УЎТ:631.58

The influence of natural and climatic conditions on the fertility of irrigated soils of the Republic of Karakalpakstan

N.Shamshetova., M.Dauletmuratov.

Annotation: The article talks about the lack of food, which is becoming a problem around the world, the integration of mineral and local fertilizers in the cultivation of organic products. The negative consequences on the soil that arose in the region as a result of the Orolskaya tragedy and their elimination were also discussed.

Key words: Irrigated soils, field crops, salinization, mineral and local fertilizers, fertility, productivity.

According to statistics, the world demand for mineral fertilizers in 2018-2019 amounted to 188.2 million tons, in 2019-2020 - 191.7 million tons, in 2020-2021 - 203.8 million tons. In 2021-2022, it amounted to 3%, 198.2 million tons. However, in June 2022, IFA (International Fertilizers Association) experts predict that in the future it will increase to 210 million tons. If the demand for mineral fertilizers continues to grow in this way, then in the next 20 years the population will be deprived of absolutely environmentally friendly food, which will cause a deterioration in the agrochemical state of the soil and a decrease in crop yields.

Even in our republic, in the conditions of the rapid development of the agricultural sector, we also observe mistakes that lead to negative consequences, such as improper agrochemical measures on cultivated fields, differentiated application of mineral fertilizers, determination of their duration and norms.

To solve these problems, it is necessary to develop scientific foundations for the integrated use of mineral and local (organic) fertilizers in agriculture and introduce them into production.

Our people grew crops and fruits in their backyards. However, as the population grows year by year, so does the need for food. This, in turn, will make the application of mineral fertilizers even more demanding. Therefore, it is necessary to develop scientifically based methods for obtaining high and high-quality yields from agricultural crops not only in agricultural fields, but also in farms.

Based on the foregoing, we are striving to develop the scientific basis for obtaining a high-quality and abundant harvest through the integrated application of mineral and local fertilizers for crops grown on the fields of the Republic of Karakalpakstan.

Also 2020 is the year of the President of the Republic of Uzbekistan

The study of this dissertation to a certain extent serves the implementation of the tasks defined in the decision PQ-4767 of June 30 "On additional measures to improve the efficiency of the

use of residential areas" and other regulatory legal documents related to this activity. We began our research by studying the soil and climatic conditions of the area.

The soils of the region are part of the Arolbay region, and the natural and climatic conditions create potentially dangerous conditions for the formation of salinization processes in the soils. Differences in air temperatures between the seasons of the year are considered very large, and a sharp change in this form has a rapid impact on the agrochemical, agrophysical and biological processes occurring in the soils of the Aral Sea region [2].

The territory is mostly covered with meadow alluvial soils. It is known that meadow-alluvial soils are widespread in the area of river terraces and alluvial-mud (delta) plains of the desert zone and are mainly irrigated soils. Irrigated meadow-alluvial soils are formed under the active influence of groundwater at a depth of 1-2.5 m. They have an irrigation-irrigation-alluvial regime. Irrigated meadow alluvial soils are the most common soils on irrigated lands in the desert zone.

1-расм. Шўрҳоқ тупроқлар кўриниши, Қорақалпоғистон Республикаси Нукус тумани

The total area of irrigated land in the Republic of Karakalpakstan is 460,439.0 ha, of which 420,958.4 ha (91.4%) belong to varying degrees of salinity. 39,480.9 ha of total irrigated land, i.e. 8.6% are non-saline soils. 142,585.0 ha of irrigated land, i.e. 31.0%, are slightly saline soils. The average area of saline soils is 139,499.1 ha, which is 30.3% of the irrigated lands of the republic, highly saline soils - 69,385.7 ha, i.e. 15.0%. It is known here that the area of highly saline soils is 69,488.6 ha, that is, 15.1% of the irrigated area. According to the type of salinity, the soils of the republic are mainly of the chloride-sulphate and sulfate types [4].

The soils of the study area are poorly supplied with humus. The distribution of humus along the soil profile has clear patterns, most of the humus is distributed in the upper horizons, and there is very little humus in the lower layers.

In conclusion, we can say that the soils of the region from all sides need mineral and local fertilizers. After all, the correct application of mineral and organic fertilizers to the soil should serve not only to provide plants with nutrients, but also to activate biological processes in the soil. This, in turn, ensures the enrichment of the soil with reserve nutrients.

List of used literature:

1. Decree of the President of the Republic of Uzbekistan PQ-4767 dated June 30, 2020 "On additional measures to improve the efficiency of the use of residential areas."
2. Saidova M.E. Modern approaches to diagnosing the ecological and biological state of irrigated meadow-alluvial soils of the island region (on the example of the Amudarya and Chimboy regions). PhD thesis. Tashkent 2018. S. 36-78.
3. Atlas of soil cover of the Republic of Uzbekistan. State Committee for Land Resources, Geodesy, Cartography and State Cadastre of the Republic of Uzbekistan. T.: 2010. 44 p.
4. Reclamation of irrigated lands in Uzbekistan and their improvement. A subsidiary of the Uzbek State Scientific and Planning Institute of Land Management "Soil Inspection". University Press, T.: 2018. - B. 190-207.
5. Dauletmuratov M.M. Development of agrochemical testing of soils and an information-analytical system using GAT technologies (on the example of irrigated soils in the Takhtakopyr district of the Republic of Karakalpakstan). Doc (PhD) diss. Tashkent 2021. S. 70-89.