



Scaling Adoption of Hermetic Post-Harvest Storage Technologies in Uganda

Background

According to the World Food Programme, nearly one-third of food produced for human consumption is lost or wasted, and over half of that food waste happens during production, post-harvest handling, and storage.

Post-harvest storage technologies like silos and hermetic bags have been successfully developed and piloted with smallholder farmers over the past several decades to mitigate food loss caused by improper storage, but none of these technologies have reached significant scale.

Approach

MIT researchers evaluated post-harvest storage technologies, working closely with the World Food Programme, which had recently established a program to train Ugandan farmers in post-harvest storage and introduce them to post-harvest technologies, while also supporting Uganda's private sector to develop business models for post-harvest loss reduction.

CITE's evaluation examined how the post-harvest products used in the program compared in cost, availability, and value to the farmer, and identified opportunities to improve the local supply chains to better deliver these products in the future. To conduct this study, MIT researchers used mixed methods, employing empirical research — surveys, semi-structured interviews, and hypothetical behavioral experiments — to gather data that informed an analytical model.



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Key Findings for **Storage Technology Adoption**

1. Storage technology adoption had a positive impact on farmers' livelihoods.
2. Supply chain strengthening offered a better foundation for adoption than longer-term subsidies.
3. The nascent supply chain for each storage technology had opportunities for improvement such as pursuing lower cost structures for all technologies or analyzing the potential for skilled workers and equipment to increase local artisan capacity.
4. Exploring issues of trust with buyback contracts could improve product availability among risk-averse supply chain actors.

Key Findings for **Scaling Technology Adoption**

1. Willingness to pay results are critical in designing the go-to-market strategy for product adoption.
2. Multi-year facilitation support from a development organization provides opportunities to analyze and improve supply chains, which are critical for technology adoption.
3. A mixed methods approach including empirical research and modeling enables better characterization of the system and identification of insights for scalability.

About CITE

CITE is a pioneering program dedicated to developing methods for product evaluation in global development. CITE's work is led by an interdisciplinary team at the Massachusetts Institute of Technology and is made possible through the support of the U.S. Global Development Lab at the US Agency for International Development. [Read the full evaluation report at cite.mit.edu.](https://cite.mit.edu)

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