

Effectiveness of the Approach Grafting Over the Other Vegetative Propagation Methods of Nutmeg (*Myristica fragrans* Houtt.)

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Nutmeg (*Myristica fragrans* Houtt.) is unique among spice plants as it produces two distinct spices, nutmeg and mace. Nutmeg is the seed kernel inside the fruit and mace is the covering (aril) on the kernel. It is dioecious plant and sexual propagation by seedlings yields 50% male seedlings, which are unproductive. There is no reliable method to determine the sex of the sexually propagated nutmeg plant until flowering and it takes 6-7 years. Even though, the solution is vegetative propagation, the available techniques take long time and less in success. This experiment was conducted with the objective of testing the effectiveness of approach grafting over the current vegetative propagation methods of nutmeg in local context. Different other methods of vegetative propagation namely cleft grafting, soil layering, air layering and stem cutting were attempted. Randomized Complete Block Design was used for six treatments and each treatment contains three replicates. Data were subjected to Analysis of Variances, t-test and GLM procedure using SAS 9.0 statistical package at 5% level of significance. Averages were compared with the Duncan's Multiple Range Test. After three months period, the reported mean successful percentages for cleft grafting, soil layering, air layering, stem cuttings, approach grafting with plagiotropic shoots and approach grafting with orthotropic shoots were 24.81%, 0%, 17.13%, 0%, 75% and 87.37% respectively. A significant difference was observed between the mean successful percentages of approach grafting against other vegetative propagation methods ($P < 0.05$). **But**, there was no significant difference between the mean successful percentages of approach grafting with plagiotropic shoots and approach grafting with orthotropic shoots ($P > 0.05$). There was a higher potential for the success of approach grafting of nutmeg when compared to other vegetative propagation methods for the production of planting materials. Mass propagation through approach grafting with plagiotropic shoots and orthotropic shoots can be recommended for the production of female plants. Field testing of approach grafted plants with the cleft grafted and air layered plants could also be proposed.

Keywords: Approach grafting, Orthotropic shoots, Plagiotropic shoots, Propagation