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Cutting Propagation Screening Trials at University of Rhode Island©

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INTRODUCTION

The University of Rhode Island Agricultural Experiment Station is enthusiastic about introducing new species into the New England nursery industry. In recent years we have focused on propagation and cold hardiness of new or underused woody plants. In 2000 – 2001, 13 species (Table 1) were propagated with a range of hormones and overwintered. Rooted cuttings that are not under patent are distributed to Rhode Island nurseries for evaluation.

MATERIALS AND METHODS

Cuttings were collected from 28 June to 28 July 2001, rooted in a plastic-covered greenhouse in Kingston, RI, (41° 29'N, 71° 31'W), overwintered in a white-plastic-covered hoop house, and evaluated for rooting and survival in June, 2001. Prior to rooting, cuttings were treated with Hormodin 1,2, 3, Hormex 45, or Dip-n-Grow (1 : 4, v/v) or a water control (H1, H2, H3, H45, DNG 1 : 4 and control, respectively), and stuck in peat and perlite (1 : 4, v/v). Cuttings were misted with blue Vibro Mist nozzles (Netafim Irrigation, Inc.) regulated by a Phytotronics 1626D mist controller (Fig. 1). Means are based on four replicates of five cuttings for each treatment. Bottom heat was maintained at 72°F using Biotherm. After rooting, cuttings were acclimated before being moved to a white-plastic-covered overwintering house. Temperatures were recorded in the overwintering house, and reached a minimum of 16°F on 13 Jan. 2001.

Table 1. Species surveyed.

Plant	Common name	Family
Berberis julianae	wintergreen barberry	Berberidaceae
Clethra barbinervis	Japanese clethra	Clethraceae
Corylopsis spicata	spike winterhazel	Hamamelidaceae
Disanthus cercidifolius	disanthus	Hamamelidaceae
Exochorda ×*macrantha* 'The Bride'	pearl bush	Rosaceae
Heptacodium miconioides	seven-son flower	Caprifoliaceae
Magnolia denudata	Yulan magnolia	Magnoliaceae
Magnolia 'Goldfinch'	goldfinch magnolia	Magnoliaceae
Skimmia japonica subsp. *reevesiana*	Reeves skimmia	Rutaceae
Stewartia pseudocamellia	Japenese stewartia	Theaceae
Styrax japonicus	Japanese snowbell	Styraceae
Syringa pubescens subsp. *patula* 'Miss Kim'	Miss Kim lilac	Oleaceae
Syringa meyeri var. *spontanea* 'Palabin'	dwarf Korean lilac	Oleaceae

RESULTS AND DISCUSSION

Wintergreen barberry (not graphed), and Reeves skimmia rooted 100% in all treatments, showing no effects of hormone on rooting or survival. Both lilac species also overwintered quite well, though they rooted better at higher hormone levels. Japanese clethra showed moderate rooting with H2, yet no cuttings survived the winter. Spike winterhazel had best rooting and overwinter survival when not treated with hormone; with any hormone treatment toxicity was apparent and overwinter survival was reduced. While *Disanthus* rooted well in all treatments, H1 yielded the best combination of rooting and survival (generally poor). However, control cuttings looked the best. H1 treatment also produced the best pearlbush cuttings and all treatments survived the winter. Japanese stewartia showed increased rooting and survival with increasing hormone; H2 was the most successful treatment. In contrast, Seven-son flower also rooted better with higher concentrations of hormone, but the same treatments noticeably reduced over winter survival, primarily due to 60% to 80% bark split. Japanese snowbell rooted well at all hormone levels, but also overwintered poorly when treated with higher hormone levels, due to basal stem splitting. In this species many cuttings formed new shoots from the root system. Yulan magnolia rooted and overwintered poorly after defoliation during rooting. Goldfinch magnolia rooted better, but then died over winter and may require minimal heat for overwintering in the northeast.

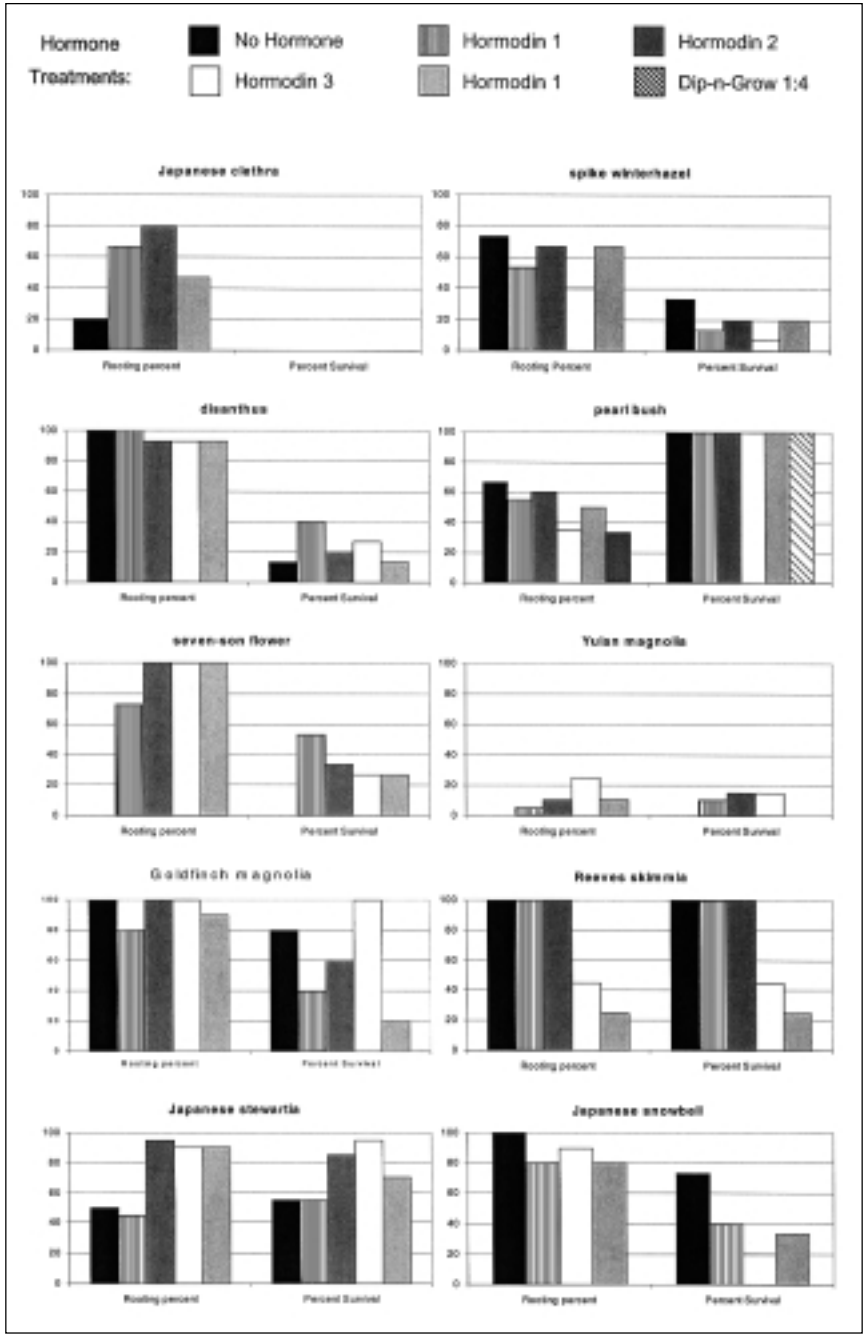

Figure 1. Rooting percentage and percentage overwinter survival for 12 of the 13 species surveyed in 2000-2001.