

We are unable to supply this entire article because the publisher requires payment of a copyright fee. You may be able to obtain a copy from your local library, or from various commercial document delivery services.

From Forest Nursery Notes, Summer 2008

8. © Influence of irrigation method and container type on northern red oak seedling growth and media electrical conductivity. Davis, A. S., Jacobs, D. F., Overton, R. P., and Dumroese, R. K. Native Plants Journal 9(1):4-13. 2008.

INFLUENCE OF
IRRIGATION METHOD AND
CONTAINER TYPE ON

Northern Red Oak

SEEDLING GROWTH AND
MEDIA ELECTRICAL CONDUCTIVITY

Anthony S Davis, Douglass F Jacobs,
Ronald P Overton, and R Kasten Dumroese

ABSTRACT

Container production of hardwood seedlings has not been extensively practiced. Efficient nursery production of hardwood seedlings in containers can be limited by formation of a broad foliar canopy, which limits irrigation uniformity. This study was established to investigate suitability of subirrigation, a method of irrigating seedlings from the container base that relies on rise of water through capillary action, for production of broad-leaved hardwood seedlings. Northern red oak (*Quercus rubra* L. [Fagaceae]) seeds were sown into 4 container types, and seedlings were grown in a controlled greenhouse environment under either traditional overhead irrigation or subirrigation. Media electrical conductivity (EC) was measured at container depths of 1, 5, and 10 cm (0.4, 2, and 4 in) after 57 d. Subirrigated seedlings had significantly higher EC at each depth compared with overhead irrigated seedlings, with a trend of decreasing EC with increasing measurement depth. A significant container type x irrigation method interaction suggested potential for toxic EC levels in some subirrigated containers, which can be alleviated by periodic leaching using clear water to dissipate salts from the top 1 cm (0.4 in). At the end of the growing period, seedling height and root-collar diameter were not influenced by irrigation method or container type, indicating that subirrigation is suitable for hardwood seedling production.

Davis AS, Jacobs DF, Overton RP, Dumroese RK. 2008. Influence of irrigation method and container type on northern red oak seedling growth and media electrical conductivity. *Native Plants Journal* 9(1):4–13.

KEY WORDS

container propagation, ebb-and-flow, hardwood seedlings, flood irrigation, seedling quality, subirrigation

NOMENCLATURE

USDA NRCS (2008)