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WAYASS TO INCREE SOIL FERTILITY

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Annotation. *In the saline lands of the Republic of Karakalpakstan, crop rotation is the main biological means to increase crop yields, preserve and reproduce soil fertility. At the same time, alfalfa and the application of organic fertilizers must be included in crop rotations.*

Keywords: *crop rotations, cotton, yield, organic fertilizer, fertility.*

Аннотация. *На засоленных землях Республики Каракалпакстан для повышения урожайности сельскохозяйственных культур, сохранения и воспроизводства плодородия почвы севообороты является основным биологическим средством. При этом необходимо включить в севообороты люцерну и внесение органических удобрений.*

Ключевые слова*: севообороты, хлопчатник, урожайность, органическое удоберние, плодородие*

Introduction. In recent years, the extreme conditions caused by the drying of the Aral Sea have contributed to the formation of salt and dust deserts. With the wind, they are transferred to populated areas and irrigated areas where crops are cultivated (annually from 0.6 to 7.0 tons per hectare). The salt and dust aerosols that have fallen have a negative effect on soil fertility. Without this, the irrigated soils of the Aral Sea region are considered low-fertile. The lack of crop rotation has led to a decrease in soil fertility and crop yields. As a result of all these negative factors, soil fertility is decreasing annually.

Research methodology. The field method has been adopted for conducting research.

Currently, the removal of nutrients from the fields with the harvest significantly exceeds their return amount. As a result, irrigated soils were severely depleted, their physico-chemical properties deteriorated sharply, and the overall ecological balance was disrupted. Therefore, one of the primary tasks of scientific institutions is to develop measures to increase the productivity of cultivated crops to the levels that ensure the planned yields with the reproduction of soil fertility. The organic matter of the soil is in constant motion. In natural self-regulating soil, where there is no alienation of plant products, there is a constant accumulation of humus. As its content increases, its losses in metabolic processes increase.

An equilibrium is established at a certain level corresponding to the specific conditions of the zone. If the law of “return” is not observed, the nutrients released during the decomposition of humus are removed with the harvest, while soil depletion invariably occurs and crop yields decrease.

It is known that the entire irrigated land fund of the Republic of Karakalpakstan is represented by saline soils. In order to obtain high yields of cotton and other crops on saline lands, it is necessary to remove harmful salts from the soil, the main measure is the washing of saline lands against the background of collector and drainage networks.

Long-term research has proved that crop rotation is a necessary measure of the agricultural system in increasing soil fertility and high-performance use of irrigated land.

Crop rotations in conditions of irrigated agriculture are important, which are as follows:

-the main sources of increased crop yields and intensification of the farming system;

-the best means of preserving, restoring and reproducing soil fertility by enriching them with organic matter;

-a powerful biological factor in crop weed control and soil protection from other negative phenomena.

It has been established that in case of a lack of organic fertilizers, replenishment of the soil with humus due to plant residues of cultivated crops is a very important technique. From an economic point of view, plant residues are also beneficial because they do not require additional costs, since they are already in the soil. Another advantage of plant residues is that they are more or less evenly distributed in the soil.

Crop rotations on saline soils are also significant because they have a reclamation role.

On melioratively favorable crop rotation fields, cultivated crops show their potential, and at the same time soil fertility increases.

Conclusions. The saline lands of the lower reaches of the Amu Darya have their own specific features. They differ from the soils of other zones of Uzbekistan in that they have a low humus content (0.4-0.8%), are compacted, and are constantly subjected to secondary salinization due to the proximity of groundwater (1-3 m). Therefore, in order to reproduce soil fertility, alfalfa and organic fertilizers must be included in crop rotations.

Literature:

1. Ismailov U.E. «Scientific foundations of increasing soil fertility». Nukus. Bilim. 2004
2. Ismailov U.E., Sadikov E., Saipnazarov D. «The effect of short-rotation crop rotations on the water-physical properties of the soil». Bulletin of Agricultural Science of Uzbekistan. 2017 No. 2