concentration, fertilizer, microorganism, humus, element.

Аннотация. Определение почвенной эрозии подразумевает разрушение поверхностного слоя земли из-за воздействия осадков и ветра. Согласно расчетам, за последние два столетия эрозия уничтожила почти 2 миллиарда гектаров пахотных земель.

Ключевые слова: почва, плодородие, мера, эрозия, концентрация, удобрение, микроорганизм, гумус, элемент.

Due to erosion and failure to take measures to prevent it, its development and spread, enormous damage is being caused to the country's economy. Potential soil fertility decreases, chemical and agrophysical properties

deteriorate, and biological activity decreases. As a result, the yield decreases and the quality of agricultural products deteriorates. The effectiveness of chemicalization also decreases.

Erosion processes are present in virtually every region. According to forecasts, due to the lack of soil protection measures, annual losses due to erosion can reach 7 billion tons of soil. Soil erosion leads to the weathering of humus and disruption of the ecological balance, which can lead to an ecological disaster in the future. During dust storms, the loss of the humus layer reaches 10 centimeters. It should be emphasized that a centimeter of this layer is created in nature more often than in 100 years. The lands intensively used in agriculture in Uzbekistan are mainly irrigated lands, equal to 4.28 million hectares. These lands are truly the golden fund of our republic and more than 95% of the gross agricultural output is grown on them. In this regard, an important task of agricultural specialists is to maintain and systematically increase soil fertility. It is not for nothing that the state allocates large sums of money for improving land reclamation, restoring soil fertility, building reclamation systems, and conducting rituals related to their use. Unfortunately, today the soil layer is being eroded, good fertile lands are becoming less and less, and they are quickly becoming unusable. Throughout history, humanity has lost about a billion hectares of land (cities, settlements, buildings, roads, erosion, salt water, evaporation, etc.). The problem of soil protection from erosion is an urgent problem for many countries located in the arid climatic region of the world, including the territory of Uzbekistan. Since the eroded areas of land in the republic are 2 million square meters. about a hectare or more than 40% of the total arable land. According to our data, on the territory of Uzbekistan there are more than 3 million hectares of drylands suitable for use, of which about 1 million hectares are lowmaintenance and semi-maintained drylands, and more than 70% of these drylands are subject to surface impact. water erosion. A

classification of eroded soils of Uzbekistan has been developed and a map of erosionhazardous lands of the republic has been compiled. Under the influence of the erosion process, weakly eroded, medium eroded, strongly eroded soils and sediments are formed, that is, washed away soils, which are the thickness of the soil layer, humus, the supply and composition of nutrients (micro and macro elements), the number of microorganisms and quality, chemical and physical properties, bioenergetic indicators indicate different levels of productivity. It is known that as a result of soil erosion due to irrigation erosion on slopes with a slope of more than 50, up to 100-150 tons per hectare or more, or even up to 500 tons of soil, can be washed away. Together with this soil, 500-800 kg of humus, 100-120 kg of nitrogen, 75-100 kg of phosphorus and even more nutrients can be lost per hectare per year. It should be noted that erosion processes have a negative impact on the soil ecosystem, negatively affecting the amount of solar energy used in biomass and reducing it. As a result of erosion processes, 30-50 percent or more of solar energy is lost, absorbed by phytomass, humus and soil microorganisms, while the intensity of biological and soil processes occurring in the soil is mainly associated with solar energy reserves and changes in the appearance of scattered light can be imagined. the scale of damage caused by erosion to the ecosystem. In our country, every year the prevention and control of soil erosion, increasing the productivity of soils eroded by water and wind is recognized as an event of national importance.To protect the soil from erosion, it is necessary to carry out agro-complex measures:

To prevent the compaction of the subsoil layer of irrigated soils, it is necessary to widely introduce the technology of sowing and minimum tillage. Experience has shown that soil density per cubic centimeter during the growing season is 1.20-1.35 g/cm^3 and is maintained in an optimal state. The correct and rational use of any means of production largely depends on how deeply and comprehensively its important features are studied. As a result of active human

impact on the soil, changes in its properties, increase or decrease in productivity, salinization, erosion, dehumification, rational use of rainfed lands in agriculture and their protection require more attention than before. It is necessary to use the land wisely, increase the fertility of the soil, know its quality, economic value and protection, plant various plants on a scientific basis according to the state of the soil, apply environmentally "clean" methods of tillage., and carry out fertilization at a high level. Increasing the productivity and productive capacity of the soil should largelydepend on the careful and economical handling of it, a complex aimed at improving it. Currently, the problem of soil pollution with heavy metals in technogenic and agricultural industries is acute. Heavy metals occupy one of the leading places among environmental pollutants. Many representatives of this group of substances, such as lead, copper, zinc, cadmium, even in very small quantities, can cause immunological, oncological and other types of diseases. Heavy metals far outperform common pollutants such as carbon dioxide and sulfur and are second only to pesticides in terms of pollution. In the future, they may turn out to be more dangerous than NPP and MSW emissions. Soil contamination with heavy metals is associated with their widespread use in industrial production. Due to the imperfection of purification systems, heavy metals enter the environment, including the soil, polluting and poisoning it. Soil is the main environment in which heavy metals accumulate. Heavy metals enter the soil both with atmospheric air and with water. It is a secondary source of pollution of the upper atmosphere of the oceans. The mineralization of water was determined by the gravimetric method. The determination method is based on the gravimetric determination of dissolved substances, which is determined by filtering the sample to a constant weight,evaporating the residue and drying at 150°C for weakly mineral waters (105-110°C) and highly mineralized waters. Ammonium ions were determined

photometrically. The main method for determining ammonium nitrogen is the calorimetric method using Nessler's reagent.

Analysis of soil pollution with heavy metals in the region shows that the content of chromium, manganese, cobalt, nickel, copper, silver, zinc and other elements slightly exceeds the maximum allowable concentrations for soils. The concentration of all other heavy metals does not exceed the MPC, which confirms the conclusions made in the review part of the work about the low information content of heavy metals in environmental monitoring.

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