Initial agro-economic performance of the Crop-Forest Integration System in the Xingu Valley – MT

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Introduction

With a planted area of 45,000 ha, the state of Mato Grosso is the 3rd largest natural rubber producer in Brazil (about 9% of national production). The cultivation of rubber (rubber cultivation) has proven to be a good alternative for small and medium farmers, both in monoculture and in Crop-Forest Integration (CFI). To validate the agro-economically integrated rubber with annual crops (soybeans and corn) on the Xingu Valley (MT), Embrapa in partnership with Certeza Farm, implemented and is leading the five years an area of nine hectares, called Unit Technological Reference (UTR), to validate agro-economically this integration model Crop-Forest.

Material and Methods

The rubber, RRIM 600 clonal material was planted in the UTR in June 2009 in the spacing 8.0 mx 2.5 m, ie, in rows of single lines spaced 8 m with distant trees each other of 2.5 m in line, resulting in an initial stand of trees 500 / ha (expected a final stand operating at around 450 trees / ha). Because of this gap, it was possible to grow annual crops between rows of rubber trees in the early years after his farm deployment. In the agricultural year 2009-10 was used to soybeans / millet; in the agricultural year 2010-11, the succession soybean / corn and in the years 2011-12 and 2012-13 agricultural, the succession soybean / millet, ending the first four years of the agricultural system. Using a seeder of 13 lines (0.45 m between rows), a smaller spray with an adapted 6 m and a smaller harvester bar with a deck of 20 feet was possible to execute all farming cultures treatment mechanically. He became careful not to sow the end of lines (only composting), so as to leave about 1 m between the external lines of the crop and the lines of the adjacent rubber.

Results and Conclusions

With proper irrigation (using kite tank) during the dry season (June-September 2009), the rubber tree seedlings presented high rate of "fixation" and proper development during the sowing (no tillage) of soybeans at the beginning of the rainy season the agricultural year 2009-10. With the adjustments to the machinery, mechanized cultivation of annual crops with reduced costs was possible, enabling agro-economically this CFI model for larger areas (areas have been integrated observed up to 100 ha in Mato Grosso). It has not been observed during the four years of cultivation, reduction in soybean yield or winter maize. Rather, the average productivity of soybean produced in the crop area (less the forest area) within the CFI was 3,780 kg ha^{-1} while the rest of certain farm (about 1100 ha) was 3480 kg ha ^{1}. This agronomic performance of crop component enabled an economic the same result that was enough to cover about 70% of the cost of deployment and maintenance of the forest component in the first four years of the CFI system, accounted for about R $ 7,000.00 ha -1 . Although preliminary, the agro-economic results of the CFI system with rubber trees and annual crops appears to be an excellent choice of sustainable land use for small and medium producers of the Xingu Valley (MT).

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