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Effect of $ZnSO_4$ on Cane Quality of the Variety SL 96 128, under Alfisols at *Uda Walawe*, Sri Lanka

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Abstract

Low sugar recovery experienced during the last few years has become a challenging issue for the Sri Lankan sugarcane industry. Enhancement of cane quality is one of the solutions to overcome this problem. The application of Zinc sulphate ($ZnSO_4$) as a soil amendment is practiced in some countries to enhance the quality of the cane. Therefore, this study was conducted to evaluate the effect of $ZnSO_4$ application on cane quality of commercial sugarcane variety SL 96 128 which is widely grown in Alfisols in Sri Lanka. A field experiment was conducted at the research farm of the Sugarcane Research Institute, *Uda Walawe* under irrigated conditions using RCBD with Five replicates. In addition to the recommended amounts of fertilizers (Urea-325 kg/ha, Triple Super Phosphate-50 kg/ha, Muriate of Potash-225 kg/ha), 7.5 kg/ha of $ZnSO_4$ (Zn - 22%) was applied to treated plots (T1) at 3 months of the crop age and untreated plots (T2) were maintained without $ZnSO_4$. The cane quality parameters: *i.e.,* Brix%, Pol% (Sucrose content), Purity%, Fiber% and POCS% (Pure obtainable cane sugar) were measured at 10, 11 and 12 months of crop ages and cane and sugar yields (t/ha) were estimated after harvesting the crop at 12 months. ANOVA was performed by using SAS statistical software to identify the effect of $ZnSO_4$ on cane quality. The temporal variation of quality parameters was assessed by carrying out two separate regression analyses for T1 and T2. The untreated plots (T2) showed a significant ($P<0.001$) declining trend for Brix%, Pol%, Purity%, and POCS% during 10 to 12 months period. At harvest, T1 recorded significantly high Pol % (14.73, 13.04), Purity % (91.60, 85.97), POCS % (11.35, 9.68) and sugar yields (10.60, 8.73) compared to T2 (at $P<0.05$). However, cane yields of T1 (93.67) and T2 (90.42) were not significantly different. This preliminary study revealed that there is a significant positive effect from soil micronutrient, Zn on cane quality parameters of the variety SL 96 128.

Keywords: Cane quality, Recovery, Sugarcane, Zinc sulphate

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