

**CHANGES IN STRUCTURAL AND AGGREGATE STATE OF LEACHED CHERNOZEM UNDER  
INFLUENCE OF NATURAL AGROMINERALS**

L. M.-H. Bikkinina, Sh. A. Aliev, A. Kh. Yapparov, I. M. Sukhanova, M. M. Ilyasov

*Tatar Scientific Research Institute of Agrochemistry and Soil Science,*

*FRC Kazan Scientific Center of Russian Academy of Sciences,*

*20a, Orenburg highway, Kazan, 420059*

*E-mail: liliyaagro@mail.ru*

The aim of the experiments, presented in the paper, was to study the influence of various rates of local phosphorites, glauconites and zeolites on the structural and aggregate state of leached chernozem. Unique specific features of the natural raw materials, such as nutrient content, high sorption and ion exchange properties, widespread prevalence, make it possible to use the materials for soil agrophysical properties improvement. The research was carried out in 2010–2018 in the framework of the stationary field experience of the Tatar Research Institute of Agrochemistry and Soil Science. The agrominerals were introduced into the soil in autumn after spring wheat harvesting. The soil was heavy loamy leached chernozem. It was found that after the treatments the proportion of agronomically valuable soil particles (fractions of 10.0–0.25 mm) that determines soil fertility increased. The number of aggregates of the valuable range when using phosphorites in rates of 4 and 6 t ha<sup>-1</sup> increased to 67.2 and 69.1%, respectively; when using glauconite in rates of 15 and 20 t ha<sup>-1</sup> – to 63.4 and 64.3%, respectively, and when using zeolites in rates of 10 and 15 t ha<sup>-1</sup> – to 65.7 and 66.0%, respectively. Values of the soil structural coefficient after the treatments characterized the structural and aggregate state of leached chernozem as excellent (>1.5).

**Key words:** phosphorites, glauconites, zeolites, mineral fertilizers, leached chernozem.

