



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

Research and Development for a Modern Horticulture in the Groundnut Basin of Senegal

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Abstract

Over the past ten years, the horticultural production in Senegal has strongly increased, due to the productivity consolidation of some suitable areas (such as the coastal band of Niayes and the Senegal River Valley), and in relation to a progressive population growth concentrated in urban areas. Therefore the demand for domestic and subregional markets has raised together with an international commercial interest for off-season products. In fact, considering the main vegetable crops (e.g. onion, tomato, cabbage) the overall production has increased from 286,000 tons in 2001 to 640,000 tons during 2011, with an average annual growth rate of 7%.

In addition, the productive potential of traditional rain-fed crops such as groundnut, millet and sorghum has been dramatically affected by the global climate change, with wet seasons characterised by an increasingly uneven distribution of rainfall and a significantly higher intensity of rain events. In this changing environment, horticulture represents a real vector of economic growth, by the possibility to cultivate with the help of irrigation throughout the year, even in marginal areas.

The “Programme d’Appui au Programme National d’Investissement dans l’Agriculture au Sénégal (PAPSEN)”, funded by the Italian Ministry of Foreign Affairs supports the diffusion of drip irrigated horticulture in the three Regions of Thies, Diourbel and Fatick. Within the programme, a research and development component aims to identify best performing species and varieties and improve crop management practices. The planned research activities foresee the implementation of a full-field experimental trial at the Centre National de Recherche Agronomiques (CNRA) of Bambey, in collaboration with the Institut Sénégalais de Recherches Agricoles (ISRA). Experimental activities are focused on evaluating the performances of ten vegetable crops (onion, pepper and hot pepper, cabbage, melon, tomato, eggplant, lentil, carosello and barattiere) in three different seasons for the adaptation of crop production calendars to meet best market opportunities. At the same time, the effects of biochar on soil fertility and water holding capacity will be evaluated and an appropriate and simplified water balance model will be developed in order to optimise the use of water resources through a more efficient management of the irrigation practices.

Keywords: Biochar, cultivars, drip irrigation, horticulture, research & development, Senegal, soil fertility

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