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"Solidarity in a competing world — fair use of resources"

Yield Gap Analyses to Inform Policy on Crop Intensification Pathways in Uganda

Wilberforce Walukano[1], Piet van Asten[1], D. Nanfumba[2], A. Arinaitwe[2], D. Basalirwa[1], R. Asiimwe[1], Pamela Pali[1]

[1] *International Institute of Tropical Agriculture (IITA), Research for Development, Uganda*
[2] *Kachwekano Zonal Research and Development Institute, Uganda*

Abstract

Crop yields of smallholder farming systems in Uganda are low, but highly variable between farmers and sites. Development and policy actors wish to intensify crop production systems to, (i) reduce poverty and (ii) keep up food supply with population growth. Policy Action for Sustainable Intensification of Cropping systems in Uganda (PASIC) tries to understand constraints for crop intensification at plant, plot, household, community, and institutional level. Agronomic yield gap studies were conducted on potato in southwestern highlands and rice cropping systems in the eastern plains to stimulate policy action in crop intensification. Agronomic study was undertaken in 2014–2015 in a total of 333 households surveyed for: production and crop management, access to services and technologies. Data on soil properties, crop yields and plant nutrition were also collected at: vegetative, flowering and maturity stages. Households were selected using stratified cluster sampling based on exposure and use of improved technologies. Yield data obtained was compared to on-station yields under best management practices and modelled potential yield to establish the yield gap. Preliminary results show large yield gaps (60–80 %) exist between average farmer and best on-station yield using SPSS version 20. The results suggest that seed is the major limiting constraint in potato cropping systems. Households using good quality seed potato obtained an average 14 t ha^{-1} versus 6.2 t ha^{-1} for those using poor quality seed. On-station yields reach 25 t ha^{-1}. Poor disease and pest management practices are negatively related to yield. In the rice cropping systems however, pest management is the leading cause of yield gap. Households managing pest obtained an average 4.2 t ha^{-1} versus 2.9 t ha^{-1} for those not managing pests. On-station yields reach 6.5 t ha^{-1}, and it causes a gap of 3.6 t ha^{-1}. From the preliminary results, it can be concluded that Uganda has the potential to more than double the yield if an enabling environment of increasing access to quality seed for potato is created and if rice farmers improve adoption of improved pest and soil management practices and illustrate that investments for intensification have to be location and crop specific.

Keywords: Uganda, yield gap

Contact Address: Wilberforce Walukano, International Institute of Tropical Agriculture (IITA), Research for Development, plot 15 Naguru East Road, Upper Naguru., Kampala, Uganda, e-mail: W.Walukano@cgiar.org