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IMPORTANT FACTORS IN PROTECTING SOIL LAYERS IN CROP FIELDS FROM DEFLATION PROCESSES

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ANNOTATION
Wind erosion, ie deflationary processes, cause great damage to agriculture, the economy and the environment. Therefore, the problem of protecting soils from wind erosion and dust storms is one of the key issues.

Keywords: reclamation, humus, water-physical properties, soil erosion, agrochemical properties, collector-ditches, agrochemicals, productivity, deflated soils.

INTRODUCTION

Increasing soil fertility in agriculture in many ways requires protecting them from deflationary processes and increasing their nutritional value.

Today, the lands of intensive use in agriculture of the Republic, ie mainly irrigated arable lands, amount to 4.28 million hectares. These arable lands constitute the invaluable reserve fund of the Republic, which produces more than 95% of the gross agricultural output.

Taking into account the following, the main tasks are to accelerate agricultural production in line with modern requirements, efficient use of reserve land resources, development of solutions to problems related to increasing the responsibility and economic efficiency of each hectare of irrigated land. It is recognized that the maintenance of soil fertility in the work carried out, the regular increase of tillage from year to year is an urgent task of agricultural specialists. Today, we are witnessing the allocation of large sums of money in the country to improve the reclamation of agricultural lands, increase soil fertility and improve reclamation systems, measures related to their use.

Some data show that today the soil layers are eroding, and good fertile soils are declining. Over the past many years, humanity has lost nearly a billion hectares of land (cities, settlements, buildings, busy roads, eroded, saline, evaporated, and so on). If we look at the data, 1.5 billion hectares of land around the planet are planted with agricultural crops.

If we take into account that two-thirds of the world's population lives in poverty and famine, today, given that per capita arable land is less than 10-20 years ago, increasing soil fertility will double or triple the productivity of agricultural crops. it is clear that reproduction should remain the main task of agriculture in the near future.

There are big problems in fulfilling the big task without rational use of lands in all respects, without drastically strengthening measures to protect the soil layer from various deflation processes and evaporations, and without implementing ways of saving land use related to agriculture. In order to legally ensure the reform of agriculture in the country, a number of laws and their primary drafts have been developed. It is noteworthy that the Land Code of the Republic of Uzbekistan, the Law on Land Cadastre and other laws aimed at the rational use and protection of land were adopted and unanimously approved.

Under the influence of various work activities of land users improperly organized, the soil layer is eroded and causes evaporation. It is very common in the world that erosion mammals have such an effect on the soil, which leads to damage to the fertile layers of the soil.

The problem of soil erosion protection is one of the most pressing issues for many countries in the arid climate of the world, including the territory of Uzbekistan. It is estimated that the area of eroded land in the region is about 2 million hectares, or more than 40% of the total area of arable land.

According to the data, there are more than 3 million hectares of arable land in the Republic of Uzbekistan. Of these, low-nutrient and semi-subsistence arable lands account for almost 1 million hectares, of which more than 70% of arable lands are subject to surface water erosion.

Perennial data show that up to 100-150 tons and more per hectare per year as a result of soil erosion under

the influence of irrigation erosion, and even up to 500 tons of soil on slopes with a slope of more than 5^0 is recognized. Along with the soil, 500-800 kg of humus, 100-120 kg of nitrogen, 75-100 kg of phosphorus per hectare per year, and in some places even more nutrients can be lost. It should be noted that deflation 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 deflationary processes, 30-50% or more of the absorbed solar energy is lost in phytomass, humus and soil microorganisms. the amount of damage can be imagined.

In recent years, secondary salinization and swamping of soils have been observed in irrigated agricultural areas. We are witnessing that almost 40 percent of the irrigated land on earth is saline to varying degrees. About 2.5 million hectares of irrigated lands in the country are now saline, mainly due to inefficient use of agricultural lands, excessive use of water, poor condition of the collector-drainage system, ie muddy flooding, regardless of soil properties and groundwater depth. others have witnessed some lands becoming swampy due to rising groundwater. Another major environmental problem is the intensification of land desertification, where 36-40% of the continents are now deserted, with 25 million hectares of land becoming desert every year.

Humus in the soil is an important factor in determining soil fertility, but in recent years, as a result of the process of soil degumification, humus in the Uzbek cotton-growing districts has decreased by 40-50%, resulting in a sharp deterioration of soil biological activity.

It is noteworthy that in agroecosystems it is necessary to increase the accumulation of organic matter in the soil, in order to raise the energy balance, the balance of substances to a positive level or to moderate it. For this purpose, it is planned to convert the formula of the soil-plant-bio-product system into the system of soil-plant-livestock-bio-products.

Another major problem is soil compaction. Soil compaction, difficulty in breathing, deterioration of water and heat regimes, leads to a decrease in the activity of microorganisms, resulting in a decrease in soil fertility. To solve this problem, it is necessary to reduce the entry of heavy machinery into the field, to regulate tillage, to minimize it. The data obtained showed that good plant development is recognized only when the soil density is up to 1.4 g / cm^3.

Particular attention should be paid to cluster structures and farm managers to conduct the following activities on irrigated lands.

One of the factors determining soil fertility in high yields of agricultural crops is its physical properties.

Only when all types of soils used have sufficient moisture and nutrients, optimal agrophysical and microbiological properties, agricultural crops will develop well and the ground will be created for a rich harvest. In determining the norms of irrigation to achieve high yields, it is important to take into account the types of soils, their water-physical properties, the depth of groundwater, the depth of the area provided by ditches. Irrigation of crops is carried out at the rate of 700 to 900-1100 m^3 when the soil moisture content of the field is 65-70%.

In order to prevent compaction of the subsoil in irrigated fields, it is necessary to widely introduce the technology of planting and minimal tillage. Experiments conducted by experts over the years show that during the growing season, the density of soil per cubic centimeter is 1.20-1.35 g / cm^3 in the buds and remains in optimal condition. Crops planted make good use of the necessary water, air and nutrients, nutrients are evenly distributed, and the biological and biochemical activity of the soil increases. Experiments show that the soil temperature is 2-5 degrees higher during the sowing period, and spring precipitation is less affected. If we look at the cross-section of crop fields, compared to those planted on flat ground, the seedlings germinate evenly, the soil in the bush is well moistened during irrigation, and water is absorbed 1.5-2 times faster. The growth, flowering, fruiting and ripening of a crop planted on a ridge is accelerated by 6-8 days compared to planting on a flat ground, with an average yield of 4-6 quintals per hectare.

One of the factors that negatively affects the production capacity of all types of soil layer and leads to a sharp decline in their high productivity is water and irrigation erosion. It is known from the results of the research that more intense irrigation erosion processes are observed in low mountains, dark and typical gray soils in the foothills and foothills. The area of irrigated eroded lands is 682.6 thousand hectares. Under irrigated agriculture, irrigated soil erosion is common in light-colored and typical gray soils, which is manifested in the manifestations of water erosion. Irrigation erosion in arable lands occurs as a result of

irrigation by pouring a lot of water on crops on sloping lands. When the slope of the crop area is $1.5\text{-}2^0$, the fertile soil surface begins to be washed away by water, and as the slope increases, the erosion process intensifies. The disadvantage is that as a result of the process of irrigation erosion, the humus layer of the soil and nutrients are washed away. As a result, the efficiency of agricultural use of our irrigated lands will decrease. In addition, some of the fertilizers and pesticides used to increase agricultural productivity accumulate in water bodies as a result of leaching from the soil, adversely affecting the environment.

Areas affected by wind erosion are widespread in the bald and light gray soils of Kasan district of Kashkadarya region. When a strong wind speed reaches 10-15 meters per second, a local or permanent erosion process occurs. While the process is almost imperceptible, it reduces soil fertility in crop fields, blowing up the top of it, causing the loss of the topsoil. In areas where deflation occurs, wind speed and soil particle size are key. In observations, at the first critical velocity of deflation processes, soil particles begin to move on the ground, in the second - jump, in the third - the particles fall to the ground, and finally at the fourth critical velocity, this movement stops.

In areas with strong winds, the application of complex measures against water and wind erosion, control of water flow and its velocity gives good results. Protecting soils from erosion, erosion, and deflation serves to increase the fertility of eroded, fallow, and pasture lands. Based on many years of data, it can be said that the various methods developed so far play an important role in preventing water, irrigation and wind erosion, as well as increasing soil fertility and crop yields.

To reduce the negative impact of irrigation erosion, the following measures should be taken:

-improvement of irrigation techniques. At the same time pay attention to irrigation norms depending on the size of the slope of the soil surface;

- the use of chemical anti-erosion chemicals for irrigation, the use of synthetic polymers, polycomplexes (K-4, K-9, TNM-1) and humic preparations (hydrolyzed lignin, ammonium coal, gummophos, humic acid) to continue the process. appropriate In this case, synthetic polymers create an artificial structure on the soil surface. The ability of soils with rich structure to withstand erosion is efficient and high, which is reflected in the scientific studies conducted.

The application of K-9 polymer at a rate of 20 kg / ha in irrigated ditches before irrigation increases the amount of water-resistant macro-aggregates in eroded soils, which simultaneously increases the water-physical and agrochemical properties of crops, increases the yield of cotton and other crops.

Application of biological agents against irrigation erosion. The use of biohumus, chlorella and blue-green algae from anti-erosion biological agents gives good results. These biological agents enrich the soil with organic matter and improve its structure, increase the type and number of beneficial microorganisms, increase the yield of cotton and other crops in the crop area.

I consider it an urgent task today to prevent deflation processes in arable lands with soil diversity and to maintain the high fertility and abundant yields of soils eroded by strong winds.

1. Planting new hedgerows in all areas where strong winds blow - the main force of the blowing wind hits these trees and the speed decreases, 3 and 4 row hedgerows, regardless of the number of rows, serve to protect the soil and crops from strong winds at equal distances. It is advisable to plant mulberry or fruit trees in the first row of slate, poplar and subsequent rows in the first row of Ikhota trees.

2. It is necessary to implement agro-technical measures (planting perennial grasses) against wind erosion.

3. The planting of horticultural crops, including horticultural crops, protects them from wind erosion until they reach adulthood. It is recommended to plant winter wheat, soybeans, rye, corn and other fast-growing crops to establish hedgerows.

Chemical methods of combating wind erosion are widely used. They are nerosine, latex, "K" and SSB type substances. SSB, nerosin and K-4 are effective in combating erosion.

Erosion and ravine protection measures during ravines are as follows: in irrigated areas, ravines are formed mainly as a result of improper drainage and neglect of wastewater, waterfalls in ravines. At the same time, if the first issue is to prevent the expansion of canyons, the second is to develop the technology of leveling the resulting canyon areas, increasing the productivity of flattened lands and their introduction into agricultural turnover.

Another reason for the decrease in soil fertility is the decrease in the amount of humus and nutrients in the soil over the years. The amount of humus, nitrogen, phosphorus, potassium, sulfur and a number of trace

elements in the soils of farms, which are replenished by organic and mineral fertilizers, replaces the nutrients lost from irrigated soils, such as cotton, cereals, fruits, vegetables and melons. on the contrary, the level of soil fertility in farms where their replacement is not covered is observed to decrease from year to year.

CONCLUSION

Research shows that the proper use of organic and mineral fertilizers plays an important role in agriculture to increase the level of fertility of irrigated soils and increase crop yields. With this in mind, special attention should be paid to the application of organic and mineral fertilizers. It is important to use non-traditional fertilizers (bentonite, glauconite, vermiculite, river deposits, coal and municipal wastes) and composts based on them, as well as phosphorite, phosphogypsum from raw materials and waste containing nutrients.

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