Food and Agriculture Organization of the United Nations

Soils, where food begins

Proceedings
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Characteristics of the soil conditions of the southern part of the Odessa region

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Introduction, scope and main objectives

An important component of the agroecological state of the land is the soil cover, the indicators of which are both natural and anthropogenic in nature. In modern conditions with a high level of man-made load, the relevance of research in this direction is obvious.
The purpose of the presented studies is to assess the agroecological state of soils in the southern part of the Odessa region by the following indicators: the content of humus in the soil, the pH reaction of the soil solution, the content of heavy metals (Pb, Cd, Mn, Zn, Cu, Co, Hg) and radionuclides (90Sr and 137Cs).

Methodology

The initial information was the result of the agrochemical survey of the study area, which were presented in the Internet resource. The study was carried out using an integrated geographical approach to the analysis and evaluation of the conditions for the formation of the agroecological state of land, the method of classification of land for each of the indicators of the soil cover and their complex and the cartographic method for assessing their spatial distribution using GIS technologies.

Results

The assessment of the agroecological state of soils is carried out according to the developed classification of soil quality, according to which the criterion for the allocation of classes is the ratio of humus content and pH-reaction relative to the optimal value, and the content of heavy metals and radionuclides is in relation to the value of the MPC. The 1st class includes soils, the content of heavy metals and radionuclides in which does not exceed 20 percent of the MPC, to the 2 class - 20-70 percent, to the 3 class - 70-99 percent and to the 4th class - the size of the MPC and above. In the future, the territory was typed according to each of the indicators of their complex and their mapping was carried out. Land differentiation is carried out on the basis of large-scale mapping of the complex indicator of agroecological state. 3 agroecological districts have been allocated: 1 – the ecological status score is < 3.0, 2 – 3.0 – 3.5, 3 – >3.5.

Discussion

It is established that 90 percent of the territory of Kiliya belongs to the 1st district with the best and good agroecological conditions. about 50 percent of Izmail and Tatarbunar and 10 percent of Belgorod-Dniester districts. districts, 40 percent of Tarutino and 90 percent of Belgorod-Dniester districts and the territory of Ovidiopol district. Half of The Reni, Bolgrad, Artsyz, Saratsky and 60

percent of Tarutino districts are characterized by unsatisfactory agroecological conditions and are included in the 3.

Conclusion

The obtained results of soil quality in the content of heavy metals and radionuclides in the southern part of the Odessa region allow us to draw conclusions about possible contamination of agricultural products. Throughout the study area, there is no radionuclide 90Sr in the harvest of all grain, technical, vegetable and fruit crops and grapes, but there is no risk of contamination of products with radionuclide 137Cs in the Kiliya and Reni districts and heavy metals, especially Mn everywhere Cu, Co, with the exception of Kiliya, Ovidiopolky, Reni, Saratsky and Tarutino districts.

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