

185. **Ex ante assessment of dual-purpose sweet potato in the crop-livestock system of western Kenya: a minimum-data approach.**

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Abstract

Mixed crop-livestock systems have a crucial role to play in meeting the agricultural production challenges of smallholder farmers in sub-Saharan Africa. Sweet potato is seen as a potential remedial crop for these farmers because of its high productivity and low input requirements, while its usefulness for both food and feed ('dual-purpose') make it attractive in areas where land availability is declining. In this paper we develop and apply a 'minimum-data' methodology to assess *ex ante* the economic viability of adopting dual-purpose sweet potato in Vihiga district, western Kenya. The methodology uses and integrates available socio-economic and biophysical data on farmers' land use allocation, production and input and output use. Spatially heterogenic characteristics of the current system regarding resources and productivity are analyzed to assess the profitability of substituting dual-purpose sweet potato for other crops currently grown for food and feed. Results indicate that a substantial number of farmers in the study area could benefit economically from adopting dual-purpose sweet potato. Depending on assumptions made, the adoption rate, expressed as the percentage of the total land under adopting farms, is between 55 and 80%. The analysis shows that the adoption rate is likely to vary positively with the average total yield of dual-purpose sweet potato, the harvest index (the ratio between tuber and fodder yields), the price of milk, and the nutritional value of available fodder. This study demonstrates the usefulness of the minimum-data methodology and provides evidence to support the hypothesis that dissemination of the dual-purpose sweet potato could help improve the livelihoods of smallholder farmers operating in mixed crop-livestock systems in East Africa.