

Survival of fruit seedlings intercropped with bamboo species in the Brazilian savanna

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Four-year *Dendrocalamus strictus*

INTRODUCTION

Bamboo plants grow fast and shade the soil, and their root system is vigorous and abundant. Thus, competition for water, light and nutrients limits or prevents the development of other plant species in the middle of the bamboo groves. However, if there is a control on competition factors, it may be possible to cultivate other plant species in consortium with bamboo, which would provide diversification in the farmers' source of income.



Four-year *Dendrocalamus asper*

OBJECTIVE

The present work aimed to evaluate the survival and development of seedlings of perennial fruit species, planted under shading conditions of an already established bamboo forest.

METHODOLOGY

The study was carried out at Federal University of Goiás - UFG, in the Brazilian Cerrado region. In June 2019, seedlings of five perennial fruit species of economic interest (avocado – *Persea americana*, mango – *Mangifera indica*, jaboticaba – *Plinia cauliflora*, ambarella – *Spondias dulcis* and soursop – *Annona muricata*) were planted between the lines of bamboo plants of three species (*Guadua angustifolia*, *Dendrocalamus asper* and *Dendrocalamus strictus*) four years old and spaced 8.0 m x 5.0 m. Before planting the seedlings, the soil was prepared up to 30 cm deep with a subsoiler⁽¹⁾, in order to cut part of the bamboo roots. The intercropped fruit plants were grown in rows⁽²⁾, spaced 5.0 m between plants and were irrigated by drip, to ensure water supply in the dry period of the year, which is from April to October. Bamboos were not irrigated and naturally lost leaves in the dry season, reducing the shading. During the rainy period, the bamboo plants gained new leaves and the clumps were managed, removing the culms that were more than two years old, in order to reduce the shading over the fruit species. For six months, once a month, the plants development were evaluated⁽³⁾ by measuring height and diameter of the stem.

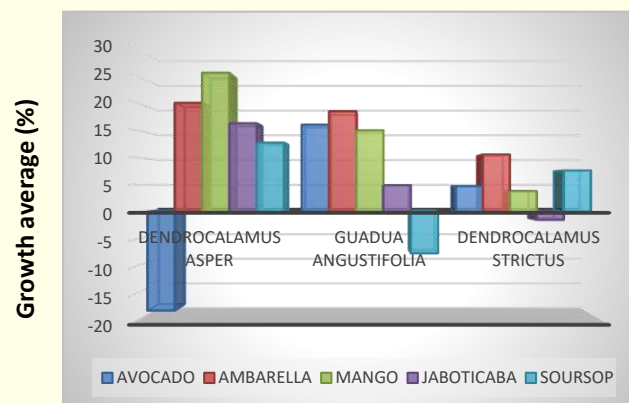


RESULTS

The plants of fruit species adapted to the intercropping with bamboos, except the avocados, which presented 60% death after six months of planting.

The average percentage growth of fruit species plants after six months of planting the seedlings between the bamboo lines is presented in the figure 1 on the side.

Figure 1. Growth of fruit seedlings, after six months of planting intercropped with four-year bamboo species



Mango after one year of planting between four-year bamboo lines

✓ CONCLUSIONS

- ✓ The management of bamboo species combined with the irrigation of fruit species enabled the cultivation of ambarella, mango, jaboticaba and soursop in consortium with bamboo species *Dendrocalamus asper*, *Dendrocalamus strictus* and *Guadua angustifolia*.
- ✓ The avocado species has not adapted to the evaluated consortium system and should be better studied.
- ✓ The study should continue to assess the fruits production.