

INFLUENCE OF DRIP IRRIGATION AND PLANTING SYSTEMS ON YIELD AND QUALITY IN SUGARCANE VARIETIES OF TAMIL NADU

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ABSTRACT

Irrigation has become an interesting cultural practice to improve crop yield and sustainability in adequate and marginal sugarcane growing areas. Field experiments were conducted at Sugarcane Research Station, Cuddalore, Tamil Nadu, India in one plant and three ratoon crops to optimize the paired row spacing for sugarcane with and without drip irrigation. Three varieties viz., CoC (SC) 22, CoSi 6 and CoC (SC) 23 were evaluated in different row spacing. In the plant crop, the paired row spacing at 30x30x30x105 cm registered the maximum cane yield of 148.6 t ha⁻¹ followed by 30x30x30x120 cm with 147.1 t ha⁻¹, however the normal spacing without drip recorded the cane yield of 125.4 t ha⁻¹. The cane yield decreased with increasing paired row spacing from 105 to 165 cm and the reduction was in the order of 8.4%, 13.7% and 15.8% at 135, 150 and 165 cm respectively. In ratoon crops, the normal row spacing with drip exhibited vigorous growth with the higher cane yield of 129.7, 136 and 135.1 t ha⁻¹ respectively in the first, second and third ratoons. However, among the paired row spacing, the spacing at 30x30x30x105 cm registered higher cane yield. The variety CoC (SC) 23 recorded the maximum cane yield of 140.4 t ha⁻¹ in plant crop and CoC (SC) 23 registered higher cane yield in all the ratoons. In the juice quality analysis much variation was not observed for the different row spacing. The variety CoC(SC) 23 registered higher CCS in both plant and ratoon crops followed by CoSi 6.

KEYWORDS: Commercial Cane Sugar, Mechanization, Row Spacing, Planting Technique, Sustainability

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