

Effects of vinasse on sugarcane (*Saccharum officinarum*) productivity¹

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Abstract

Vinasse is a corrosive and contaminant industrial liquid residue from alcohol distillation. Vinasse contains high levels of organic matter, potassium, calcium and moderate amounts of nitrogen and phosphorus. The effects of several applications of mineral fertilization combined with vinasse on sugarcane productivity were evaluated, on plant-cane, first and second ratoon seasons (92-95). The experiment was established using a randomized split plot design with four replications. Treatments consisted of 3 chemical fertilizer doses in the main plots as: F0= 0 kg ha⁻¹; F1= 180 kg ha⁻¹ N + 160 kg ha⁻¹ P₂O₅ + 220 kg ha⁻¹ K₂O; F3= 80 kg ha⁻¹ N + 45 kg ha⁻¹ P₂O₅ combined with 5 vinasse doses in the subplots as V0=0 m³.ha⁻¹, V1=25 m³.ha⁻¹, V2=50 m³.ha⁻¹, V3=75 m³.ha⁻¹ and V4=100 m³ ha⁻¹. Sugar and cane yields increased with application of vinasse. Best results were obtained when using vinasse as 50 m³ ha⁻¹ on plant-cane and 100 m³ ha⁻¹ on first and second ratoons. The N, P₂O₅ and K₂O sugarcane demands were supplied by the 50 m³ ha⁻¹ vinasse dose (V2) in proportions of 55%, 72% and 100% respectively. Vinasse application demonstrated its efficiency as fertilizer material as well as reducing vinasse contaminant effects to waterways.

Key words: contaminants, fertilizer, nutrients, yield, sugarcane, vinasse.

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