



Organic farming trigger soil water repellency on citrus plantations

Artemi Cerdà and Félix Ángel González-Peñaloza

University of Valencia, Department of Geography, Valencia, Spain (artemio.cerda@uv.es, +34 96 398 3054)

New citrus intensive plantations increase soil erosion due to the low vegetation cover. Soils are bare and runoff takes place after 5 mm or rain. Intense thunderstorms results in intense soil erosion processes with gullies and rills present on the soil surface. Orchard and roads infrastructures are affected by the high sediment and water yield.

An strategy to control the soil erosion and stop the soil degradation processes is to apply an Organic Farming Strategy (OFS), which consist in manure and compost application, avoid any pesticide or herbicide, chip the pruned branches, apply catch crops (leguminosae) to be sow and apply for a No-tillage strategy.

The application of the OFS results in a reduction on the soil and water losses at orchard scale, but an increase in runoff was found a patch scale. A survey with the WDPT test was done in order to determine the impact of OFS on soil water repellency.

Ten citrus plantations under OFS treatments and 10 paired ones were studied in order to determine the impact of the Organic farming on soil water repellency.

The results show that the chemically (no-OFS) managed orchards have hydrophilic soils meanwhile the organic farming (OFS) managed orchards shown hydrophobic soils. The intensity of the Soil Water repellency was variable and it depends on the time since organic farming strategy was applied.