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Wind, rain and soil erosion rates on bare and plant covered agriculture plots at the experimental station of El Teularet -Sierra de Enguera, Eastern Spain

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Soil erosion is being scientifically researched for more tan one century, but there is some knowledge lacks that should be researched. Within the factors of the soil erosion wind and rain were studied, but little is know about the impact of the combination of both. Soil erosion by wind was mainly studied on drylands and agriculture land (Sterk and Spaan, 1997; Bielders et al., 2002; Rajot et al., 2003; Zobeck et al., 2003). Soil erosion by water was studied in many ecosystems but it is especially active on agriculture land (Cerdà et al., 2009) and under Mediterranean climatic conditions (Cerdà et al., 2010). The importance of wind on soil erosion is base in the fact that rainstorms occurs with wind, adding a driving component to the falling raindrops. The influence of wind on raindrops is clear, but there is not measurements and there is no information of this influence under field conditions with natural rainfall events.This paper aims to determine the interaction between wind and rain as factors of the soil losses under Mediterranean climatic conditions and different agriculture managements and land uses.
Since 2003, the El Teularet-Serra de Enguera Soil Erosion Experimental Station located in Eastern Spain is measuring the soil losses in plots under different land uses and land managements. The station is devoted to study the soil water erosion processes under rain-fed agriculture fields and the rangelands by means of simulated rainfall experiments and plots of different sizes. The soil erosion measure ments are done by means of 13 plots, each of them composed of 5 subplots of 1, 2, 4, 16 and 48 m2 under different land uses and managements. Two plots are covered by two different types of shrubs: Quercus coccifera and Ulex parviflorus, respectively. Three plots reproduce the use of herbicides, one is ploughed, and three plots follow conservation practices (oats and beans with no-tillage, with tillage, and with a vege- tation cover of weeds). Other plots are covered with straw, chipped branches of olive and with a geotextil developed specifically to control erosion on agricultural fields. The Soil Erosion Experimental Station of the El Teularet-Serra de Enguera is located in Eastern Spain. The station is devoted to study the soil water erosion processes under rain-fed agriculture fields and the rangelands. Agriculture is the main source of sedi ments on the mountainous areas of Spain due to the current management. The exper imental station of the El Teularet-Sierra de Enguera is composed also of a meteorological station with tipping-bucket raingauges (0.2 mm), and sensors that measure soil and air moisture and temperature, wind direction and speed and the sun radiation connected to a data-logger that record these data every five minutes. This paper will review the data collected during the period 2004 to 2011 in order to determine if the wind direction and wind speed determined the soil erosion rates. In this way it will be clarified the infliuence of wind on the soil erosion processes.The results will be compared to the measurement collected at the Montesa experimental station devoted to the study of soil erosion on citrus orchards.
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