



Corn and grass productivity on different distances to eucalyptus rows

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Introduction The Cerrado biome is responsible for most of the food production in Brazil. However, due to improper soil management, besides other damaging agricultural practices, extensive crop areas and pasture are degraded in this region. The direct planting system and the crop-livestock-forest integration (ILPF) are interesting soil management practices and they aim to achieve soil productive capacity recovery, product diversification and the income raise.

Material and Methods

The study was conducted in an experimental area which belongs to Embrapa Milho e Sorgo, Sete Lagoas County, Minas Gerais State, on the following geographical coordinates: latitude 19°29' S and longitude 44°10' W and altitude 708 m. The soil was classified as typical dystrophic Red Latosol (Oxisol). The current study aims to measure the productivity after intercropping corn and brachiaria ruziziensis (*Urochloa ruziziensis*) seeded between eucalyptus rows (*Eucalyptus urophylla* cv GG100). Eucalyptus rows were deployed in October 2011 and spaced 15x2 meters from each other. In October 2014, the intercropped corn and grass were seeded by the direct planting system, 1.0 m away from the eucalyptus line. The other lines were spaced every 0.7 m. Lines 1, 3, 5, 7 and 9 were evaluated and they were 1.0, 2.4, 3.8, 5.2 and 6.6 m respectively distant from the eucalyptus line. The productivity of corn grains and the grass biomass were evaluated on different tier distances in four repetitions. Data were submitted to regression analysis and the models were adjusted based on regression significance coefficient by Student's t-test ($P < 0.05$) and the determination coefficient.

Results and Conclusions

The corn grains productivity (kg ha^{-1}) was directly affected by the distance between the corn lines and the eucalyptus rows ($\hat{y} = 401.3 + 690.1 \cdot x$; $R^2 = 0.98$), whereas grass production was not affected by the distance from the tier ($\hat{y} = 200.3 \text{ kg ha}^{-1}$).

Acknowledgements

To Embrapa, CAPES-PNPd, FINEP and all research scientists, technicians and field workers at the Embrapa Maize & Sorghum Centre who diligently maintained this large experiment for over 6 years.