



***A Novel Approach for Round the
Year Propagation of Perennial
Horticultural Species:
Dweep Goottee 365***



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Introduction

Air layering, gootee or marcottage is one of the commonly employed techniques of vegetative propagation of perennial plants. This method is commercially employed for multiplication of a number of horticultural crops such as guava, cinnamon, Indian bay leaf etc. This technique has multiple advantages. It is comparatively easy to follow than grafting and budding techniques and has better establishment success in most cases. It does not require raising of rootstocks and grafting operations so stionic compatibility issues do not arise. It requires less skill as compared to grafting and budding. On the other hand, layering technique suffers from low rate of multiplication and like other methods, it is performed only during rainy season of the year.

Dweep Gootee 365 approach

Air layering is a season bound activity. For induction of better rooting and obtaining superior establishment, prevalence of congenial microclimate is required. Dweep Gootee 365 is a novel approach of round the year multiplication of difficult to root plants. In this method, congenial microclimate, mainly high relative humidity, is created inside the protected structure and this condition is utilized for carrying out the air layering operation on potted mother plants.

Description of the method

Planting material of desirable genotype/ variety/ species is collected from the authorized source. Such plants are grown in bigger size pots/ containers (generally of more than 20 L capacity) to facilitate their proper development. Pots could be filled using desirable potting mixture as per the species in question. These plants are maintained inside a polyhouse provided with overhead sprinkling facility and are allowed to develop multiple branches by proper training and pruning. Generally, in crops such as watery rose apple, *Cinnamomum* and *Citrus* species, about one year old plants produce enough growth in the pots to be used as mother plants for carrying out multiplication.

Creation of desirable microclimate is the key in getting optimum success in this approach. Under island conditions, naturally ventilated polyhouse with UV stabilized sheet as cladding material and insect proof net for the walls was used for developing this technique. Provision of overhead micro-sprinklers/ mist assisted in maintaining high relative humidity inside the polyhouse, which is crucial for successful rooting in the layers. Hence, depending on the local conditions, optimization of microclimate would be desirable. Pots containing mother plants are arranged in lines with optimum spacing to allow the operator to carry out layering and maintenance operations inside the polyhouse.

Air layering operation is performed on the selected branches following standard procedures. For this, pencil- size branches are selected and a ring of bark of about 2.5 cm is removed leaving 20-25 cm from the shoot tip. Powder/ talcum formulation of auxins at desired concentration (depending on the species) is applied on the upper cut end of the ring and wound is covered with a suitable substrate such as moist coir pith compost, soil: farmyard manure etc. It is then wrapped with a polythene bag and tightly secured using a thread. Depending on the species, the root induction could be seen from the polythene cover within 6 to 12 weeks from layering. Such layers are separated and planted in the polybags filled with potting mixture.



Mother plants are adequately irrigated and application of organic manure and nutrients is required for producing vigorous growth. After the harvest of first batch of layers, a break period is given to the plants before carrying out layering in the other branches of desirable size. In this way, the layering operation could be performed throughout the year.

Advantages

- ✓ This method is suitable for multiplication of difficult to root plants, which respond well to frequent pruning, as harvesting of air layers indirectly prunes the branches.
- ✓ No dependence on season for layering is the unique aspect of this technique enables to carry out air layering operation throughout the year.
- ✓ The technique could be adopted by the nurserymen for supplementing plant multiplication process especially during heavy rainfall period, when field multiplication of the species is challenging.
- ✓ The technique could also be helpful to the researchers and conservationists, who wish to multiply valuable and rare germplasm for conservation and further studies.

Usefulness of this method was successfully tested in watery rose apple (*Syzygium aqueum*), Indian bay leaf (*Cinnamomum tamala*), cinnamon (*Cinnamomum verum*) and kagzi lime (*Citrus aurantifolia*) under Andaman Island conditions. Thus, the developed technique could be of great practical utility to conservationists, researchers and nurserymen for off season multiplication of desirable germplasm apart from serving as a supplement to field level multiplication.

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