

## Propagation of *Bougainvillea*<sup>®</sup>

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*Bougainvillea* is in the family Nyctaginaceae. The genus is comprised of 14 species of shrubs or small trees native to tropical and sub-tropical South America. Known as an evergreen woody scrambler (not a climber), with thorns enabling the plants to scramble over support. Leaves are alternately arranged on the stem. True flowers are cream and surrounded by three large, very showy bracts, which give the plants their decorative value, and occur in all colours, except blue.

*Bougainvillea* responds to feeding, watering, and hot weather and thrives on neglect. *Bougainvillea* can be planted exposed to salt-winds, they also thrive inland in hot, dry conditions, and in cooler areas in selected and sheltered sites.

*Bougainvillea* can be grown into trees, clipped to form hedges both small and large, grown as topiary, or espaliered. They can be grown as a standard, a ground cover, be multi-planted to create a spectacular flowering flowing massed effect, in hanging baskets to create the “wow” factor, or even be manicured into bonsai.

### PROPAGATION METHODS

Propagation of bougainvilleas can be achieved by a number of methods:

- Seed
- Grafting and budding
- Marcotting (air layering)
- Layering
- Cuttings

**Seeds.** Many taxa of bougainvilleas are sterile and very little research and development has been carried out — some self-seeding has occurred in North Queensland due to the hotter climate. The progeny results are variations of purple bracts with no improvements to existing cultivars. Genetic manipulation is the subject of ongoing research, especially in India. Seed propagation is of no commercial value, except for the possible production of new, smaller growing selections.

**Grafting and Budding.** Budding and grafting can be successfully used to propagate bougainvilleas. Three grafting methods that have been used are: approach, wedge, and whip and tongue.

Very little budding or grafting of bougainvilleas is done in Australia, but good examples can be seen in Asia where multiple cultivars are placed onto single rootstock to create topiary. Side veneer is another variation, with the stock cut and scion placed in larger side areas.

**Marcotting.** Marcotting, also known as air layering, was useful for plants that are difficult to propagate or where larger plants are required immediately. The technique is to select stems of pencil thickness, place a cut partially into the stem below a node, then dust with rooting powder and place something into the cut to keep it open, about a 2-mm gap. Wrap a generous amount of moistened sphagnum moss around the cut, then wrap the whole area in plastic and tie each end around the branch to keep moist. Roots should appear in about 1 month. The layered branch will need support due to the extra weight. Marcotting is no longer used due to more modern methods of propagation.

**Layering.** This is where a “branch” still attached to the parent plant is placed and pinned down into the soil. The branch has a small cut made below a node to induce roots with the cut made in the direction of the growing tip. This then becomes similar to a cutting, but the branch is still attached. This technique has no commercial value due to more modern propagation methods.

**Cuttings.** There are numerous sizes of cuttings, some may be: too long, too short, too fat, too skinny, too soft, and there’s the other, which is “just right.” The variations of cuttings will result in differing strike rates and in varying times taken. For optimal success I have found a cutting should be up to pencil thickness around 75 mm to 100 mm long with no less than three nodes, sometimes more to achieve the length. Some cultivars don’t produce cutting wood of the desired thickness, e.g., ‘Closeburn’ (syn. ‘Temple Fire’), so thinner wood is used, but make sure to harvest the thickest available wood of the particular cultivar.

The cuttings are prepared with the bottom cut just below a node, with two or more leaves left on but these reduced to half size. Show particular care in the bottom. The secateurs should be positioned with the cutting blade facing the cut, to produce a clean cut and reduce tearing of stem cells. If tearing or damage is done to the base of the cutting, this has to be cleaned up when taking off the side slice. The side slice involves taking off the bottom bud with a sharp knife. When this procedure takes place, immediately dip the cutting in rooting powder containing 16 g·kg<sup>-1</sup> IBA. To me it’s important to dip immediately, as when the cut is made the wound is open and there’s moisture and no sealing or drying has taken place. I feel the active ingredient in the powder will have more effect on producing roots.

The cuttings are then stuck. Cuttings are dibbled into 50-mm tubes that have a mixture of 3 perlite : 2 peat (v/v), with a slow-release tube fertilizer added. All tubes and trays have been washed in a copper sulfate solution. No sand is used in the mixture due to our prevailing drought conditions. The river has not been flushed and salt water is further up stream and on the coastal strip, so there is no quarry sand that is clean.

Immediately on planting, trays are watered to prevent drawing of moisture from the cuttings by the mix.

All cuttings are done at night. The next morning cuttings are placed into the propagation house, an igloo 6 m wide by 21 m in length covered in cellodim plastic sheeting. The house has a fall end to end of 5%; this enables control of hot air. As long as the bottom of the vent on the high end is higher than the top of the vent on the lower end, air movement is controlled. The house has no misting or fogging, and no bottom heat. The floor is constructed of approximately 75 mm depth of gravel, covered with black plastic sheeting and weed matting.

The benches are constructed of one concrete Besser™ block high with mesh benching covered in black plastic. The trays are hand watered each morning and only on very hot days is additional water applied for cooling. I believe too many propagation houses are kept too wet and too dark. Cuttings strike in around 15 days, but are kept in the house longer for a stronger root system to develop. Bougainvilleas are a cranky crop at this early stage. Strike rates are usually very high, even up to 95%. Not all taxa produce good strike rates.

Maybe some or all the methods and conditions are not necessary, but this is doing it “MY WAY”!!

I worked and trained under the late Mr. Paul Sorenson, “The Master Gardener,” and part of his teaching was saying as follows: “Pay full attention to small detail for perfection, but perfection is no small detail.”