

Article title	Nutrient Use Efficiency in the Sub-Saharan Africa Agro-Ecosystem: Recent Research Achievements and New Opportunities
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Abstract	<p>Attainment of self- sufficiency in food production remains one of the biggest challenges facing sub-Saharan Africa (SSA). Several SSA countries are food insecure and have persistently been unable to feed their population and therefore identified as a future hotspot for food shortage due to low agricultural yields. Over the past 40 years, agricultural production has increased at a rate of 2.5% per year in SSA compared to 2.9% in Latin America and 3.5% in southeastern Asia. As a result of the situation, Africa is a net food-importing region. Food imports in Africa rose from USD 88 billion in 2006 to about USD 119 billion in 2007. The number of chronically under-nourished people increased from 168 million in 1990-1992 to 194 million in 1997–1999. for the past three decades. This leaves African families with ever less opportunity to feed themselves and their children. Malnutrition remains shockingly common in Africa. SSA uses 8 kg per hectare of NPK fertilizer, the lowest in the world (the world average is 100 kg per hectare of NPK). Because of the low use of fertilizers, crop yield has stagnated in the past 50 years causing food insecurity and, with increased area in cultivation, deforestation. In addition to low use of fertilizers, fertilizer use efficiency is the lowest in the world leading to relatively poor productivity increase due to fertilizer resulting in poorer economic returns. In this paper we will first review the changes in paradigms for improved nutrient use efficiency in SSA before presenting research highlights on the effect of good agronomic practices, soil organic carbon, improved seed, sources and management of fertilizers and soil and water conservation on the improvement of nutrient use efficiency as well as the new research challenges.</p>
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