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SORGHUM AND EUCALYPT GROWTH AS AFFECTED BY DIFFERENT ARRANGEMENTS FOR CROP-LIVESTOCK-FOREST PURPOSES

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INTRODUCTION

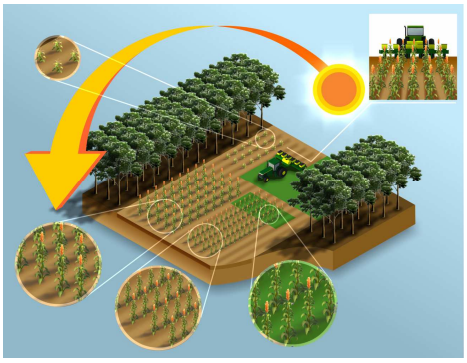
- In Brazil the pasture area is aproximately 200 Mha (almost 25% of total Brazilian land);
- The most part of pasture area is now degraded;
- The crop-livestock-forest system comes as an excellent option for a best management pratices of soils. Also, it contributes for a diversification of production;
- This work aimed to evaluate the eucalyptus growth and sorghum production as affected by different eucalyptus and sorghum arrangements.

MATERIAL AND METHODS

- Local: Uberlândia, Minas Gerais State, Brazil
- Soil: degraded Hapludox (clay loam)
- Different arragements (see the picture below):

a) 3 eucalyptus rows (3 m interrows and 2 m between plants) followed by 20 m for sorghum cultivation (0.50 m interrow and 100,000 plants ha^{-1})
b) 2 eucalyptus rows (3 m interrows and 2 m between plants) followed by 20 m for sorghum cultivation (0.50 m interrow and 100,000 plants ha^{-1})
c) 2 eucalyptus rows (3 m interrows and 2 m between plants) followed by 10 m for sorghum cultivation (0.50 m interrow and 100,000 plants ha^{-1})
d) 1 eucalyptus row (3 m interrows and 2 m between plants) followed by 10 m for sorghum cultivation (0.50 m interrow and 100,000 plants ha^{-1})

- Measurements:
  - height and diameter of Eucalyptus plants
  - grain production of Sorghum



RESULTS

TABLE 1. Average height (m) of sorghum plants in different arrangements of eucalypt for crop livestock forest purposes.

	Arrangement (m)			
Locations	10x2	(2x3) + 15	(2x3) + 20	(3x2x3) + 20
Right	0,88 aA	0,77 bB	0,76 bB	0,59 cC
Center	0,88 aA	0,85 aA	0,87 aA	0,88 aA
Left	0,83 aA	0,71 bC	0,81 aB	0,72 bB

Means followed by different letters, lowercase and uppercase on the line in the column, different by the Scott-Knott test at 0.05 significance.

TABLE 2. Productivity average grain sorghum (t ha^{-1}), eucalyptus different spacings depending on the evaluation of sites for crop livestock forest purposes.

	Arrangement (m)			
Locais de avaliação	10x2	(2x3) + 15	(2x3) + 20	(3x2x3) + 20
Right	5,90 aA	3,58 bA	4,86 aB	2,19 cC
Center	5,51 bA	4,71 bA	6,73 aA	5,62 bA
Left	3,85 bB	4,06 bA	6,64 aA	3,63 bB

Means followed by different letters, lowercase and uppercase on the line in the column, different by the Scott-Knott test at 0.05 significance.

TABLE 3. Effective Grain yield (t ha^{-1}), eucalyptus different spacings depending on the evaluation of sites for crop livestock forest purposes.

	Arrangement (m)			
Locais de avaliação	10x2	(2x3) + 15	(2x3) + 20	(3x2x3) + 20
Right	5,01 aA	2,51 cA	3,69 bB	1,60 dC
Center	4,68 aA	3,29 bA	5,11 aA	4,10 bA
Left	3,27 bB	2,84 bA	5,05 aA	2,65 bB

Means followed by different letters, lowercase and uppercase on the line in the column, different by the Scott-Knott test at 0.05 significance.

TABLE 4. Average diameter at breast height (DBH), plant height (PH), volume per plant (Vol / P) and volume per hectare (Vol / ha) of eucalypt eucalyptus between different spacings.

Arrangement (m)	DBH(cm)	PH(m)	Vol/P(m3)	Vol/ha(m3ha-1)
10x2	9,47 A	9,48 A	0,028 A	14,05 A
(2x3) + 15	9,32 A	9,15 A	0,025 A	14,59 A
(2x3) + 20	8,48 B	8,68 B	0,020 B	8,94 C
(3x2x3) + 20	8,25 B	9,19 A	0,020 B	11,89 B

Means followed by different capital letters in columns differ by Scott-Knott test at 0.05 significance.

CONCLUSIONS

The arrangement of plants affected the growth of Eucalyptus and Sorghum production and must be taken into account in crop-livestock-forest system.

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