Geophysical Research Abstracts,
Vol. 11, EGU2009-10133, 2009
EGU General Assembly 2009

Investigation and assessment of the impact of different land management on soil properties at six long-term soil monitoring sites in the federal state of Schleswig-Holstein (Northern Germany)

R. Nerger (1), G. Hörmann (1), N. Fohrer (1), and E. Cordsen (2)

(1) Ecosystem Research Centre, Kiel University, Hydrology and Water Resources Management, Kiel, Germany (ghoermann@hydrology.uni-kiel.de), (2) State Office of Agriculture, Environment and Rural Areas of Schleswig-Holstein (LLUR), Department of Soils, Hamburger Chaussee 25, 24220 Flintbek (Germany)

In order to assess changes on soil properties there are six long-term soil monitoring sites, which were mostly established in 1989/90 as recommended by the German Federal and State Panel for Soil Protection (LABO). The investigation, which operates with a long-term data set in different temporal resolution, focuses on the detection and the assessment of the impact of different land management on soil properties and soil biological conditions in Schleswig-Holstein.

At the monitoring sites comprehensive chemical, physical, microbiological and soil zoological analyses are carried out in intervals varying between three and ten years. This includes parameters like humus content, pH-value, C/N ratio, bulk density, water content, hydraulic conductivity, nutrient contents, data of lumbricoides and enchytraeids, microbial C and N content, basal respiration and the metabolic quotient. Likewise the investigation operates with detailed cultivation data of the conventional and organic farming practices. On the base of these data matter entries were calculated, such as nutrients and heavy metals.

The paper mainly focuses on the comparision of conventionally and organically farmed monitoring sites with each other over a period of 17 years. It demonstrates the reaction of soil organisms by changing tillage and different input of fertilizers. Furthermore it points out effects on the nutrient balance and the organic matter content. Focal points of the discussion are the interpretation of the interaction between chemical, physical and biological parameters by different management strategies and the ecological development of the monitoring sites. The paper concludes with an assessment of the impact of different management strategies in correlation with recommendations for a site-specific land use and gives an outlook on further steps of the study.