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Subirrigation for production of native plants in nurseries—concepts, current knowledge, and implementation

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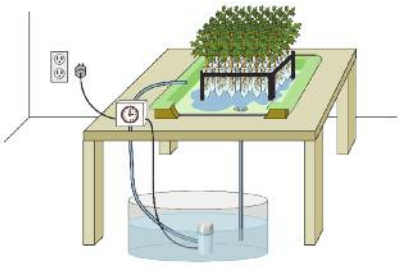

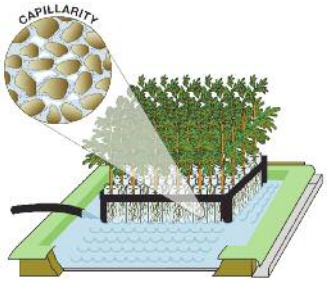

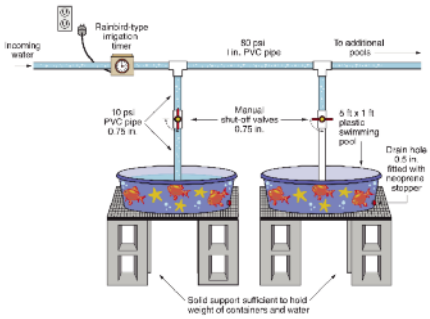

ABSTRACT

Subirrigation, a method whereby water is allowed to move upward into the growing medium by capillary action, has been the focus of recent research in forest and conservation nurseries growing a wide variety of native plants. Subirrigation reduces the amount of water needed for producing high-quality plants, discharged wastewater, and leaching of nutrients compared with traditional overhead irrigation systems. Recent research has shown additional benefits of subirrigation, such as enhanced crop uniformity and improved outplanting performance. With these advantages and successful operational use in some locales, it seems likely that subirrigation would be of use to a greater number of native plant nurseries. In this article, we provide an overview of ebb-and-flow subirrigation technologies including potential benefits, summarize the current state of research knowledge for native plant production, present special considerations for these systems, and offer a basic framework on how growers can implement such a system.

Schmal JL, Dumroese RK, Davis AS, Pinto JR, Jacobs DF. 2011. Subirrigation for production of native plants in nurseries—concepts, current knowledge, and implementation. Native Plants Journal 12(2):81–93.

KEY WORDS

controlled-release fertilization, electrical conductivity, fertilizer-use efficiency, irrigation, nitrogen-use efficiency, water-use efficiency

NOMENCLATURE

Plants: USDA NRCS (2011)
Insects: ITIS (2011)
Fungi: IFP (2011)