Deutscher Tropentag, October 11-13, 2005, Hohenheim

"The Global Food & Product Chain—
Dynamics, Innovations, Conflicts, Strategies"

Land Evaluation of Cotton Production in the Azokan's Catchment in the Moist Savannah of Benin

Attanda Mouinou Igue[1], Rebekka Maier[2], Thomas Gaiser[2], Karl Stahr[2]

[1] *National Institute for Agricultural Research of Benin (INRAB), Benin*
[2] *University of Hohenheim, Soil Science and Petrography, Germany*

Abstract

Good and appropriate advice to land evaluation and land utilisation requires good knowledge of soil resources and soil fertility. Detailed knowledge about the endowment with land resources and its potential is an essential prerequisite for the sustainable agricultural and economical development of the region. The central region of Benin Republic (West Africa) is characterised by a subhumid tropical climate. During the last two decades, a tremendous change in demographic growth and land use has been observed in this region. In particular, the area with cotton production increased six fold from 1987 to 1997. However, the productivity per hectare decreased. A soil and digital database of Azokan's catchment, which is located in Central Benin, was established to evaluate the ability of land units to support cotton production and to compare the results with cotton yields realised by the farmers.

Soil transects and a topographic map were combined to provide information on spatial variability of soils, terrain type and land use. For the management of soil and terrain data the SOTER (Soil and Terrain Digital Database) approach was used, which includes observations, analytical attribute data and GIS-based spatial terrain data. The FAO/LSC (Land Suitability Classification) was used to identify crop specific constraints to cotton production. The land index of different soils in the study area is marginally suitable to unsuitable. In parallel, farmers were interviewed with respect to their level of knowledge, their farming practices in the cotton fields and the obtained cotton yields in relation to the natural land units. The results show that the low indices are due to both physical and chemical limitation levels (texture and organic carbon). Unfavourable climatic conditions determine the suitability of the region for cotton production. Appropriate management by farmers increases the yield potential significantly. The study reveals that the realisation of higher yield potentials depends on the social and economic position of the farmer.

Keywords: Cotton production, land evaluation, land productivity, subhumid savannah

Contact Address: Attanda Mouinou Igue, National Institute for Agricultural Research of Benin (INRAB), Rue de l'IITA Togoudo, B.P. 988 Cotonou, Benin, e-mail: igue_attanda@yahoo.fr