

Solar bubble drier: Inflatable solar dryer for crop drying

Low-cost hygienic drying technology for high-quality products



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The ISD (Solar Bubble Dryer) is a mobile system that uses solar energy to dry freshly harvested cassava roots in a protected environment. It operates by converting sunlight into heat through a solar-collecting tunnel, speeding up the drying process. A photovoltaic system powers a blower to circulate air, inflate the tunnel, and remove moisture. The system also allows mixing of the product...

This technology is **pre-validated**. **9-9** Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment **4**

Climate impact **6** **1**

Commodities
Maize, Rice, Cassava, Legume

Sustainable Development Goals

Categories
Prevention & storage, Equipment, Post-harvest handling, Agrifood processing

Tested/adopted in

Problem

- Fresh cassava roots deteriorate quickly after harvest, leading to substantial post-harvest losses.
- Traditional open-air drying methods expose cassava to weather, insects, dust, and animals, reducing product quality.
- High moisture content makes transporting fresh cassava costly, highlighting the need for drying near harvest sites.
- Delayed processing degrades the purity and functionality of cassava starch.

Solution

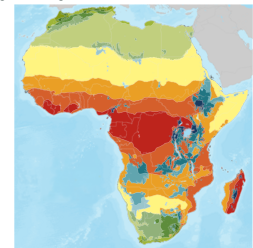
- Faster drying in a protected environment improves cassava quality.
- Mobile design allows drying near harvest sites, reducing transport costs and post-harvest losses.
- Solar-powered, self-sustained, and does not rely on fuel or electricity.
- Protects cassava from rain, dust, insects, and pests, ensuring cleaner, higher-quality output.
- Reduces post-harvest losses, typically between 28% and 42%, through efficient drying.

Key points to design your program

The Solar Bubble Dryer (ISD) technology provides an efficient, solar-powered solution for drying crops, reducing post-harvest losses and improving food quality. It supports SDGs by promoting food security (SDG 2), sustainable rural development (SDG 7), and environmental sustainability (SDG 13). This technology enhances drying speed, preserves nutritional value, and increases shelf life, making it ideal for development programs focused on improving food security and boosting farmers' incomes. It complements other agricultural innovations and is supported by local agricultural extension services for successful implementation.

Where it can be used

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



Cost: \$ 1,800 USD Initial investment		ROI: \$ 7 - 180 % Benefit for Cassava	
90 - 145 kg of cassava per 3-5 day cycle Drying Capacity	10 years Lifespan	10,957 - 29,604 USD Operating Costs	IP No formal IP rights

Target groups
Farmers, Sellers



Solar bubble drier

<https://e-catalogs.taatafrica.org/org/technologies/solar-bubble-drier-inflatable-solar-dryer-for-crop-drying>

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