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“Filling gaps and removing traps
for sustainable resource management”

Cassava Varietal Performance and Productivity Analysis under Subjective and Objective Measurements - A Case of Malawi

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Abstract

Cassava is the second most important crop to maize in Malawi. Since 1995 per hectare yield of cassava has more than quadrupled and production has increased more than nine times between 1997 and 2007. This is mainly attributed to breeding and dissemination of improved varieties through collaborative programs between the government of Malawi and the International Institute of Tropical Agriculture (IITA). However, despite all the efforts put into breeding and dissemination of improved cassava varieties, several weaknesses in evaluating the performance of these crop technologies at plot level still persist. These include for instance high variability in on-farm yield, piecemeal harvesting, and varietal misidentification, implying that both adoption and impact estimates of improved cassava varieties cannot be trusted. Although studies have investigated the effect of systematic measurement errors in agricultural surveys, only few have assessed their effect on varietal performance and productivity analysis. The current study therefore investigates the effect of measurement errors on varietal performance and productivity analysis. The study used data from methodological experiment on cassava varietal identification and productivity measurement (CVIP 2015) collected over 1129 households in five districts in Malawi. Using DNA fingerprinting and crop-cutting as benchmarks, descriptive statistics showed that farmer estimates were more volatile in estimating yield on selected varieties compared to crop-cutting. The latter, on the other side, over-estimated yield by 30 percentage point on average. Econometric estimations showed under crop-cutting that though cassava has always been advertised as a woman's crop, female-headed households were still less efficient as compared to those of their male counterparts. Furthermore, while adoption appeared to have significant effect on technical efficiency under farmer estimates, crop-cutting showed on the other side that this variable was not of crucial importance on farmers' technical efficiency. Study findings support therefore investment in advanced quality data collection through more reliable methods such that yield can be tracked to specific variety; but also the role played by socioeconomic factors, especially gender in adoption and impact of food security crops. Hence, periodic dissemination of planting materials for resource-constrained groups such as women as well as training of extension workers for better varietal identification are mainly recommended.

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