

Abstract

In a laboratory experiment, the effect of nitrogen fertilizers on the leaching patterns and input-output budgets of plant nutrients in an acid soil (dystric cambisols) was studied. An amount of N corresponding to 80 kg/ha was applied to the top surface of undisturbed soil columns of 30 cm layers with a diameter of 14.4 cm as $\text{Ca}(\text{NO}_3)_2$ or $(\text{NH}_4)_2\text{SO}_4$. After establishing steady state flow condition, a flux of 0.5 cm solution/column was applied daily for 60 days. The leachates were collected and analysed every four days. It was found that not only the amount and quality of the applied cation influences the leaching pattern of plant nutrients in an acid soil but also the accompanying anion. To interpret leaching data properly, it was necessary to know the magnitude of N transformed in the different processes. Although the two applied salts influenced plant nutrient transport in different ways, total outputs of cations and anions were somewhat similar though outputs after $(\text{NH}_4)_2\text{SO}_4$ were slightly higher than after $\text{Ca}(\text{NO}_3)_2$ addition.