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

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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.