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Effects of soil moisture regimes and time of nitrogen applications on seed yield, consumptive use, soil moisture depletion and water use efficiency of frenchbean crop (*Phaseolus vulgaris* L.)

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ABSTRACT

A field experiment was conducted during winter seasons of 2002-03 and 2003-04 at Main Pulses Research Station S.D.A.U., Sardarkrushinagar comprising of three levels of moisture regimes based on IW:CPE ratios (0.6, 0.8 and 1.0) and six levels of time of nitrogen applications. Seed yield increased with increase in levels of moisture regimes from 0.6 to 1.0 IW:CPE ratios. The mean consumptive use of water, water expense and water use efficiency were maximum with higher moisture regimes. Maximum soil water depletion was recorded from the upper soil profile at higher moisture regimes whereas, soil water extraction to a lower depth (61-90 cm) was higher at lower soil moisture regime (0.6). Split application of nitrogen *i.e.* half as basal and remaining half at branching stage recorded maximum water extraction, consumptive use of water, WUE and water expense efficiencies. Application of 100 kg N/ha in two equal split (half as basal and half at branching stage) further improved the seed yield than other mode of nitrogen applications.

Key words : French bean, Soil moisture regime, Water use efficiency, Water expense efficiency

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