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**122. © Field performance of three stock sizes of Douglas-fir container seedlings grown with slow-release fertilizer in the nursery growing medium.** Haase, D. L., Rose, R., and Trobaugh, J. *New Forests* 31:1-24. 2006.

## Field performance of three stock sizes of Douglas-fir container seedlings grown with slow-release fertilizer in the nursery growing medium

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**Abstract.** Containerized coastal Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) seedlings were grown with conventional soluble fertilizer and supplemented with one of four slow-release fertilizers (SRF treatments) or unsupplemented (control treatment). Seedlings were outplanted to two sites in 1998. At the time of outplanting, SRF incorporated into the growing medium resulted in larger seedlings with higher foliar nutrient concentrations as compared to conventionally fertilized seedlings. After four growing seasons, SRF-amended seedlings at both sites had significantly greater height, basal stem diameter, and stem volume, with increases up to 19, 21, and 73%, respectively, as compared to conventionally fertilized seedlings. Additionally, three stock sizes were compared at one of the sites. Increasing stock size resulted in increased growth during the first two seasons, enabling larger stock to maintain their size advantage. Seedling responses to SRF are attributed to larger initial size, increased internal nutrient reserves at planting, and continued fertilization after planting.

### Introduction

A key element of reforestation success is the use of high-quality seedling stock that can establish and grow competitively after outplanting. Nursery growers and field foresters aim to achieve 'free-to-grow' status in plantations while being mindful of increasing restrictions on silvicultural tools such as chemical vegetation control and controlled burning for site preparation (Rose and Morgan 2000). The use of slow-release fertilizers (SRF) has gained recognition as an important tool to meet reforestation objectives. Incorporating SRF directly into the growing medium is a relatively new approach to seedling nutrition in container forest nurseries. Until recently, there was concern that placement of fertilizer in direct proximity to the seedling root system would result in toxicity. With improved SRF technology, many nurseries are now routinely incorporating SRF into the growing medium.