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### **Productivity of *Eucalyptus grandis* x *Eucalyptus camaldulensis* hybrid in different plant spacing, at four year age, in the Chapada of Araripe, Pernambuco, Brazil**

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The density of tree species is a very important variable for planning a forest enterprise. It may affect growth rate, plant survival, wood quality, cutting off age, thinning time, management practices and consequently the costs for forestry cropping system. The study aims to assess the effects of different planting spacing in wood productivity of the hybrid *Eucalyptus grandis* x *Eucalyptus camaldulensis* in the Chapada of Araripe. The trial was conducted at the Experimental Station of the Agronomic Institute of Pernambuco (IPA) in Araripina, Pernambuco State, Brazil (Latitude: 7°27'50"S, Longitude: 40°24'38"W, Altitude: 828m). The average annual rainfall in the region is 752.5 mm, concentrated in February, March and April, with average annual temperature of 24°C, evaporation of 1,127 mm.year<sup>-1</sup> and relative humidity annual average of 55.2%. Five spacing were used: 1) 3.0 x 2.0m, 2) 3.0 x 2.5m, 3) 3.0 x 3.0m, 4) 3.0 x 3.5m, 5) 3.0 x 4.0m. The experimental design was a randomized blocks with four replications. Before planting, the experimental area was submitted to plowing and harrowing, and sub soiling to 40 cm depth in the row, being incorporated into the soil 2.0 t.ha<sup>-1</sup> of lime. 150 g/tree of NPK (06:24:12.) were applied before planting. Each plot consisted of 64 plants, with areas varying from 216 to 432m<sup>2</sup>, totaling 11.520m<sup>2</sup>. As plants were four years old, it was found that the mean values of survival and height did not differ significantly from each other; means for the different spacing were 90% for survival and 13.9m for plant height. Diameter at breast height (DBH) in 3.0 X 4.0m spacing was 13.2m, being similar to 3.0 x 3.5m spacing and significantly superior from the others. The volume of wood production in 3.0 X 2.0m spacing (105,0 m<sup>3</sup>.ha<sup>-1</sup>) was significantly superior to 3.0 x 2.5m (86.3 m<sup>3</sup>.ha<sup>-1</sup>) and 3.0 x 3.0m (78.3 m<sup>3</sup>.ha<sup>-1</sup>) spacing. Average annual increment (AAI) increases inversely to planting density increases. It is concluded that planting density is an important variable for obtaining a higher productivity at the present plant development stage.

**Keywords:** Planting density, reforestation, forestry energy.

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