Grafting Red-Flowering Gum: Trying a New Method©

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INTRODUCTION

Red-flowering gum, *Corymbia ficifolia*, is a small native tree from the south west corner of Western Australia. It is a very popular garden plant in Australia and is used extensively for street tree plantings and as a garden specimen tree.

Corymbia ficifolia has been traditionally grown from seed. Over the last 20 years or so many selected seedlings and some hybrids have been isolated and registered.

The issue of red-flowering gum propagation however has posed some problems. *Corymbia* is a genus that is difficult if not impossible to grow from cuttings and therefore grafting offers the only viable method of commercial production of these desirable clones.

The grafting method used by the majority of producers in Australia is the top cleft graft. This method however has been found to be inconsistent with a poor success; a 30% success is considered acceptable by many.

Tube stock in 50-mm tubes from a producer in Queensland was selling for AUD$6.00 (560 yen) per plant at the time — a very high price. The price reflecting this poor take rate.

In 2006 I was given the opportunity to see if this success rate could be improved.

After some research it was discovered that poor take rates occurred because it is very difficult to keep the scion part of the graft alive while the graft was healing. This genus does not like excessive water and the use of high humidity in grafting cases or the like is undesirable. Another method was needed to overcome this problem.

I, therefore, considered using an approach graft method and more specifically the spliced approach graft (Garner, 1995). "This is the simplest graft of all and is merely an aided natural graft. The stock and scion, preferably of equal size, are each sliced to expose the cambium in, as far as possible equal pattern. These cut surfaces are placed together and tied securely" (Garner, 1995).

The distinguishing feature of approach grafting according to Hartmann et al., 2001, is that two independent, self-sustaining plants are grafted together. After the union has occurred, the top of the stock plant is removed above the graft and the base of the scion plant is removed below the graft.

Approach grafting only requires very minimal aftercare and lacking any sophisticated growing structures this method was worth a try.

GRAFTING PROCESS

Scion Mother Plants. Selected mother plant cultivars were grown in 300-mm tubs or larger if desired and pruned in early spring to generate new branch growth. Plants were grown in full sun or light shade.

Understock. Three species of *Corymbia* were used as understock, *C. maculata*, *C. intermedia*, and *C. tessilaris*. The most common species grown in the Sydney

region is *C. maculata*. *Corymbia intermedia* and *C. tessilaris* are used for different climatic zones.

Recent research has shown the strong possibility of graft incompatibility when using seed-grown understock and clonal selection may be required to overcome this problem in the future (Lidbetter and Cain, 2007) More research is needed in this area. However, grafted plants are known to be surviving for more than 30 years.

Seed was sown in spring and pricked into 50-mm square tubes when about 25 mm high. The planting medium was based on graded pine bark with high air-filled porosity. Plants are then placed into suitable growing environment. These understocks are ready for grafting by mid summer when they are about 300–400 mm high with a 5-mm caliper.

The Graft. The grafting process is very simply a matter of cutting a matching slice on both the understock and the scion material, joining them together after matching the cambium and tying off with budding tape. This process needs to be done as quickly as possible. All graft slicing was done using disposable surgical scalpels. Grafting knives proved to be too heavy and cumbersome and difficult to keep sharp enough. *Corybia* is a hardwood that blunted our knives easily. The bark on these very young seedlings is also rather fragile and the sharpness of the scalpel produces a much cleaner cut with minimal bark damage. Scalpels are just thrown away as they blunt. In Australia they can be purchased in boxes of 10 or more and cost about AUD$1.00 (95 yen) each. Budding tape used was standard 12-mm plastic tape.

The height of the graft on the understock is important as it was found that the distance between ground level and the graft union will increase making an unsightly finished plant. The graft should therefore be as low as possible on the understock. The understock plant will need to be supported at an appropriate height and this was done by securing the plant on bamboo canes with an elastic band.

Aftercare. The only after care required is watering. However it is important to make sure that all understock tubes are watered and this may require careful hand watering. The use or a dripper system may also be considered.

Graft Separation. Grafts should be ready for separation after about 8 weeks in the summer time and longer at cooler times of the year. It is important not to get impatient at this stage as early removal proved detrimental. One week early can make a difference.

Both the understock and scion branch should be growing extensively. Make sure all the new grafts are well watered before removal.

A process of pruning back of the new growth on the scion part of the graft is undertaken as extensive wilting was found to be a problem. It was found that rather heavy cutting back was needed. A process of partial ring barking was tried but did not prove successful. The top of the understock is also removed at this time. The scion can then be separated from the mother plant some 7–10 days later. The new plant should then immediately be placed in a bucket of water to thoroughly soak the medium before placing out into growing trays. Care should be taken over the next week or so to ensure that the new plant does not dry out. Once new growth has started and the plant reaches a suitable height it can be replanted into the desired growing pot and should be saleable in 8–10 weeks. This trial used 175-mm pots, which typically sell for Au$30.00 (2800 yen) wholesale.

CONCLUSION

Approach grafts provide a practical and effective means of producing grafts of *C. ficifolia*. Previous grafting methods only provided a take rate of 30%, however, the approach graft method provided a success rate of over 90% on average with some variation noticed with some clones.

LITERATURE CITED

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Hartman, H.T., D.E. Kester, F. Davies, and **R. Geneve.** 2001. Plant propagation: Principles and practices. 7th Ed.