ABSTRACT

The Effect of Rate and Time of Application of Nitrogen Fertilizer on Growth and Yield of Sugar cane on Two Soil Types in Trinidad

Wamusiru Mundaka

In Trinidad much research has been directed to increasing the yield of sugar cane through increasing amounts of fertilizer applied, especially nitrogen. Despite these efforts, fertilizer application practice has not changed much over the past 50 years as results have been primarily inconclusive.

In the light of the above, the utilization of nitrogen in sugar cane for growth and its effect on yield were examined on two soil types used for growing sugar cane in Trinidad: Princes Town Clay and Talparo Clay having alkaline and acid soil reaction respectively. Increasing rate of nitrogen applied was investigated together with time of applying nitrogen in single and split applications.

On both soil types, increasing rate of nitrogen above 52kgN/ha did not improve height, tillering, LAI or dry biomass production of cane and was not beneficial to yield as tonnes of cane or sugar. The current recommended rate of 105kgN/ha therefore appears to be superflous.

Sugar cane produced greater height, more tillers, higher LAI and more dry biomass production of cane and yielded more as tonnes of cane and sugar when nitrogen was applied in splits rather than in single applications on Princes Town Clay. Nitrogen when applied in three equal splits gave plants which were superior in height, tillering, LAI and dry biomass production and yielded higher as tonnes of cane and sugar compared to other split and single applications. Time of application of N fertilizer did not significantly affect either growth or yield on Talparo clay.