

Initial growth of eucalypt clones in different spacings within strips

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Introduction

There are many possible arrangements of integrated crop-livestock-forest systems (iCLF). The distribution of trees deserves special attention since it is the component with the longest rotation. Besides the distance between tree strips, the spacing within strips might influence wood yield. Therefore, this work aimed at assessing the growth of eucalypt clones in different spacings within strips.

Material and Methods

The experiment was carried out in the experimental field of Porto Velho (Embrapa Rondônia). The climate is of Am type and the soil is a Latossolo Amarelo distrófico plintossólico, according to the Brazilian System of Soil Classification (Embrapa, 2013). Six 250 m strips (three of GG100 and three of VM01 clones) with four rows of eucalypts were planted in March, 2013, to compose an iCLF experiment. The distance between strips varied from 18 to 42 m. The spacings used were 3.5x2.0 and 3.5x3.0 m, distributed evenly within each strip (125 m per spacing). Therefore, each strip contained one clone (plot) and two spacings (subplot). Each of the 12 subplots had an utile area of 945 m² (10.5x90.0 m). Two years after planting the trees were assessed for total height (Ht), diameter at 1.3 m above soil level (DBH), volume per tree (Vol_{tree}) and volume per subplot (Vol_{subplot}), considering a form factor of 0.5. The data were subjected to ANOVA considering a 2x2 split-plot factorial design and the 5% significance level.

Results and Conclusions

Table 1. Summary of the ANOVA. Plot: Clone. Subplot: Spacing. Means followed by the same capital letter (row) or small letter (column) do not differ significantly by the F test at the 5% level.

Spacing	Clone							
	DBH (cm)		Ht (m)		Vol_{tree} (m ³)		Vol _{subplot} (m ³)	
	GG100	VM01	GG100	VM01	GG100	VM01	GG100	VM01
3.5x2.0 m	9.3Ba	11.6Aa	12.0Aa	12.5Aa	0.0424Ba	0.0659Aa	7.0749Ba	10.7758Aa
3.5x3.0 m	11.3Ba	12.8Aa	13.3Aa	12.8Aa	0.0684Ba	0.0834Aa	7.7423Ba	9.2903Aa
$CV_{plot}(\%)$	2.42		3.51		5.74		5.22	
$CV_{subplot}(\%)$	13.14		11.95		35.88		41.94	

No significant difference was found between spacings for any of the variables measured. However, the VM01 clone showed higher diameter and volume (per tree and per subplot) than GG100. Usually, the lower the number of trees per row, the lower the production costs. Therefore, since no difference was found between spacings, and the VM01 performed better than GG100, the VM01 clone with 3.5x3.0 m spacing is recommend for the establishment of tree strips in conditions similar to those found in this study.

References cited

Embrapa (2013) Sistema Brasileiro de Classificação de Solos. 353 p.