



Assessment of soil nitrogen variability related to N doses applied through fertirrigation system.

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The knowledge of water and nitrogen dynamics in soils under drip irrigation and fertilizer application is essential to optimizing water and nitrogen management. Recent studies of water and nitrogen distribution in the soil under drip irrigation focus on water and inorganic nitrogen distribution around the drip emitters. Results of the studies are not verified with field experimental data. Reasons might include difficulties in obtaining field experimental data under irrigation and nitrogen fertilization [1].

N is an element which produces a stronger crop response, accelerates vegetative growth, plant development and yield increase. Accumulation and redistribution of N within the soil varies depending on management practices, soil characteristics, and growing season precipitation. Soil N high content at post-harvest is usually provided as evidence that N fertilizer had been applied in excess. The aim of this study is to characterize mineral N distribution in the soil profile measured at 5, 15, 25, 35, 45 and 55 cm of depth at the end of melon crop that received three N treatments: 93 (N93), 243 (N243) and 393 kg N ha⁻¹(N393). The agronomic practices created a higher variability in soil Nitrogen content.

NH₄⁺ N reduction in the soil profile can also be explained by the nitrification process. The high absorption and rapid nitrification of NH₄⁺ ions in the plot layer are the main reason of a reduce movement downstream. NO₃⁻ ions present higher mobility in the soil profile.

[1] Rahil, M.H.; Antonopoulos, V.Z. 2007. Simulating soil water flow and nitrogen dynamics in a sunflower field irrigated with reclaimed wastewater. *Agricultural Water Management* 92, 142 – 150.

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