



Deutscher Tropentag, October 9-11, 2002, Witzenhausen
“Challenges to Organic Farming and Sustainable Land Use
in the Tropics and Subtropics”

Status, Constraints and Sustainability Issues in the Agricultural Intensification of Humid Forest Inland Valley Ecosystems in Southern Nigeria

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Abstract

The inland valleys of the humid forest ecology show a considerable potential for intensified land use because of a higher rainfall regime, better water availability, higher soil fertility and lower erosion risks compared to uplands. But they are presently under utilised. The current challenge facing inland valley development is how to break the poverty cycle of rural farmers, initiate an intensification process and simultaneously maintain a sustainable land use system especially in densely populated humid forest ecologies. Various analytical techniques, (eg valley bottom ratio, land use ratio, actual production ratio, fallow index, soil preparation index, total and actual land use intensity, and cropping intensity) were used to evaluate the land use systems in a selected inland valley. The constraints to intensified (double rice crop) production given the present capacity of the resource poor farmer in the humid forest ecology were identified following an on-farm experiment. Results indicate that three arable crop enterprises; namely yam, cassava, and rice, were cultivated by farmers based on cultural prestige, food security, and commercial reasons respectively. Gross margins and returns per naira invested were highest for the rice enterprise followed by cassava and yam enterprises. But net farm income is highest for the cassava enterprise and least for the rice enterprise. Intensification of rice production in humid forest ecological zone is feasible and can increase farmer income by 74 percent. Labour costs for rice production will reduce by nine percent while capital operating costs will double with the use of improved inputs. Labour bottlenecks due to competition with upland crops, absence of mechanized dryers and storage facilities may limit the adoption of double rice cropping. Recommendations on the intensification and diversification of production in humid forest inland valleys were made based on various sustainability issues with respect to the peculiar production environment of the smallholder farmer in southern Nigeria.

Keywords: Humid forest, inland valley, intensification, Nigeria, sustainability