Geophysical Research Abstracts,
Vol. 11, EGU2009-13625-1, 2009
EGU General Assembly 2009

Effects of Mediterranean shrub species on soil hydrology

P. García-Estringana, N. Alonso-Blázquez, M.J. Marqués, R. Bienes, and J. Alegre

Departamento de Investigación Agroambiental, Instituto Madrileño de Investigación y Desarrollo Rural, Agrario y Alimentario (IMIDRA), Finca "El Encín", Autovía A2, Km 38,200 Alcalá de Henares (España). pablo.garcia.es@madrid.org

Land use changes such as agricultural abandonment modify vegetation and condition several hydrological properties, determining the amount of water that reaches the soil, infiltration, runoff and, in consequence, soil erosion. Abandoned Mediterranean croplands develop naturally into pastures punctuated by shrubs. Colonisation by woody vegetation can be forced through revegetation programmes. In these cases tree species, such as pine trees, are used. However, in general, vegetation from the intermediate stages of succession is not considered, for example shrubs, which are very important in Mediterranean environments. In this study, the main results obtained from studying the effects of different Mediterranean shrub species on hydrology, infiltration and runoff are summarised. The study involved a battery of experiments which included simulated rainfall in small plots, USLE plots and experiments for the characterisation of vegetation in the laboratory. The amount of rainfall needed for runoff to start varied between 1,84 l and 5,56 l depending on the shrub species, mainly due to shrub presence and not due to the presence of litter. The different species modified infiltration capacity (it varied between 57mm h-1 and 107 mm h-1) and the dynamics of infiltration and this affected soil erosion dynamics.