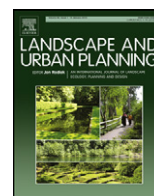




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Exploring the diversity of urban and peri-urban agricultural systems in Sudano-Sahelian West Africa: An attempt towards a regional typology

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ABSTRACT

Developing appropriate and innovative technologies and policies to respond to the challenges that urban and peri-urban agriculture (UPA) faces in West Africa requires a better understanding of the existing production systems. Although there is an increasing recognition of the importance of UPA in the region, its extent, forms and related practices may vary across countries and cities because of different socio-economic conditions and urbanization patterns. A systematic classification of the regional UPA systems is lacking but is necessary to allow for meaningful comparisons between cities and avoid misleading generalizations. The purpose of this study was to develop a typology of UPA households across three selected West African cities. Survey data from 318 UPA households (Kano: 99, Bobo Dioulasso: 111, Sikasso: 108) were submitted to principal components analysis for categorical variables (CATPCA). Next, the Two-Step cluster method was used to classify the households using object scores obtained from the CATPCA. Diversification of farm activities, farm resource endowment and production orientation were the major discriminating variables. In each city, four distinct UPA systems were identified, of which three were common to Kano, Bobo Dioulasso and Sikasso: commercial gardening plus field crops and livestock (59%, 18%, and 37%), commercial livestock plus subsistence field cropping (14%, 41%, and 7%), and commercial gardening plus semi-commercial field cropping (14%, 28%, and 30%). The fourth group was different at each location and was characterized as follows: commercial gardening plus semi-commercial livestock in Kano (13%), commercial field cropping in Bobo Dioulasso (13%) and commercial gardening in Sikasso (26%).

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1. Introduction

1.1. Importance of urban and peri-urban agriculture in West Africa

Urban and peri-urban agriculture (UPA), which can be defined as the cultivation of crops and rearing of animals for food and other uses within and around cities (Mougeot, 2000) is not a new phenomenon in West Africa (Kironde, 1992; Rakodi, 1988) and has continued to rise as a consequence of rapid urbanization associated with high levels of under- and unemployment and increasing food demand of urban dwellers (Drechsel & Dongus, 2010). There is a wealth of literature that describes the social roles of UPA, its economic functions and its potentials to sustain the livelihoods of

urban dwellers in West African countries, along with its environmental benefits (Asomani-Boateng, 2002; Cissé, Gueye, & Sy, 2005; Danso, Drechsel, Wiafe-Antwi, & Gyiele, 2002; De Bon, Parrot, & Moustier, 2010; Graefe, Schlecht, & Buerkert, 2008; Smit, Ratta, & Nasr, 1996). On the other hand, a number of UPA practices raised concerns about associated negative side-effects on human health and environmental quality. The potential risks ensuing directly or indirectly from UPA are linked to inappropriate use of agrochemicals in plant and animal production, over-application of mineral fertilizers, use of untreated livestock and human excreta as well as household wastes as manure, use of untreated wastewater for irrigation of vegetables, and inappropriate or inadequate food handling, processing and storage (Amoah, Drechsel, Abaidoo, & Ntow, 2006; Binns, Maconachie, & Tanko, 2003; Brock & Foeken, 2006). Within the large number of available scientific and 'grey' publications on UPA crop and animal production in West Africa, each study presents a particular set of data for a well-defined production context and for specifically defined research questions. These cover practically all aspects of UPA, such as appropriate dosing of mineral fertilizers (Drechsel & Zimmermann, 2005), targeted

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