

Epicotyl Grafting in Nutmeg (*Myristica fragrans* Houtt.)*

The dioecious nature and unpredictability of the sex of the seedling are serious problems in the cultivation of nutmeg (*Myristica fragrans* Houtt.). Being a cross pollinated crop, large variation exists in the seedling progenies. In order to get a uniformly high yielding population of nutmeg, propagating nutmeg vegetatively has been suggested (Nair et al. 1977). One of the major problems in vegetative propagation of nutmeg is that about three years are required to get a graft which can be transplanted. In fruit trees like mango, this problem has been overcome by stone or epicotyl grafting of sprouted seeds and the grafts could be planted in one year (Bhan, Sammaddar, and Yadav, 1969). In Maharashtra this has become the standard practice in mango propagation. Similar success has been reported in macadamia (Leigh, Trochoulis and Auston, 1971). Therefore attempts were made to try this technique in propagating nutmeg and the results are reported here.

The trial was carried out at the CPCRI Farm, Peruvannamuzhi during July 1979 and 1980 with sprouted seeds of *Myristica beddomei* and *M. malabarica* as root-stocks. *M. fragrans* was not tried because the seeds are valued as spice and hence if successful unions could be obtained with other species, it is economical and advantageous. During 1979 only *M. beddomei* could be tried.

The selected root-stock of first leaf-stage had a thick stem (diameter of 0.4 cm or more) with sufficient length to give a cut of 5.0 cm long. The scions consisted of green fan shoots collected from the female grafts planted at the farm producing only fan shoots. The basal stem diameter of scions varied from 0.3 to 0.5 cm. No pre-curing was done. Scions without leaves and with five leaves were tried. Twentyfive grafts were made in each category.

During 1979 both splice and cleft grafting were done but only the latter

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method was followed during 1980, since cleft grafting was easier and both methods gave equal results. Tying was done with 300 gauge polythene strips. The completed grafts were then kept in polythene bags containing coir dust as medium. The bags were tied up to prevent drying of scion and kept in a cool shaded place protected from direct sunlight. After one month, the bags were opened and those grafts showing sprouting of scions were transplanted in bags containing a mixture of soil, sand and cowdung in the ratio of 1:1:1 and kept in shade. The polythene bandage covering the grafted portion was removed only after three months of transplanting. The non-sprouted grafts were re-enclosed and transplanted later. The survival of the grafts was recorded after one year. During grafting, precautions were taken to prevent wilting of scions and to complete the grafting as soon as possible after detachment of shoots. Since the exudates from cuts pose a problem of covering the cut surfaces in the grafting process hindering union, the rootstocks were prepared earlier than the scion so that by the time the scion is ready, exudation might have ceased in the rootstock. The results are presented in Table I.

The results indicate that splice or cleft grafting gives similar results. However, the success was low due to the use of leafless scions which was improved to 12 per cent when leaves were retained in trials during 1979. During 1980 there was an improvement in the survival of grafts with leafy scions whereas the use of leafless scions was a failure. This improvement was due to better selection of rootstocks and scions. It was observed that though initially good survival of leafless scions was noticed, all of them died subsequently. Being active and the respiratory activity intense in the green tissues grafted, with no leaves to support them, the leafless scions might have succumbed. The use of a thicker leafless scions with pre-curing may prove helpful. It was also found that abscission of leaves from the scion during the period of graft union retarded take and subsequent growth. The presence of leaves had definite influence on graft take. Further, the sprouting of rootstock also resulted in the death of the scion later, unless desuckered in time. Since laterals were used as scions, the resultant graft also grew laterally with no tendency for erect growth. Hence, to obtain erect growing

Table I. *Survival of grafts in nutmeg*

Year	Method	Percentage of success	
		<i>Myristica beddomei</i>	<i>Myristica malabarica</i>
1979	Splice	4.00	-
	Cleft	4.00	-
	Leaf scion (cleft graft)	12.00	-
1980	Leaf scion	48.00	40.00
	Leafless scion } Cleft graft	0.00	0.00

grafts, progeny nursery to supply erect scions is necessary.

The trial has clearly indicated the feasibility of large scale propagation of nutmeg through epicotyl grafting

which enables raising of grafts in one year instead of three years and avoids nursery expenses of maintaining seedling root-stocks when other methods are employed.

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