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Citrus production and soil loss in Eastern Spain

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With the advent of drip irrigation and cheap energy, citrus production has expanded from alluvial flat lands to mountainous areas. This has happened without improvements and adaptation to soil management. Farmers are applying similar weed control treatments to steeply sloping land as traditionally used on flat citrus-growing land. Orange and Clementine farming has always used intensive ploughing or herbicides to avoid weed growth. These methods, used on steep slopes, are inducing non-sustainable soil losses. Because this type of land management is quite recent, measurements of soil and water losses are not available. Until the 1990's, citrus orchards were always located on flat land in valley bottoms. In order to assess soil and water losses on sloping land a set of 50 rainfall simulation experiments were carried out in summer 2005. Rainfall simulations were applied under 5 different types of land management: herbicide, ploughing, catch crops with no tillage, straw mulch with no tillage and no-tillage. Plots of 2 m^2 were wetted by an artificial shower of 60 mm rainfall in one hour. Results show the highest soil and water losses under the herbicide (210 g m^{-2}), followed by the Tillage (20 g m^{-2}). The other three land managements showed negligible soil and water losses.

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