Propagation of Camellia Species and Cultivars in Australia

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INTRODUCTION

My brother and I own and operate a wholesale Nursery in the Lower Blue Mountains on the east coast of Australia. This nursery is approximately 80 km (50 mi) west of Sydney. We are very proud to be one of only six nurseries to earn Quality Assurance: AS/NZS ISO 9002. This was achieved in February 1997.

The climate is ideal for *Camellia* species. We have an altitude of 500 m (1640 ft) and there is little frost. Minimum temperature in early mornings in winter rarely drops below –1°C (30°F). We have only seen snow in this area twice in our lifetime. In the 1950s when we had 5 cm (2 inches) 1 year, and 1.3 cm (0.5 inches) 2 years later.

PROPAGATION

Propagation commences mid-December (early summer) and continues until we have stuck approximately 200,000 cuttings. We have a small crew doing this each year working 5 days a week. All propagation must be completed by the end of January. All cuttings are grown in Hiko tube trays of 40 cells for *C. japonica* cultivars and 67 cells for *C. sasanqua* cultivars because of the small leaves and shortage of bench space. If we had more space we would use the 40-cell trays for all cuttings.

Pretreatment of tube trays is required if they are to be used more than once. This is best done before the commencement of propagation by dipping in a strong disinfectant or by putting through a pot washing machine designed to wash trays.

All benches in the glasshouse and preparation room and all areas where cuttings are likely to contact disease are also treated with strong disinfectant prior to cuttings being placed in the glasshouse. The propagation growing mix consists of Canadian peat and course perlite (from an Australian source) (1:2, v/v), 3 kg m^{-3} Osmocote, 400 g m^{-3} superphosphate, and 240 g m^{-3} Micormax. The substrate components are mixed in a tumble mixer and water is added during mixing until the substrate is damp but not wet. The trays are filled direct from the mixer, and watered to fill air spaces in the mix. They are then transported to the propagation room for planting.

Cutting Preparation. All cuttings are cut from large trees (mother plants) planted in the field or large tubs (large containers) kept within the shade area, these plants are all kept for this purpose. Cuttings are about 10 to 15 cm (4 to 6 inches) in length, and are kept cool in the shade and transported to the preparation area as soon as possible. They are sprayed with water and stored in a cool area. All cuttings are semihardwood with a light brown area extending 20 mm from the base. The cuttings are prepared by removing only enough leaves to allow them to stand in the propagation mix alone; the base of the cutting are slightly wounded on one side about 20 mm long. The cuttings are then dipped in Rite–Gro rooting powder No. 3 (12,000 ppm IBA), stuck in the propagation mix, and moved to the glasshouse as quickly as possible.

Propagation House Conditions. The glasshouse is set out with benches heated by electrical cables in a bed of sand. Temperature is maintained at 25°C (77°F) — utilizing thermostats on each bench. Temperature can be increased at greater cost. One year we had a thermostat break down and this was not observed until the temperature reached 32°C (90°F) with no ill effects, and a faster growth rate of roots. The electrical cables are turned on immediately after cuttings are placed in the glasshouse, regardless of the ambient outside temperature.

Above the benches is a mist irrigation line, which is activated by a time clock system. The mist spray is adjusted to suit the weather each day. On very hot days the mist will activate every 6 min for 10 sec, but if the temperature and light drops, the mist is adjusted to 8 to 10 min, or longer during long periods of inclement weather. The mist is maintained during daylight hours until the plants are rooted and removed for potting.

Callus is usually observed within 14 days and rooting occurs within 30 days. We commence potting into 10- or 14-cm pots in about 10 weeks. The potting time can vary depending on light fluctuation caused by variation in weather. Because of the fertilizer in the cutting mix, plants can be left in the tubes for up to 6 months without ill effects.

Camellia Cultivars and Potting-up. We grow about 450 cultivars of camellias, consisting of 320 cultivars of *C. japonica*, 60 cultivars of *C. sasanqua*, and the rest are hybrids including about 10 other species. We can have some variation in rooting time and rate of rooting. We have about a 90% rooting success, but cuttings can deteriorate if left in the tubes longer than necessary.

The irrigation supply is from a dam on the nursery, and all run–off is drained back for re-cycling. All water is treated with chlorine and a liquid disinfectant is added to the water for the mist system to control algae growth on the misting heads.

All plants are potted into 10- or 14-cm pots. From the following November (spring) we sell plants in 10-cm pots to other nurseries throughout Australia for further growing on in their area, as transport of larger sizes to other regions in Australia is costly. The following year we sell plants in 10-cm pots and other sizes to major chain stores. We grow all sizes up to 25-cm pots. Any plants grown above this pot size are grown by other nurseries.