



Efficiency and environmental indexes to evaluate the sustainability of mineral and organic fertilization in an irrigated melon crop

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Melon is traditionally cultivated in fertigated farmlands in the center of Spain with high inputs of water and N fertilizer. Excess N can have a negative impact, from the economic point of view, since it can diminish the production and quality of the fruit, from the environmental point of view, since it is a very mobile element in the soil and can contaminate groundwater. From health point of view, nitrate can be accumulated in fruit pulp, and, in addition, groundwater is the fundamental supply source of human populations. Best management practices are particularly necessary in this region as many zones have been declared vulnerable to NO₃- pollution (Directive 91/676/CEE)

During successive years, a melon crop (*Cucumis melo* L.) was grown under field conditions applying mineral and organic fertilizers under drip irrigation. Different doses of ammonium nitrate were used as well as compost derived from the wine-distillery industry which is relevant in this area.

The present study reviews the most common N efficiency indexes [1] under the different management options with a view to maximizing yield and minimizing N loss.

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[1] Castellanos, M., Tarquis, A., Ribas, F., Cabello, M., Arce, A., & Cartagena, M. (2013). Nitrogen fertigation: An integrated agronomic and environmental study. *Agricultural Water Management*, 120, 46-55.