Effect of tillage and temperature on nitrogen mineralization and microbial activity and microbial numbers of lupine amended soil

CARRANCA C. ; ROCHA I. ; DE VARENNES A. ; OLIVEIRA A. ; PAMPULHA M. E. ; TORRES M. O.

Abstract

Soils in Southern Europe are often shallow and susceptible to erosion. Proper soil management with conservation of crop residue is crucial to preserve nutrients in Mediterranean agro-ecosystems. We studied the short-term effects of contrasting tillage on potential N availability and microbial activity and microbial counts in a sandy soil amended with white lupine residue. Tillage favoured N release at highest temperature, but microbial activity was lowered at this temperature. Immobilization was more pronounced at 7 °C and in disturbed topsoil. Dehydrogenase activity was significantly correlated ($p<0.05$) to culturable microbial numbers. Bacteria were more abundant than fungi and responded positively to soil disturbance.

Agrochimica - **ISSN** 0002-1857 - 2009, vol. 53, n°3, pp. 183-195 [13 page(s) (article)]