

# Effect of mating system in genetic parameters estimates for *Eucalyptus* species

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Species with mixed system differ from those that are completely allogamous or autogamous as they include a mixture of individuals with different degrees of inbreeding. Inbreeding affects individual phenotypic values as well as genetic variance; therefore, the effects of selection are more complex in mixed-mating species. In this study, five provenances of *Eucalyptus camaldulensis* (species with high outcrossing rate) and six of *Eucalyptus pellita* (mixed mating system species) were analyzed. Field trials were installed in 2014, using a randomized block design with ten replicates, seven and six plants per plot for *E. camaldulensis* and *E. pellita*, respectively. At two years of age, diameter at breast height (DBH) and height (H) were measured. For DBH, the coefficients of genetic variation of 15.90% and 8.59% and mean heritability among progenies were 0.99 and 0.68 for *E. pellita* and *E. camaldulensis*, respectively, were high, indicating the potential of these species for breeding programs. The narrow-sense heritability were 0.51 and 0.17 to DBH and 0.86 and 0.12 to H, for *E. pellita* and *E. camaldulensis*, respectively. The genetic gains for *E. pellita* were corrected using the kinship coefficient, demonstrating that when the reproductive system is disregarded there are substantial reductions (from 56.6% for narrow-sense heritability to 75.4% for heritability within progenies) in genetic gains, confirming the hypothesis that the genetic gain is biased by the reproductive system. The incorporation of molecular data into quantitative genetics improves our understanding of genetic parameters and enables the acquisition of genetic gains that are more suitable for each type of species.

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