

ADAPTATION FUND
Climate Innovation Accelerator
SMALL GRANTS. BIG IMPACT.

SOLUTION FACTSHEET

Adaptive Symbiotic Technologies: Helping crops become more climate-resilient

2025–2027

UN WFP World Food Programme | INNOVATION ACCELERATOR

Solution Summary

Location:
Jordan

Solution type:
Microbial innovation for climate-resilient agriculture

Innovation stage:
Transition to Scale

Grantee:
Adaptive Symbiotic Technologies

Implementing entity:
World Food Programme

Funding received:
USD 245,000 (Adaptation Fund)

ADAPTATION FUND

The Adaptation Fund Climate Innovation Accelerator provides grants and technical assistance to innovative solutions for adapting to climate change.

Adaptation Innovation

- Adaptive Symbiotic Technologies (AST) discovers, manufactures and distributes microbe-based climate adaptation technology that helps crops become more climate-resilient, requiring less water and fertilizer.
- AST scientists harnessed plants' natural root symbioses with microscopic fungi to create BioEnsure, a series of bio-enhancements that make crops more resilient to heat, drought and salinity while cutting water and synthetic fertilizer needs.
- Paired with BioTango, a bacterial fertilizer, the solution further reduces fertilizer dependence and strengthens climate protection.

Climate Impacts

The solution is helping Jordan adapt to:

Drought and water security

High temperatures and heatwaves

Key Achievements

- In Jordan, AST's solutions, BioEnsure and BioTango, reached 1,767 smallholder farmers and their households, delivering an average of 48 percent yield increase.
- Across Australia, Ghana, India, Jordan and North America, thousands of farmers use these solutions to withstand climate stress, secure more animal fodder, access export markets, raise farm incomes and cut fertilizer and water use. BioEnsure and BioTango have saved crops during prolonged droughts and extreme heat, strengthening food security and resilience.

Replication and Scaling Potential

- AST currently sells products for 2 million acres of farmland in Australia, Ghana, India and North America. The company's production capacity is 50 million acres per year, so it has great potential to scale throughout the MENA countries.
- Once AST's sales reach half of its production capacity, it plans to start constructing a second facility.

To learn more, visit WFP-AFCIA AST

Investment Potential

- **Business model:** Hybrid Economic Model for Operational Sustainability (HEMOS)
- **Sustainable approach:** HEMOS is based on receiving outside funding to initiate activity in one region/country by supporting the establishment of demonstration plots, collecting data for regulatory approvals and marketing, undertaking sales for sustainable operations with the intent of covering costs to expand into new regions/countries.

Project Location



Last updated: 30/10/2026