AN EFFECT OF LIMING ON MAGNESIUM CONTENT IN MEADOW VEGETATION AND LEACHATE WATER

Abstract

The aim of the study was to evaluate an effect of liming on chemical properties of the soil, magnesium content in the meadow vegetation and leachate water moving through the soil profile. The study was conducted in the growing seasons in the years 2012–2014. The study included three plots in two series: with lime and without lime.

The plant material was subjected to dry digestion and ash was dissolved in HNO₃ (1:3). The soil was mineralized in a muffle furnace and the ashes were dissolved in a mixture of HNO₃ and HClO₄ (3:1 v/v). In the obtained samples and in leaching water, estimated the content of phosphorus, potassium, magnesium and sodium by induction plasma emission spectrophotometer. In the soil content of assimilable phosphorus and potassium was determined by the Egner–Riehm method. The content of assimilable magnesium was determined by the Schachtschabel method and the pH of the soil by potentiometric method in water and in mol KC1·dm⁻³.

Liming positively affected on soil pH and magnesium content in plants increasing its amount of about 15–21% of dry matter with respect to not limed plots. In turn, lime fertilization negatively affected the content of magnesium in leachate water and the load eluted per unit area. Magnesium content in leachate water and the amount of loads eluted from limed plots were lower on average by 16–23% with respect to not limed plots.

Key words: leachate water, liming, magnesium, meadow vegetation