

BUD GRAFTING – A UNIQUE METHOD OF MULTIPLICATION

Mulberry propagation is generally followed through stem cuttings, which is easiest, cheapest and convenient for raising saplings. Grafting method of propagation is followed, when vegetative clone is not possible to regenerate by cuttings, layering or other asexual methods (Tikader et al., 1997). In general, grafting is practiced mainly in the area where temperature and rainfall is low (Taguchi, 1971). The wild genotypes did not receive much attention since they multiply naturally through seeds and hence their rooting behavior is not well known. However the rooting performance of the wild mulberry germplasm is required to be assessed for multiplication and subsequent establishment in the field gene bank. The multiplication process was not given due importance at initial stage and hence the survival percent was recorded low and as a result valuable genetic materials were lost after collection. The collected materials, which are unknown about the rooting behaviour, some genotypes respond well and some other exhibit poor rooting response.

Modified grafting method:

In general there are several methods of grafting followed as per the requirement. But in mulberry, root grafting, sapling stock grafting is being followed where the success of vegetative cuttings is not up to mark and there is a chance of losing the genetic material. The stem cutting grafting method is very simple, convenient and success rate is above 95%.

- In the modified grafting method, stem cutting was used as stock.
- The stem cutting of 15 – 20 cm in length is prepared of six-month-old matured cuttings with 3-4 well-developed buds.
- The upper end bud on the cutting was removed with sharp knife.
- Then removed the middle bud of the stock by making the exact size of the scion bud, which is to be inserted on the stock.
- After fixing the bud, it is to be tied with a strip of polythene of 1 cm width to avoid contamination and fixing with stock and also make airtight at the joint.
- After following the process, the stem stock can be planted in the nursery bed as like cutting plantation.
- Before planting, the nursery bed is to be prepared by repeated ploughing, digging and mixing with farm yard manure, neem cake, fungicides and pesticide to avoid contamination / infection.
- After plantation in the nursery bed maximum precaution should be followed from disturbing the cutting while irrigation and removal of weeds.
- The sprouting of scion bud on the stock will start from 7- 10 days depending on the materials.
- The genotypes selected for stem stock should be good rooter i.e., above 80% rooting.
- The materials used at CSGRC, Hosur is V1, Kanva-2, S1 and, S13 etc. The performance of V1 found better as stem stock.

- The scion material collected from natural resources may be of higher ploidy level (Diploid, Triploid, tetraploid and hexaploid).
- The grafting union also depends on the adjustment of the callus cell and showed some incompatibility particularly *M. laevigata* and *M. serrata*. Likewise, some exotic accessions also showed incompatibility (*M. nigra*, *M. cathayana*) as they possess higher ploidy.
- To perpetuate true to type, vegetative means through cuttings and grafting using buds is the easiest method.
- The modified grafting method ensures 95 – 100% success for multiplication of mulberry germplasm. It is also cost effective in terms of maintenance and easy handling.



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