

Book of Abstracts

Wageningen Soil Conference 2015

'Soil Science in a Changing World'

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THE GLOBAL YIELD GAP ATLAS FOR TARGETING SUSTAINABLE INTENSIFICATION OPTIONS FOR SMALLHOLDERS IN SUB-SAHARAN AFRICA

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Providing food and water security for a population expected to exceed 9 billion by 2050 while conserving natural resources requires achieving higher yields on every hectare of currently used arable land. This is especially relevant for sub-Saharan Africa (SSA), where food production is not keeping pace with population growth. While recognizing there are other aspects to food security than production alone (e.g. distribution, demand, diets, waste, governance, population), efficiently increasing production on existing farmland forms an essential component of the sustainable intensification paradigm, which is a cornerstone of climate smart agriculture, as increased resource use efficiency contributes to both adaptation and mitigation via effects on farm incomes and reduced emissions per unit product. In SSA 80% of the food is currently produced by smallholder farmers, and rural population is projected to increase while average farm size will decrease in most SSA countries. Therefore, smallholder farms must be part of the solution to local and global food security. However, smallholder production systems across SSA are extremely diverse in terms of agro-ecology (climate, soils) and socio-economic conditions. Characterizing this diversity at a high enough resolution is essential for better targeting of research and policy interventions in the context of global food security. The Global Yield Gap Atlas project (GYGA, www.yieldgap.org) has developed methodologies and protocols and collected data for yield gap assessments with local to global relevance. A new global agro-climatic zonation scheme was developed, with zones homogeneous enough in terms of climate relevant for crop growth, not too small to prevent robust local data collection on climate, soils and cropping systems, and covering the most important current cropping areas so yield gap assessments can be upscaled from local to regional and national level. In addition we make use of improved digital soil information available from the Africa Soil Information Service (AfSIS). The Atlas can be used for national food security assessments as well as to target agronomic research and/or policy interventions.