AGRI COOL

ADVANCING SUSTAINABLE **AGRI**CULTURE THROUGH
OFF-GRID ENERGY AND **COOL**ING SOLUTIONS IN AFRICA

Aims to tackle critical agricultural challenges in Africa by offering a cost-effective and sustainable solution to reduce food waste, enhance food security, and mitigate the impacts of climate change.

MAIN OBJECTIVES

- Develop innovative storage containers using photovoltaic technology, thermal energy storage, chillers, and smart controls.
- Conduct tests in rural communities: South Africa, Cape Verde, Somalia, Zimbabwe.
- Organise advanced courses for engineers across Africa on system design and benefits.
- Conduct a life cycle assessment to monitor the environmental impact and alignment with the Paris Agreement.
- Develop training programs for local farmers, technicians, and engineers.

PILOT COUNTRIES

South Africa · Cape Verde · Somalia · Zimbabwe

AGRIPV

Generating energy and growing crops under one roof

What solar panels are used?
Use of bifacial panels that capture light on both sides, providing more electricity thanks to reflected or diffused light.

What about light for plants?
Light transmitted through the spaces between panels and reflected on the ground; partial shade protects crops from heat.

What if we don't grow plants?
The space under the panels can also be used for light livestock farming or aquaculture, with appropriate management of conditions (water temperature, etc.).

Rainwater harvesting
The structures efficiently collect rainwater using watertight systems for irrigation and other uses.

Adaptable technology
Each site adjusts panels, lighting and water recovery according to local needs (type of crop/livestock and energy constraints).

Cold Room

A sustainable solution for the cold chain in rural Africa

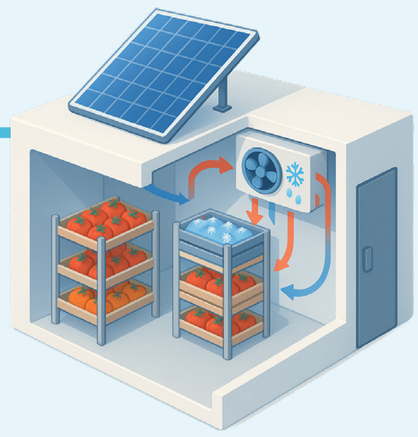
Logistical challenges
AGRI-COOL addresses the lack of reliable cold storage in rural Africa with autonomous solar models.

Solar cooling
Enhanced insulation: less cold loss, reduced need for solar panels, simplified installation.

Humidity management
A pre-chamber limits moisture ingress and optimises energy performance, even at above-zero temperatures.

Cold storage for the night
Ice production during the day, cold release at night: continuous refrigeration without batteries, bringing more efficiency.

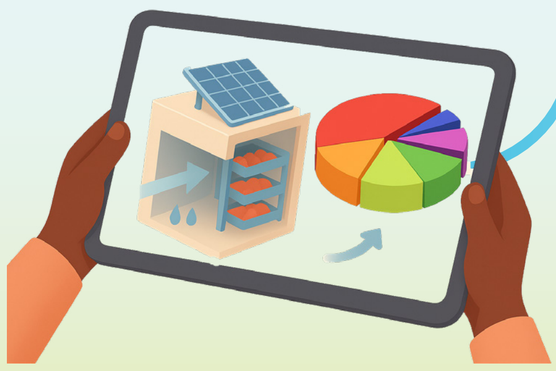
A model for isolated areas
An accessible, sustainable, solar-powered solution to secure the cold chain and support the rural economy.



SMART Control

Intelligent energy management for continuous cooling

In many rural areas of Africa, access to electricity is unstable or non-existent. For refrigeration, AGRI-COOL is developing a smart system that coordinates solar panels, cooling equipment, and special storage, producing cold during the day to store and use at night. This technology ensures reliable and continuous refrigeration, even without night-time electricity, offering a clean solution for rural communities.



Find our technologies at **agri-cool.eu**

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