

Comparing initial performance of macropropagated, tissue cultured and naturally regenerated banana seedlings

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ABSTRACT

Objective: Banana is an important crop for food security and income generation in Kenya. It is also used as fodder especially during the dry season when feed resources are less available. Production of the crop faces many challenges, among them poor seedlings supply systems. Tissue culture was introduced in Kenya about ten years ago but its adoption is still low, largely due to high cost of seedlings as a result of high production cost. There are also few private sector players in the tissue culture sector. As a result farmers have continued to rely on natural regeneration methods to obtain planting suckers. This method is slow and in most cases does not yield adequate planting materials. Macropropagation technology was introduced in Kenya in 2008, but has had only limited evaluation in the country. An ongoing study is evaluating this technology, partly to compare the performance of seedlings from different propagation methods.

Methodology and results: Ten seedlings of each method were planted and their establishment evaluated in a field at



Kenyatta University Kenya. Initial growth parameters are to be monitored over a period of six months. Data is being recorded on the number of leaves, diameter of the stem from a point initially ten centimeters above the ground, and height of the plantlets recorded at two weeks interval. Results showed that tissue culture seedling have high growth rate initially while naturally regenerated suckers have the least growth rate. The growth rate of macropropagated seedlings was not significantly lower compared to tissue cultures, and maintained a consistent trend over time.

Applications of findings: The preliminary findings of this study show that macropropagated seedlings respond the same as tissue cultured seedlings during the early stages of establishment after transplanting. The slow establishment of naturally regenerated suckers was to an extent due to absence of leaves that had been pruned when transplanting.

Key words: *banana, macropropagation, tissue culture, natural regeneration*