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The Influence of Fertilization Regime and Mycorrhizal Inoculum on Outplanting Success

A FIELD TRIAL OF CONTAINERIZED SEEDLINGS IN OREGON

| Tim W Meikle and Michael Amaranthus

ABSTRACT

Mycorrhizal inoculum is marketed as a means of increasing seedling survival, growth, and drought resistance, among other benefits. The production of plant materials colonized by arbuscular mycorrhizal fungi, however, has proved to be problematic due to the lack of integration between biotechnical firms that produce mycorrhizal inoculum and cultural procedures at commercial nurseries. Our research demonstrates that inoculum-compatible fertilization regimes can have significant effects on mycorrhizal colonization rates and plant performance following outplanting. Mycorrhizal inoculum was applied to 5 species (*Ribes aureum* Pursh [Grossulariaceae], *Prunus pumila* L. var. *besseyi* (L.H. Bailey) Gleason [Rosaceae], *Dasiphora fruticosa* (L.) Rydb. [Rosaceae], *Amorpha canescens* Pursh [Fabaceae], *Juniperus scopulorum* Sarg. [Cupressaceae]) grown under a traditional fertigation regime and under an alternative regime consisting of a mix of low phosphorus, slow-release fertilizer. The percentage of seedlings exhibiting mycorrhizal structures ranged from 0 to 20% for the traditional fertigation regime compared with a range of 16 to 92% for the alternative slow-release regime. Following outplanting, seedling survival ranged from 20 to 60% for traditional fertigation regime compared with 65 to 95% for the alternative slow-release regime. This study emphasizes the need to consider greenhouse fertilization strategies in order to effectively produce colonized plant material and to achieve the potential benefits of mycorrhiza under field conditions.

Meikle TW, Amaranthus M. 2008. The influence of fertilization regime and mycorrhizal inoculum on outplanting success: a field trial of containerized seedlings in Oregon. Native Plants Journal 9(2):107–116.

KEY WORDS

fertilizer, arbuscular mycorrhiza, *Ribes aureum, Prunus pumila* L. var. *besseyi, Dasiphora fruticosa, Amorpha canescens, Juniperus scopulorum*

NOMENCLATURE

USDA NRCS (2008)