

# Meet the Teams



FSI CHALLENGE

Bangladesh

Bangladesh Agricultural University

## The Golden Loop

This solution introduces **jute-based circular innovations** for inland aquaculture, combining biodegradable geo-textiles and a **biochar-periphyton system** to protect pond ecosystems. Jute geo-textiles prevent erosion without microplastics, while biochar-filled bamboo structures improve water quality and support natural fish feed.

By turning **jute waste into valuable resources**, the project strengthens a circular economy, enhances biodiversity, and improves food security. It also creates **local livelihood opportunities** through accessible, community-driven production methods.

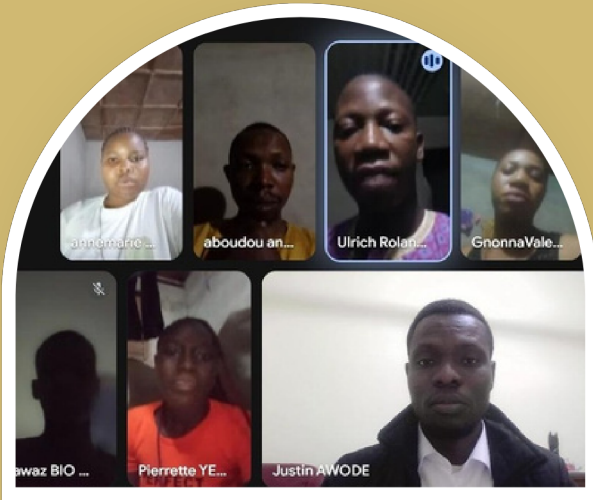


## Biocircular

This project uses **oyster mushroom cultivation** to convert agricultural residues like rice straw into **high-value edible protein**, while naturally breaking down lignocellulosic waste. The remaining substrate is reused as compost or soil amendment, closing nutrient loops.

Its innovation lies in a **flexible, circular system** that cascades biomass from food to soil, supported by a **youth-led, decentralized model**. The approach delivers measurable benefits for soil health, resource efficiency, and climate impact.

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## GreenValor- Compost Ketou

Locally available **cassava peels and poultry manure** are transformed into **high-quality compost**, improving soil fertility while reducing pollution and disease risks. This approach helps restore degraded land and supports more resilient food production systems.

By combining these waste streams into a **circular agricultural model**, the solution reduces reliance on chemical fertilizers and promotes long-term soil health. It also creates **income opportunities** for farmers, youth, and local processors.



# Benin

National University of  
Agriculture

## FertiSoyaPlus

**Soy whey and poultry manure** are transformed into a **bio-based fertilizer**, turning waste into a resource that restores soil health and reduces pollution. The use of **Hyptis suaveolens** provides a natural alternative to chemical pesticides, helping protect biodiversity.

By combining **locally adapted fermentation** with a circular approach, the solution supports small-scale farmers while creating **income opportunities for women's groups**, linking environmental impact with community development.



## EcoPalm Nexus

A **regenerative artisanal palm oil model** improves food safety, environmental sustainability, and market trust. Standardized processing, safe water use, and low-cost **quality monitoring** help preserve nutrients while reducing contamination risks.

Through **training and traceability**, the approach strengthens local producers, especially women, while improving product quality and transparency. Combined with **agroforestry and waste composting**, it supports soil health, reduces import dependency, and builds a more resilient food system.



## Kindred Ora

A resilient native plant, **Pereskia aculeata (ora-pro-nóbis)**, is cultivated in a **biochar-enriched substrate** to produce a nutrient-dense leaf flour with low water and energy inputs. The crop's natural resilience supports efficient, climate-adapted production.

A **solar-powered drying system** enables low-energy processing while preserving nutritional quality. The innovation lies in a **modular, scalable approach** that combines sustainable cultivation, local food identity, and nutrient-rich production.



# Brazil

ESALQ USP

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## Eureka

A **cactus-based production system** introduces a drought-resilient crop into formal farming, transforming an underutilized plant into a valuable food and feed resource. By improving soil stability and reducing pressure on water and land, it strengthens both biodiversity and climate resilience.

The innovation lies in creating **diverse, locally adapted products** from both fruit and pads, while integrating unused biomass into livestock feed. This **circular approach** supports nutrition, reduces waste, and connects cactus to local markets and food systems.



Ethiopia

Wollo University

## Biochar - The Black Diamond

Agricultural waste is converted into **biochar**, a nature-based soil amendment that improves soil structure, water retention, and nutrient efficiency. By avoiding open burning, the approach reduces air pollution while supporting **carbon sequestration** and healthier, more productive soils.

The solution combines **low-cost local production** with standardized quality and field testing, creating a scalable circular model. By strengthening soil biodiversity and reducing reliance on external inputs, it helps farmers adapt to drought, land degradation, and rising costs.



Ghana

University of Ghana

## SoilPulse AI

Real-time **soil health monitoring** is delivered through a multilingual mobile app and SMS alerts, making precision agriculture accessible even in remote, low-literacy contexts. By optimizing water and fertilizer use, the system reduces agrochemical overuse and protects surrounding ecosystems.

With **predictive insights**, farmers can anticipate soil stress and prevent crop failure, shifting from reactive to resilient farming. The approach also supports **nature-based restoration** practices, improving soil biodiversity, water quality, and long-term ecosystem health.



## MACISLAND

Biological nutrient cycling is used to convert **fish waste into liquid fertilizer** through specialized bacteria, mimicking the natural nitrogen cycle. This reduces reliance on fossil-based inputs while supporting plant health and resilience in urban environments.

The system integrates **Black Soldier Fly larvae** to transform organic waste into high-protein fish feed, creating a **circular urban food loop**. By reducing dependence on conventional fishmeal, it offers a regenerative approach to urban food production.



Timothy Dzadey



Nathaniel Gogoe



Alberta Aseye  
Akosua Agbakpe



Emmanuel Apetsi



## Ekolestari

An **on-farm event and market showcases** how **diverse rice farming systems** deliver environmental, social, and economic benefits. By connecting farmers directly with consumers, it raises awareness and builds support for ecologically produced food.

Creating a visible market for **diverse farm products** encourages wider adoption among farmers, including those shifting away from monocultures. This growing network strengthens local economies and supports a more sustainable and resilient food system.

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Indonesia

Brawijaya University

## Ngramut Wiji

Access to **diverse seeds** strengthens agrobiodiversity, giving farmers the flexibility to grow crops that support both **food security and sovereignty**. Diverse production also provides multiple food sources and supports household needs.

By encouraging a wider range of crops, farming systems become more **resilient and ecosystem-rich**, supporting beneficial organisms and cultural practices. This contributes to stronger, more sustainable food systems overall.



# Agripro

**Bioregen Pods** restore soil fertility by delivering **slow-release nutrients, beneficial microbes, and biochar** in a compact, easy-to-use format. This improves soil structure, water retention, and resilience to drought and heat, while supporting biodiversity and long-term productivity.

Designed as a **simple, farmer-friendly solution**, the pods require no new equipment and combine soil restoration, climate adaptation, and carbon sequestration in one product. By working with natural soil ecology, they offer a scalable, nature-based alternative to conventional inputs.



## Solar Harvest Innovators

A **mobile solar-powered grain dryer** uses renewable energy to safely dry crops, reducing reliance on firewood and fossil fuels. With a controlled drying chamber and monitoring tools, it helps lower **food waste and aflatoxin contamination** while cutting emissions.

Its **portable, affordable design** allows use across multiple farms, making it well-suited to rural conditions. By combining clean energy with practical functionality, it offers a scalable solution for safer and more resilient post-harvest systems.



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Kenya

Lukenya University

FSI CHALLENGE



## FermentaFuture

Surplus cabbage and market waste are converted into a **fermented, high-protein livestock feed**, addressing feed shortages in urban and peri-urban systems. Through microbial fermentation, the solution creates a **nutrient-dense and highly digestible feed** that supports increased animal productivity.

By turning waste into value, the approach reduces food loss, emissions, and pressure on conventional feed crops. It also builds an **inclusive value chain** for farmers and waste collectors, strengthening both environmental and economic resilience.

Kenya

University of Eldoret

## Breeze Labs

**Breeze-Bag** uses **biodegradable plant-based fibres** and natural essential oils to extend the shelf life of dry produce without chemicals or electricity. This reduces food waste, plastic use, and post-harvest losses while supporting more sustainable storage practices.

By offering a **low-cost, off-grid solution**, it helps farmers and vendors preserve crops like onions and potatoes, improving income stability during disruptions. The approach supports a more **resilient, circular food system** based on natural materials.



## Shell Alchemist

Discarded eggshells are converted into a **locally produced calcium supplement** for poultry feed, restoring nutrients back into the food system. This reduces reliance on mined inputs while creating value from an abundant waste stream.

The innovation lies in a **low-cost, standardized processing method** and a **circular waste-to-feed model** that can be scaled through community-based production, linking waste management directly to livestock nutrition.



## Green Miracle

A single plant, **Moringa oleifera**, is used to create a range of **nutritious food products**, alongside bio-based coatings, bio-stimulants, and bio-pesticides. This integrated approach links nutrition, post-harvest innovation, and sustainable farming in one system.

By combining **climate-smart cultivation** with community-based production and green entrepreneurship, the solution supports rural livelihoods while improving resilience. It offers a **scalable, nature-based model** that strengthens both nutrition and food system sustainability.

Nepal

Kathmandu University

## FSI CHALLENGE



## Siam Bio-Store

An invasive plant, **Chromolaena odorata (Siam weed)**, is repurposed into a **natural grain protectant**, offering an eco-friendly alternative to synthetic insecticides. Its proven insecticidal properties help reduce post-harvest losses in staple crops like maize, rice, and beans.

By turning a widespread weed into a **bio-based preservation solution**, the approach lowers health risks, reduces environmental impact, and supports safer storage practices. This **circular use of invasive species** contributes to more resilient and sustainable food systems.



Nigeria

University of Abuja

## Green Dessert

This team transforms **desert date waste** into a wide range of valuable products, including food, biofuel, animal feed, and organic fertilizer. By utilizing discarded seeds, it reduces waste while supporting local production and resource efficiency.

Through **simple, accessible processing techniques**, the approach enables communities to create multiple income streams. This **circular model** strengthens livelihoods and promotes sustainable, nature-based solutions across the food system.



# Gancax Pro

A **syntropic agroecological system** restores saline soils by combining crops like groundnut, cowpea, and maize in a biodiversity-rich design. With compost use and drip irrigation it improves soil fertility, reduces salinity, and strengthens climate resilience.

By linking production with **local processing and circular resource use**, the approach boosts farmer income and reduces import dependence. It also ensures **safe, high-quality crops** through biological aflatoxin control.



**Yacine PENE**  
Chef de Projet



**Awa A. DIOP**  
Responsable Finance



**Assane LO**  
Responsable Qualité

# MBT's Infusana

Locally grown plants such as **lemongrass, ginger, and white hibiscus** are transformed into **natural infusion blends enriched with honey powder**, adding value to underutilized crops. This reduces post-harvest losses while responding to the demand for healthy, locally produced products.

By building a **short, local value chain**, the approach increases farmer income and promotes sustainable use of natural resources. The innovation lies in a **100% natural, additive-free product** rooted in local biodiversity and nature-based production.

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Senegal

USSEIN

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## Regrain

Wet okara, a by-product of soybean processing, is directly transformed into **gluten-free pasta** without energy-intensive drying. By developing a stable binding structure, the process preserves nutritional value while reducing energy use.

A **localized, circular model** enables on-site processing near production facilities, minimizing transport and waste. This approach reintegrates by-products into the food system, improving resource efficiency and supporting more sustainable production.



# South Korea

## Seoul National University

## ABEL

A **spoilage-responsive film** detects decomposition in meat by reacting to volatile compounds and providing a clear visual warning. This helps consumers make safer, more informed decisions, reducing both food waste and health risks.

By improving the distinction between edible and spoiled products, the solution increases **resource efficiency** across the meat value chain. As a **fully natural, low-tech material**, it can be easily integrated into packaging without additional infrastructure, supporting more resilient food systems.





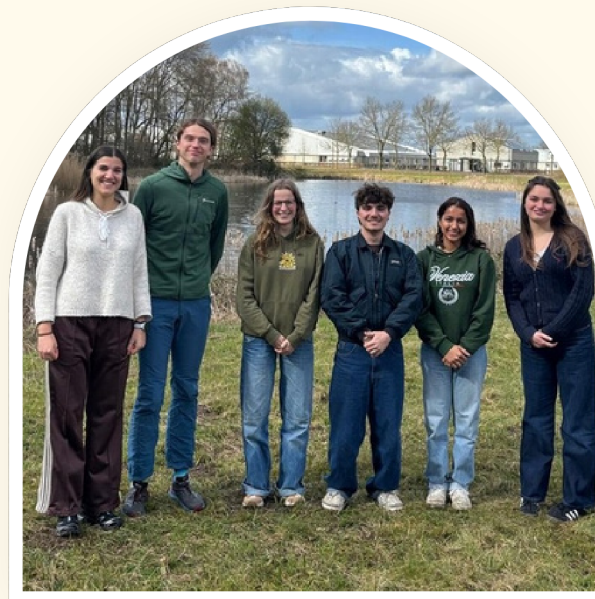
# The Netherlands

Wageningen University & Research

## Paludifuture

A **targeted sulphate application system** reduces methane emissions in restored wetlands and peatlands, enabling climate-positive farming systems such as paludiculture. This helps turn marginal land into productive landscapes while improving long-term resilience.

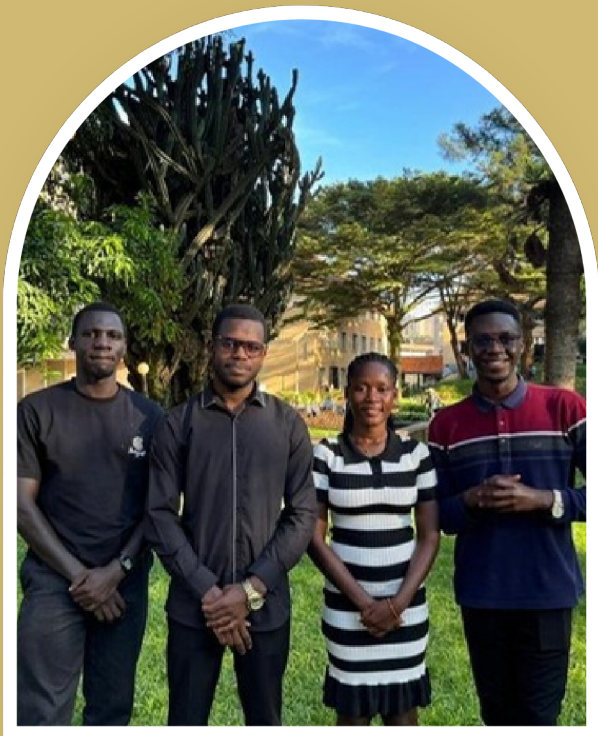
By using **locally sourced sulphates** and precision delivery within existing water systems, the approach closes nutrient loops and lowers emissions. It also supports farmers in transitioning to **sustainable wet-farming models**, balancing environmental impact with economic viability.



## IronTeam

Ironbloom transforms **seaweed into iron-rich gummies**, offering a natural and sustainable alternative to conventional supplements. This reduces reliance on mining-based inputs while addressing iron deficiency with a safe, accessible product.

By centring women across the value chain, the approach supports **health, income generation, and empowerment**. It combines nutrition and social innovation to create a more inclusive and resilient food system.



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# Green Organic Harvest Canopy

Green Organic Harvest Canopy introduces a **multi-strata agroforestry system** in Kagadi, combining indigenous trees, nitrogen-fixing species, and crops to **restore soil health**, boost biodiversity, and **improve climate resilience**. By adding fruit trees, the system diversifies food and income while reducing reliance on synthetic inputs.

Its innovation lies in a **precision agroforestry approach** and a **“Lighthouse Farmer” model**, where early adopters showcase the system and enable peer-to-peer learning, supporting wider community adoption.

## BioCoat Solutions

A **bio-based coating from cassava peel waste** is developed to extend the shelf life of tomatoes by regulating moisture loss and respiration. Designed as a **semi-permeable, flexible film**, it protects the fruit without affecting quality, appearance, or consumer acceptance.

The solution combines a **waste-to-value approach** with **affordable, locally producible technology**, enabling small-scale production while reducing food waste, synthetic packaging, and reliance on non-biodegradable materials.



# Uganda

Makerere University



# EverGreen

Using **luffa as a versatile, nature-based crop**, this project promotes low-chemical farming while adding a nutritious ingredient to local diets. By supporting farmer adoption, it strengthens both sustainability and food diversity.

Overripe luffa is repurposed into **eco-friendly products and natural filtration materials**, creating additional income streams. This circular approach supports **green livelihoods** and reduces agricultural waste.



# Eco-Aqua Alliance

Combining **subsurface drainage, drip irrigation, and smart water storage**, this solution helps farmers manage salinity and drought more effectively. By optimizing water use and improving field conditions, it strengthens climate resilience in vulnerable agricultural areas.

The approach reduces reliance on **chemical inputs** by limiting waterborne diseases and improving crop health. This supports safer production while promoting a more **sustainable and resilient farming system**.



FSI CHALLENGE

Vietnam

Tra Vinh University & Can Tho University