Returns to improved storage and potential impacts on household food security and income: evidence from Tanzania

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Challenges & Study objective

- ✓ Farmers use traditional storage structures which are not effective in protecting grains from insect pests and hence resulting in high losses
- ✓ Improved storage technologies have been tested and found effective in reducing storage losses
- ✓ However, little is known on the economics dimension of using the technologies
- ✓ Moreover, little is known about the potential impact of adopting the improved technologies on food security and income

Main study objective: To assess the profitability and potential impacts of selected improved grain storage technologies on food security and income

Introduced technologies

(i) Purdue Improved Crop Storage (PICS) bags
(ii) Metallic silos (of different sizes)
(iii) Actellic Super (chemical) on Polypropylene bags

Evidence

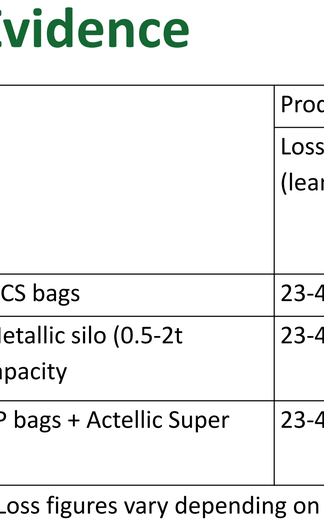
	Productivity	Economic		Human
	Loss prevented (%) (lean season)*	Net returns ($/t) (average for lean season grain sale)**	Income gain ($/hh)	Food security (number of additional food secure days)
PICS bags	23-40	15-40	30-84	10-27
Metallic silo (0.5-2t capacity	23-40	(20)-23	(58)-51	(99)-(69)
PP bags + Actellic Super	23-40	15-40	30-84	10-26

*Loss figures vary depending on the duration of storage within the lean season

**Net return figures vary depending on location (Babati lowest, Kongwa highest). For metallic silos, they also vary depending on the size of silos (0.5t silo lowest, 2t silo highest)

Approaches of taking the technologies to scale

Scaling is possible through market mechanism. Engaging private commercial agents, financial institutions, government extension agents, NGOs through R4D platforms will be useful for effective and efficient dissemination of the technologies. Targeting farmers with sufficient maize production and surplus will enhance the adoption of metallic silos.



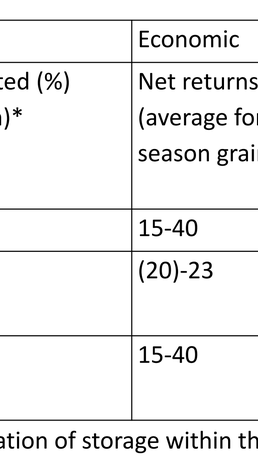
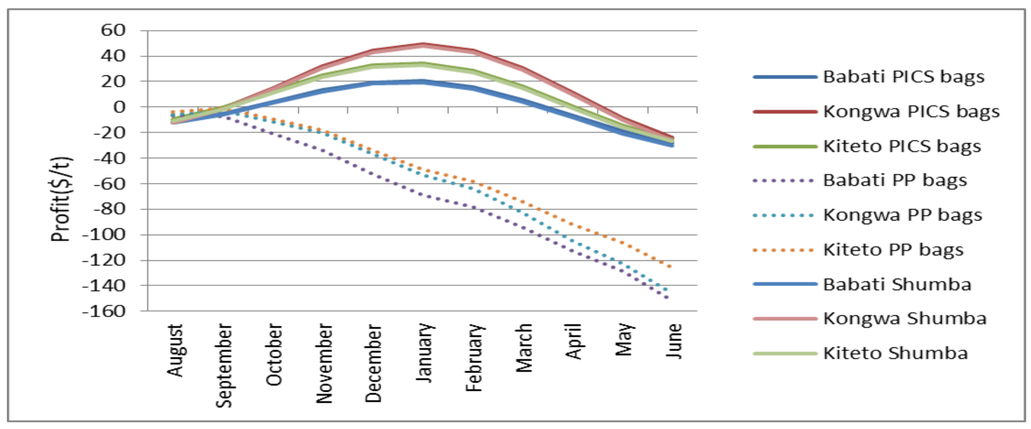


Figure 1a: PICS bags and metallic silos

Figure 1b: Polypropylene bags with chemical treatment



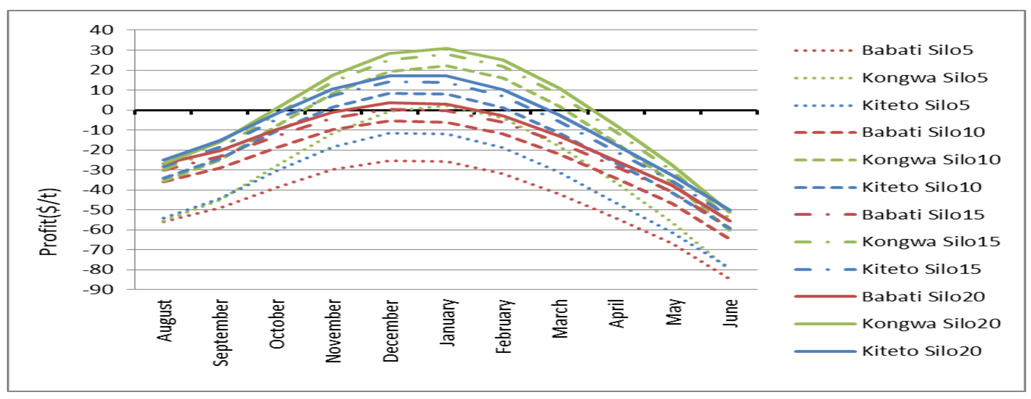


Figure 2 (a, b) profitability of improved storage technologies

Proposals for the future

Exploring ways to reduce costs of the storage structures (particularly metallic silos) will enhance adoption. Monitoring the adoption of the technologies will be needed to identify bottlenecks to adoption and assess the impacts on livelihoods of the farmers. These studies should be integrated with existing interventions in such a way that their findings can be used to enhance the success of the interventions.

Partners

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