

LEAF-BUD OR SIDE-GRAFT NURSE GRAFTS FOR DIFFICULT-TO-ROOT RHODODENDRON CULTIVARS¹

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Abstract. The leaf-bud and side-graft methods were compared as methods for propagating rhododendron cultivars on unrooted nurse rootstocks in outdoor mist-beds in summer. No significant differences in grafting percentage were found between the methods nor did either method show inhibitory effects of scions on rooting of nurse rootstocks. Both methods produced plants within 10 weeks.

INTRODUCTION

The practice of placing a scion on an unrooted cutting, then rooting the cutting under intermittent mist while the graft union heals is not new. It was reported to this Society many years ago (1,5). Leach reported grafting difficult to root rhododendron cultivars in early summer on greenwood (3). He found early July or late June to be the best times. More recently Howard (2) demonstrated the modified chip bud method to propagate fruit trees and shade trees. The method was reported to be more successful than the conventional "T" bud.

It was decided to try the modified chip bud method on rhododendron, using a leafbud in early summer. The method was compared to conventional side graft and both were done on unrooted cuttings of *R. × 'Cunninghams White'*. Since Lee, et al. (4) reported a retarding influence of difficult-to-root scions on easy-to-root cuttings where they were used as stock plant cuttings, rootball diameter of stock cuttings was measured.

The potential advantage of using a leaf-bud scion on an unrooted rootstock is that one could propagate budwood of a new cultivar when it was in bloom. The new plants would be available within a few months. It is often difficult to relocate a plant after the flowers have fallen and one cannot be sure the correct plant has been propagated for several years. It is also not always possible to propagate a new cultivar by micropropagation until specific formulae are determined.

PROCEDURE

Unrooted cuttings of *Rhododendron 'Cunningham's White'* were used as rootstocks. All cuttings were 4 in. (10 cm) long and had five leaves which were reduced by half. Cuttings were wounded on

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two sides and treated with a 5 sec dip in an IBA/NAA solution (1% 0.5%, respectively) diluted to 1 part to 3 parts of water. Scions were either a leaf and bud inserted at the point opposite the lowest leaf on the cutting by the modified chip bud method as described by Howard (2), or a standard side graft also placed opposite the lowest node on the stock plant. In both cases leaves of scions were not cut. All scions were wrapped with waxed grafting string. Cuttings and scions were identified by marking one leaf with a sample number using indelible ink. All treatments were replicated three times with five samples per replicate. The control treatment consisted of ungrafted cuttings. Cultivars compared were 'Dr. H. C. Dresselhuys,' 'Goldsworth Yellow,' and 'English Roseum'. All cuttings were placed in an outdoor ground bed in a medium of sphagnum peat-moss and medium grade vermiculite (1:1, v/v). Mist was applied at 6 sec/6 min and bottom heat was maintained at a minimum of 65°F. The bed was shaded with saran to provide 51% shade. All grafts and ungrafted cuttings were harvested after 10 weeks and average root-ball diameter was measured. At this time foliage of the nurse stock was removed to force the grafts to grow. The plants were then placed in flats (11 cm deep) and placed in a heated greenhouse at minimum temperatures of 65°F. After 4 weeks the percent of successful budded plants or grafted plants was recorded and correlated to rootball development.

RESULTS

Percentages of budded and grafted plants were 46% for the leaf-bud and 42% for the side graft. There was no significant difference in percentage takes between the two methods. There appeared to be no difference in average rootball diameter between ungrafted cuttings and those with leaf-bud grafts but there does appear to be larger rootballs on plants with side grafts. This can be explained by increased leaf area on those plants due to the addition on the leafy scion. There was no evidence of retarding effects of scions of difficult to root cultivars of 'Dr. H. C. Dresselhuys' or 'Goldsworth Yellow' but there does appear to be a slight stimulus from scions of 'English Roseum'. It is assumed that an experienced propagator would get a higher percentage of takes than were obtained here since the personnel doing the work had limited experience in grafting.

The method can be used by anyone with limited skill in grafting. There appears to be no retarding effect of scion or leafbud on rooting and obviously if sufficient scion wood is available larger plants can be obtained using the side graft method, but if a new cultivar is desired, the modified chip bud on a nurse cutting could be used to obtain it in a short time.

Table 1. Average diameter of nurse root graft rootball of leafbud or side graft after 10 weeks.

Rhododendron cultivar	Type of Graft ¹		
	Leaf-bud	Side	Rooted cutting 'Cunningham's White'
Goldsworth Yellow	6.2 cm	6.9 cm	5.3 cm
Dr. H. C. Dresselhuys	6.8	7.6	5.3
English Roseum	5.5	9.7	5.3

¹ Rootstock—R. 'Cunningham's White'

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