

# **Effect of Different Levels of Irrigation and Nitrogen on Yield and Quality of Bidi Tobacco under Rainfed Vertisols of Andhra Pradesh**

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## **ABSTRACT**

An experiment was conducted in a split plot design comprising treatments of three levels of irrigation as main plots (no irrigation, one irrigation of 30mm at 25 DAT (Days After Transplanting) and two irrigations (each 30mm at 25 and 55 DAT) and three levels of nitrogen application as sub plots (90, 110 and 130 kg N ha<sup>-1</sup>). The pooled analysis indicated that more leaf length (41.5 cm), higher cured leaf yield (1741 kg ha<sup>-1</sup>), higher net returns of Rs 38,963 ha<sup>-1</sup> and CBR of 1:1.77 were recorded with two irrigations (each of 30mm) given at 25 DAT and 55 DAT. Fertilizing the crop with 130 kg N ha<sup>-1</sup> resulted in significantly higher plant height (70.7 cm), leaf length (41.4 cm), leaf width (17.4 cm) and cured leaf yield (1696 kg ha<sup>-1</sup>) with net returns of Rs. 36,952 ha<sup>-1</sup>. The economics of irrigation and nitrogen interaction indicated that the maximum Cost Benefit Ratio (CBR) of 1:1.80 with net returns of Rs. 37,765 ha<sup>-1</sup> was produced with the application of 90 kg N ha<sup>-1</sup> with two irrigations (each of 30 mm) at 25 DAT and 55 DAT. The pooled analysis of leaf chemical constituents revealed that chloride content of leaf increased with increase in the level of irrigation and it was significantly higher (1.33%) under two irrigations. Application of 130 kg N ha<sup>-1</sup> recorded significantly higher nicotine content (4.98%) than 90 kg N ha<sup>-1</sup>. Application of 90 kg N ha<sup>-1</sup> coupled with two irrigations (each of 30 mm) at 25 DAT and 55 DAT was found to be optimum for bidi tobacco.

**Key words :** Bidi tobacco, irrigation, nitrogen, cured leaf yield, net returns.