Understanding the recycling of organic phosphorus in Mediterranean agro-forestry ABSYSs

OBJECTIFS

The overall objective of this project is to characterize quantitatively soil phosphorus pools and organic P cycling in a Mediterranean agroforestry system compared to a sole crop control and taking into account carbon availability and field heterogeneity.
Our main hypothesis is that the introduction of trees and associated perennial herbaceous species on the tree-row will modify the distribution of P pools and increase the turnover of Po, particularly of the MBP via higher inputs of plant-derived labile carbon and this will translate in higher P availability. We additionally hypothesize that this effect will vary with soil depth under the influence of tree and perennial herbaceous species roots. Indeed, the introduction of trees creates a spatial heterogeneity in soil properties and functions at the plot scale along the tree rows- crop transect (Guillot et al., 2019; Guillot et al. 2021) and within the tree row (D'Hervilly et al., 2020). However, trees-induced heterogeneity has not been studied so far along the soil profile.

Responsable :

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