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Sustainable Natural Resource and Crop Management in Intensifying Cereal-Legume Production Systems in the Moist Savannahs of West Africa

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Abstract

The moist savannahs of West Africa have high potential for the production of cereal and legumes crops because of favourable environmental conditions for their optimal growth. Despite this high potential, the yields obtained under farmers' conditions are still very low. In response to land use intensification, soil degradation and nutrient depletion have gradually increased and become serious threats to food production in these cropping systems. Increased incidence of the parasitic weed *Striga* spp. is considered another indicator of degraded soils. The *Striga* problem in West Africa is intimately associated with the intensification in land use, reflected in an increase in mono cropping and reduction in fallow periods. Since the mid 1990s, it has become clear that in order to upgrade crop production to the levels needed to sustain the growing population without further degrading the soil resource base, targeted application of inorganic fertilizer is required. However, the use of inorganic fertilizers is limited in the West African savannah due to their prohibitive cost compared to the grain price. In addition, recurrent droughts in the West African savannah pose a widespread risk to crop production. These factors combined with the widespread use of unimproved crop varieties and inadequate use of inputs contributes to the low crop productivity in the region.

Over the last ten years, substantial knowledge has been gathered on soil management combined with solid crop improvement and plant health research at farmers' level. This knowledge has made it possible to address with confidence intensification of cereal-legume based cropping systems in the moist savannas of West Africa in a sustainable manner. This paper gives examples of how resilient crops coupled with improved land and pest management practices can lead to sustainable intensifying cereal-legume production systems in West Africa.

Keywords: Cereal-legume rotation, cereals, drought, grain legumes, savannah, *Striga*

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