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Highly erodible terrain in agriculture land against chipped pruned branches. Or how to stop the soil erosion with low investment

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The session on “Soil erosion and sediment control with vegetation and bioengineering on severely eroded terrain” pays special attention to the severe soil erosion suffered on steep slopes and erodible parent materials and soils. Within the last 20 years, in the Mediterranean lands, the citrus orchards were reallocated on steep slopes due to the urban development and better climatic and management conditions of the new plantations. The lack of vegetation cover on the new slope plantations of citrus resulted in high erosion rates. Those non-sustainable soil losses were measured by means of rainfall simulation experiments, Gerlach collectors, geomorphological transect and topographical measurements. The October 2007 and October 2008 rainy periods resulted in sheet, rill and gully erosion. Some recently planted orchards (2005) had the first pruning season in 2008. The pruned chipped branches reduced the soil losses to 50 % of the expected, although the litter (pruned branches) covered 4.67 % of the soil. This is why a research was developed by means of simulated rainfall experiments to determine the vegetation cover (litter, mainly leaves) to protect the soil to reach a sustainable erosion rate. Rainfall simulation experiments at 43 mm h-1 where performed on 1 m2 plots covered with 0, 3, 7, 15, 30, 45, 60, 80 and 100 % litter cover (pruned chipped branches) to determine the sustainable litter cover to avoid the soil losses. The results show that more that 45 % litter cover almost reduces the soil losses to negligible rates. The results confirm that 4 % of vegetation cover reduces the soil losses to 50 %.

Key words: Agriculture land, erodible terrain, land management, citrus, erosion, Spain, Valencia, herbicides.

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