



*“Gheorghe Asachi” Technical University of Iasi, Romania*



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## HYDRAULIC CONDUCTIVITY OF DRAINAGE DITCH BACKFILL WITH A LIME ADDITIVE IN CLAY SOILS

**Mindaugas Klimašauskas<sup>1</sup>, Valentinas Šaulys<sup>2</sup>,  
Raimundas Baublys<sup>1\*</sup>, Oksana Survilė<sup>2</sup>**

<sup>1</sup>*Faculty of Water and Land Management, Vytautas Magnus University Agriculture Academy,  
Universiteto str. 10, LT- 53361 Akademija, Kaunas district, Lithuania*

<sup>2</sup>*Faculty of Environmental Engineering, Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania*

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### **Abstract**

The efficiency of drainage installed in clay soils using ditch backfill of soil mixed with lime is presented in this paper. The drainage ditch backfill was mixed with lime where 0.6% of soil matter consists of active CaO. The paper proposes a methodology that determines an optimal amount of lime. The experimental site was set in Kalnujai, Raseiniai district, Lithuania. The measurement of filtration in drainage trench, the arable layer and the soil between drains was performed using a double ring infiltrometer. The mean values of the hydraulic conductivity of the arable layer, the soil between drains, the pilot backfill and drainage ditches backfill with a lime additive were respectively  $1.66 \pm 0.24$ ,  $0.65 \pm 0.09$ ,  $0.94 \pm 0.13$  m/d and  $2.47 \pm 0.12$  m/d under reliability of 95%. Dispersion analysis on pilot drainage backfill and drainage ditch backfill with lime additive under ditch backfill containing 0.6 % of CaO in soil matter showed that they significantly differ at a reliability of 95%. Thus, the effect of lime on the conductivity of the backfill of the drainage ditch for the following 30-year period of drainage operation in clay soils has remained critical.

*Key words:* backfill liming, drainage backfill, hydraulic conductivity

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\* Author to whom all correspondence should be addressed: e-mail: [raimundas.baublys@vdu.lt](mailto:raimundas.baublys@vdu.lt); Phone: +370 61189859; Fax: +370 37 752 392