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Quantification of contribution of *Azotobacter* for reducing the requirement of nitrogen fertilizer in potato production in mid hills of Himachal Pradesh

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Effectiveness of potato seed inoculation with *Azotobacter* for improving potato yield was assessed in field experiments under graded doses of nitrogen application viz 30, 60, 90 and 120 kg N/ha. The data revealed that *Azotobacter* inoculation significantly increased the tuber yield with graded doses of nitrogen compared with control. Application of 120 kg N/ha along with *Azotobacter* inoculation gave highest tuber yield (211.72 q/ha) which was 6 q/ha higher yield and statistically at par with 120 kg N/ha (205.75 q/ha). Application 120 kg N/ha was statistically was at par with 90 kg N/ha + *Azotobacter* (201.56 q/ha). Higher mean of yield, nitrogen uptake, nitrogen use efficiency and apparent nutrient recovery were observed from seed inoculation with *Azotobacter* as compared to without seed inoculation with *Azotobacter*. This study indicates the beneficial effects of *Azotobacter* inoculation on tuber yield and 12.5 to 18.8 kg/ha nitrogen can be saved with the seed inoculation by *Azotobacter* for yield target ranges from 150 to 200 q/ha. It may be concluded that combined application of nitrogen fertilizer along with tuber inoculation with *Azotobacter* can be effective in reducing the nitrogen fertilizer dose by approximately 19 kg /ha. Besides saving fertilizer, this treatment also showed increased nitrogen use efficiency, apparent nutrient recovery and per cent yield response.

Biography

M. K. Jatav has completed his Ph.D. at the age of 30 years from Maharana Pratap University of Agriculture and Technology, Udaipur (Rajasthan) 313001. He is Senior Scientist of Soil Science in Crop Production Division at Central Institute for Arid Horticulture (ICAR), Bikaner (Rajasthan), India, a premier Arid Horticulture institute/organization. He has published more than 50 papers in reputed journals.

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