



Feeding the future: The role of sustainable intensification indicators in East and Southern Africa

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Abstract

One of the key challenges in working towards sustainable Intensification (SI) is developing technologies that can achieve the multiple goals of sustainability and have high potential for adoption by smallholder farmers. In this paper we use a framework of SI indicators with five domains (production, economic, environment, social and human condition) to analyze technological innovations developed as part of a Feed the Future program, Africa RISING in East and Southern Africa. Using data from Northern Tanzania and Central Malawi (including mother and baby on-farm trial sites representing three agro-ecologies and over three hundred farmers) we present radar charts to visualize performance of the technologies across the five domains. We demonstrate how the use of the SI indicator framework can be strengthened by a co-learning approach with systematic feedback from farmers about the interventions. The two most promising interventions in terms of SI performance and farmer preference were doubled up legume rotations with maize, and integrated nutrient management. Environmental performance of these technologies was high compared to maize-dominated farmer check systems. This was primarily due to large gains in biological nitrogen fixation, carbon fixation and soil rehabilitation. Maize production and economic assessment were mixed, although predominantly favorable. The domains of social and human capacity building were superior, notably in terms of diverse diet, food security and farmer preferences (including those of female household heads, who favored the doubled up legume crops for food production purposes). Overall, the SI indicators framework provided a systematic means to consider tradeoffs and opportunities associated with novel crop combinations and management practices. Combining analysis of these SI indicators with a participatory co-learning approach facilitates the development of technologies with higher potential for adoption by farmers.

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