

Yield and environmental services potential of eucalyptus under ICLF systems

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Introduction

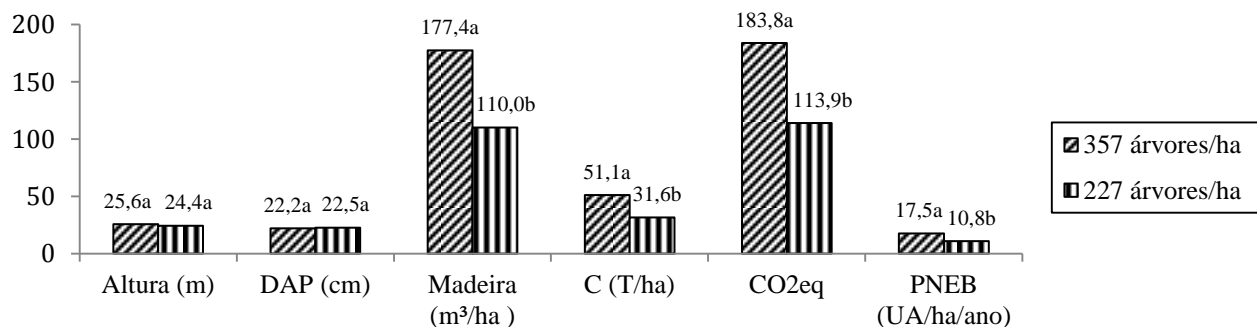
Many Brazilian economic sectors like energy, industrial processes, agriculture and forestry as well as the ones involving land use change and waste management have been closely monitored regarding greenhouse gases emissions (GHG). Especially for agriculture, there is demand for in-depth studies regarding alternatives for both, reducing emissions and improving carbon sinks. Goal of this work was to assess yields and potential for environmental services of two arrangements of eucalyptus trees under an ICLF system.

Material and Methods

A trial was carried out at Embrapa Beef Cattle Experimental Station in Campo Grande, MS. Experimental design was random blocks with two treatments (tree density of 357 trees/ha and 227 trees/ha) with four repetitions. Following soybeans cultivation, *Brachiaria brizantha* cv. BRS Piatã was used as cattle pasture between *Eucalyptus urophylla* x *Eucalyptus grandis*, clone H 13 rows. The tree component was evaluated at month 72, assessing the: height, diameter at breast height (DAP), wood volume per plant, wood volume per hectare, carbon sequestered by trees (following methodology proposed by Kanda et al. (2004), carbon equivalent (CO₂ eq.) (IPCC, 2006) and the tree potential to compensate GHG from cattle, considering that one animal unit (450 kgLW) produces 1,88t CO₂ eq./year).

Results and Conclusions

Fig. 1. Mean values for height, diameter at breast height (DAP), wood volume per hectare, carbon accumulation on stem (C), CO₂eq. and compensation potential for GHG emissions from cattle (PNEB) of 72 months old eucalyptus trees in a ICLF system with two tree densities.



The different tree arrangements did not influence individual tree arrangement up to 72 months after planting. The system with higher tree density shows higher wood yield per area and higher potential for environmental services from ICLF systems.

References cited

IPCC (2006) *IPCC guidelines for national greenhouse gas inventories: agriculture, forestry and other land use*. v. 4. Tokyo: Institute for Global Environmental Strategies.

Kanda et al. (2004) JIRCAS Working Report.

Acknowledgments

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