

## Asexual Reproduction of *Wisteria* by Root Cuttings

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### INTRODUCTION

*Wisteria* is a genus of woody, twining climbers belonging to the family Leguminosae. About six species are commonly cultivated. The best known are the Chinese (*W. sinensis*), the Japanese (*W. floribunda*), and the American (*W. frutescens*). *Wisteria* is commonly planted for training over trellises, doorways, or porches and also looks good as standards and in pots. They bear showy hanging racemes of pea-like blue, pink, white, or violet flowers during spring. *Wisteria* taxa are deciduous vines, some species produce canes up to 30 m in length, which are long enough to reach across a large house! The leaves are compound having 7 to 19 leaflets. The fruit is an elongated pod which is toxic. *Wisteria* species do well in most climates and should be planted in areas of good drainage. Mulch should be added to the soil in summer to prevent the soil from drying out.

### PROPAGATION

*Wisteria* species can be propagated in a number of ways. They can be grown from seed, soft or hard wood cuttings, layers, and root cuttings. Root cuttings are not the most common method to produce new *Wisteria* stock but can be very effective. Root pieces also have nitrogen-fixing nodules which enable nitrogen that is absorbed from the atmosphere to be used by the developing plant.

Root cuttings are much like stem cuttings except that the root, or part of it, is used rather than the stem. The best results with root cuttings are obtained if root pieces are taken from young stock plants in late winter or early spring, when the roots have adequate stored food but before the new seasons growth begins. A few small pieces can be chopped from the roots without greatly disturbing the stock plant. However, the usual method is to dig up the entire plant, cut the roots and either replant the remainder of the old plant or throw it away. If it is to be replanted the foliage must be cut back so that the reduced root system can cope with transpiration demands.

One of the main advantages of asexual propagation is that the new plant has the exact physical characteristics of the parent plant. However with root cuttings care must be taken to ensure that the original plant wasn't grafted onto a rootstock. In this case you would need to use stem material from above the graft to obtain cuttings true to type.

Once the roots are exposed they need to be carefully inspected for any damage or disease; poor quality material should be discarded. The remaining healthy material is then cut up into lengths of about 10 cm with a flat cut at the top and a slanted cut at the bottom end of the cutting, to easily determine proximal and distal ends. The distal end of the cuttings should then be dipped into hormone powder which consists of 4000 ppm IBA plus 2000 ppm NAA.

The propagation medium used was 15 cm of our standard potting mix in a polystyrene box, to ensure sufficient depth to accommodate the cuttings, with a 3-cm layer of grit spread on top to assist drainage. The cuttings were pushed into the

mix vertically, up to natural soil level, with the proximal end upright to maintain polarity. The cuttings were then placed in the propagation igloo.

The cuttings take about 6 to 8 weeks to shoot. The root pieces will develop by first producing an adventitious shoot.

### **GROWING ENVIRONMENT**

The propagation igloo used has state-of-the-art equipment to provide an optimum growing environment for plants. The environment in the igloo is controlled by a computer which monitors temperature and humidity levels. The control box makes the necessary adjustments to ensure that temperature and humidity are kept within programmed levels by triggering off the exhaust fans and/or foggers when required. The igloo also has internal shade screens which block out 70% of sun light when closed or act as a blanket to reduce heat loss at night. Over summer we also put over an external cover of white shade cloth to block out excess sunlight and heat. On the benches we have electronic heat mats which provide a constant bottom heat to the propagation medium.

There are three full-time staff in the igloo who all work under strict hygiene protocols to reduce any chance of disease. These include: stepping into a footbath of biocide solution before entering the igloo to avoid walking in any diseases, washing all tools and work benches before use with biocide, washing down benches with biocide solution after moving stock, and regularly sweeping and hosing the igloo out. These protocols ensure that: the igloo is always kept clean and tidy, space is used efficiently, and that our excellent productivity (strike rates) is maintained.