



Effects of destruction and burial dates of cover crops on runoff and erosion in a maize cropping system: measurements and modelling

E. Laloy and C. Biielders

Université catholique de Louvain, Belgium

Planting cover crops is an admitted solution to reduce erosion, yet little information exists about the optimal choice of cover crop destruction and burial dates. The objective of the present study is to measure and model the impact of destruction and burial dates of 2 common cover crops, rye and ryegrass, on runoff and erosion during the intercropping and main, maize cropping periods. The investigations are carried out by means of 90 m² erosion plots in a fully randomized experiment with three combinations of destruction and burial dates repeated 3 times on a silt loam and a sandy loam soil. Based on 2 years of data, it was observed that during the cover crop season, runoff and erosion were reduced by 50 to 90 % on covered plots compared to the control plots. During the maize cropping season, previously covered plots showed up to 95 % reduction in water and soil losses, depending on the mass of cover crop produced at the time of destruction. These results are being used to calibrate and validate a new, continuous, physically-based, spatially-distributed plot-scale runoff and erosion model which is currently operational for runoff.