

## ABSTRACT

Experiments in budding, grafting and stem cuttings showed that these methods can be used in cashew propagation under the local (Trinidad) conditions. The results of these experiments indicated that callus formation plays an integral role in the success of these methods of vegetative propagation. There was a delay in callus formation on the cut surface of the scions and at the base of the cuttings which was attributed to (a) the widespread death of cells on the cut surface due to latex exudation from damaged laticiferous canals; (b) the early leaf abscission in stem cuttings. In the latter case it was found that when early leaf abscission was reduced by using intermittent mist, cuttings formed callus and subsequently rooted.

The histological studies of root initiation in air layers showed that callus also plays an important role in this method of propagation. The present investigation revealed that root initiation takes place *de novo* and increasing the area of callus formation by making two rings, increases the total number and length of roots formed.

Neither application of auxins at the time of air layering nor prolonging the period of attachment of air layers to the mother trees had a significant effect on 1<sup>o</sup> root initiation. However IBA at 300 p.p.m. was found to affect 1<sup>o</sup> root initiation when applied after callus had formed and before root initiation had taken place (10 to 13 days after ringing).

The location of marcots on the mother trees had a significant effect on rooting of air layers. Marcots located in the sun were found to form more roots compared to those located in the shade.

Radioactive C was used in cashew air layering to study the rate of photosynthesis, total fixation and translocation of assimilates at different stages of callus development. The results suggested that the leaves in cashew are the main site of assimilate storage and the translocation of assimilates out of the leaves in air layers is a function of the stage of development of callus. The results also showed that the decrease in the number of roots formed in triple ringed air layers could be a result of the inadequate availability of assimilates produced by the leaves and/or the limited capacity of the phloem to translocate assimilates.

The double ringing modified technique gave higher percentage establishment when compared to the traditional method of air layering.

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