placed under intermittent mist, in 2 peat/1 sand mixture with a bottom heat of 70°-75°fi. These rooted well and made good growth in the first year

Group 2 — (Japanese cherries 'Kanzan, 'Tai-Haku-Zakura', etc.) — taken in July as semi-ripe cuttings; the cuttings were wounded, treated with Seradix 3 and inserted as above. Rooting was good but extension growth didn't occur until the following year.

Andy Leiser asked why cuttings were used rather than budding, to which the speaker replied that in Ireland there was no expertise for tree budding, it saved purchasing stocks and, in practice, the time scale to tree production was no greater. Dr. Lamb also indicated that he had not yet worked with virus-free material.

Peter Vermeulen observed that he had taken *P.* 'Kanzan' cuttings in June, used the Propacon system and achieved 18-21" plants by the end of the season.

PRODUCTION OF GARRYA ELLIPTICA

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With increasing demand for this plant within the trade, it was decided to adjust our production programme so that a saleable plant of acceptable size could be produced in one season instead of the traditional time of 18 months. To do this, we analysed the plant from the first principles; its propagation, subsequent production, and growth behaviours.

PROPAGATION

There seems to be no difficulty in rooting this subject if normal procedures and precautions are taken.

Preparation of Cuttings. Cuttings are collected, prepared and inserted from late summer through November. Tip nodal cuttings, 3-4 inches long, or strong side shoots with a heel are used, ensuring, with both types, that the terminal bud has developed. Avoid thick, vigorous "water shoots." Wounding is optional; if carried out then a light wound should be made, 1 inch long. Deep wounding will often result in loss of the cutting due to fungal infection. Seradix No. 3 (0.8% I.B.A.) is applied to the base of the cuttings. Bottom heat (68°F - 70°F) was given and within six to eight weeks rooting should take place.

Compost. This should be very well drained; we would suggest 60% peat, 40% ¼ inch crushed grit (sharp angled grit, *not* pea grit). Sand will fill in the pores of the peat, making it poorly drained.

Conditions Under Mist. Reduce the incidence of mist to a minimum; i.e. turn off at night and manually operate during dull, overcast days. Keep cuttings from the direct rays of the sun as they easily scorch; therefore shade that part of the mist unit.

Excellent results have been obtained in rooting by just applying bottom heat and covering the cuttings with 100 gauge polythene film.

Apply a systemic insecticide to overcome sclerid fly larvae infection, if necessary; the regular use of a fungicide is also desirable.

PRODUCTION

Systems preventing root disturbance. The greatest problem with producing this plant is that it reacts unfavourably to root disturbance and it is to this point that special care and attention is required.

We have tried a number of methods to lessen root disturbance during the propagation stage. Jiffy 7's and 2'' Jiffy pots have been used, each of these having the disadvantage of being costly and reducing the number of cuttings per square foot of propagation area. Jiffy 7's gave poor rooting results, which we think was due to their poor drainage qualities.

The BLOXER SYSTEM still gives us the best results. This is a system using a jig which weaves a 2'' polythene strip into a honeycomb design which fits into a standard seed tray, giving 40 or 60 separate compartments per tray. These compartments also add to the drainage of the compost.

Over Wintering. Once rooted, remove trays from propagation area and stand down in a cool house with a minimum night temperature of 40°F, keeping them as dry as possible. *Garrya* adapts itself to drought conditions very well. If kept wet and cold the rooted cuttings will damp off very quickly.

Potting Off. Wait until the rooted cuttings finish their first spring growth flush. This first extension growth should be limited to a minimum, therefore water sparingly and the young growth will soon harden up, developing a terminal bud. To pot off during "full flush" is not recommended. The whole plant is under stress; it is physically in a very vulnerable condition and the roots are fully active supplying water to the extension growth to maintain turgidity. To disturb the plant at this stage is to damage the extremely brittle roots resulting in the young growth collapsing,

turning black and dying. Very rarely does the plant recover from this shock.

To succeed at this stage, it is vital that one only handle the rooted cutting when the demand on the root system by the leaves is at a minimum.

At this stage the rooted cutting can be roughly handled without undue harm and can, with confidence, be potted directly into its final container, i.e. 6¼ inch. During this operation, we pinch out the terminal bud, ensuring a well-balanced plant with 2-4 shoots. At the end of the growing season plants are at a saleable size of 2 feet and also well-branched.

Growing on. Once potted, the plants are placed pot thick in a 14' x 60' polythene structure. The day temperature is allowed to get quite high before ventilating, keeping the humidity high. The plants respond well to this treatment. The polythene is taken off in July allowing sufficient time to harden up. No liquid feed is given as it did not seem necessary.

Potting Compost. Naturally Garrya will thrive in poor sandy soil. It is a plant that does not need high levels of nutrition and as long as it is supplied with sufficient water it will produce strong vigorous growth.

Potting compost used was:
70% peat, 20% loam, 10% ¼'' crushed grit
5 lb. John Innes Base fertiliser per cubic yard.
3 lb. crushed limestone per cubic yard.

Garrya will suffer from root scorch if the compost contains a high level of fertilizer — in particular readily-available nitrogen.

CONCLUSION

To be successful in producing *Garrya* plants one has to treat it with respect and as an individual Its needs must be fully understood. It is a plant that will not tolerate standard production techniques which a wide range of shrubs will, i.e standard propagating and potting composts, propagation procedures, potting off times and hard handling, etc.

Garrya elliptica will tolerate:
Arid conditions — low fertility.
Well-drained sandy soil.
Drought conditions.
A wide range of soil pH.

It will not tolerate:
Root disturbance when actively growing
High fertility, which causes root scorch and death

Once the plant is established it will then grow away with vigour, if supplied with water and warmth. By carrying out the procedures described in this paper, a profitably saleable plant can be produced, with minimum losses, within 10 months.

Discussion

John Gaggini inquired as to the effects of pinching *Garrya* plants when growth was still soft rather than awaiting the end of a growth flush. Arthur Carter indicated that only about 50% of the shoots broke, the remainder produced only a continuing leader shoot. Bernard Van Elk explained that they had a similar problem with hibiscus in Boskoop.

PRELIMINARY TRIALS WITH PULVERISED PINE BARK AS A ROOTING MEDIUM

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INTRODUCTION

In September, 1970, Mr. J. R. Aaron of the Forestry Commission visited Wisley and asked if we could use pulverised pine bark experimentally for various purposes around the garden and offered a generous consignment of the material to enable us to assess its merits. Some of the uses were fairly obvious and these included mulching, plunging material and inclusion in growing composts for orchids and bromeliads; its use as a rooting medium was less obvious although it has the physical properties needed in cutting composts. It is capable of retaining moisture, although absorbing somewhat less than peat, and it drains off any surplus water rapidly, thus remaining well aerated.

Pine bark is available in large quantities from felled timber and not many years ago was regarded as a waste product not easily disposed of; now, in its pulverised state, it is proving a very useful commodity in horticulture. It lacks any readily available plant food and can create nitrogen deficiency if mixed in the raw state with soil. This food shortage is not an important factor whilst cuttings are rooting and can be corrected by applications of liquid feed or compensated for by foliar feeding when this is necessary. Although the pH of the material is not specifically stated in Forestry Commission literature, a sample tested at Wisley gave a reading of pH 5.5, nicely on the acid side and very suitable