

## Effects of different rates of olive pruning residues on soil moisture and organic carbon in superintensive olive orchards: a study case in Southern Spain

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Pruning residues of olive orchards improve soil fertility and protect soil against water erosion (Repullo et al., 2012; Prosdocimi et al., 2016). Because of the high transport cost of the pruning waste and despite the risk of the transmission of some diseases (such as verticillium wilt), leaving the chopped residues on the ground is becoming a common practice in the Andalusian olive groves, particularly in super-intensive orchards (>1500 trees/ha) (Calatrava and Franco, 2011). However, there is little quantitative information describing the effects of this practice on soil moisture and organic matter. The objectives of this study are, firstly, the determination of the amount of residues that effectively improve soil moisture, bulk density and organic carbon, and, secondly, the assessment of the residue decomposition rates for our experimental Mediterranean conditions. The experiment consists of 4 treatments (with 5 replicates of 6 x 2 m plots) where fresh pruning residues were applied at rates equivalent to 0.0 t/ha (control), 7.5 t/ha, 15.0 t/ha and 30.0 t/ha. Gravimetric soil moisture at the first 10-cm-horizon was measured approximately every 45 days. Organic carbon and bulk density were determined at the end of the campaign for the first 10-cm-horizon. The characteristics of pruning residues (composition in term of leaves, fine twigs, branches and moisture) and their decomposition rate were determined through of the analysis of moisture loss. A thermographic camera was used to measure the temperature of the plot surface and its variability (bare soil and over/under residue layer) among and within the plots. Preliminary results corresponding to the first campaign 2016-2017 are presented.

### REFERENCES:

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