



Soil erosion and mitigation measures on rented and owned fields in Uruguay: the impact of transgenic soya and foreign investors

Lucrezia Caon (1), Aad Kessler (1), Saskia Keesstra (1), and Rick Cruze (2)

(1) Soil Physics and Land Management Group, Wageningen University, The Netherlands, (2) Agronomy Department, Iowa State University, USA

Governments, companies and individuals with financial capital to invest, are worldwide buying or renting land in developing or third world countries. Uruguay is a developing country whose economy is mainly based on agriculture. Since 2000 many foreigners started to invest in the Uruguayan agricultural sector and to practice intensive large-scale agriculture. The significant presence of foreigners in the country is proven by the fact that almost 360 000 ha out of the 500 000 ha forming the study area were managed by foreigners in 2012. Nowadays farmers have abandoned the traditional crop rotation plan that included pasture to produce grain for export, and transgenic soya (soya RR) became the main crop planted by both foreigners and locals. Besides the high soil erosion rates related to having soya as main crop, planting soya implies the use of glyphosate, a broad-spectrum systemic herbicide leading to important environmental impacts. It is commonly said that foreigners investing in poor countries are exploiting the local natural resources aiming to get the highest possible profit from them. Is this a valid assumption in Uruguay? The purpose of this study was to compare the land management style of foreign and local farmers and to relate it to the soil erosion occurring in the study area. The land tenure (rented or owned fields) and the type of farmer interviewed (“individual farmer” equivalent to L.L.C. or “anonymous society” equivalent to P.L.C.) were taken into consideration during the analysis. Based on what stated by the farmers interviewed, the soil erosion simulations considered the seven most popular crop rotation plans on rented and owned fields, three ideal crop rotation plans, the application of no mitigation measures, and the construction of terraces and conservation buffers. Depending on the crop rotation plan, soils characterized by slope gradients higher than 2 resulted in soil erosion rates higher than the 7 ton/ha/year allowed by law. The highest soil erosion rates corresponded to crop rotation plans having high percentage of soybeans and low percentages of sorghum and/or maize. In addition, the soil erosion rate was even higher when only one crop, especially soybeans, was planted during an agricultural year. Although there were not significant differences in the land management style between foreign and local farmers, the land management style significantly differed between L.L.C. and P.L.C., and between owned and rented fields. Compared to L.L.C., P.L.C. applied more soil erosion mitigation measures on both rented and owned fields and invested in research. Owned fields resulted to be better managed than rented fields in which soil erosion mitigation measures were taken only in presence of an agreement with the landlord. Indeed, although the construction of terraces having a distance of 30-50 m significantly reduced the soil erosion rate, those were mainly built on owned fields.