

Twofold growth increase in 19 weeks

BLACK OAK

T. Daughtridge, et al.,
New Phytol., 103 (1986): 473-480.

OBJECTIVE

Evaluate the effect of mycorrhizal inoculation with *Pisolithus tinctorius* on container-grown black oak (*Quercus velutina* Lam.) seedlings.

METHODS

Seeds were stratified and put on moist blotting paper for germination and then sown in 750 cc, three-cavity Spencer-Lemaire root-trainers. Growth medium consisted of a mixture of peat and vermiculite (1:1, v/v) that had been sterilized with methyl bromide. Inoculation was achieved by thoroughly incorporating the vegetative mycelium peat moss-vermiculite inoculum throughout the growth medium at a rate of 25 cc per container cavity.

Plants were arranged in a completely randomized design in the shadehouse. A total of 11 seedlings were planted per

treatment. Each week, from day 31 of the experiment, seedlings of each treatment were randomly harvested until 19 weeks after planting. Dry weights of leaves, stems and roots were recorded after drying for 72 h in a forced-draft oven at 80°C. Seedling leaf area was measured with a leaf area meter (model Li-3000, Li-Cor, inc.).

RESULTS

For the entire experiment, the relative growth rate of seedlings treated with *Pisolithus tinctorius* was significantly greater than that of non treated seedlings. This experiment has demonstrated that growth of black oak seedlings is stimulated by the mycorrhizal symbiosis. Growth analysis indicated that this superior growth was attributable to an increase in the leaf area per unit plant dry weight (Figure 1).

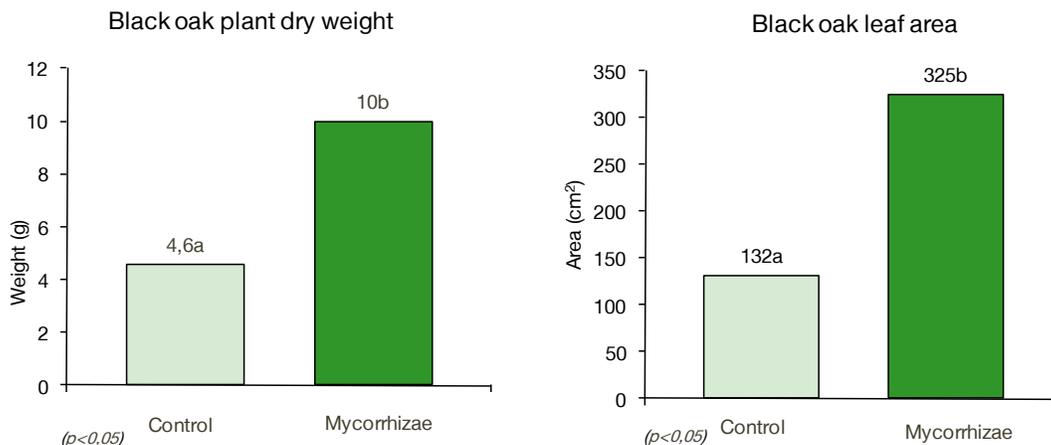


Figure 1. Total dry weight and total leaf area for mycorrhizal and non mycorrhizal black oak (*Quercus velutina*) seedlings 19 weeks after planting.