Fire-free alternatives to slash-and-burn for shifting cultivation of the Eastern Amazon. 2. Selection of adapted cultivars

O. R. Kato¹, M. S. A. Kato¹, M. M. Parry³, M. Denich² and P. L. G. Vlek² ¹ EMBRAPA Amazonia Oriental, Belém-Brazil, ² Institute of Agriculture in the Tropics, Göttingen-Germany, ³ Bolsista, CNPq-Belém-Brazil

The productivity of rice, maize, cowpea and cassava cultivars was evaluated in mulched plots in order to select adapted cultivars for areas with fire-free land preparation in tropical fallow systems. The mulch came from the woody fallow vegetation, which was mechanically chopped and homogeneously spread over the plot. In 1995 we tested 8 rice, 21 cowpea, 11 maize and 5 cassava cultivars and ,in 1997, 8 additional maize cultivars. The screening was carried out with and without the application of fertilizer (N, P, K) to maize, whereas cassava only made use of the residual fertilizer from the preceding maize screening. The best vielding new cultivar (CNA 7706; 1.3 t ha⁻¹) yielded 39% more than the local cultivar Ligeiro (0.9 t ha⁻¹). However, this yield advantage could not be confirmed in the following year, showing that yields are strongly influenced by seasonal conditions. Rice yields with fertilization were, on average, 55% higher than without, whereas residual fertilizer effects on cassava yield amounted to 23%. For maize and cowpea cultivars the yields without fertilizers were, on average, only 14% of those from fertilized plots. No cultivar adapted to low external input cropping systems with fire-free land preparation could be identified in the germplasm screened so far. Additional efforts should be made to search for cultivars adapted to acid soils of low fertility, using mulched plots as test locations.

Mailing adress:

^{1,3} EMBRAPA Amazônia Oriental, Trav. Eneas Pinheiro, S/N°,
66.095-100 Belém-Pa, Brazil. E-mail: okato@gwdg.de, skato@gwdg.de
² Institute of Agriculture in the Tropics (IAT), Grisebachstr. 6, 37077
Göttingen, Germany, E-mail: gvlek@gwdg.de, mdenich@gwdg.de

A 10