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Toba Omotilewa is a Nigerian national. Prior to starting his PhD in Agricultural Economics at Purdue, he obtained his Master's Degree in Civil Engineering from Purdue in 2012 and a Bachelor's Degree with First-Class Honors in Surveying and Geomatics Engineering from the University of Lagos, Nigeria in 2010. He was a Borlaug Leadership Enhancement in Agriculture Program (LEAP) Fellow in 2016, and a Graduate Research Fellow with the International Institute of Tropical Agriculture (IITA) between 2015 and 2017.

As an applied economist, his research interests revolve around poverty reduction, inequality, elimination of hunger, agricultural technology adoption and increased productivity, grain postharvest loss reduction, rigorous impact evaluations of development and social programs leading to implementation of evidence-based policies, rural development and capacity building, agricultural economics, international economics, and good governance in developing countries around the world and sub-Saharan Africa in particular.

The Adoption and Impacts of Improved Storage Technology among Smallholder Farm Households in Uganda

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On-farm grain postharvest losses (PHL) are common in sub-Saharan Africa (SSA). These losses threaten food security, means of livelihood, and sustainable use of scarce natural resources among smallholder households. A recent estimate by the World Bank suggests that grain PHL, about 10-20% of grains produced, could reach as high as \$4b annually. Despite efforts by development agencies and economists to alleviate poverty through increased agricultural productivity, grain PHL remain high and undermine such efforts.

This dissertation comprises of three independent essays that address the adoption and impacts of grain hermetic (airtight) storage bags to reduce on-farm storage losses in Uganda. It uses randomized control trials (RCTs) to investigate the role of information, as well as an economic tool, a one-time subsidy, in the awareness and adoption of the technology. Another objective is to estimate how access to the storage technology affects smallholders' use of modern inputs.

Findings from this dissertation show that a one-time subsidy as an economic tool enhances adoption among smallholders, and that access to the technology increases the cultivation of high-yielding hybrid maize varieties that are susceptible to insect pests in storage. The main policy recommendations from this dissertation are: 1) that development agencies, researchers and policymakers advocating the cultivation of improved higher-yielding maize varieties among smallholder farmers in SSA should consider promoting hermetic storage technologies as a complementary intervention; 2) a one-time subsidy that creates a positive experiential learning is an effective tool at spurring demand for this relatively unknown new agricultural technology.



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