



## Effect of Irrigation and Nitrogen Management on Available Nutrients and Nitrogen Balance in Potato-Maize Cropping System

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**Abstract:** A field experiment was conducted during *rabi* and summer season (October–July) of 2007–08 and 2008–09 at Research Farm of the Division of Agronomy, Indian Agricultural Research Institute, New Delhi to evaluate the effect of irrigation and nitrogen management on available nutrients in soil in potato – maize cropping system. The biological yield was significantly higher with conventional furrow irrigation as compared with alternate furrow irrigation in rotation. Among the irrigation regimes, irrigation at 60 mm CPE recorded significantly the highest biological yield over irrigation at 80 mm and 100 mm CPE. The effect of N management on biological yield were significantly the highest with the application of 120 kg N (urea) + 30 kg N/ha by FYM and it was at par with 150 kg N/ha by urea. Residual effect of irrigation methods and regimes applied to potato on biological yield of maize was not significant. The significant residual effect of 120 kg N (urea) + 30 kg N/ha by FYM applied to potato was exhibited on biological yield of maize and it were at par with 150 kg N/ha by urea. Alternate furrow irrigation in rotation recorded significantly higher available N, P and K in the soil over conventional furrow irrigation. Irrigation at 100 mm CPE recorded significantly the highest available N, P and K in the soil. An application of 120 kg N by urea + 30 kg N/ha by FYM brought considerable improvement the available N, P and K in the soil over other N levels. Crop sequence of potato- maize has positive impact on soil nitrogen status.

**Key Words:** Available Nutrients, Irrigation, N Management, N Balance, Maize, Potato

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