Evaluation of Tropical Sugar Beet *(Beta vulgaris saccharifera)* Varieties Based on Allometric Measurements and Total Sugar Yields in Nyandarua County, Kenya

By

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ABSTRACT

This Sugar beet trial on comparative performance evaluation of four varieties on the basis of allometric measurement and total sugar yields was set up in year 2009. The broad objective of the study was to promote commercial small scale sugar production in the high lands of Kenya. The site was in Nyandarua West at the farmers training centre, Ol joro Orok. Season one crop was planted in the long rains and season two crop in the short rains. All operations within the trial were standardized, with the three varieties EB0503, EB0618 and EB0505 forming the main treatment. The varieties were replicated four times in blocks set in a randomized complete block design with the fourth variety, EB0621 being the control. A comparison of means was done after analysis by use of Analysis of Variance f test and means separated using the t test on version 9.2 of statistical analytical computer software. The results of this study indicated no significance difference between the control and the other three varieties at $\alpha = 0.05$ to total sugar levels for the two seasons. A significance difference was observed between the varieties in both seasons to tuber yield in t ha^{-1} at $\alpha = 0.05$ at the established plant population of 98,999 plants per hectare. No significance difference was observed between the control and the other three varieties on leaf biomass. There were no significance differences also observed between the control and other varieties on leaf area index (LAI). The slight incidences of Cercospora leaf spot disease observed on all varieties under the operating field conditions did not influence total sugar levels.