

When taking cuttings off stock plants it is important to bear in mind that more wood is needed next season or sooner. Plants that are slow growing or very woody, i.e. conifers, can easily be ruined by indiscriminate pruning.

No matter how much attention we give our plants, continual removal of new growth will doubtless lead to deterioration. The life expectancy of stock plants will vary greatly among species with some "running out," possibly after four or five years of use, particularly hedged cultivars, while others may serve up batches of cuttings for many years. With this in mind a renewal programme for the stock plants should be considered.

## **FACTORS AFFECTING ROOT FORMATION ON PHOTINIA 'RED ROBIN' CUTTINGS**

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**Abstract:** A discussion group met to consider why *Photinia* × *fraseri* 'Red Robin' was a difficult subject to manage in the propagation and growing-on departments of many nurseries. The stock plant management and history prior to taking cuttings was probably more important than the propagation environment in producing a well-rooted, but not heavily callused plant, provided normal requirements for light, temperature, and water are satisfied.

### **INTRODUCTION**

It has been estimated that each year in New Zealand approximately 80 to 100,000 *Photinia* plants are used by the ornamental plant market and, in addition, further quantities are produced for export. For many years this plant has given inconsistent rooting and has been a difficult plant to train into a suitably branched specimen.

In an effort to "lessen the professional loneliness" (referred to by Dr. Phil Parvin, 1986 International President of I.P.P.S.) that may exist among individuals in the industry and within the International Plant Propagators' Society members, a forum of nursery persons with an interest in this problem was assembled to share their collective experience and see if they could put roots on this new "Aaron's Rod."

## REPORT ON DISCUSSION GROUP

The topic was introduced by a brief review of the factors affecting root formation on stem cuttings. Discussion of the rooting environment, cutting treatments, and plant factors were the focus of attention.

Few reports in the literature attempt to deal with propagation environment on rooting of *Photinia*. Laiche (7) reported that cuttings rooted equally well in soilless and soil-based propagation media. The most highly branched plants developed in media containing some clay, which is interesting as most growers in New Zealand use entirely soilless media. Invariably propagators were using some form of misting and reported that soft cuttings were particularly sensitive to moisture stress. This frequently resulted in a substantial defoliation similar to that occurring in rooted plants (8).

The band-aid type treatments that have been used to promote root formation are extensive. Ticknor (10) and Dirr (1) working with *Photinia* × *fraseri* reported that liquid auxin treatments generally produced better results than powder treatments. A closely related plant, *Heteromeles arbutifolia*, responded in the same manner (2). Wounding is often used to increase the number of cuttings rooted and increase the number of roots produced; this may take the form of either a light wound through to the more severe wounding by splitting as reported for apples (5). Plant factors, such as the type of wood, and seasonal effects were also considered. It was unanimously agreed that the wood should be as young as possible. There was, however, some variation expressed by propagators in the maturity of the ideal propagation wood, although there was agreement that the very soft bright red was difficult to maintain.

In the introduction some slides were shown that highlighted the difficulty of promoting root growth at the expense of callus growth on the base of cuttings. In some years this problem is sufficiently serious that propagators spend much valuable time lifting heavily callused cuttings, often retreating with auxin, resetting, as reported by Greever (3), and waiting to see if roots will eventually form.

Substantial variation in the speed of rooting suggested there may be important clonal differences or virus accumulation (4) worthy of further investigation.

Producing a suitably branched plant is still a challenge for many nursery operators; some ideal plants with 4 to 6 lateral shoots were on display. These had been produced by pruning back new shoot growth to the point where the nodes were tightly compressed; new growth from this region was usually most productive. Growth regulators have also been used successfully in New Zealand and overseas to promote shoot formation (6, 9) on photinia plants.

Information shared in the discussion is summarised in the following table.

SUMMARY: FACTORS INFLUENCING ROOTING OF  
PHOTINIA CUTTINGS

Spokesperson:			
Ian Fankhauser	Malcolm Woolmore	Barrie McKenzie	Richard Ware
Location:			
New Plymouth	Auckland	Auckland	Napier
Time of year:			
April–May	Oct/Jan/April	Sept–Nov Jan–Feb	Aug–Sept Mar–May
Type of cutting:			
3/4–4/4 ripe	soft–1/2 ripe	soft	soft
Size of cutting:			
8–10 cm	10–12 cm	15–20 cm	7–10 cm
Number of leaves:			
3–4	2–3	4–5	3–4
Leaf colour:			
green	red	red, some green visible	red with a green tinge
Leaf trimming on cutting:			
light	none	light/ medium	light
Treatments: —IBA.			
0.8% powder	0.1 to 0.3% powder	0.8% quickdip	0.3% liquid dip
—Wounding			
yes	yes	1cm split	yes
Rooting environment:			
—Temperature of media			
25°C	20°C	22°C	21°C
—Humidification (nozzle type)			
mist (Cambrian)	mist (Cambrian)	mist (Sage Hort)	mist (Cameron Cambrian)

—medium				
50/50	90/10	70/30	100 pumice	
peat/perlite	pumice/peat	pumice/peat	or 25/75	peat/pumice
—media-incorporated fertiliser				
none	Plantosan	none	liquidfeed	
Time for rooting (weeks):				
9	3–4	6–8	2–6	
Percentage potted:				
72+	90+	80+	75–80	
Unrooted cuttings reset:				
no	yes (10–20%)	yes (20–30%)	no	
Stockplant source:				
cutting hedge		GOLs and container stock		
Stockplant flowering:				
sometimes	sometimes	rarely	rarely	
Bushy plant production:				
Trim back to just above the rosette			Atrinal— spray 7 days after trimming	

## CONCLUSIONS

This discussion confirmed that many factors can influence the rooting of cuttings. *Photinia* 'Red Robin' proved not to be impossible to root, but rather variable in its performance; this variation was thought to arise from plant factors, rather than differences attributable to cutting treatments and the propagation environment. The plant factors should be investigated further, including stock plant management, identification of clones with superior rooting, and branching characteristics.

*Photinia* × 'Red Robin' is a New Zealand-raised selection considered to be a hybrid between *Photinia glabra* 'Rubens' and *Photinia serrulata* that originated in Masterton.

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## METHODS AND TIME OF BUDDING FOR PEACH NURSERY TREES

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**Abstract:** The relative success of T-budding, with and without "backwood", and of chip budding were compared at four different times for the production of peach nursery trees. Early budding resulted in the highest bud takes. There was no significant difference in success among the three methods. Budding was unsuccessful for the last budding time, regardless of whether chip budding or T-budding was used.

### INTRODUCTION

In cool temperate areas the period available for T-budding peaches is restricted by the time taken for the seedling to attain sufficient girth and the limited period in which the bark will lift to allow bud insertion.

Extension of the budding season is potentially possible by the use of chip budding where there is no requirement for the bark to slip. Howard (4) suggests that a major advantage of chip budding over T-budding occurs where the post-budding period for cambial activity is limited (e.g. in England). An extension of the budding season for apples by use of chip budding is reported by Howard (4) but best results were attained during the period normally associated with conventional T-budding. Successful employment of