

# Influence of thinning over growth, water potential and photosynthetic response of *Peumus boldus*: guidelines for their silvicultural management proposal

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## Resumen

*Peumus boldus*, an endemic tree species of central Chile, belongs to sclerophyllous forests. Its semi-xerophytes condition allows it to grow in places with low rainfall and poor soils. The current shrubby condition is due to the implemented management through a coppice regime. This management was proposed due to its low ability for seed regeneration and its high ability to sprout. Currently, the harvest of this species is mainly based on economic criteria, with a lacking of productivity and technical criteria to define its silviculture. It is essential to understand the response of sprouts after interventions to improve its management. The aim of this study was to evaluate the response during the first two years of *P. boldus* coppices with different cutting intensities. A set of 23 strains was annually monitored in three levels of intervention: total, partial (50 % basal area) and without stools cuts (control). Predawn water potential, chlorophyll fluorescence, diameter growth and above-ground biomass accumulation were evaluated. Results showed that cuts improved the hydric status and this status was directly related to the cutting intensity of the strains. The same effect was observed in the production and growth of new shoots. Finalizing the evaluation period, accumulated biomass was 17.9 % in strains with total harvest and 53.6 % in those with partial harvest. These results raise doubts over the ability of *P. boldus* to correctly recover after biomass harvesting in short management periods. These results show that strains of *P. boldus* can be utilized in a better way with partial harvest. Further studies are needed to determine intensity and frequency of harvest.

## Palabras clave

**Palabras clave de autor:** [sclerophyllous forests](#); [silviculture](#); [predawn water potential](#); [sprouts](#); [biomass](#)

**KeyWords Plus:** [HOLM OAK FOREST](#); [QUERCUS-ILEX](#); [DROUGHT STRESS](#); [PLANTS](#); [COMPETITION](#); [TREES](#); [CO2](#)

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