

POSTER SUMMARY

THE AGRONOMIC PERFORMANCE OF TISSUE CULTURE (NovaCane®) VERSUS CONVENTIONAL SEEDCANE UNDER RAINFED CONDITIONSSHEZI SN^{1,2}, RAMBURAN S^{1,2} AND MODI AT²¹South African Sugarcane Research Institute, P/Bag X02, Mount Edgecombe, 4300, South Africa²University of KwaZulu-Natal, Private Bag X01, Scottsville, 3209, South Africa

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Abstract

Plants produced through tissue culture (TC or NovaCane®) have been shown to possess an altered phenotype compared with conventionally propagated material (Con). The effects of this on yields under rainfed conditions in the first propagation stage, and the effect of variety, are unclear. The objective of this study was to determine whether varieties differed in phenotypic response to TC and, if present, whether the altered phenotype could be mitigated through manipulation of plant spacing. A field trial was established under rainfed conditions at Mount Edgecombe. The randomised block experiment with four replications consisted of four varieties (N12, N31, N41 and N48) planted using four different methods: 1) TC plants spaced 30 cm apart; 2) TC plants spaced 50 cm apart; 3) conventional hot water treated seedcane (Con); and 4) speedlings planted 50 cm apart (SP50). Yield and yield component measurements were taken at harvest and data were analysed by ANOVA.

There were no significant differences in cane and ERC yields between propagation methods for all varieties. No significant differences in stalk height, stalk mass and stalk population were observed between propagation methods in all varieties. Stalk diameter was significantly reduced in the TC treatments compared with the Con for varieties N12 and N31. The SP50 treatment had a significantly greater stalk diameter compared with the TC50 treatment for varieties N12, N31 and N41. The TC and Con treatments are agronomically comparable under rainfed conditions. Ongoing work will compare growth in the first ratoon and in the second propagation stage.

Keywords: NovaCane®), variety, phenotype, plant spacing, propagation methods, growing conditions.