

IMPACT OF LARGE FRACTION OF CRUSH STONE PRODUCTION ON THE SOD-PODZOLIC LOAMY SOIL HUMUS CONTENT, YIELD AND CHEMICAL COMPOSITION OF PEA PLANTS

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In ten treatments of microfield experiment the effect of liming with increasing rates of dolomite stone (size of stones 5-7 and 7-10 mm) on the soil humus content, yield and chemical composition of pea plants was studied. In one year after the application of high rates of the liming material to the soil no significant changes in the soil humus content for most of the treatments were found. In the treatments where the dolomite flour was applied at the rate 1Ng, 5-7 mm stones at the rate 3Ng and 7-10 mm stones at the rates of 3 and 5Ng, natural mixture of stone fractions at the rate of 1Ng a trend of increasing soil humus content was found. The downward trend in the humus content was detected in two treatments (7-10 mm stones at the rate of 1Ng, natural mixture of fractions at the rate 3Ng). The use of dolomite stones of 5-7 mm in size resulted in a significant decrease of the soil humus content. A significant increase of pea productivity was detected in treatments where the 5-7-mm stones were used at the rates of 1 and 3Ng. Using the liming material at the notoriously excessive rate without fractionation proved to be ineffective. In other treatments there was a trend to increase the productivity. In the model experiment there was no increase in the migration of alkaline earth metals from the soil, limed with high rates of large stone fractions compared to the treatments with dolomite flour at scientifically based rate. Maximum elution of alkaline earth metals was found after the first washing, regardless of the treatment. The sharp decrease of calcium and magnesium content in the washout water was detected after the second washing. The minimum amount of the metals was washed out after the third washout.

Keywords: crush production, dolomite, liming, soil, plant, chemical composition.