

Ptychosperma Macarthurii

Rhapis excelsa — Often misspelled *Rhaphis*, or confused with *Raphia-fuffia* of Madagascar

Phapis humilis

Rhopalostylis sapida

Rhopalostylis baueri var *cheesmanii* — Often sold as *Seaforthia* in Auckland.

Syagrus weddelliana — confused with *Cocos plumosa* and (Syn. *Cocos weddelliana*)

Trachycarpus fortunei — has been named *T. excelsa* and *Chamaerops excelsa*.

Washingtonia filifera — has been confused as *W. robusta* and *Pritchardia filifera*.

REFERENCES

Lord, E.E., Shrubs and Trees for Australian Gardens.

McCurrach, Jas C., Palms of the World.

Mowry, Harold, Native and Exotic Palms of Florida. Buletin 228.

PRODUCTION OF *ULMUS PROCERA* 'VAN HOUTTEI' BY CUTTINGS

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The golden elm, *Ulmus procera* 'Van Houttei' is native to southern England and has been used in their landscape being a good contrast planted amongst other types of trees. An established tree is resistant to wind, drought and excessive moisture. This tree is a difficult subject to produce but is worthwhile as it is a popular garden plant. Up until 1971 we used to root-graft elms with an 80% success rate. They were grafted by the whip and tongue method onto roots of 2 year old *Ulmus parviflora* seedlings. They were tied with raffia and planted *in situ* in the field where it was important to bury the graft union below ground level to prevent dehydration. Plants were saleable in 1 to 2 years from grafting.

In 1971 trials were made producing them from softwood and hardwood cuttings. For softwood cuttings half-ripe tips and firmer stems were used dipped in various hormones. The results were: with 0.37% NAA, 60% rooting; 0.6% IBA, 70% rooting; a 50/50 mixture of 0.37% NAA and 0.8% IBA, 75% rooting; Rootone C, 50% rooting; 0.125% IBA liquid, 50% rooting, and no hormone, 5% rooting. We now use the mixture of NAA and IBA on tip cuttings. For hardwoods, heavier wood was used, with a 70% take using 0.8% IBA; 40% rooting with 1% IBA; 50% rooting with the mixture of IBA and NAA; and 5% rooting with no hormone. We now use 0.8% IBA, with an average take of 60%+ over the years. Both methods have proved successful as they are

less costly to produce and require less skill than grafting. With grafting, one person can do 300 to 400 per working day, compared to 1200 and 800 per day for softwoods and hardwoods, respectively.

Method 1 — Softwood cuttings: The stock plants need to be grown in a sheltered area to produce strong healthy cutting material. The cuttings are collected from November to late December (late spring to mid-summer) when the wood is firm and about 4 mm thick. They are put into plastic bags, lightly misted over, the bags sealed and kept in a shady, cool position until taken to the propagation shed. There they are put in the cool store at 10°C to remove the field heat. Particular care must be taken not to crush or bruise the leaves through the various stages, as leaf damage can result in the loss of the crop. Before the cuttings are made the material is dipped in a captan solution of 85 gms per 14 litres of water, then drained. The cutting is cut to 150 mm long under a node; the lower leaf is removed and the remaining leaves trimmed where necessary. It is lightly wounded and dipped in the mixture of NAA and IBA powders. They are set in plastic trays in a 3-2-1 sawdust/peat/sand medium. The foliage is kept moist at all times before they go into the poly house as they dehydrate very quickly.

In the house it is imperative to have very close conditions; that is, high mist, no air movement and very heavy shade initially. Extra shade can be applied by hanging black sarlon cloth over the crop. Bottom heat is maintained between 20° and 25°C. Good hygiene is required, removing any fungus as it appears and applying fungicide and insecticide sprays fortnightly. Rooting takes 6 to 8 weeks with a 70%+ strike. Care must be taken hardening off, beginning when the root initials start, doing it gradually over a 3-week period.

When rooted the cuttings are potted into a PB1, returning them back under mist or similar conditions for four weeks. Once again, care must be taken hardening off before shifting into shade. It is necessary to keep the plants growing through the summer and they should be 50 cm to 1 meter high by autumn. Being this size, overwintering losses will be minimal. In the spring the cuttings are field-planted where they will remain for two years during which time they are staked, tied, and trimmed to get a 2 to 3 meter branched tree. This type of cutting tends to make a smaller, more branched plant than those started by hardwood cuttings.

Method 2 — Hardwood cuttings: For hardwood cuttings a sheltered site needs to be selected and the ground prepared during late summer to autumn. The soil is treated with chloropicrin at 368 litres per hectare, then it is fertilised two weeks later

with "Osflo" (chicken manure, and timber shavings) at two tonnes per acre. Sheets of black polythene mulch is then laid for the cuttings.

Wood between 1cm and 2cm is collected from the previous summer's growth in mid-winter when it is dormant and fully matured. The cuttings are made 20cm to 26cm long, wounded and dipped in 0.8% IBA powder. Holes are punched through the polythene 12cm by 12cm apart, and the cuttings set through these, pushing the base 8cm into the soil. Make sure the polythene does not stick to the base of the cutting as this seals them off and they generally die. It is beneficial if the cuttings can be covered with a temporary shade house as this protects the spring growth from the wind and sun.

During the season the cuttings require plenty of irrigation. This is especially so in the spring when they come into growth as they may not all be well rooted enough to support the leaf growth. They need to be staked and tied to produce a good straight leader; some trimming of lateral growth and multiple leaders is needed. Weed control is important to reduce competition with the cuttings as is pesticide control to produce healthy plants. These cuttings should reach a height of between 135cm to 370cm rods by the next autumn with a 60%+ take. The larger plants can be sold as rods (whips) the next winter and the rest as branched plants the following year.

CONCLUSIONS:

The main advantage of softwood cuttings is that less stock is required. The disadvantages are they require more costly propagation facilities and have to be potted; extreme care is required at every stage of handling.

The advantages of hardwood cuttings are that they are less costly to produce being grown outside; a more robust plant is developed and the plant is saleable sooner. The disadvantages are that a lot of stock is required and there are physiological factors involved which are beyond the nurseryman's control.

We produce elms by both methods as it is a safeguard against one crop failing and less cutting material is required at any one time.