**Comparative study of conventional irrigation and nano-irrigation on the agronomic parameters of the "Maroc late" citrus variety in the Tadla irrigated perimeter**

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**Abstract**

Irrigation water management has become an imperative for the sustainability of Morocco's agricultural sector. In Morocco, rainfall, the main source of water for agricultural production, is becoming increasingly irregular as a result of climate change. In this context, the adoption of new and innovative irrigation techniques and strategies represents new directions for improving the resilience of agriculture in the face of diminishing water resources. The present research project, carried out at INRA's "Afourer" experimental field, located in the Beni Moussa Est sub-perimeter, aims to test two new subsurface irrigation techniques (*Moistube* and *SLECI*), known as nano-irrigation, on a citrus orchard. The aim of this study is to assess the feasibility of applying subsurface irrigation under the climatic and edaphic conditions of Tadla. To achieve this objective, an experimental trial was set up for the "Maroc late" citrus variety, where the two systems (*Moistube* and *SLECI*) were compared with the conventional drip system. The results show that flowering and fruit set are favored at T0 and T1, while the rate of physiological drop is more remarkable in trees irrigated by the SLECI system (0.73%). This stress is confirmed by stomatal conductance (15.67 mmol m-2s-1), indicating a reduction in transpiration due to stomatal closure. End-of-cycle observations show that yield and juice content are high in trees following treatments T0 and T1. Fruit acidity was high in trees irrigated with the SLECI system, indicating significant water stress. According to our results, irrigation water does not reach the soil surface for Moistube and SLECI systems, compared with surface drip systems.

**Keywords:** Tadla, citrus, Morocco late, nano-irrigation, surface drip irrigation, yield.