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Studies on boron use in nutrients deficient area for enhancing the tubers yield of potato

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ABSTRACT : The on farm trial was carried out for two years during winter season of 2009-10 and 2010-11 at farmers fields of Kannauj district. The operational area situated in the catchments area of river Kali. For assessment of boron application on potato crop, the fertilizer-use-technology was refined with the conjunction of boron with R.D.F. Application of RDF + 18 kg borex increased potato yield by 306.00 q/ha, which was higher by a margin of 15.00 q/ha or 5.15% and 14.70 q/ha or 5.05% in comparison to farmers practice and RDF alone, respectively. The yield contributing traits were concordance to the yield of potato. The highest net return of Rs. 103268/ha was found from RDF + 18 kg borex/ha followed by Rs. 90803/ha, obtained from RDF alone. The lowest net returns of Rs. 78118/ha was achieved from farmers practice. The B:C ratio in farmers practice, RDF alone and RDF + 18 kg borex/ha was found in the manner of 1:3.04, 1:3.25 and 1:3.45, respectively.

KEY WORDS : Relay cropping, Flexibility in planting, Counselling mode, Assessment and refinement, Reconnaissance survey

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Potato is a major vegetable and commercial crop of both developed as well as in developing countries. It is grown in vide range of climatic condition and soil types with wide flexibility in sowing and harvesting time. It can be harvested while tubers are still immature and also if the tubers are left in harvested for some time, they continue to increase in size and there by improve tuber yield. This flexibility make this crop most suitable for inclusion in multiple and relay cropping systems. India is third largest producer in the world. The area, production and productivity of potato in Uttar Pradesh are 5,40,797 ha, 1,34,47,272 M.T. and 248.65 q/ha, respectively, during 2009-10 (Anonymous, 2010).

Micronutrients play an important role in growth and development of potato. They are needed in minute quantities. Potato crop responds well to micronutrient application and it has become difficult to get high yields without the application of micronutrients. Increase in tuber yields with the application of micronutrients have been ascribed to increased photosynthetic activities of leaves and translocation of photosynthates leading to increase in size and number of tubers. Boron is a very important micronutrient for potato cultivation, because boron deficiency leads to be formation of a bushy plant with droopy leaves. Blades crinkle, cup upward and are bordered by light brown tissue. Immature centre leaves become deformed and the growing point dies, ultimately the tuber yield decrease. Therefore, for assessment of boron application, the nutrient-use-technology was refined with inclusion of boron in the study. Therefore, in this paper an attempt was made to compare the application of boron in association of RDF with RDF alone and farmers practice on farmers fields for eco-friendly management of micronutrients in potato crop.

The on farm trial was laidout for two years, during winter season of 2009-10 and 2010-11 at farmers fields of Digsara, Negpur Kayasth, Mahmoodpur Paith, Hardevpurwa, Pachpurwa, Tilpai and Jalalabad villages of block Jalalabad, Kannauj district, situated on alluvial tract of Central Plain Zone of U.P. The experimental site was sandy loam to loam, having pH 8.2, organic carbon 0.23%, total nitrogen 0.02%, available P 9.00 kg/ha and available K 273 kg/ha, therefore, the fertility status was low. The main problem of this area is, no use of micronutrients especially boron, because this potato growing