

Effect of cover crops on leaching of dissolved organic nitrogen and carbon in a maize-cover crop rotation in Mediterranean Central Chile

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© 2018 Elsevier B.V. Protection and management of water quality across agricultural landscapes requires a sound understanding of runoff and/or leaching of nutrients and other agrichemicals from agricultural production systems to receiving waters. We, in a large leaching columns experiment, studied the losses of dissolved organic N (DON), dissolved organic carbon (DOC), dissolved inorganic N (DIN) and total dissolved N (TDN) from maize cultivation on a coarse-textured soil in Mediterranean Central Chile. The combined effects of cover crops and inorganic N fertilisation rates were evaluated on nitrogen and carbon leaching loads (DIN, DON and DOC) and ratios of soluble components (DON:DIN, DON:TDN and DOC:DON). A total of 52 soil columns for 13 treatments (4 replicates) were established to evaluate leaching of dissolved N and C forms from: 1) continuous bare soil (fallow) compared with a continuous cover crop (*Lolium multiflorum* or *Trifolium repens*), with 0 or 150 kg N ha⁻¹ applied; an