

Solar bubble drier: Inflatable solar dryer for crop drying

Low-cost hygienic drying technology for high-quality products

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...



Hohenheim University & IITA
Prof. Dr. Joachim Müller

Commodities

Maize, Rice, Cassava, Legume

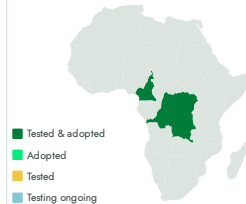
Sustainable Development Goals



Categories

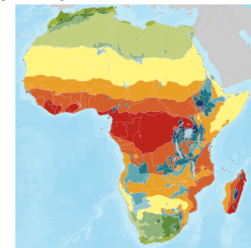
Prevention & storage, Equipment,
Post-harvest handling, Agrifood processing

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Sellers

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

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.

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



No formal IP rights



Solar bubble drier

<https://taat.africa/uwq>

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Enquiries e-catalogs@taat.africa