

Geophysical Research Abstracts  
Vol. 19, EGU2017-13096-1, 2017  
EGU General Assembly 2017  
© Author(s) 2017. CC Attribution 3.0 License.



## **Effect of crop rotation on soil nutrient balance and weediness in soddy podzolic organic farming fields**

Livija Zarina (1) and Liga Zarina (2)

(1) Institute of Agricultural Resources and Economics, Priekuli, Latvia ([livija.zarina@arei.lv](mailto:livija.zarina@arei.lv)), (2) University of Latvia, Department of Geology, Riga, Latvia ([liga.zarina@lu.lv](mailto:liga.zarina@lu.lv))

The nutrient balance in different crop rotations under organic cropping system has been investigated in Latvia at the Institute of Agricultural Resources and Economics since 2006. Latvia is located in a humid and moderate climatic region where the rainfall exceeds evaporation (soil moisture coefficient  $> 1$ ) and the soil moisture regime is characteristic with percolation. The average annual precipitation is 670-850 mm. The average temperature varies from  $-6.7^{\circ}\text{C}$  in January to  $16.5^{\circ}\text{C}$  in July. The growing season is 175 - 185 days. The most widespread are podzolic soils and mainly they are present in agricultural fields in all regions of Latvia. In a wider sense the goal of the soil management in organic farming is a creation of the biologically active flora and fauna in the soil by maintaining a high level of soil organic matter which is good for crops nutrient balance. Crop rotation is a central component of organic farming systems and has many benefits, including growth of soil microbial activity, which may increase nutrient availability. The aim of the present study was to calculate nutrient balance for each crop in the rotations and average in each rotation. Taking into account that crop rotations can limit build-up of weeds, additionally within the ERA-net CORE Organic Plus transnational programs supported project PRODIVA the information required for a better utilization of crop diversification for weed management in North European organic arable cropping systems was summarized. It was found that the nutrient balance was influenced by nutrients uptake by biomass of growing crops in crop rotation. The number of weeds in the organic farming fields with crop rotation is dependent on the cultivated crops and the succession of crops in the crop rotation.