

# Planting depth affects popular landscape tree

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Landscape trees are increasingly being produced using container nursery systems rather than traditional field production practices. In contrast to field production techniques, successful container production requires a series of transplanting events in which trees are sequentially transferred to larger containers, a practice known as "potting-up" or "up-canning".

Problems can arise when [trees](#) are planted either too deep or too shallow at each up-canning. Variability in planting depth (the location of the root collar relative to [soil surface](#), or grade), is of particular concern; optimum planting depth may vary among species and may be dependent on cultural practices and [environmental conditions](#). A new study investigated transplanting practices during container production of the popular [landscape](#) tree lacebark elm.

"A lack of knowledge about the effects of common transplanting practices may lead to suboptimal performance of planted landscape trees. Our goal was to determine if transplanting practices during container production through two up-canning events would affect subsequent landscape performance", said Donita L. Bryan of the University of Wisconsin-Platteville and corresponding author of the study. Bryan and colleagues from Texas A&M University conducted their experiments on lacebark elm (*Ulmus parvifolia Jacq.*), a landscape tree commonly used in urban environments. The study, published in *HortScience*, investigated effects of planting depth during two successive phases of container production (10.8 L and 36.6 L) and eventual landscape establishment.

The scientists tested whether trees that were initially planted with root collars below grade or above grade, then brought back to grade during successive up-canning or when placed in the landscape, performed as well as trees that were consistently planted with root collars at grade. The experiments also tested whether below-grade planting in containers would exacerbate any adverse effects of below-grade planting in the landscape.

The results showed that tree growth was greater when planted at grade during the initial container production phase and was reduced when planted 5 centimeters below grade. In the second container production phase, trees planted above grade showed reduced growth compared with trees planted at or below grade. During landscape establishment, transplanting at grade to slightly below or above grade produced trees with greater height on average when compared with planting below grade or substantially above grade.

"Correlations between initial growth and final growth in the field suggested that substantial deviations of the original root to shoot transition from at-grade planting was more of a factor in initial establishment of lacebark elm than the up-canning practices associated with planting depth during container production", the researchers concluded.

**More information:** The complete study and abstract are available on the ASHS HortScience electronic journal web site:

[hortsci.ashspublications.org/content/abstract/45/1/54](https://hortsci.ashspublications.org/content/abstract/45/1/54)

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