

ANALYSIS AND DETECTION OF REGULARITIES IN EXCHANGEABLE CALCIUM MOBILITY IN SOD-PODZOLIC LIGHT LOAMY SOIL PROFILE AMELIORATED WITH DOLOMITE SCREENING FRACTIONS OF DIFFERENT SIZES

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The content and distribution of exchangeable calcium in the sod-podzolic light loamy soil profile ameliorated with dolomite crumb particles < 0.25, 0.25–1, 1–3 and 3–5 mm in size in a scientifically-calculated dose and when combined with each other were studied in a 10-variant micro-field experiment carried out at the Menkovo experimental station in 2011. The soil samples were taken with a soil drill from undisturbed soil profiles to a depth of 70 cm 13 experimental years after liming. It was found that the use of dolomite particles led to the enrichment of the soil with exchangeable calcium. In all the studied treatments, there was an increase in the concentration of calcium compared to the similar soil horizons in the control treatment (without liming). There was a strong diversity in the content of calcium cations with depth. The dependence of the calcium cations content on the depth of sampling was nonlinear. It was possible to construct statistically significant nonlinear dependences of the calcium cations content on the depth of sampling for the control treatment of the experiment and treatments with the use of dolomite particles 3–5 mm in size introduced in the amount of 1 and 5 hydrolytic acidities (HA), as well as mixtures of fractions <0.25 mm of 0.5 HA + 0.25–1 mm of 0.5 HA + 1–3 mm of 2 and 3 HA. For other treatments of the experiment, the nonlinear character of the dependence was more complicated.

Key words: exchangeable calcium, dolomite particles, sod-podzolic soil, micro-field experiment, nonlinear dependence