



## Effect of drip fertigation on soil moisture use dynamics, nutrient uptake and productivity of Ashwagandha (*Withania somnifera* L.)

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### ABSTRACT

An experiment was conducted for two years during *rabi* seasons of 2005-06 and 2006-07 to study the effect of fertigation on yield parameters and economic benefits of Ashwagandha. The treatments consist of three irrigation regimes ( $I_1$ - Drip irrigation at 100% PE,  $I_2$ - at 80% PE and  $I_3$ -60% PE) and three fertility levels ( $F_1$ -100%,  $F_2$ - 75% and  $F_3$ - 50% of recommended dose of N,P,K) with a control having surface irrigation and soil application of fertilizer @30-20-20 kg N,  $P_2O_5$  and  $K_2O$   $ha^{-1}$ . The experimental soil was acidic in reaction and sandy loam in texture. Irrigating the crop at 80% PE with 100% recommended dose of fertilizer (RDF) produced the maximum root yield in comparison to other treatment combinations. Drip irrigation produced more root (795 kg  $ha^{-1}$ ) and seed (78 kg  $ha^{-1}$ ) yields. NPK uptake increased with an increase in the level of fertilizer. Application of irrigation at 80 % PE helped to absorb maximum amount of 43.41 kg N, 7.57 kg P and 31.95 kg K. Actual soil moisture content was comparatively higher in 100 % PE than 80% PE and 60%PE.

**Key words:** Fertigation, root yield, Ashwagandha, nutrient uptake, moisture use dynamics, post harvested soil