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PROGRAMA / RESUMENES

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INNOVATIVE TECHNOLOGIES TOWARDS IMPROVING USE OF NATURAL RESOURCES BY SMALLHOLDERS IN EASTERN AMAZONIA, BRAZIL¹.

Vielhauer, K², Sa, T. D. De A³; Kanashiro, M.³; Denich, M⁴ and Vlek, P. L. G.⁴

¹ Activities of the project "Secondary forest and fallow vegetation in the Eastern Amazon region-function and management" a component of SHIFT (Studies on Human Impact on Forest and Ficoeplains in the Tropics).

² Institute of Agriculture in the Tropics (Lat), Gottingen, Germany.

³ Embrapa Amaz3nica Oriental, Bel3n, PA, Brazil.

⁴ Center for Development Research (ZEF), University of Bonn, Germany.

As it is common in the humid tropics, most of the smallholders in Eastern Amazonia practice slash-and-burn agriculture, which is presently undergoing a productivity crisis, as a result of decreasing soil fertility caused by intensifying cropping activities and shortening fallow periods, due to demographic pressure. Aware of the fact that any attempt to change this scenario has to consider the fallow vegetation, a Brazilian-German cooperative project¹ started in 1991, focusing on its function and its management possibilities, in the Bragantina region, Eastern Par3. Brazil, where agricultural settlement took place over a century ago, as part of a systematic colonization process. During a first phase, mainly biophysical and biogeochemical aspects of fallow vegetation and slash-and-burn practice were assessed by the project, providing relevant information about: floral functional diversity, reproductive strategies; water and nutrient balances; and soil enzyme activity associated to sustainability. Based upon these findings, a second phase is currently underway with pilot experiments on alternative technologies developing, adapting and testing to reduce water and nutrient losses and to accumulate organic matter. Two management techniques are involved: mulch based fire-free land preparation (to reduce physical, chemical and biological soil degradation) and fallow vegetation enrichment with fast growing leguminous trees (to shorten the fallow period and increase productivity over time).