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I International Conference on Research for Sustainable Development in Mountain Regions

Book of Abstracts

INSTITUTO POLITÉCNICO DE BRAGANÇA
Centro de Investigação de Montanha
Embrapa
United Nations Educational, Scientific and Cultural Organization · UNESCO Chair in Sustainable Mountain Development
University of the Highlands and Islands Oilthigh na Gàidhealtachd agus nan Eilean
EUROMONTANA
ADVID Cluster dos Vinhos da Região do Douro Douro Region Wine Cluster

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Sy06P14

Results from a long-term study on groundcover management in rainfed olive orchards

Manuel Ângelo Rodrigues, Sandra Afonso, Isabel Q. Ferreira, Margarida Arrobas
Polytechnic Institute of Bragança, B, Portugal

In this work, results of a soil management experiment carried out in a rainfed olive orchard were presented. The treatments were: conventional tillage; herbicide application (glyphosate, a non-selective post-emergence herbicide) in spring; and sheep walking. The results showed better soil fertility parameters in the treatment consisting of natural vegetation managed by grazing (sheep walking). However, this treatment led to the worst results regarding tree nutritional status and olive yields. After 10 years, the accumulated olive yields were 187.2, 142.9 and 89.5 kg tree^{-1} respectively in herbicide, tillage and sheep walking treatments. When the differences among the treatments became dramatically high, and no doubt remained about the effect of the treatments, we decided to change the experimental design. The plot previously grazed began to be managed with glyphosate and vice-versa. The plot managed by tillage was kept the same. After four years assessing the three nutritional status and olive yields, it was found that the cumulated production (average 4 years) was already slightly higher in the new plot managed with glyphosate (85.4 kg tree^{-1}), followed by sheep walking (80.3 kg tree^{-1}) and tillage plot (71.0 kg tree^{-1}). The result revealed that in rainfed orchards we could not be overly tolerant to herbaceous vegetation since the excessive competition for water in the spring may reduce productivity. Cover cropping is a sensitive strategy in these agroecosystems.