

THE POTENTIAL OF GLYPHOSATE AND GIBBERELLIC ACID TO  
IMPROVE THE SUCROSE YIELDS OF SEVERAL VARIETIES OF SUGARCANE

ABSTRACT

The influence of two glyphosate formulations, the isopropylamine salt and the sodium salt, on the quality and yield of several sugarcane varieties was examined in field trials in climatically distinct sugarcane growing areas of Jamaica. Mature sugarcane was treated with the isopropylamine salt formulation at 0.33 kg a.e/ha and with the sodium salt formulation at 0.56 kg a.e/ha at different times of the year corresponding to different climatic regimes influencing the ripening of sugarcane. Sampling of the trials was done up to 10 weeks after treatment so as to monitor the influence of the two treatments on sucrose and cane yields. The influence of climate, pre-treatment sugarcane quality, and nutrient status on the activity of the ripeners was also investigated.

Both glyphosate formulations exhibited similar influence on sucrose accumulation, with the average increase in sucrose content being 12%, while cane weights were reduced by 5%, five to eight weeks after treatment. Greatest increases were obtained in areas, or during periods of below optimum juice quality, and from canes that were not subjected to moisture stress. Distinct varietal differences were obtained, with the response of sugar-

cane varieties B51415, B51129 and B41227 being greater than that of varieties UCW5465 and BJ6183. Fibre % cane levels were reduced by the isopropylamine salt formulation but not by the sodium salt formulation, while both formulations significantly lowered reducing sugar levels. The ratoon yield of treated canes was reduced in one of five trials.

Other results demonstrated the growth promoting activity of gibberellic acid, and also indicated the potential of gibberellic acid to counteract the adverse effects of the two glyphosate salts on extension growth.

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