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## Greenhouse production of Burgundy truffle mycorrhizae on oak roots

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**Abstract** Truffles, subterranean fruit-bodies of the ectomycorrhizal genus *Tuber*, are currently cultivated on host trees in plantations, both to offset declining wild production and to extend their geographic distribution. We report the effects of the potting medium and potting method components of two very different seedling production systems on the colonization of *Quercus bicolor* × *Q. robur* seedlings by *T. aestivum* (the Burgundy truffle). Seedlings grown in book planter containers using a peat-based medium were smaller yet much better colonized by *T. aestivum* than seedlings produced in RPM<sup>®</sup> (Root Production Method) containers using a ground bark-based RPM medium. In either container method, the peat-based medium supported development of more *T. aestivum* mycorrhizae than did the RPM medium. Seedlings grown in book planters developed significantly more root tips l<sup>-1</sup> of medium than did seedlings grown in RPM containers. The optimum pH for *T. aestivum* mycorrhiza development in the peat-based medium is between 6.7 and 7.5.

**Keywords** Potting medium · Container systems · *Quercus bicolor* × *Q. robur* · *Tuber aestivum* · Burgundy truffle · Infection levels

### Introduction

Root symbionts including ectomycorrhizal fungi play integral roles controlling ecosystem function in temperate forests worldwide (Smith and Read 1997). They provide their host plants with phosphorus, trace minerals, and protection from pathogens and pests in return for organic carbon from their hosts. In addition, many truffle species are prized for their gastronomic characteristics (Hall et al. 2001). Over the last century there has been a dramatic decline in forest mushroom production including truffles (Cherfas 1991). Specifically, records suggest that sales of the Perigord black truffle (*T. melanosporum* Vitt.) in

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