

B-11: Vegetative propagation and reciprocal grafting on papaya

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Two investigations on vegetative propagation of Papaya were undertaken in this study. In the first, to overcome the emergence of variable progenies from the so called varieties of this heterozygous crop, multiplication by way of grafting was assessed, while in the second, reciprocal stock-scion grafting was used between the virus resistant *Carica candamarcensis* adapted to the up country wet zone and *Carica papaya* to evaluate the compatibility of the 2 *Carica* species and its influence on disease resistance and climatic adaptability.

(1) Patch budding, side grafting, tongue grafting, side tongue grafting, cleft grafting and bark grafting were tested and the experiments were carried out in pots. For each treatment, 32 month old seedlings were used instead of selected plants as stocks of *C papaya*. (2) To obtain maximum number of side shoots, (for scion) from the normally unbranched *C papaya*, the techniques tested were: decapitation of the terminal bud, decapitation of stem 15 cm below the terminal bud and incisions at every node of selected mother plants (at the stage of flowering). Experiments were carried out in the field with Randomized Complete Block Design. The shoots obtained were cleft grafted on 2 month old *C papaya* seedlings. (3) Reciprocal stock-scion grafting was carried out between *C.candamarensis* and 2 months old seedlings of *C papaya*. Successful plants were planted in the field at Gannoruwa (Mid Country Wet Zone) to observe their adaptability.

All the grafting techniques tested, had a success rate of more than 83%. As the cleft grafting method is easy and a complete success (100%) was shown, this was selected for further studies.

All techniques tested provided several side shoots (12-16); there being no significant difference among them. The shoots so obtained were grafted and success survival was only 15%. Seedling to seedling were quite successful but mature scion on 2 month old seedling were not very successful. This may be the reason for different maturity levels.

C. candamarcensis used as scion on *C. papaya* root stock adopted itself to the mid country wet zone, but here was over growth of the scion at the plant union. Symptoms of Papaya ring spot virus were not observed for a period of 1½ years.

C. Papaya scion on *C. candamarcensis* root stock perished in the field within 3 weeks, due to heat stress of the temperature sensitive *C. candamarcensis*.

Due to variable and low success in vegetative propagation, it cannot be used commercially, but can be used to produce genetically uniform populations for a breeding programme, and to maintain the purity of the existing papaya varieties.