Effect of Iron and Zinc on Yield and Juice Quality of Sugarcane

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ABSTRACT

With the intensive cultivation, soils are getting depleted in the available Fe and Zn status because farmers are emphasizing more on application of macronutrients (N, P and K) and micronutrients (Fe and Zn) are being neglected. The low fertility of soil is one of the important limiting factors in sugarcane cultivation and results in decline in both yield and profit to farmers and sugar industries. Keeping this under consideration, an experiment was conducted during 2013 at Regional Research Station, Karnal of CCS Haryana Agricultural University to study the effect of Iron and Zinc on yield and juice quality of sugarcane. The experiment comprised of 7 treatments *viz*. T_1: Control (No fertilizer), T_2: N @ 150 ha^{-1}, T_3: N @ 150 kg ha^{-1} + P_2O_5 @ 50 kg ha^{-1}, T_4: N @ 150 kg ha^{-1}+ P_2O_5 @ 50 kg ha^{-1} + K_2O @ 50 kg ha^{-1}, T_5: N @ 150 kg ha^{-1}+ P_2O_5 @ 50 kg ha^{-1} + K_2O @ 50 kg ha^{-1} + Zn @ 25 kg ha^{-1}, T_6: N @ 150 kg ha^{-1}+ P_2O_5 @ 50 kg ha^{-1} + K_2O @ 50 kg ha^{-1} + Fe (through foliar spray of 1 % $FeSO_4$) and T_7: N @ 150 kg ha^{-1}+ P_2O_5 @ 50 kg ha^{-1} + K_2O + Zn @ 25 kg ha^{-1} + Fe (through foliar spray of 1 % $FeSO_4$). The design of the plot was randomized block design (RBD).The results from analysis revealed that CCS%, Brix%, Extraction% and Purity% were significantly ($p<0.05$) affected. The application of NPK+Fe, NPK+Zn and NPK+Fe+Zn significantly ($p<0.05$) increased cane and sugar yield over control (T_1). Also, the application of NPK+Fe+Zn resulted in net profit in cane yield (B:C = 1.47) as compared to control (B:C = 0.94) as well as net profit in sugar production (B:C = 1.29) as compared to control (B:C = 0.94). The results concluded that all the sugarcane yield and juice quality parameters were found significantly ($p<0.05$) affected by the treatments and NPK+Fe+Zn (T_7) has been found most profitable for both farmer and sugar industry point of view.