

## The impact of plant types on water repellency as a consequence of forest fires

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### Abstract

Fire has been used in the Mediterranean orchards and groves to remove the pruned branches. The EU policies are promoting the use of chipped pruned branches to promote the restoration of the soil system. Soils under the use of fire to burn the chipped pruned branches use to be bare and induce high erosion rates and loss of water due to surface wash. On the other hand, the soils covered with chipped pruned branches show higher erosion rates. Moreover, farmers use to light fire on the leaves cover during winter to maintain "clean" the soil which results in a bare soil surface. This research investigates the impact of chipped pruned leaves and burnt leaves on soil water infiltration in the soils of persimmon plantations in Valencia, Spain. We selected 10 paired plots to compare chipped pruned branches mulch covered soils and ask covered soils. The measurements were done in January and August 2022. We used a single ring infiltrometer. Ten samples per site were carried out. The results show an increase in infiltration in the areas where chipped pruned branches were used. The use of fire resulted in a reduction in soil infiltration capacity. The use of mulches has been found in Mediterranean orchards as a sustainable practice and is a positive nature-based solutions

**Keywords:** Fire, Wildfire, Plants, Soil, Infiltration, Beneixama, Mediterranean.

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