Tropentag, October 11-13, 2006, Bonn

"Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research"

Understanding Farmers' Epistemology of Soil Fertility for an Appropriate Communication of the Concept of Integrated Soil Fertility Management: Empirical Evidence from Southern Bénin Republic

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Abstract

There is a general consensus on the necessity of applying both organic and mineral fertilisers to sustain nutrient flow in low-input farming systems of densely populated areas of sub-Saharan Africa. The successful dissemination of this knowledge requires at village level the pre-identification of the factors susceptible to drive or to impede its implementation. At farmers' level, the most basic prerequisite for the successful communication of the message is to understand the target group's own definition of soil fertility and the strategies locally perceived as appropriate to build soil fertility.

In this study the concept epistemology of soil fertility is used to describe the meta-aspect of local soil knowledge which is beyond the ethnopedological elicitation and scientific validation of local soil categories. It rather seeks the meta-knowledge governing the local distinction of soil fertility and management strategies in different categories as a more generic frame to insert the "new" concept of soil fertility.

In four selected villages in Southern Bénin, the descriptors of different soil fertility categories and fertilising strategies were elicited. Through the step-wise generalisation procedure of induction, the spatial and temporal variability of the different soil and management categories are reduced to an overarching rule reflecting the frame of reference for local definition of soil fertility and management. In two villages the concept of soil fertility was found limited to the ability of a field to sustain maize growth without mineral fertiliser. The use of legume residues is prioritised but only on soils that are loosing fertility. Infertile soils are qualified as dead. An extension message is designed to translate the concept of integrated soil fertility and its missing notions. In the two other villages there was no field differentiation and variability in management strategies. Mineral fertiliser or the systematic combination of mineral fertiliser and manure are uniformly used. Correspondingly the feasibility of integrated soil fertility management and measures to support farmers' strategies are discussed.

Keywords: Knowledge dissemination, Integrated soil fertility management, local soil knowledge

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