Title Growth acceleration and increased out plant survival of Ontario and Ohio grown tree liners

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Abstract

A production system developed at Ohio State University (OSU), Columbus, OH, using retractable roof greenhouses (RRGs) (Cravo Equipment, Ltd., Brantford, ON, Canada) and containerized tree liner production has indicated acceleration of production times when out planted to Pot-in-Pot (PIP) or nursery fields versus conventional bareroot (BR) or polyhouse production. The system also increased cropping consistency via reduced mortalities and showed promise in new market expansion, including higher priced, difficult-to-grow species. In 2004, #3 (trade 3-gallon or 11.4 L) containerized tree liners from RRGs had 0% mortality versus field BR production *Quercus rubra* at 42% after out-planting into nursery fields to grow on as specimen trees. Averaged over species, RRG liners reached saleable size of 50 mm caliper two years sooner than the BR liners (a 40% reduction in production time). In 2006, #3 containerized tree liners from RRG's had 27% mortality versus field BR production at 87% after out-planting to #7 (trade 7-gallon or 26.5 L) containers and harsh conditions in PIP fields. Averaged over species and one growing season, caliper and height of RRG liners were 82 and 84% larger than BR liners, respectively. Recently RRG liners have shown utility in high stress environments along Ontario, Canada highways leading The Ontario Ministry of Transportation to research an optimized planting process including use of RRG's liners.