

NITROGEN REQUIREMENTS AND GROWTH CHARACTERS OF SUGARCANE IN VARIOUS CROPPING SYSTEMS

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ABSTRACT

Effect of Nitrogen and intercropping on agronomic traits and N uptake efficiency of sugarcane was compared in a one-year crop at the Waimanalo Research Station of the University of Hawaii during 1993-94. Sugarcane was intercropped with sweet corn and wheat at N levels of 0, 75, 150, and 300 kg ha⁻¹. Average stalk height was similar in the intercropped cane whereas, stalks in sole cane were significantly taller than in intercropped cane. Stalk height and girth increased in all cropping systems with increasing N levels. Sole cane produced significantly higher tonnes of millable cane than intercropped cane. Application of 150 kg N ha⁻¹ proved to be sufficient to produce maximum cane yield (168.79 t ha⁻¹) in sole cane. Whereas, maximum cane yield in intercropped cane was obtained at 300 kg N ha⁻¹. Total N uptake was significantly higher in sole cane than in intercropped cane and it increased with increasing N levels in all cropping systems. The efficiency of utilizing N and the productivity was higher in the sole cane compared to the intercropped cane. The efficiency of N use by sole cane was 73.2 % at 150 kg applied N ha⁻¹ which was the highest among cane in various cropping systems.