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Background - Planted forests represent less than 1% of the total area of Brazil, however, they contribute significantly (1,1%, ano) to the Gross Domestic Product. Eucalypt planted forests in Brazil are highly productive and harvested at rotations under 7 years as a result of genotype selection for specific sites and the use of appropriate silvicultural techniques. Nevertheless, there is a lack of specific studies on the spatial arrangement effects on genotypes growth.

Objectives - The present study aimed at the selection of eucalypt genotypes and spatial arrangements to attain high productivity in the Brazilian southern region plantations.

Methods - Hybrid clones of *Eucalyptus urophylla* x *E. grandis* (A,B) and *E. urophylla* x *E. globulus* (C,D) were established in the planting arrangements 3.75 x 2.40 m; 6.00 x 1.50 m and 4.00 x 3.00 m. The total height (*Ht*) and diameter (*dbh*) were measured annually from 27 to 88 months, in 430 permanent plots. The stand variables were estimated by Gompertz model.

Results - The *Ht* and *dbh* were the highest for clone B in the planting arrangement 4.00 x 3.00 m. The reduction of the distance between trees in the planting line (6.00 x 1.50 m), leading to increasing rectangularity, resulted in smaller *dbh* in relation to the arrangement 3.75 x 2.40 m, both with 9 m² tree⁻¹ and, the individual volume was the largest in the 4.00 x 3.00 m arrangement, for all clones (Fig. 1). Clone B showed the highest yield in the planting arrangement 3.75 x 2.40 m, and maximum *MAI* at the harvesting age of 5-5.5 years. Clone A reached the highest *MAI* at the age of 6 years (*MAI6*) (Fig. 2).

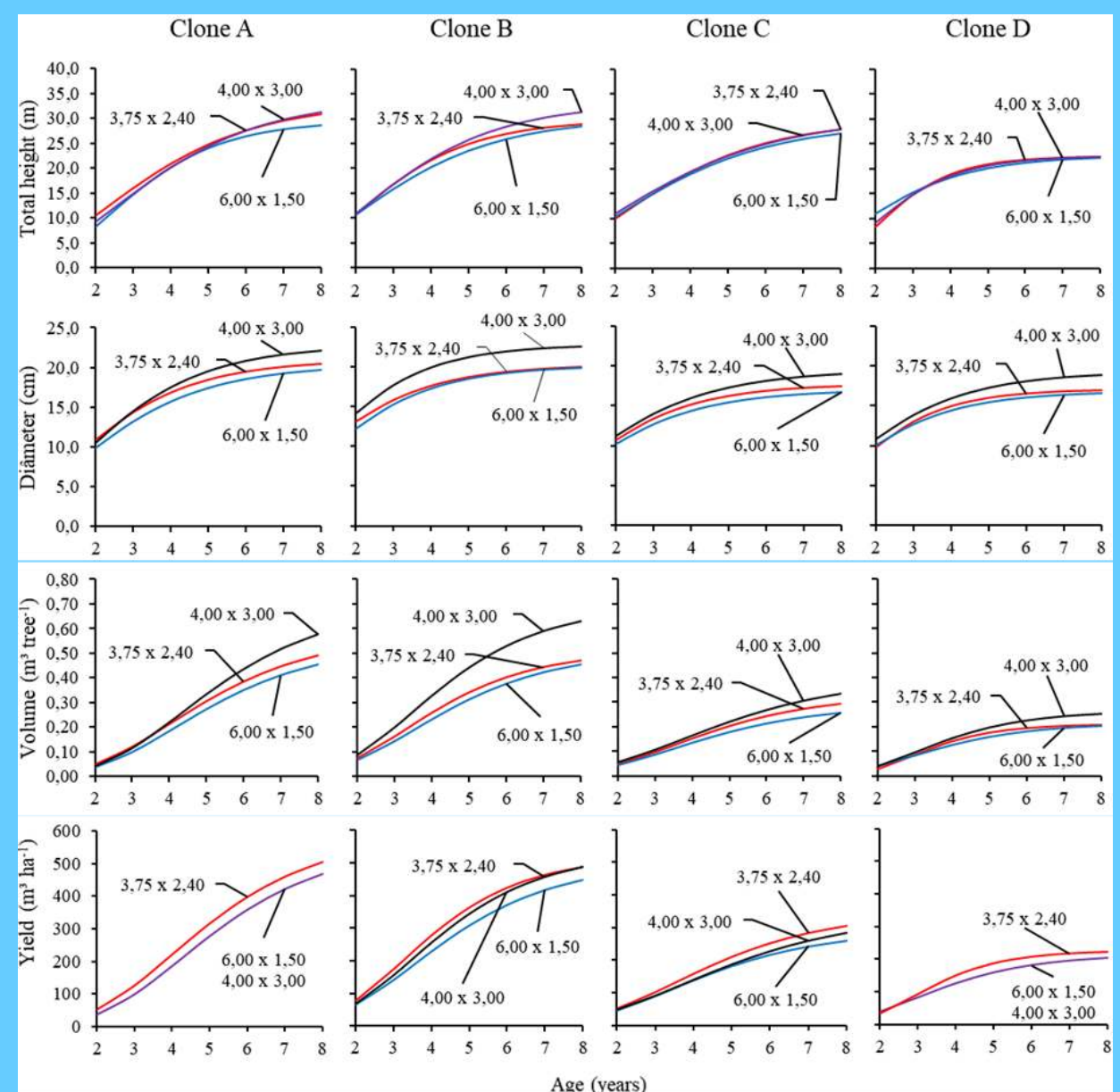


Fig 1. Eucalypt clones growth curves x spatial arrangements

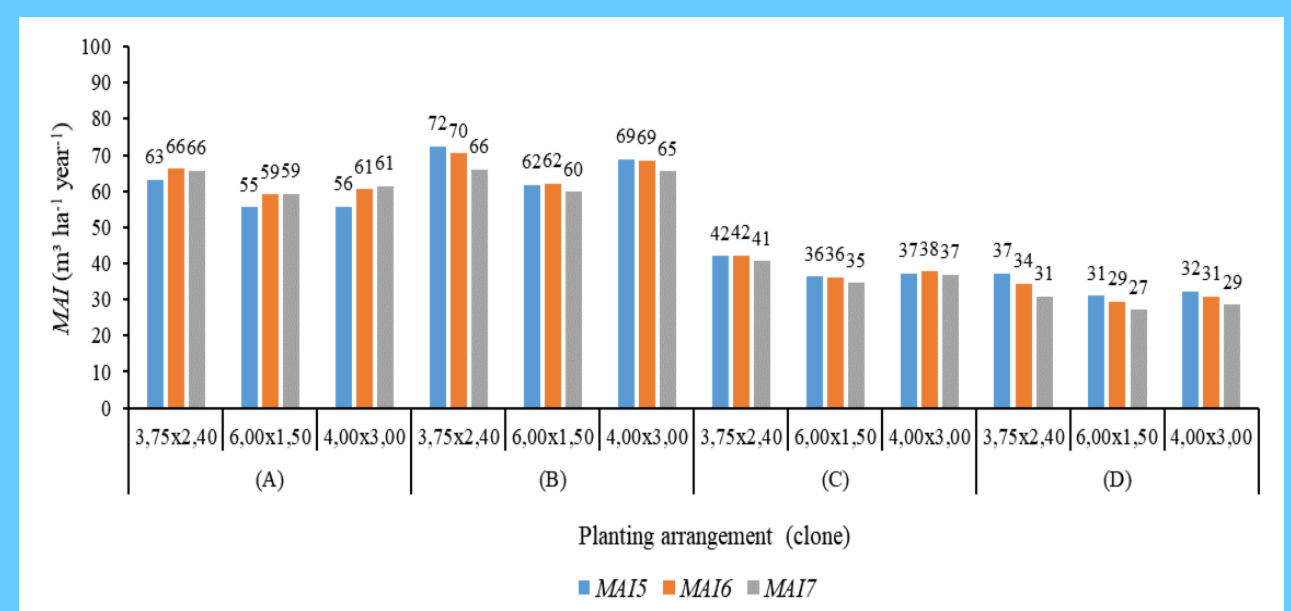


Fig 2. Mean annual increment (*MAI*) at 5, 6 and 7 years, for eucalypt clones x spatial arrangements

Conclusions - The results allow inferring that:

- the tree planting arrangements with greater rectangularity should be avoided as resulted in reduced diameter and yield for all clones;
- wider spacing are more adequate to produce logs of larger diameter;
- clone B presented the highest yield and *MAI* at tree harvesting age, and can be recommended to be planted in the 3,75 x 2,40 m and 3,00 x 4,00 m.