

METHODS OF INTEGRATED USE OF MEANS OF CHEMISTRY AND BIOLOGICAL RESOURCES IN AGROTECHNOLOGY ON ORDINARY CHERNOZEM CARBONATE SOIL OF CENTRAL CISCAUCASIA

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Soil degradation is a common phenomenon in the world and Europe. Although soil quality can be improved through reclamation, most anthropogenic impacts (including agricultural activities, other land uses, recreational impacts, etc.) reduce soil quality, directly or indirectly causing soil degradation (Assessment, 2010). Soil degradation and loss of soil fertility is a chain reaction that is difficult to stop. It leads to a decrease in humus reserves and the amount of other nutrients - nitrogen, potassium, phosphorus, trace elements, an increase in soil acidity, and their overconsolidation. There is a deterioration in the structure and particle size distribution, waterlogging, salinization of soils, their destruction and loss as a result of water and wind erosion, as well as in the form of mechanical removal of the fertile layer during construction and mining operations. Often the problems associated with soil degradation are caused by non-compliance with crop cultivation technologies that ensure the preservation and improvement of soil fertility [1].

Soil is a special natural body. It represents a complex system that lives and develops according to its own laws. Therefore, fertility should be understood as the whole complex of soil properties and processes that determine the normal development of plants.

The main methods of increasing effective fertility include the rational use of organic and mineral fertilizers, liming and gypsum of soils, a processing system, irrigation and drainage, the introduction of scientifically based crop rotations, measures to combat erosion, the cultivation of the most productive varieties, etc.

The North Caucasian region is characterized by developed irrigated agriculture. Therefore, the determination of methods for regulating soil fertility, ensuring high productivity of crop rotations on irrigated lands and stable crop yields is one of the main tasks in the region. Carbonate chernozems occupy 5247 thousand hectares of irrigated land in it, which is 33% of the total arable land. In the Kabardino-Balkarian Republic, out of 322 thousand hectares of arable land, 127.5 thousand hectares are irrigated land, of which more than 50% are carbonate chernozems [2].

The analysis of the soil-agrochemical survey of lands showed that the humus content in the soils of the republic by 1960-1970. compared with 1921-1930. decreased by 20-40%. According to the materials of the next agrochemical survey, in 2006 220 thousand hectares of arable land in Kabardino-Balkaria had a low humus content in the soil. Over 40 years of observation, it decreased by 0.6% and averages 3.6%. The area of arable land with a very low amount of mobile phosphorus increased - up to 97 thousand hectares, with a very low and low content of exchangeable potassium - up to 23 thousand hectares [3].

Keywords: soil fertility, rainfed and irrigated crop rotations, removal of elements, organic and mineral fertilizers, productivity, productivity.

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