

## Abstract

Gaps in tea farms and plantations resulting from poor planting material, storms, accidental mechanical operations and pests lead to monumental yield losses. Conventionally, single node cuttings have been used for infilling of such gaps in the past; however they take very long to regenerate and to eventually cover the gaps and are also expensive compared to normal seedlings. Therefore, double node cuttings can offer a faster and robust alternative for production of the infilling material. However, the fear has been that it poses greater demand for photosynthates for recovery and regeneration of shoots from more nodes and this may lead to competition between roots and shoots for assimilates and hence premature death instead. The current work was set to test the hypothesis that more nodes/ plus leaves lead to more demand of substrates from source to the nodes with little going to the roots, hence low chance of root initiation and thus not suitable for production of tea seedlings. A study to evaluate potential of different types of tea node cuttings (Single Node cutting SNC – and Two Node cutting TNC) as planting material was therefore conducted at Kangaita farm at the Kenya Tea Development Agency in Kirinyaga, Kenya. The experiment was laid as Complete Block Design with split plot arrangement in net shades. The regeneration of single node and double node cuttings from three popular commercial tea clones (TRFK 31/8, TRFK 6/8 and AHP S15/10) was assessed in relation to their root and shoot development in the nursery until transplanting at 8 months in screen house with polythene papers. Variables such as root length, root biomass, leaf size, shoot count, shoot length and survival were evaluated as a measure of root and shoot development. The results revealed that double node cuttings were more vigorous in generation of new shoots, which triggered early root development, with clear variation observable among the test clones. Clone TRFK 31/8 was more superior in root development while clone AHP S15/10 showed superior ability to produce two shoots. There results also revealed lack in difference in seedling survival from two types of regenerations. The study confirms that indeed there was no adverse competition between root and shoots for assimilates and demonstrates the potential of that double node tea cuttings to be used to generate robust planting material both for new fields and infilling. It is therefore recommended that this technique be adopted and more studies be done using cuttings with more nodes to optimize rooting and growth conditions during propagation.