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## Impact of plant cover on soil erosion, and barriers to cover crop use in Spanish orchards.

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Soil erosion is high in hillside orchards in Spain. Climate change is causing an increase in the length of dry periods and intensity of rainfall, which exacerbates soil loss from fields. Due to the lack of rain during the summer, orchard farmers, concerned about water competition for tree crops, remove ground cover. However, without raindrop interception the soils are vulnerable to erosion and gullyng. While cover crops between tree crops are beneficial in controlling soil erosion, farmers are slow to take up this practice. Both a mesocosm experiment identifying the value of vegetation cover, and survey responses from farmers about erosion management practices are outlined below.

Rainfall simulation was used in a mesocosm experiment to determine the effect of plant cover on sediment loss. Three species native to Spain were used in five treatments consisting of *Brachypodium distachyon*, *Medicago sativa*, *Silene vulgaris*, a mix of the three species, and a bare plot. The plots were raised to a 10° angle before subsampled runoff and sediment was collected under simulated rainfall. A questionnaire was sent to crop tree farmers in Spain asking about their experiences of soil erosion, techniques used to combat it, if any, and their views on methods of soil and water conservation.

Significantly higher ( $p < 0.05$ ) rates of sediment loss were measured from the bare plots ( $34.26 \pm 19.85 \text{ g min}^{-1}$ ), relative to the vegetated ones ( $6.13 \pm 8.27 \text{ g min}^{-1}$ ). This indicates the importance of cover crops to reduce soil erosion. The farmers responding to the questionnaire are aware of this. From a total of 26 respondents, 88% believe that cover crops decrease erosion. However, 58% think that lack of knowledge about effective methods of erosion control is a barrier to implementing techniques.

This presentation will give an overview of the methods used in carrying out rainfall simulation and the questionnaire, in addition to the results gathered.