

Melanie Grosse, Wolfram Lorenz, Suria Tarigan, Adam Malik (Eds.)

Tropical Rainforests and Agroforests under Global Change

Proceedings

International Symposium (October 5–9, 2008, Kuta, Bali, Indonesia)



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Evaluation of the production potential of complex agroforests. The example of rubber agroforests in Lubuk Beringin (Indonesia)

Indonesian agroforests, smallholders' plantations combining a large number of perennial species, are known to conserve at least 50% of the biodiversity of the primary forest. In the 1990s, some scholars predicted that all agroforests would be converted into monocrop plantations before the year 2000. Yet, in Jambi province, rubber agroforests (*Hevea brasiliensis*) remain an important component of the landscape. Lubuk Beringin, a small village at the foot of the Kerinci Seblat range (district of Muara Bungo), is a perfect example of a site where jungle rubber is still maintained and renewed. Much attention has been paid to rubber production in different agroforestry systems, influence of plantation density, combination of species, frequency of tapping, etc. However, the production potential of a rubber agroforest does not depend solely on rubber, but also on secondary products. Their potential has generally been neglected because of the difficulty to estimate their production. Indeed it seems impossible to apprehend the diversity of agroforests' vegetal composition, and then of secondary products. Besides, interactions between species and influence of space, light and soil resources on each tree make impossible the automatic generation of different type of agroforests by simple modelling. This work proposes a new method of evaluation of complex agroforestry systems potential, based on small sample of plots, survey and economic modelling.

To evaluate the production potential of rubber agroforests, measures were realized in about 20 plots and followed by interviews with their owners. Plots were selected so as to form a synchronic sequence representing all the phases of an agroforest's cycle of production. The objective was to estimate the whole production of this complex agroforest, which is rich in useful species, like fruit trees, timber trees, aromatic trees, etc. Origin, age and production of each tree were determined during a visit of the plot with the farmer. Then, quantities of each product, seasonality, destination and labour needs were evaluated in a second interview with the farmer. To complete this result and apprehend agroforests' diversity at the village scale, a survey on agroforests vegetal composition and production was conducted in the village, and ended in a typology of agroforests. An economic model of agroforest performances was built for each type; these models show examples of agroforests met in the village, but cannot take into account the high diversity of composition and management of this complex system at the regional level. In a second step we intend to conduct quick surveys in other villages so as to draw new models adapted to their specific agroforests and apprehend the diversity of rubber agroforests in Jambi.

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