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The infield varietu of available forms in the forest-steppe of western part Central Chernozemic region

Anton Belik, Tatiana Devyatova, Svetlana Bozhko, and Yulia Gorbunova
Voronezh State University, Voronezh, Russian Federation (abelik36@gmail.com)

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The Central Chernozemic region of Russia has been a region with a strong agricultural industry and determines the food security of the state by most part. The soil cover of the region is represented mainly by chernozems and is favorable for the cultivation of major crops and produce high crop yields. However, the high development of agriculture in the territory of Central Chernozemic region are led to the development of agrogenic degradation processes which impacts on the growth of the soil cover complexity and contrast, and as a consequence a significant infield variety of soil fertility and yields of major crops. In this regard, very promising direction in CChR is the development and practical application technologies of precision agriculture, which implies the spatial variety of soil fertility analysis within specific fields and work areas, especially the content of available forms of nutrients.
The aim of our research was a study of the agro-ecological characteristics of the spatial variety of the content by available forms to plants of major nutrients in representative areas of sloping agricultural landscapes with forest-steppe chernozems in the western part of Central Chernozemic region of Russia.
The research of infield variety by content of available forms of major nutrients are carried in the fields of Russian Research Institute of Agriculture and Protect the Soil from Erosion experimental and industrial farm in Medvensky district of Kursk region. The area characterized by a complex organization of relief. The soil cover is represented by full-profile typical (conventional and carbonate), leached chernozems. The growth of contrast of the soil cover are largely determined by the appearance of eroded soils of these analogues, as well as zoogenic dug and accumulative soils
All of the studied areas with the forest-steppe chernozems were characterized by pronounced variation in the content of available forms of nitrogen, phosphorus and potassium. In the most varied contents of available phosphorus and potassium (coefficients of variation increase by 1.2 - 1.3 times as the complexity of the soil cover and reduced 1.3 - 1.6 times as reducing the area of the site and the growth detailed studies). The least within the fields of content of nitrogen are varied at its most high average grade.
As the most important factors determining the spatial variety of the batteries for the phosphorus and potassium should be made kind of soil, the degree of erosion, the depth of the carbonates. The above factors the humus content is added the level of applied agricultural technologies and the history of land use within the studied areas for the nitrogen.
Thus, the identification of significant infield variety in the content of available forms of nutrients in the forest-steppe chernozems is the result of processes of water erosion. In terms of slope forest-steppe agricultural landscapes of Central Chernozemic region of spatial variability of available forms of nitrogen, phosphorus and potassium is an important factor, which is limited the yields and causes the most promising application the technologies of precision agriculture.