

Effect of intensive planting density on tree growth, wood density and fiber properties of maple (*Acer Velutinum* Boiss.)

ABSTRACT

Planting density is a major factor in determining tree growth and wood quality. Although the effect of low planting density on the variation of tree and wood characteristics has been already reported, the effect of intensive initial densities in plantations has not been fully assessed yet. In this study, the effect of intensive planting densities on tree growth, wood density and fiber cell properties was investigated in the context of the development of densely-stocked maple plantations for wood production. The study was carried out in a 12-year-old *Acer velutinum* trial plantation in northern Iran, with initial densities of 10000, 4444, and 2500 trees ha⁻¹ planted. The variation of diameter at breast height, annual ring width, stem taper, wood density, and fiber cell properties were examined. As expected, low planting densities showed trees with larger diameter at breast height and annual ring width. The largest trees at higher densities were smaller than those in lower planting densities. However, initial planting density had no significant effect on stem taper, wood density and fiber cell properties. In addition, no significant relationships between tree growth features and wood properties were detected, indicating similar wood properties at all planting densities. Therefore, stand/tree growth attributes under intensive planting densities could not be considered as reliable predictors of the wood properties.

Keyword: Initial spacing; Annual ring width; Wood density; Fiber properties; *Acer velutinum*