8. Department of Primary Industry, Forestry Branch, 1983. Australian Forest Resources 1982 (Australian Government Publishing Service).
9. Guest, D. 1984. Modification of defence responses in tobacco and capsicum following treatment with Fosetyl-Al (Aluminium tris (o-ethylphosphonate)). *Physiol. Plant Path.* (in press).
10. Hartney, V.J. 1980. Vegetative propagation of the eucalypts. *Aust. For. Res.* 10:191-211.
11. Hartney, V.J. 1982. Tissue culture of *Eucalyptus*. *Proc. Inter. Plant Prop. Soc.* 32:98-109.
12. Knauss, J.F. 1976. A tissue culture method for producing *Dieffenbachia picta* cv. Perfection, free of fungi and bacteria. *Proc. Fla. State Hort. Soc.* 89:293-296.
13. Knauss, J.F. and J.W. Miller 1978. A contaminant, *Erwinia carotovora*, affecting commercial plant tissue cultures. *In Vitro* 14:754-756.
14. Marien, J.N. 1984. Personal communication. Centre Technique Forestier Tropicale.
15. Midgley, S.J., J.W. Turnbull and V.J. Hartney, 1984. Fuelwood species for salt-affected sites. In: Forage and Fuel Production from Salt-Affected Wasteland. ADAB Seminar,1984 (in press).
16. Morris, J.D. 1982. Screening ornamentals trees and shrubs for salt tolerance. *Australian Salinity Newsletter* No. 10:47-48.
17. Thomson, L.A.J. 1981. Salt tolerance in eucalypts. *Australian Salinity Newsletter* No. 9:73.
18. Williames, G. 1982. A revolution in the nursery; G. Williames (Aust.) Pty. Ltd., 61 Victoria Street, Warragul Victoria.
19. Wolf, L. and V.J. Hartney, 1984. A computer system to assist with management of a tissue culture laboratory. *(In Preparation).*

OUTDOOR PROPAGATION ON HEATED BEDS

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Canning Plant Farm has about 6.5 hectares of container-grown nursery stock in Perth. Like most nurseries we used to do the cutting propagation in glasshouses and polyhouses.

Whilst in America we noticed that at some of the large nurseries a great amount of cutting propagation was being carried out in the open under mist. The material appeared to be in good condition with no sign of disease. Upon arriving home we decided to try this method.

The selection of the site was most important as we soon found out, as under our conditions the winds were quite severe. The hot Western Australia summer also caused some problems.

It was necessary to choose a site which was well protected

from wind. We chose one which was occupied by an existing tunnel, which proved to be ideal. It was protected from the wind by a fence on one side and another tunnel on the other. The plastic and shade coverings were removed from the tunnel but the frame was retained.

Bottom heat was provided by laying 25 mm poly-pipe along each bed 450 mm apart. These were then covered with 14 mm diameter blue metal to a depth of 50 mm. This provided a well-drained even base for pots and trays. Hot water was circulated through the pipes at 60°C, giving a temperature in the trays of 20 to 25°C.

A mist system was installed by suspending 25 mm. plastic pipes from the tunnel frame. The misting nozzles were drilled directly into the pipe at 1.2 m intervals. This system gave a very good coverage. During the hotter months of summer the frame is covered with 70% shade cloth.

The mist was controlled by a time-clock, which is considered better than a system controlled by moisture sensors, etc. The time-clock has to be adjusted for cloudy, wet, or exceptionally hot days. One of the main advantages of having to reset the clock, or at least check it, means you also inspect the cuttings every day which, of course, is essential. This was also the experience of Monrovia Nursery in California where the system was first observed.

A large range of shrub cuttings have been struck on these beds. These include natives, such as grevilleas, and exotics such as azaleas. Success has also been achieved with some of the hardier indoor plants in summer.

Currently cuttings are being struck from April right through the winter without any protection. The bottom heat appears to prevent any damage from frost and general cold. The greatest benefit gained over glasshouse propagation has been the lack of disease. There has virtually been no disease problems. This method of cutting propagation has meant the costly overheads of glasshouses have been eliminated.