EROSION AND RUNOFF IN BENI CHOUGRANE MOUNTAINS (WESTERN ALGERIA)

Mohamed MEDDI, Yahia BOUKHARI , Boudkhil MORSLI

Abstract:

The Beni Chougrane Mountains (West-of Algeria) are subitted to an intense activity of erosion. This phenomenon has provoked the agricultural ground degradation and the siltation of Fergoug reservoir. To study and understand the phenomenon in this region, we have established an experimental station (cf. WISCHMEIR 1968). These experiments have been led on two different local soil types; a Chalky brown ground on 20 % on sandstone slopes and brown Vertisol on 45 % clay – marl slopes. The volume of streamed water and the amount of soil driven are measured after each rainfall. Considering that two showers are separated if it rains less than one millimeter in an interval of six hours. The runoff is most important in the plot of brown ground (slope of 20%) than on the one with brown vertisol (slope of 45%).

For the Chalky brown ground, the coefficient of the average annual runoff is about 6.4%. The maximum coefficient of monthly runoff values is reached in October (26%). The high rates were recorded in autumn (October and November). The rainfall in these months have a very important intensity falling on a ground not worked. For the brown Vertisol, the coefficient of average annual runoff is about 2.7%. The coefficient of maximum monthly runoff is reached during November (18.3%). The maximum values are recorded during the months of October and November .

For the identification of parameters explaining runoff and erosion, the methods of simple and multiple regressions were used. We considered the data of four campaigns. Taking the totality of data (4 campaigns measures) we have shown that the rain, the runoff and the state of humidity of the ground cannot explain correctly to them and separately the variance of the erosion phenomenon. On the other hand, the grouped in data by season gives best relationships between the specific degradation and explanatory factors, as well as relationships between the depth of runoff, the rain and the state of humidity of the ground. In hot seasons energy provoked by the rain is relatively important than the energy provoked by runoff. While in cold seasons energy of he runoff is more important than he energy provoked by the rain.

Key Word: Erosion; Runoff; Experimental plot; Beni-Chougranes Mountains; Algeria.