

# Hermetic Bags for Safe Storage of Wheat



Different brands of hermetic grain storage bags are available from agrodealers



**International Center for Agricultural Research in the Dry Areas (ICARDA)**  
Zewdie Bishaw

Low-cost storage technologies for grain

Hermetic bags technology is a triple layer hermetic storage bag which has an outer woven polypropylene bag and two inner bags of high density polyethylene (HDPE). The inner bags have very low gas permeability and are water repellent. The outer bag has the strength to handle the weight of the grain it contains. Hermetic bags are tight bags that preserve the contents while restricting the existence of cereal pests by depleting oxygen supply levels and producing carbon dioxide.

This technology is **TAAT1 validated**.
 
 Scaling readiness: idea maturity 8/9; level of use 7/9

## Project adoption

The technology has been integrated in the **ENSURE project**: in 7 regions of the East African Community

Inclusion assessment 4
 Climate impact 7

## Problem

- High post-harvest losses caused by poor storage practices, insect pests, and fungal contamination.
- Declining grain quality, taste, and color during storage, especially under hot and humid conditions.
- Farmers are often forced to sell grain immediately after harvest at low prices to avoid storage losses.
- Inadequate storage methods result in losses exceeding 25% and reduce food security and profitability.

## Solution

- Prevents post-harvest losses by protecting grains from insect pests, fungal growth, and mycotoxin contamination.
- Preserves grain quality, taste, and color for up to two years while reducing cooking time.
- Provides a low-cost, reusable storage solution suitable for both smallholder and commercial users.
- Enables safe grain storage in remote areas with limited market and processing access.

Technology from  
**ProPAS**

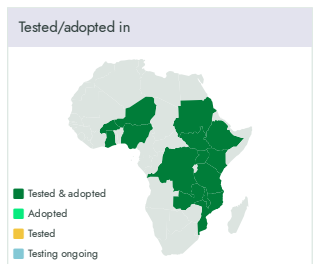
Commodities  
Wheat

Sustainable Development Goals

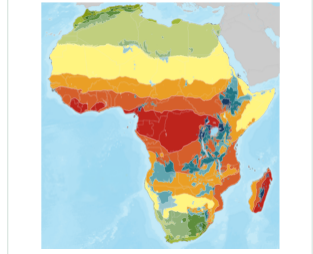
2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

Categories  
Postharvest, Equipment, Post-harvest handling



Where it can be used  
This technology can be used in the colored agro-ecological zones.



Target groups  
Farmers

## Key points to design your program

**PICS Hermetic Bags** can be integrated into post-harvest management, grain value chain development, food security, and climate-smart agriculture programs to reduce post-harvest losses, preserve grain quality, and improve farmers' incomes. Its adoption contributes to **SDGs 2, 3, 12, 13, and 15**. To integrate this technology into your project, plan and budget for the following activities and prerequisites:

- **Facilitate access** to PICS Hermetic Bags through sustainable supply and distribution systems.
- **Establish partnerships** with PICS GLOBAL, national agricultural research and extension services, grain producer organizations, and agrodealers.
- **Conduct** demonstrations and training on hermetic grain storage and post-harvest management, and **monitor** technology adoption, post-harvest loss reduction, and grain quality.

IP  
Unknown