

## Adoption of crop-livestock-forest systems: What comes next?

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### Introduction

The integrated crop-livestock-forest system (ICLFS) is a rational way of use and manage natural resources. It integrates trees, field crops and animals in a scientifically way, being ecologically desirable, operationally feasible and socially acceptable by farmers (Macedo et al., 2010; Balbino et al., 2011; Pacheco et al., 2013). It enables several benefits through ecological and economic interactions resulting from intercropping different species (Macedo et al., 2010). In this sense, a combination consisting of soybeans, corn, eucalyptus, brachiaria grass and beef cattle has been tested in an ICLFS in Southern Goiás state. This paper presents technical coefficients of the tree or animal components, because they represent economic activities that last longer in the system, in order to support decision making on ICLFS for potential future adopters, based on a six years' experience.

### Material and Methods

The ICLFS was implemented at Boa Vereda farm (Cachoeira Dourada, Goiás State, Brazil) in the 2008/2009 harvest, in a degraded pasture where only extensive livestock was being practiced. The system setup started with the cultivation of soybean integrated with eucalyptus (645 trees/ha of *Eucalyptus urophylla* clone). In the following year a corn and *Brachiaria brizantha* cv. Marandu intercropping was used. Pacheco et al. (2013) carried out an economic viability analysis of setting up this system. Therefore, after the corn harvest, the pasture was already established and eucalyptus had grown enough to bear the beef cattle in the system. Since then, the pasture is fertilized every start of the rainy season (November), to maintain the carrying capacity. From this system, animal weight gain and increase the volume of wood are annually recorded.

### Results and Conclusions

Even without having a specific race, the beef cattle shows remarkable performance in weight gain per occupied area. Productivity has been of 270 kg carcass weight/ha/year, with slaughter age from 2 to 2.5 years. It is emphasized that well done extensive traditional livestock provides an average of 105 kg carcass weight/ha/year, with slaughter age between 3 and 4 years. The average wood increase has been 40 m<sup>3</sup>/ha/year, using only 36% of the area. This is close to the national average of monocultures with 1,667 trees/ha (Anuário, 2014). Tree component should provide extra income to farmer, hitherto focused on livestock only. A partial cut is expected at 6 years of age, obtaining wood for energy, and final cut at age 14, obtaining wood for sawmill. These indicators show the viability of the integration livestock-forest system (ILFS), resulting from the adoption of ICLFS.

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