EFFECT OF NPK ON THE YIELD AND SUGAR LEVEL OF SUGARCANE

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ABSTRACT

A field experiment was conducted at Agriculture Research Institute, D.I. Khan during 2000-01 and 2001-02 to study the effect of NPK levels on the yield and sugar recovery of sugarcane on ratoon crop. Different combinations of P_2O_5 and K_2O (0, 80 and 160 kg ha^{-1}, each) with constant basal dose of 150 Kg N ha^{-1} were used in RCB design with three replications on Bannu-I cultivar. Data were recorded on yield, % sugar level, and net return ha^{-1}. Maximum mean yields of 143.9, 141.3, 140.6 and 138 t ha^{-1} were recorded in the plots receiving 150-80-160, 150-160-80, 150-80-80, and 150-80-0 kg N- P_2O_5- K_2O ha^{-1}, respectively. It was found that P increased the yield by 42 and 27.5 % over control at 80 and 160 kg P_2O_5 ha^{-1}, respectively. While K attributed 11.9 and 2.3% shares at same levels. As regards the yield differences between the two growing years, it was found that the yield was significantly higher for 2001-02 (150 t ha^{-1}) as compared with the previous yield of 94.7 t ha^{-1}. Sugar level was also affected significantly by nutrient levels and years. It increased gradually with increase in nutrient levels. The highest mean value of 11.8 % sugar was recorded at 150-160-160 (kg N- P_2O_5- K_2O ha^{-1}). The results revealed an increase of 1.7 and 9.6% more sugar over control due to 80 and 160 kg P_2O_5, respectively where as K shared an increase of 4.7 and 7.4 % at the same levels. Significantly higher sugar level of 13.1% was recorded for 2001-02 as compared with the year 2000-01 where the average % sugar recovery was 8.9. Like yield and sugar recovery, net return increased initially and then declined with further increase in nutrient levels. The highest mean net return of Rs. 43472 $ha^{-1}$was found at 150-80-160, which was followed by 150-80-0 and 150-160-80 with Rs. 40619 and 39377 ha^{-1}, respectively. Results indicated the importance of both P and K in terms of yield, sugar level and net return and it was concluded that NPK level of 150-80-80 is the most optimum level for production and quality of sugarcane in the area.

Key Words: Nitrogen, Phosphorus, Potassium, Sugarcane