PIDACC Zambia

This toolkit is a selection of TAAT-vetted, climate-smart technologies designed to support the implementation of the Programme for Integrated Development and Adaptation to Climate Change in the Zambezi Basin (PIDACC-Zambia).

95 TECHNOLOGIES | CREATED ON OCT 28, 2025 BY TAAT PROFILING TEAM | LAST UPDATED OCT 28, 2025

TECHNOLOGIES IN THIS TOOLKIT

- **Cut-and-Carry Fodder Systems**
- **Mechanized Processing and Value Addition for Fish Products**
- **Aquaculture and vegetables Integration System**: Integrated...
- **Affordable Fish Feed Production**: Formulation and Pelleting of Low-...
- **Flow-Through and Recirculatory Water Systems for Fish Tanks**
- **Tank Systems for Fish farming**
- **Hapa Nets for Fingerling**
- **Bean Flour and Flour Products**: Bean processing process
- **Pre-Cooked Beans for Consumer Convenience**
- **DTMA & WEMA**: Drought Tolerant Maize Varieties and Water Efficient...
- **Millet and Sorghum Varieties for Better Nutrition and Stress**...
- **Dual-purpose Millet Varieties for Crop and Livestock Integration**
- **Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield**...
- **Small Ruminant Containment in Protective Sheds**
- **Local Livestock Improvement through Community Breeding**...
- **Processing chicken meat for cold storage**
- **Mechanized Defeathering and Sorting**
- **Addition to Poultry Manure**
- **Poultry Vaccination against Newcastle Diseases**
- **Low-Cost Cage and Free-Range Containment**
- **Special Chicken Breed**: Dual-Purpose Chicken for Small-Scale...
- **Genetically Improved Poultry Breeds for Optimized Meat and**...
- **Contour Bunding Technique (CBT)**: Contour Bunds for Water...
- **OFSP puree and products**: Puree Production and Products for Sweet...
- **HIB varieties**: Biofortified Beans for Improved Nutrition
- **PICS**: Hermetic Bags for Safe Storage of grain
- **Aflasafe®**: Aflatoxin management
- **SAH cassava**: Semi Autotrophic Hydroponics for Cassava...
- **GEM system**: Parboiling equipment for rice
- **Fast Growing and Hybrid African Catfish**
- **Foliar micronutrient addition for healthier rice**
- **GIFT "Genetically Improved Farmed Tilapia"**: All Male Tilapia...
- **Community-based multiplication of sweet potato vines and cuttings**
- **Flour Milling and Blending Systems for Wheat, Sorghum a**...
- **Local Production of Quality Affordable Poultry Feed**
- **Maize-legume rotation and intercropping**
- **Rice Threshing and Polishing Machines**: Axial flow thresher and...
- **Hello Tractor**: Contract mechanization apps
- **Biosecurity for Disease Prevention**
- **Proactive Management of Striga Infestation**
- **Best practices in pasture management**: Pasture Improvement
- **Biological Control of Sorghum and Millet Insect Pests with**...
- **Combine Harvesters for Wheat and Fleet Management tool**
- **Cassava seed-bulking farms**
- **Semi-Automatic Incubator for artificial hatching**
- **Motorized Planter and Fertilizer Applicator (Sénékéla)**: Mechaniz...
- **ARICA**: Advanced rice varieties for Africa
- **Short-Term Fattening and Supplemental Feeding**
- **Agrocares Scanner**: Soil, Feed and Leaves Nutrient Scanner
- **Multifunctional biopesticide**: Ecopticide Agri
- **KABAMANOJ F1**: High yield and drought tolerant orange maize hybrid
- **Turbocrop**: Field crop plant establishment biostimulant
- **PAC 501**: High yielding and drought tolerant white grain sorghum hybrid
- **GrainMate**: Grain Moisture Meter
- **PAC 740**: Orange maize hybrid
- **Soybean inoculant**: Rhyzobium inoculant range, various strains
- **Mechanized Threshing Operations**
- **IPM**: Integrated Management of Insects, Diseases and Weeds in...
- **Cage Systems for Fish farming**
- **EcoCycle Larvae System**: Black Soldier Fly Larvae (BSFL) proteins f...
- **BM START**: Organic Biostimulant for flowering and fruit setting
- **Demi-lune technology**: Rainwater

https://taat.africa/vdq

harvesting method
- **BASICS Model**: A Seed System Model for Cassava Transformation
- **Cassava Seed Field Multiplication Protocol**
- **Cassava EGS Model**: Early Generation Seed Production of…
- **Improved Cassava Varieties**: Market-driven cassava breeding an…
- **Biological control of cassava mealybug**
- **YUKON**: Biofungicide, YUKON 72 SC
- **Applied Biosystems**: Comprehensive Animal Health…
- **Solar Bubble Dryer**: Inflatable Solar Dryer for crop drying
- **Advanced Weed Management**: Mechanical and Chemical Weed…
- **Low-Cost Staking for Climbing Beans**
- **Low-dose pest control**: Seed dressing of Seed with Fungicide an…
- **Silage production from sweet potato vines and tubers**
- **Raised beds for sweet potato production and weed**…
- **Tent-style greenhouse for multiplication of sweet potato**…
- **Drought and Virus Tolerant Orange-Fleshed Sweet Potato**
- **OFSP**: Orange-Fleshed Sweet Potato (High provitamin A)
- **Pneumatic Cassava Dryers**
- **Mechanized Cassava Planting and Harvesting**
- **Pond Liners to Save Water and Ease Maintenance**
- **Ethical Meat Processing**: Humane Slaughtering and Meat Inspection
- **Relay intercropping of sweet potato with legumes**
- **IR maize**: Imazapyr resistant maize for Striga management
- **NERICA**: High yield rice varieties for Africa
- **Seed Inoculation with Rhizobia**
- **Climbing Bean with High Yield and N Fixation**
- **Pre-plant blended fertilizers and nitrogen topdressing for maize**
- **DroughtTEGO**: Drought tolerant and high yield maize varieties
- **Cut and Bury**: Motorized weeders for rice production
- **High quality cassava flour and industrial starches**
- **Disease resistant cassava varieties**
- **Pre-emergence herbicides for maize crops**
- **Golden maize varieties (High provitamin A)**
- **Processing and Application of Composted Manures**

Cut-and-Carry Fodder Systems

Low-cost fodder system for livestock

"Cut-and-Carry Fodder Systems" technology delivers fresh feed directly to confined livestock, replacing traditional grazing. It involves daily harvesting and distributing feed, suitable for dairy cattle, goats, and sheep, particularly in areas with limited feed resources.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 6

Problem

- Feed wastage in free-grazing systems due to trampling, contamination, and inefficient utilization.
- Traditional grazing results in delayed livestock fattening and longer timeframes for returns on investment, particularly after weaning.
- Underutilization of valuable resources like crop residues and seasonal vegetation in traditional grazing methods.

Solution

- Efficiently utilizes crop residues and seasonal vegetation, preventing wastage.
- Facilitates the collection and use of manure for enhanced soil fertility and productivity.
- Allows for both zero-grazing and partial confinement, offering flexibility in grazing practices.

Key points to design your project

Steps to integrate the technology into your project:

- Ensure availability of sufficient vegetation.
- Prepare for moderate expenses.
- Be prepared for labor-intensive tasks.
- Ensure access to improved breeds.
- Acquire skills in animal diets, health care, and market intelligence.

Consider training and support during project installation, communication support, and collaboration with agricultural development institutes for implementation.

50—100 USD	20 USD	IP
Feed and water troughs for 20 to 50 animals	Suitable shed per m2	Open source / open access

Technology from

ProPAS

Commodities

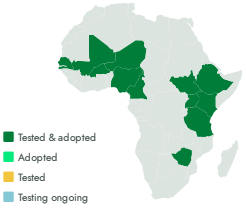
Small livestock, Cattle

Sustainable Development Goals

Categories

Production, Practices,
Animal feed management

Tested/adopted in



Where it can be used

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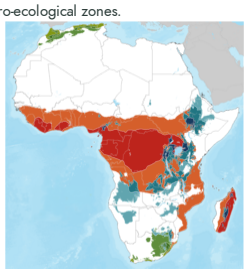


Target groups

Breeders

Mechanized Processing and Value Addition for Fish Products

From Catch to Cuisine: Enhancing Fish Quality and Sustainability

Smoking kiln suitable for processed fish products

This technology is a fish processing and preservation method involving the use of equipment such as solar tent dryers and smoking kilns. Solar dryers offer a low-cost alternative to refrigeration, and smoking kilns utilize smoke to kill microorganisms while drying the fish.

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Post-Harvest Losses, significant post-harvest losses occur due to bacterial activity and oxidation.
- High ambient temperatures in many regions accelerate the spoilage of fish,
- The availability of mechanized equipment and maintenance might pose challenges, particularly in resource-constrained areas.
- Traditional smoking kilns may consume significant energy and time.

Solution

- Fish processing and preservation technologies extend the shelf life of highly perishable fish, reducing post-harvest losses.
- These methods improve the palatability, taste, and nutritional value of fish products, enhancing their market acceptance.
- Solar tent dryers and smoking kilns are cost-effective and widely used, eliminating the need for refrigeration during transport and storage.

Key points to design your project

The Mechanized Processing and Value Addition for Fish Products technology enhances efficiency and sustainability in fish processing. To establish a fish processing operation, follow these steps:

- Develop a business plan and secure funding for equipment and premises.
- Train staff on safe and hygienic processing practices.
- Ensure a steady supply of fish for optimal facility operation.
- Access reliable utilities and fuel affordably.
- Market finished products to maintain cash flow.

1,000 USD	2,500 USD	2,000 USD	IP
Filleting equipment	Equipment for skinning and deboning 10 to 20 fish/minute	A greenhouse-style solar dryer 15 m × 8 m with capacity of 850 kg fish per batch	Patent granted

Technology from

ProPAS

Commodities

Fish

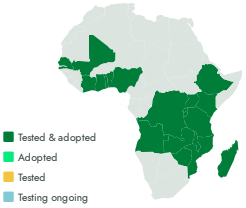
Sustainable Development Goals

Categories

Post-production, Practices,

Agri-food processing

Tested/adopted in



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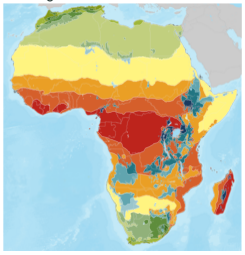


Target groups

Processors

Aquaculture and vegetables Integration System: Integrated Aquaculture and Agriculture Systems

A floating aquaponic system

Aquaculture and Crops system for better yield

"Integrated Aquaculture and Agriculture Systems" is a method where fish and plants are co-cultivated. Fish waste serves as plant fertilizer, while plants purify the water for fish. This system optimizes resource use and enhances productivity in both aquaculture and agriculture.

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 6

Problem

- Depleted soil: Reduced crop yields due to nutrient loss.
- Limited land: Difficulty expanding agriculture due to scarce arable land.
- Water competition: Farmers and fishers compete for water resources.
- High feed costs: Traditional fish farming methods are expensive.

Solution

- Waste to Wealth: Fish waste nourishes crops, reducing fertilizer costs.
- Double Duty: Fish and crops share land, maximizing output.
- Water Sharing: Same water sustains both fish and crops.
- Feed Savings: Crop leftovers become fish food, lowering costs.

Key points to design your project

Integrated Aquaculture and Agriculture Systems provide more income for farmers (women too, with fair access), cleaner water from less fertilizer. It supports UN goals on equality, sustainability, hunger.

To integrate in the project, consider:

1. Work with local farmers, fishers, and experts.
2. Pick a good spot with water and markets nearby.
3. Start small, choose fish & crops that work together.
4. Train farmers on fish & crops, system care.
5. Spread the word: flyers, radio, demos.

Costs can vary depending on project scale.

50-100 USD	2,466 USD	250,000 USD	IP
one square metter of hydroponic plastic beds	average net income per acre	for 0.5 ha of fully equipped aquaponic system	Open source / open access

Technology from

ProPAS

Commodities

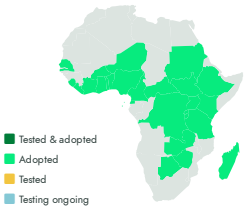
Vegetable crop, Fish

Sustainable Development Goals

Categories

Production, Practices, Yield improvement

Tested/adopted in



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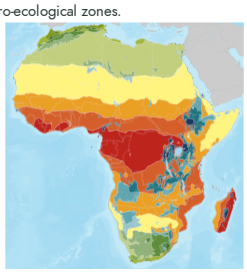


Target groups

Farmers

Affordable Fish Feed Production: Formulation and Pelleting of Low-Cost Feeds

Empowering Aquaculture with Affordable Feeds

The technology "Formulation and Pelleting of Low-Cost Feeds" aims to reduce the cost of fish feeds in Sub-Saharan Africa, where fish farms spend about 60-70% of their budget on imported feed. It promotes the use of local resources to produce quality, cost-effective and balanced fish feeds. This innovation could enhance the profitability and sustainability of fish farming businesses.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Fish farming in Sub-Saharan Africa is costly due to expensive feeds.
- A large part of the cost is for imported feed ingredients.
- Simple, unprocessed grains used in feeds lead to poor nutrient transfer and pollution.
- High costs and inefficiencies limit the profitability of fish farming.

Solution

- The technology makes affordable fish feeds using local products.
- Pelleted feeds improve nutrient transfer and reduce pollution.
- Pellets are easier to store and transport, reducing costs.
- The technology allows feed customization for different fish species.

Key points to design your project

The "Formulation and Pelleting of Low-Cost Feeds" technology enables local production of affordable fish feeds in Sub-Saharan Africa, contributing to several SDGs. Implementation involves organizing raw ingredients, selecting a site, procuring equipment, packaging, marketing, and contracting. It requires understanding of fish species' nutrient requirements, local feed ingredients, and feed formulation. The technology can be combined with other aquaculture technologies and requires collaboration with key partners like research institutions, local farmers, and government agencies.

85,000 USD

Equipment of production

WorldFish Center
Bernadette Fregene

Technology from

ProPAS

Commodities

Fish

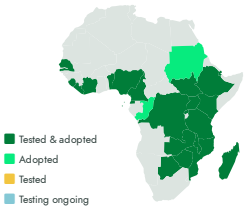
Sustainable Development Goals

2 ZERO HUNGER

Categories

Pre-production, Inputs, Fertilizer

Tested/adopted in



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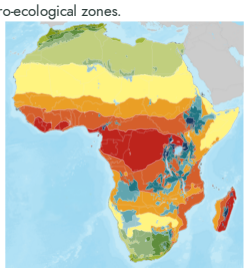


Target groups

Breeders

Flow-Through and Recirculatory Water Systems for Fish Tanks

Enhance fish farming efficiency with sustainable water systems, reducing resource wastage and ensuring robust fish growth.

Recirculatory Aquaculture Systems involve advanced setups for fish farming in tanks. They maintain essential conditions like oxygen levels and water temperature. Water is continuously filtered, ensuring a clean and healthy environment for the fish.

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Inclusion assessment 4

Climate impact 4

Problem

- Challenges in maintaining water quality and oxygen levels for successful fish farming
- Need for effective waste management and control of pollutants in aquaculture systems
- Dependence on reliable water sources and electricity infrastructure for flow-through systems
- Cost and complexity of installing recirculatory systems compared to conventional methods

Solution

- Efficient use of limited land and water resources for higher density fish culture
- Maintenance of peak water quality conditions despite dense stocking rates
- Continuous water filtration and purification, leading to a healthier environment for fish
- Conversion of waste products into non-toxic substances for potential use in crop cultivation
- Flexibility in location choice based on water availability and electricity access

Key points to design your project

Steps to integrate RAS into a project:

- Assess water management needs based on farm settings and investment requirements.
- Acquire skills for installing and operating equipment under optimal conditions.
- Test water quality to determine pre- and post-treatment requirements.
- Estimate technology quantity and costs, including pumping, piping, and treatment expenses.
- Consider delivery costs, import clearance, and duties for project sites in relevant countries.
- Allocate resources for training and post-training support.
- Collaborate with agricultural development institutions to facilitate technology adoption.
- Explore integration with complementary technologies for enhanced efficiency.

44000 USD	**1.5—5 USD**	**IP**
Recirculation System (130 m3) treatment	Settling of square meter pond construction	Open source / open access

WorldFish Center
Bernadette Fregene

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

Categories

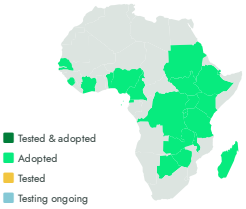
Production, Equipment, Aquaculture Systems

Best used with

All Male Tilapia Fingerlings with Greater Yield and Uniformity, Fast Growing and Hybrid African Catfish

See all 2 technologies online

Tested/adopted in



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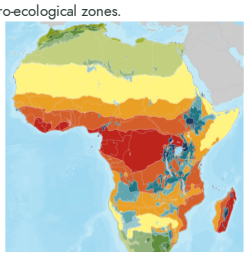


Tank Systems for Fish farming

Aquaculture Innovation: Growing the Future, Nurturing the Waters

A concrete tank for raising catfish

A tank system for fish culturing is a land-based, intensive aquaculture enclosure. Made from materials like concrete or plastic, it requires a complete feed diet and can operate on various water and air supply systems. It's designed for high-density rearing of species like catfish and tilapia, with regular sorting needed. Success hinges on excellent water quality and year-round availability.

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- **Resource and Environmental Challenges**: Limited land and water resources, difficulty in maintaining optimal water conditions, and significant environmental footprint of traditional methods.
- **Production and Efficiency Issues**: Limited capacity for high-density rearing, high death rates due to cannibalism, and inefficient feed use leading to slow growth.
- **Market Accessibility**: Increased costs and reduced freshness due to distance from markets.

Solution

- **Resource and Control Efficiency**: Less land and water usage with optimal environmental control.
- **Intensive Rearing and Survival**: High-density fish production with minimized cannibalism.
- **Market Proximity and Feed Optimization**: Close to markets with maximized food conversion.
- **Environmental, Biosecurity, and Energy Solutions**: Reduced footprint, disease risk, and energy use.

Key points to design your project

Tank systems in aquaculture offer a sustainable solution to traditional fish farming by providing a controlled environment for high-density stocking, using less land and water. They boost income and align with sustainability goals.

Implementing this technology involves:

- **Training** farmers on fish biology, feed and water management, and disease control.
- **Setting up infrastructure**, including tanks, water systems, aeration systems, and procuring quality inputs like fish seed and feed.
- **Implementing best practices** such as regular water monitoring, proper feeding, health checks, and establishing market linkages for produce sale.

Prerequisites include significant initial investment, continuous supply of quality water, access to training, understanding of local market demand, and logistics for produce transportation. These may vary based on local context and project objectives.

500 kg
harvest every 9months for a stocking rate of 50 fish per square meter

330 USD
Gross margin after deducting operating costs

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

2 ZERO HUNGER

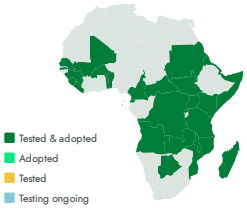
Categories

Production, Equipment, Aquaculture Systems

Best used with

All Male Tilapia Fingerlings with Greater Yield and Uniformity, Fast Growing and Hybrid African Catfish
See all 2 technologies online

Tested/adopted in



Where it can be used

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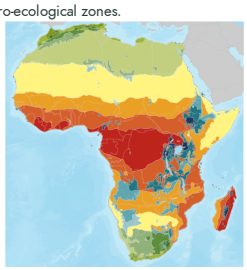


Target groups

Hapa Nets for Fingerling

Hapa Nets for Mass Fingerling Hatchery Production

The "Hapa Nets for Mass Fingerling Hatchery Production" technology is cage-like enclosures in ponds to manage fish breeding and growth. Made of affordable materials, these nets enhance fingerling production by protecting fish from predators and controlling breeding conditions. They are adaptable to various aquaculture species and water bodies, improving overall production efficiency.

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 5

Problem

- Inadequate supply of high-grade fingerlings from improved fish breeds
- Poor and uneven growth rates, and high fingerling mortality in open ponds
- Predation by birds, reptiles, amphibians, and aquatic insects
- Difficulty in monitoring and managing brooders, hatchlings, and juveniles

Solution

- Safeguarding brooders, hatchlings, and juveniles from predators and other fish.
- Easing the management of brooder, fry, and fingerlings, enabling closer monitoring and adjustment of breeding, feeding, or aeration regimes.
- Increasing fertilization rates, promoting even growth of fish seed, and reducing mortality, leading to higher production of fry and fingerlings per unit area.

Key points to design your project

The technology facilitates affordable mass production of fingerlings, benefiting fish farmers by boosting income and ensuring food security through increased fish availability. It empowers women in aquaculture, fosters rural economic growth, and advocates sustainable practices to minimize environmental impact.

Key steps for incorporating the technology:

- Identify suitable pond locations and sizes.
- Procure appropriate net materials.
- Determine optimal stocking densities.
- Ensure access to high-quality, affordable feed.
- Promote the use of cultured fingerlings locally.

Allocate resources for training and support during implementation, collaborate with agricultural institutions, and consider integrating complementary technologies for optimization.

150—900 fingerlings per square meter
Production in hapa

8—20 fish farmers
Number of fish farmers in a single hatchery

IP
Open source / open access

Technology from
ProPAS

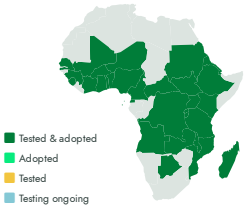
Commodities
Fish

Sustainable Development Goals

Categories
Production, Equipment, Aquaculture Systems

Best used with
All Male Tilapia Fingerlings with Greater Yield and Uniformity, Fast Growing and Hybrid African Catfish
See all 2 technologies online

Tested/adopted in



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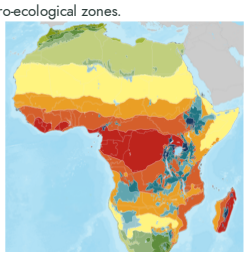


Bean Flour and Flour Products: Bean processing process

Bean Flour Made Easy

The "Bean flour and flour-based products" technology processes common beans into flour, enhancing their nutrition and shelf life. It offers economic opportunities for farmers and businesses, with scalable equipment suitable for various production scales in both rural and urban settings.

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Munthali Justice

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 5 2

Problem

- Whole beans require significant time and energy for preparation, reducing appeal to urban consumers.
- Traditional bean preparation methods remain unattractive despite pre-cooked options due to time and energy constraints.
- Common beans contain substances that hinder protein, starch, and mineral absorption in the gut, affecting nutrition and digestibility.
- Processing newly harvested and tough-to-cook beans presents challenges in both palatability and preparation efficiency.

Solution

- Technology produces popular bean products in Sub-Saharan Africa.
- Begins with high-quality flour, reducing cooking time and costs.
- Processing boosts vitamin and nutrient availability.
- Methods like soaking and pressure cooking enhance bean digestibility.
- Bean flour prolongs product freshness.
- Provides lucrative markets for farmers and entrepreneurs.
- Opens new markets, reduces transportation costs, and enables new products.

Key points to design your project

To integrate this technology into your project:

- Conduct awareness campaigns on the benefits of bean flour technology.
- Collaborate with local farmers and agri-food companies for a steady bean supply.
- Establish processing plants with efficient equipment.
- Provide training programs for operators and workers on safety and quality use.
- Ensure regulatory compliance with food safety standards and licensing requirements.

Consider engaging a team of trainers for installation support, including costs for training and post-training assistance. Develop communication materials like flyers, videos, and radio broadcasts.

Additionally, consider incorporating "Biofortified beans for improved nutrition" into your project to address key challenges and contribute to a healthier, more resilient future.

4 USD	**1,500** USD	**2,000** USD	IP
Bean flour per kg	Soaking tanks of 500 liter	Mills with a capacity of 300 kg hour-1	Open source / open access

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

2 ZERO HUNGER · 3 GOOD HEALTH AND WELL-BEING · 13 CLIMATE ACTION

Categories

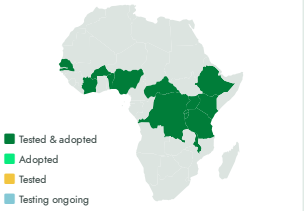
Post-production, Practices, Agri-food processing

Best used with

Biofortified Beans for Improved Nutrition

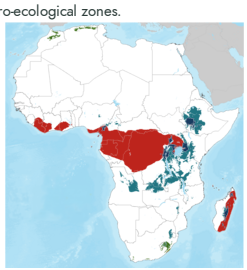
See all 1 technologies online

Tested/adopted in



Where it can be used

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



Pre-Cooked Beans for Consumer Convenience

Advanced approach for quick, convenient, and delicious bean

Pre-cooked whole beans are available in dried, canned, and frozen forms, offering quick preparation times of 10 to 30 minutes. The process involves sorting, washing, blanching, soaking, sterilizing, and cooking the beans before packaging. They can be marketed locally and for export.

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Justin Mabeya Machini

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 6

Problem

- Lengthy cooking time, high energy, and water needs discourage dried common beans consumption.
- Poorer households avoid dried beans due to time, fuel, and water constraints.
- Traditional bean prep methods hinder access to nutritious diets.
- Limited market opportunities and profits for farmers and processors in the bean value chain.

Solution

- Drastically reduces bean cooking time
- Cuts cooking costs by 90%, saving energy
- Boosts demand for farmers, improving market access
- Strengthens the bean value chain in Sub-Saharan Africa
- Convenient for homemakers and caterers
- Reduces wood and fuel usage, mitigating carbon emissions

Key points to design your project

This technology can be integrated into nutrition projects as an alternative protein source and presents opportunities for food processors and supermarkets.

To integrate the technology, activities include raising awareness, formulating product standards, ensuring reliable bean supply, installing efficient equipment, and providing training.

Collaboration with food processor companies is recommended for implementation.

1,500 USD	**20,000 USD**	**IP**
Per mall electric cooker system for making pre-cooked beans with a capacity of 100 liter	Per large hot water boiler powered with petrol or natural gas with a capacity of 0.5 ton per hour	Unknown

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

Categories

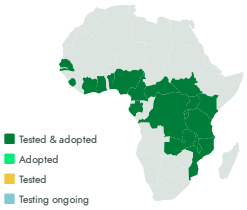
Post-production, Practices, Agri-food processing

Best used with

Biofortified Beans for Improved Nutrition

See all 1 technologies online

Tested/adopted in



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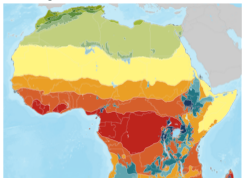


DTMA & WEMA: Drought Tolerant Maize Varieties and Water Efficient Maize Varieties

Enhance farm's resilience with DTMA and WEMA maize varieties, ensuring consistent yields even in unpredictable weather.

These seed technologies, developed conventionally and biotechnologically, enhance maize resilience to soil dryness and water scarcity, outperforming traditional varieties across various water stress levels in both dry and intermittently wet climates.

African Agricultural Technology Foundation (AATF)
Jonga Munyaradzi

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 5

Climate impact 7

Problem

- **Dependence on Rainfall:** Over 90% of African maize farming is rainfed, leaving crops vulnerable to unpredictable weather patterns.
- **Yield Instability:** Conventional varieties are highly sensitive to water availability, leading to inconsistent yields.
- **Crop Failure Risk:** Insufficient rainfall can result in complete crop loss, jeopardizing livelihoods.

Solution

- **Enhanced Resilience:** DTMA and WEMA outperform conventional varieties under various water stress levels.
- **Increased Productivity:** Adoption of these varieties leads to substantial increases in maize grain production.
- **Improved Crop Resilience:** Crops become more robust, with heightened resistance to dry spells and low rainfall.

Key points to design your project

- Estimate seed quantity needed (0.8 to 1.2 USD per kg, 25 kg/ha).
- Factor in delivery costs, import duties (available in Kenya, Malawi, etc.).
- Arrange training and post-training support.
- Develop communication materials (flyers, videos, radio).
- Optimize with complementary techniques (e.g., IR maize, fertilizer blending).
- Collaborate with agricultural institutes and seed companies for implementation.

0.6 ton/Ha	**20—30** %	IP
Yield increase	Larger grain harvest than common type	Unknown

Technology from

ProPAS

Commodities

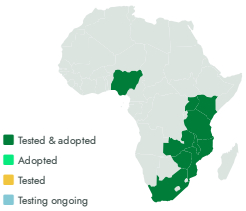
Maize

Sustainable Development Goals

Categories

Production, Improved varieties, Disease resistance, Yield improvement

Tested/adopted in



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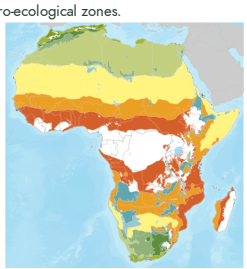


Target groups

Farmers

Millet and Sorghum Varieties for Better Nutrition and Stress Resistance

Strong Crops, Healthy People

Hybrid sorghum « Pablo »

The 'Millet and Sorghum Varieties for Better Nutrition and Stress Resistance' technology offers a game-changing solution for African agriculture. These highly nutritious and resilient varieties, fortified with elevated iron and zinc levels, thrive in challenging climate conditions, providing farmers with a reliable risk management strategy.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- **Low Yields, Food Insecurity:** Millet and sorghum in Africa yield below potential, leading to hunger and malnutrition, exacerbated by climate challenges.
- **Nutrient Deficiency, Limited Access:** Traditional millet and sorghum lack essential nutrients like iron and zinc, impacting nutrition.

Solution

- **Advanced Varieties:** New millet and sorghum strains are high-yielding, bio-fortified, and resilient to climate challenges, ensuring productivity and nutrition.
- **Expanded Access and Utilization:** Collaborative efforts have made these varieties widely available for farmers.

Key points to design your project

Improved millet and sorghum varieties that enhance nutrition, climate adaptation, and yield stability. They align with SDGs, including Zero Hunger, Climate Action, and Gender Equality.

Adoption Activities:

1. **Baseline Assessment**: Understand current practices and challenges.
2. **Awareness Campaign**: Educate farmers about benefits and access.
3. **Seed Distribution**: Provide high-quality seeds.
4. **Training Workshops**: Equip farmers with necessary skills.
5. **Demonstration Plots**: Showcase technology effectiveness.
6. **Field Days**: Engage farmers directly.
7. **Market Linkages**: Connect to buyers and processors.
8. **Scaling Up**: Expand adoption to more communities.

14 - 18 USD	**8 - 12 USD**	**35 - 45 USD/Ha**	**120 - 150 USD/Ha**
Seed for one hectare of land for sorghum	Seed for one hectare of land for pearl millet	A ton of animal manure cost	Inorganic fertilizer cost

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

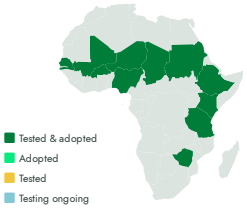
Categories

Production, Improved varieties, Drought tolerance, Heat tolerance

Best used with

Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement, Flour Milling and Blending Systems for Wheat, Sorghum and Millet, Warrantage Inventory...
See all 5 technologies online

Tested/adopted in



Where it can be used

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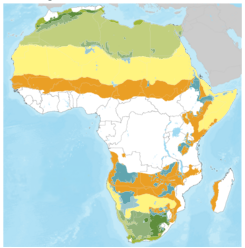


Dual-purpose Millet Varieties for Crop and Livestock Integration

Harvest More, Feed Better, Farm Smarter

"Dual-purpose Varieties for Crop and Livestock Integration" involves developing millet and sorghum varieties for both human food and animal fodder in African drylands, addressing challenges like overgrazing and soil degradation worsened by increasing livestock populations.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Growing livestock population exacerbating the demand for animal feed resources.
- Traditional millet and sorghum varieties unable to meet the dual requirements of human food and high-quality animal feed.
- Common millet and sorghum lines have higher lignin content, making them less digestible.

Solution

- Reduced lignin and tannin content for enhanced digestibility and palatability
- Greater fodder availability, especially during the dry season
- Increased manure availability for soil fertility management
- Sweet stover with high sugar concentration (around 15%)
- Suitable for syrup or bioethanol production

Key points to design your project

- To integrate this technology, awareness campaigns, investment frameworks, capacity building, and financial support are essential.
- Collaboration with seed companies, cooperatives, growers, and farmers is crucial for successful implementation.

204 USD	2.5—4 tons	10—15 tons	15 %	IP
Per hectare for seed, fertilizer, and labor	Sorghum grain yield per Ha	Sorghum stover yield per Ha	Sugar concentration	No formal IP rights

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

Categories

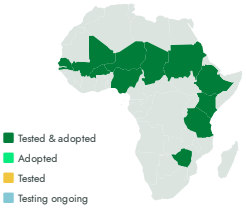
Production, Improved varieties, Quality improvement

Best used with

Proactive Management of Striga Infestation, Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement, Motorized Crop Residue Processing for Animal Feed

See all 3 technologies online

Tested/adopted in



Where it can be used

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

Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement

Smarter Fertilizer, Stronger Crops: Maximize Growth with Minimal Input

The Fertilizer Micro-Dosing for Enhanced Yield and Efficiency Technology is a practice that involves applying small amounts of fertilizer in shallow holes at the base of each plant. This precise method is low-risk, affordable, and efficient.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Nutrient deficiencies in millet and sorghum
- Inefficient and risky fertilizer application methods
- Insufficient nutrient replenishment and gradual soil fertility decline
- Crop failure risk due to drought discouraging fertilizer investment

Solution

- Addressing nutrient deficiencies in millet and sorghum
- Providing a low-risk and precise fertilizer application method
- Fostering rapid crop growth

Key points to design your project

Micro-Dosing addresses nutrient deficiencies in millet and sorghum with precise, low-risk fertilizer application, promoting rapid growth, reducing environmental impact, and benefiting women. It aligns with climate-smart practices, enhances agricultural efficiency, and reduces poverty.

To integrate Micro-Dosing:

- Identify suitable fertilizers: Millet (50 kg/ha, 16,666 plants), Sorghum (100 kg/ha, 26,666 plants). Use NPK (15-15-15) or DAP fertilizers.
- Plan logistics: Include delivery costs, import clearance, and distribution to project sites.
- Raise farmer awareness through training and communication tools (flyers, videos, radio).
- Combine with stress-resistant crop varieties and Striga management for better results.
- Partner with agricultural institutes and fertilizer distributors for implementation.

This technology is applicable in Chad, Ethiopia, Kenya, Sudan, Tanzania, Burkina Faso, Mali, Niger, Nigeria, Senegal, and Zimbabwe.

IP

Open source / open access

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

Categories

Production, Practices,

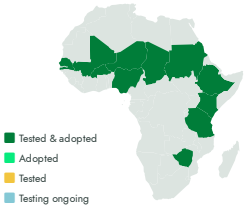
Fertilizer management

Best used with

Millet and Sorghum Varieties for Better Nutrition and Stress Resistance, Dual-purpose Millet Varieties for Crop and Livestock Integration, Proactive Management of Strig...

See all 3 technologies online

Tested/adopted in



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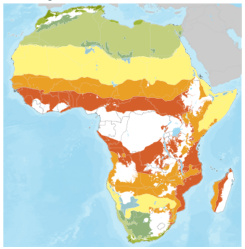


Small Ruminant Containment in Protective Sheds

Secure Shelters, Thriving Flocks

Upper-end protective containment of goats and sheep

Small Ruminant Containment in Protective Sheds is a cost-effective technology providing essential shelter for goats and sheep. Constructed from local materials, these sheds protect livestock from predators, weather, and diseases, while ensuring ventilation, drainage, and feeding facilities. They contribute to animal health, productivity, waste management, and biosecurity, offering an affordable and adaptable solution for small-scale farmers.

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·6 Scaling readiness: idea maturity 7/9; level of use 6/9

Inclusion assessment 4

Climate impact 7

Problem

- **Security**: Risk of predator attacks and theft.
- **Basic Needs**: Difficulty in finding food and shelter.
- **Health**: Risk of disease transmission.
- **Cost**: High expense of building shelters.

Solution

- **Safety & Health**: Protects livestock from predators and diseases.
- **Environment**: Shields from weather and manages waste.
- **Biosecurity**: Reduces disease transmission.
- **Affordability**: Cost-effective and adaptable for small-scale farmers.

Key points to design your project

Small Ruminant Containment in Protective Sheds is a technology that positively impacts gender equality, climate, and contributes to SDGs. It provides an affordable livestock management method, mitigates climate change effects, and contributes to SDGs 1, 2, 13, and 15.

For project managers aiming to promote this technology among breeders, the approach includes:

- **Awareness Campaigns**: Educate breeders about the technology's benefits.
- **Training Programs**: Train breeders on shed construction and maintenance.
- **Demonstration Sites**: Show the technology in action.
- **Compatible Technologies**: Promote integration with other livestock management practices.
- **Key Partners**: Collaborate with local artisans and agricultural organizations.

This approach ensures successful technology adoption, leading to improved livestock management and productivity.

12,000 USD
Benefit in a year

IP
Open source / open access

Technology from

ProPAS

Commodities

Small livestock

Sustainable Development Goals

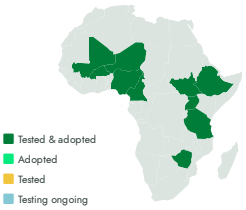
2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

Categories

Production, Equipment, Production System

Tested/adopted in



Where it can be used

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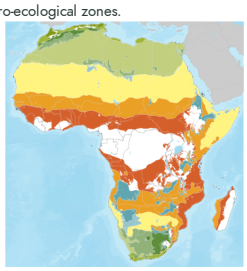


Target groups

Breeders

Local Livestock Improvement through Community Breeding Programs

Transforming Ruminant Farming Together

The Local Livestock Improvement through Community Breeding Programs enhances goat and sheep genetics by improving traits like growth, disease resistance, and reproduction. Led by local farmers with expert support, the program uses data to monitor progress and ensure best practices. Supported by governments and donors, it boosts livestock productivity and strengthens community resilience, contributing to food security and economic growth.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·9 Scaling readiness: idea maturity 7/9; level of use 9/9

Inclusion assessment 4

Climate impact 3

Problem

- Poor genetics and diseases limit small ruminant productivity.
- Mixed herd structure complicates breeding and tracking genetic progress.
- Lack of breeding records hinders genetic management.
- Crossbreeding with exotic breeds yields mixed results.
- Technical skills are needed to establish breeding programs and support breeders.

Solution

- Improved genetics through structured selection.
- Targeted breeding efforts for specific male breeders.
- Data recording aids informed mating decisions.
- Focus on community-based selection for better outcomes.
- Breeders receive technical support and training.

Key points to design your project

- The technology improves small-scale farmers' incomes and food security by enhancing small ruminants' productivity and resilience.
- It reduces disease prevalence and fosters economic growth in rural areas.
- The technology promotes climate resilience and supports sustainable land use and biodiversity conservation.
- Steps to integrate the technology:
  - Identify suitable locations for implementation.
  - Evaluate and prioritize breeding stock based on desired traits.
  - Establish clear breeding objectives tailored to community needs.
  - Implement recording systems for tracking breeding data.
  - Select elite animals for breeding and provide technical support to community members.
  - Collaborate with stakeholders to strengthen institutional relations and market linkages.

15 %
familly income increase

IP
Open source / open access

Technology from

ProPAS

Commodities

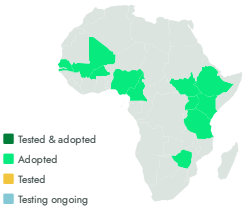
Small livestock

Sustainable Development Goals

Categories

Production, Practices, Seed system

Tested/adopted in



Where it can be used

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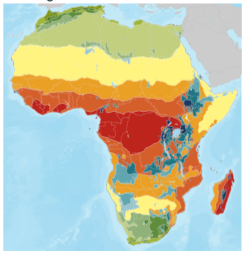


Target groups

Breeders

Processing chicken meat for cold storage

Preserving Quality, Expanding Opportunity: Value Addition for Poultry

Processed poultry products popular with consumers

The "Processing chicken meat for cold storage" technology is a streamlined method for poultry processing. It uses mechanized equipment to convert raw chicken into value-added products and includes cold storage for long-term preservation and transport. It's designed for small and medium enterprises, with cooperative models for capital and volume generation.

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 6

Problem

- **Live market sales:** Hurt farmer profits, risk public health, cause shortages.
- **Unmet demand:** Can't satisfy growing need for ready-to-cook chicken.
- **SME challenges:** Lack resources to build processing plants, limiting participation.

Solution

- **Value addition and storage:** Converts raw chicken, enables long-term storage, ensures supply.
- **Hygiene and mechanization:** Ensures hygiene, uses mechanized processing.
- **SME empowerment:** Accessible tech, boosts participation in poultry.

Key points to design your project

The "Processing chicken meat for cold storage" technology empowers women through income-generating roles in poultry. It promotes resource efficiency and waste reduction, aiding sustainable practices. Aligning with SDGs like Zero Hunger, Decent Work, and Responsible Consumption, it's a valuable tool for sustainable development and gender equality in government projects.

For successful integration in a project :

1. **Awareness and Training**: Educate breeders about the technology, covering equipment usage, hygiene, and cold storage management.
2. **Laws and Regulations**: Comply with food safety regulations and obtain necessary permits and licenses.
3. **Infrastructure Setup**: Assist breeders in procuring and installing equipment (e.g., cutting, deboning, chilling, refrigeration).
4. **Technical Support**: Provide ongoing assistance and troubleshoot issues.
5. **Monitoring and Evaluation**: Regularly assess adoption and impact using key indicators.

Remember to address both technical and regulatory aspects for effective implementatio

15,600 USD

basic processing plant with defeathering, cutting and storage lines for 500 chicken per day

IP

Unknown

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

2 ZERO HUNGER · 8 DECENT WORK AND ECONOMIC GROWTH · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

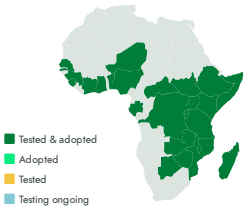
Categories

Post-production, Practices, Agri-food processing

Best used with

Mechanized Defeathering and Egg Sorting
See all 1 technologies online

Tested/adopted in



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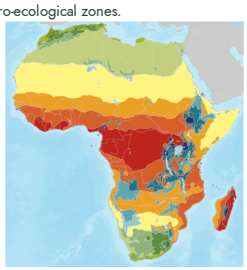


Target groups

Mechanized Defeathering and Egg Sorting

Efficiency Unleashed: Poultry Processing, Simplified


Benchtop defeathering machine

Defeathering involves the use of machines with rotating metal discs and rubber fingers, efficiently removing feathers in 30 seconds. Egg sorting machines use weight-sensitive belts, ensuring precise grading based on quality parameters like weight, color, shape, and cracks.

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 4

Problem

- Time-consuming and inaccurate manual defeathering and egg sorting processes
- Delayed chicken processing reduces productivity, feed efficiency, and leads to rushed sales at lower prices, affecting profitability.
- Manual methods struggle to meet grade requirements for different poultry types and egg grades, impacting market acceptance.
- Manual egg sorting increases breakage risk, causing losses and affecting the overall quality of graded eggs.

Solution

- Mechanized machines remove feathers in 30 seconds, enhancing productivity.
- Quick defeathering maintains product quality, avoiding rushed sales.
- Automated sorting reduces costs, attracting premium prices for eggs.
- Machines efficiently handle various poultry types, reducing manual challenges.

Key points to design your project

Introducing mechanized defeathering and egg sorting technology transforms poultry farming by offering a practical and efficient approach to processing poultry products. To integrate this technology,

- Ensure a solid business plan aligning with market demand and prices and match production volumes with machine capacities
- Having technically competent personnel and understanding environmental regulations and waste management procedures is crucial for successful implementation.
- Training and post-training support from a dedicated team of trainers are essential, along with developing communication materials to promote the technology.

5500—7000 USD
Egg sorting machine

IP
Copyright

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

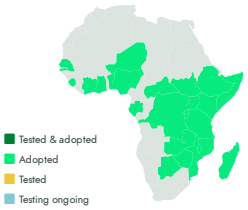
Categories

Post-production, Equipment, Land preparation

Best used with

Processing chicken meat for cold storage
See all 1 technologies online

Tested/adopted in



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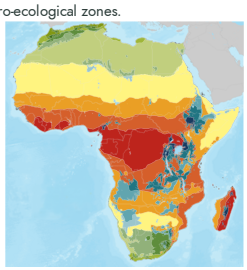


Target groups

Value Addition to Poultry Manure

Transforming waste into wealth

Manure accumulated on the poultry house floor (left) and finished compost ready for use as an organic fertilizer (right)

Value Addition to Poultry Manure transforms chicken manure into nutrient-rich organic fertilizer. Composting detoxifies the manure, enhancing soil fertility and reducing reliance on chemical fertilizers.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- **Pathogens and Unpleasant Odors**: Fresh chicken manure can contain harmful pathogens and emit an off-putting odor.
- **Underutilization**: Chicken manure is often unused due to these issues.
- **Environmental Impact**: Large-scale poultry farms generate significant manure, leading to unpleasant odors, groundwater pollution, and methane emissions.

Solution

- **Pathogen-Free Organic Fertilizer Production**: Converts chicken manure into safe, nutrient-rich organic fertilizer through composting, ensuring plant health and human safety.
- **Sustainable Environmental Impact Mitigation**: Transforms raw chicken manure into valuable organic fertilizer, reducing odors, preventing groundwater contamination, and mitigating methane emissions.
- **Cost-Efficient Waste Management**: Repurposes chicken manure into valuable organic fertilizer, reducing waste management costs and enhancing overall farm profitability.

Key points to design your project

Poultry farming boosts women's financial independence and leadership roles. This technology transforms waste into valuable organic fertilizer, reducing odors, groundwater contamination, and methane emissions. It also reduces reliance on chemical fertilizers, supporting climate goals. This project contributes to achieving SDGs 1 (poverty reduction), 2 (food security), 5 (gender equality), and 13 (climate action).

Key points for project step up:

- **Assess & Select:** Identify farmers interested in value addition with suitable farm size and resources.
- **Train & Build Capacity:** Train extension agents and farmers on composting and value-added products.
- **Implement & Support:** Organize workshops, establish demonstration plots, and provide technical support and financing access.
- **Market Access & Sustainability:** Connect farmers with buyers and evaluate project impact.

30,000 USD	**3,000 USD**	**IP**
organic fertiliser production plant of 15 ton per hour	15 m3 anaerobic digester able to process 300 kg of poultry manure per day	Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

2 ZERO HUNGER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Pre-production, Practices,

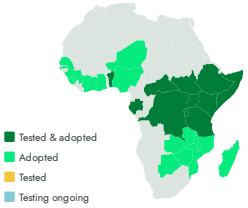
Animal waste management

Best used with

Biosecurity for Disease Prevention, Low-Cost Cage and Free-Range Containment

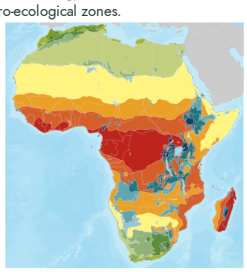
See all 2 technologies online

Tested/adopted in



Where it can be used

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



Target groups

Poultry Vaccination against Newcastle Diseases

Low-cost vaccination for poultry

The "Universal Vaccination against Newcastle Diseases" is a method for widespread vaccination in poultry. It includes thermostable vaccines, efficient logistics, easy application, and vaccinator training.

ND I-2 vaccine is available in small vials

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 3

Climate impact 6

Problem

- **High Mortality & Uptake**: Newcastle disease causes high mortality in poultry, with limited vaccine uptake.
- **Accessibility & Knowledge**: Vaccine access and disease knowledge are challenges.
- **Vaccination Issues**: Inconsistent application and poor systems hinder effective vaccination.

Solution

- **Thermostable & Broad Protection:** Withstands temperature variations and defends against diverse NDV strains.
- **Strong Immune Response & Ease of Use:** Triggers robust immunity with simple administration.
- **Safety & Long-lasting Protection:** Proven safe and effective, offering enduring protection.

Key points to design your project

The technology boosts women's empowerment, cuts carbon emissions, and aids SDGs 1, 2, and 5 by enhancing poultry health and income, and minimizing cold chain needs.

Adopting the "Universal Vaccination against Newcastle Diseases" technology involves:

1. **Stakeholder Engagement**: Engage all relevant parties.
2. **Awareness Raising**: Educate decision makers on family poultry benefits.
3. **Vaccine Selection**: Opt for a suitable vaccine like ND I-2.
4. **Training and Extension**: Plan and organize essential training covering vaccine characteristics, campaign organization, and progress monitoring.
5. **Cost-Recovery System**: Cover production, distribution, and administration costs, possibly through consumer payments or government subsidies. Focus on cost minimization if the vaccine is free.
6. **Vaccination Implementation**: Vaccinate all chickens simultaneously.
7. **Monitoring and Evaluation**: Track program progress and impact.

These activities should be systematically planned and executed.

2.5 USD
per round of vaccination for 20 chickens

250 USD
local vaccination campaign at the village level

IP
Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

8 DECENT WORK AND ECONOMIC GROWTH

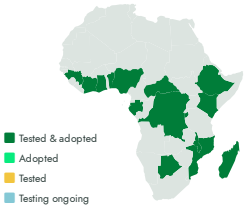
Categories

Production, Inputs, Animal healthcare

Best used with

Biosecurity for Disease Prevention
See all 1 technologies online

Tested/adopted in



Where it can be used

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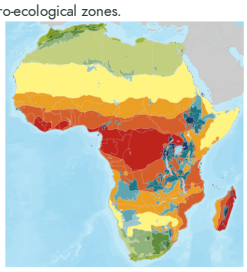


Target groups

Farmers

Low-Cost Cage and Free-Range Containment

Safeguarding Chickens and reducing Costs

A moveable poultry house for free-range production with sheltered forage area

The technology is a movable chicken house that lets chickens roam freely during the day and return to safety at night. It's affordable, easy to move, and made from basic materials. Proper maintenance and predator protection are essential for its effectiveness, making it a practical solution for chicken farming.

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- Many small farmers can't afford expensive chicken houses.
- Chickens are sometimes kept in crowded and uncomfortable spaces.
- Predators and bad weather can harm chickens.
- Farmers want to meet the demand for free-range and organic chickens.
- Pests and diseases build up in one spot if chickens stay in the same place for too long.

Solution

- Affordable movable houses for chickens.
- Gives chickens space to roam and find their own food.
- Keeps chickens safe from predators and bad weather.
- Good for the environment and the farm.
- Easy to clean and take care of.

Key points to design your project

- Affordable poultry housing solutions empower smallholder farmers for commercial production and aid poverty alleviation.
- Boosts food security with organically raised poultry.
- Supports economic growth through job creation.
- Promotes sustainable farming practices by reducing environmental impact and advocating for organic production.

Steps to incorporate the technology:

- Secure access to suitable land for free-range poultry production.
- Conduct market assessment to evaluate demand and profitability.
- Allocate resources for comprehensive training and support.
- Collaborate with agricultural institutions.
- Explore integration with complementary technologies like Biosecurity for Disease Prevention.

2.0—2.5 Kg
Weight of mature meat chickens in 6 weeks

20 m²
floor space for 100 birds.

IP
Open source / open access

International Livestock Research Institute (ILRI)
Adeniyi Adediran

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

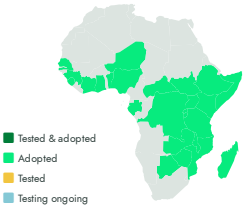
Categories

Production, Equipment, Production System

Best used with

Biosecurity for Disease Prevention
See all 1 technologies online

Tested/adopted in



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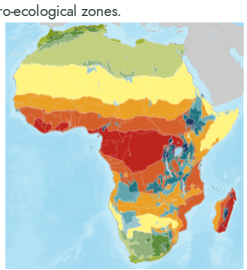


Special Chicken Breed: Dual-Purpose Chicken for Small-Scale Producers

High-Performance Breeding Chicken Breed

The "Dual-Purpose Chicken for Small-Scale Producers" technology focuses on developing and distributing chicken breeds suitable for both high egg production and meat yield. These specialized chickens possess traits like low cost, disease resistance, and efficient feed utilization.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 4

Problem

- Low Egg and Meat Productivity in Indigenous Chickens
- High Mortality Rate in Indigenous Chickens
- Limited Performance and Adaptability of Indigenous Breeds
- Challenges in Rearing and Distribution for Small-Scale Farmers
- Need for Adaptation and Regional Adjustments

Solution

- Introduction of dual-purpose chicken breeds addressing low productivity and high mortality.
- Establishment of parent stock farms and hatcheries for consistent supply.
- Distribution through brooder units for proper chick care.
- Enhanced performance in free-range systems with adaptability to local conditions.
- Technical support and empowerment for operators.

Key points to design your project

- Enhances poultry productivity for rural poverty alleviation and food security
- Empowers women, creates jobs, and supports economic growth in rural areas
- Improves poultry industry through innovative breeding and distribution
- Fosters sustainable agriculture and conserves biodiversity
- Requires building infrastructure, acquiring equipment, and estimating costs for integration
- Collaboration with agricultural institutes and consideration of complementary technologies recommended

1.5—2.0 kg	**120—180 eggs**	**IP**
Weight of chickens in 3 months	Production by chickens per year	Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

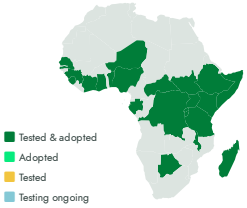
Categories

Production, Improved varieties, Yield improvement

Best used with

Semi-Automatic Incubator for artificial hatching
See all 1 technologies online

Tested/adopted in



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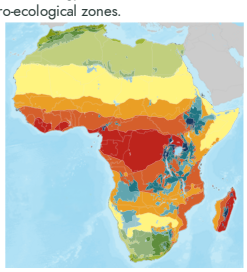


Target groups

Genetically Improved Poultry Breeds for Optimized Meat and Egg Production

Enhance Productivity with Resilient, High-Performance Chickens

This technology provides genetically improved chicken breeds for meat (broilers) and egg (layers) production. Developed through selective breeding, they offer higher yields and are distributed through hatcheries, requiring proper management for optimal results.

International Livestock Research Institute (ILRI)
Tadelle Dessie

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 5

Climate impact 5

Problem

- Low-quality chicken breeds with poor genetics and susceptibility to diseases.
- Limited meat and egg production in naturally selected local chickens.
- Insufficient management and resources for genetically improved chicken breeds in extensive production systems.

Solution

- The technology enhances genetic traits related to meat and egg production.
- This ensures that only chickens with the desired traits for meat and egg production are selected for breeding.
- By controlling the incubation process, the program ensures that chicks have a higher chance of survival and development.

Key points to design your project

The Flock Improvement of Meat and Layer Breeds technology enhances poultry production by breeding chickens with desired traits for meat and egg production, reducing reliance on inferior breeds. To integrate this technology:

- Acquire a license for breeding and selling chicks.
- Assess project needs for poultry breeding.
- Provide comprehensive training on breeding practices.
- Select suitable chicken breeds based on goals and conditions.
- Ensure access to quality breeding stock and inputs.
- Implement improved breeding practices.

IP

Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

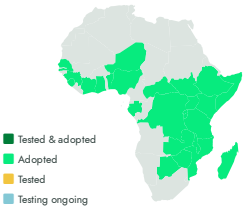
Categories

Production, Practices, Yield improvement

Best used with

Semi-Automatic Incubator for artificial hatching
See all 1 technologies online

Tested/adopted in



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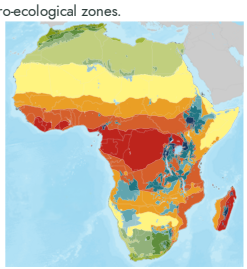


Target groups

Breeders

Contour Bunding Technique (CBT): Contour Bunds for Water Harvesting

CBT: Nurturing Crops, Conserving Soil, and Cultivating Resilience

Semi-circular bunds reinforced with stones

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

The "Contour Bunding Technique (CBT)" is a farming strategy used in Africa's dry areas. It uses small walls built along field curves to collect water, reduce runoff, and prevent soil erosion. This enhances the soil's water retention, making it a practical solution for water scarcity in dryland farming.

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- **Water Scarcity**: Dryland farming often faces water shortages, making crop growth challenging.
- **Soil Erosion**: In dry areas, soil erosion and gully formation degrade soil health and productivity.

Solution

- **Water Management**: CBT uses walls to capture and store rainwater, increasing crop yields.
- **Soil Conservation**: CBT slows water movement, reduces soil erosion, and improves soil fertility.

Key points to design your project

The Contour Bunding Technique (CBT) promotes inclusivity and mitigates climate change impacts, contributing to several Sustainable Development Goals (SDGs). It's a valuable tool for sustainable agriculture and climate resilience projects.

To integrate CBT into a project:

1. **Raise Awareness**: Educate the community about CBT's benefits.
2. **Train Stakeholders**: Train agents and farmers on cost-effective bund construction techniques.
3. **Consult Farmers**: Discuss with farmers to understand water movement and determine optimal bund placement.
4. **Provide Resources**: Ensure access to necessary resources for building and reinforcing bunds.
5. **Monitor and Evaluate**: Track the effects of CBT on crop yields and soil health for continuous improvement.
6. **Engage Community**: Involve the community to ensure project sustainability and foster ownership.

40 %	20 %	IP
Runoff reduction	Sediment loss dicrease	Open source / open access

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

2 ZERO HUNGER

13 CLIMATE ACTION

Categories

Pre-production, Practices,

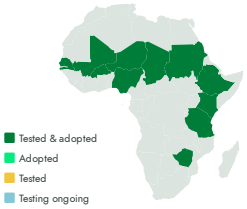
Water management

Best used with

Millet and Sorghum Varieties for Better Nutrition and Stress Resistance, Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement, Dual-purpos...

See all 3 technologies online

Tested/adopted in



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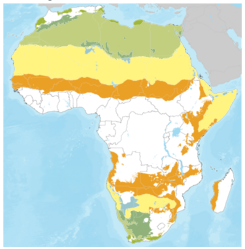


OFSP puree and products: Puree Production and Products for Sweet Potato

Effortless sweet potato puree, every time!

The OFSP (Orange-fleshed sweet potato) puree technology involves the conversion of fresh sweet potato tubers into a stable and versatile puree by using advanced equipment. The process includes cleaning, steaming, peeling, and mashing or pureeing the sweet potato flesh.

International Potato Center (CIP)
Kwikiriza Norman

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 2

Climate impact 5

Problem

- Fresh tubers of sweet potato tubers perish rapidly
- Making sweet potatoes smooth is a tough job.
- It's a challenges to make sure the puree is safe and good to eat.
- Manual processes takes a lot of time and effort and may lead to rough-textured puree.

Solution

- Orange-fleshed sweet potato (OFSP) puree provides a cost-effective alternative to wheat flour as it can substitute 30-60% of the flour in a wide range of processed foods,
- With this equipment, quality control is enhanced through automated checks
- Increase production speed, making the process more efficient.
- Delivers consistent results, ensuring a smooth texture every time and extends the puree's shelf life.

Key points to design your project

OFSP puree production and products technology enhances food security and economic sustainability. To integrate this technology:

- Conduct awareness-raising campaigns and training sessions with cooperative and industrial food processors.
- Ensure availability and continuous supply of quality OFSP roots.
- Implement good supply chain management from farm to processing plant.
- Provide technical support to factory staff and extension service providers.
- Create consumer awareness and demand among farmers, producers, and consumers.
- Consider equipment needs, delivery, installation, and training costs.

IP

Open source / open access

Technology from

ProPAS

Commodities

Sweet Potato

Sustainable Development Goals

2 ZERO HUNGER

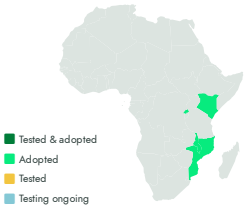
3 GOOD HEALTH AND WELL-BEING

Categories

Post-production, Practices,

Agri-food processing

Tested/adopted in



Where it can be used

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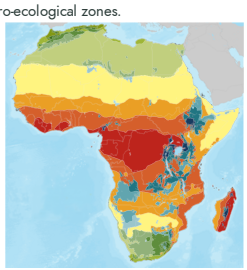


Target groups

Processors

HIB varieties: Biofortified Beans for Improved Nutrition

Fueling Health with Iron-Rich Beans

"Biofortified Beans for Improved Nutrition" technology develops high-iron bean varieties via biofortification to combat deficiencies in Sub-Saharan Africa. With 31 released varieties, it enhances regional food security and nutrition.

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Iron and zinc deficiencies leading to: Anemia, Impaired motor and cognitive development, Increased risk of maternal death and premature births, Low birth weight
- Weakened immune systems
- Increased susceptibility to infections
- Stunted growth

Solution

- Development of high-iron bean varieties through biofortification.
- Crossbreeding local elite lines with American bean varieties naturally rich in iron.
- Resulting in High-Iron Beans (HIB) with traits including: High productivity, Drought and disease tolerance, Preferred culinary characteristics, Quick cooking.
- Release of 31 HIB varieties in key production areas across Sub-Saharan Africa
- Enhanced food security and nutrition in the region.

Key points to design your project

Project activities include raising awareness, providing seeds, linking producers to markets, promoting demand, and establishing incentives.

Costs involve seed estimation, delivery, training, communication support, and collaboration with agricultural institutes and seed companies for implementation.

IP

Open source / open access

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Justin Mabeya Machini

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

Categories

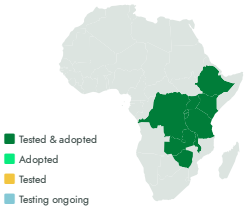
Production, Improved varieties, Quality improvement

Best used with

Seed dressing of Seed with Fungicide and Insecticide, Seed Inoculation with Rhizobia, Specialty Fertilizer Blends for Common Bean

See all 3 technologies online

Tested/adopted in



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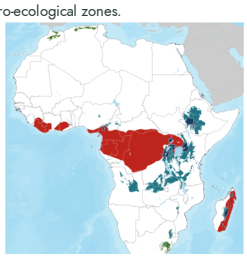


PICS: Hermetic Bags for Safe Storage of grain

Low cost storage technologies for grain

Hermetic bags are like super-sealed containers that stop air and moisture from reaching the grains inside. This way, farmers can store their grains for up to two years without them getting bad. This is good for farmers because it means they always have enough food and can sell their grains for better prices.

PICS

Purdue Improved Crop Storage

PICS GLOBAL

Laurie Kitch

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- **Post-harvest losses**: Farmers in Sub-Saharan Africa lose over 25% of beans due to inadequate storage methods.
- **Pest infestations**: Weevils, moths, and mites damage stored beans, forcing farmers to sell at low prices immediately after harvest to minimize losses.
- **Fungal contamination**: Traditional storage can lead to fungal growth, such as aflatoxin, contaminating beans and reducing their quality.
- **Food security issues**: Ineffective storage hinders farmers' ability to keep enough beans for consumption between harvests, threatening food security and livelihoods.

Solution

- **Airtight sealing**: The multi-layer design blocks air and moisture, preventing pest infestations without chemicals.
- **Moisture control**: Hermetic bags maintain stable moisture levels, inhibiting fungal growth like aflatoxin.
- **Long-term preservation**: They preserve beans for up to two years, maintaining quality and cooking time.
- **High durability**: Made from strong, reusable materials, hermetic bags ensure reliable grain storage.

Key points to design your project

To integrate PICS bags into your project:

- **Cost Analysis**: Bags cost $1 to $1.5 each (50kg or 100kg capacity). Estimate the number needed.
- **Supply Chain**: Identify suppliers, including delivery costs and any import duties.
- **Training**: Budget for training sessions and ongoing support.
- **Communication**: Create promotional materials (flyers, videos, etc.).
- **Grain Preparation**: Ensure grains are properly dried before storage, using moisture measurement devices if necessary.

These steps will help enhance food security and reduce post-harvest losses.

Cost: $$$ **2—3 USD**

Bag cost for users

ROI: $$$ **90 %**

Reduction of loss

50 or 100 Kg

Bag capacity

2 year

Life span

IP

Trademark

Technology from

ProPAS

Commodities

Common bean, Rice, Wheat, Maize, Sorghum/Millet, Soybean

Sustainable Development Goals

Categories

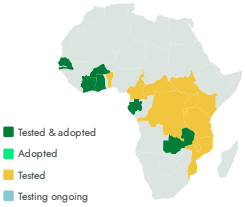
Prevention & storage, Equipment, Post-harvest handling

Best used with

Mechanized Threshing Operations

See all 1 technologies online

Tested/adopted in



Where it can be used

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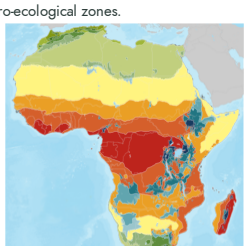


Aflasafe®: Aflatoxin management

Aflatoxin-safe fields and crops for safer food in Africa

Aflasafe® is a biocontrol technology for aflatoxins management that uses harmless types of the fungus Aspergilus flavus which do not and cannot produce the toxins. The atoxigenic fungi are coated onto ordinary sorghum grain for transferring these innovative biocontrol agents to farmers' fields.

International Institute of Tropical Agriculture (IITA)
Ortega-Beltran, Alejandro

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- Widespread aflatoxin contamination in staple crops, animal feeds, and processed foods across Africa.
- Consumption of contaminated food leads to severe health issues such as liver cancer, weakened immunity, and organ damage.
- Aflatoxin contamination renders food unfit for consumption and trade, resulting in significant economic losses.

Solution

- Prevents aflatoxin production using harmless strains of Aspergillus flavus.
- Affordable solution to reduce aflatoxin levels in food safely.
- Tailored to African conditions, utilizing native atoxigenic fungal strains.
- Selected through rigorous field testing.
- Halts aflatoxin contamination during transportation, storage, and processing.

Key points to design your project

To use this technology in your project, plan these activities:

- Calculate the product quantity based on the cost (12 to 20 USD per Ha) and the requirement (10 kg per ha).
- Factor in the delivery, import, and duty costs from the supplier to the site.
- Budget for training and support from a team of trainers during installation.
- Develop communication materials (flyers, videos, radio, etc.) for the technology.
- Follow post-harvest practices (drying and storage) for the improved maize variety.
- Work with agricultural institutes and agro-dealers in your country.

10 kg/ha	**4** kg/acre	IP
Recommended dosage application	Recommended dosage application	Trademark

Technology from

ProPAS

Commodities

Maize, Sorghum/Millet, Groundnut, Chili peppers, Sesame, Sunflower

Sustainable Development Goals

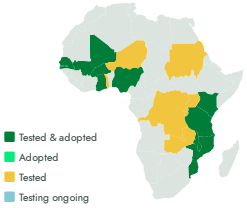
Categories

Production, Inputs, Pesticide

Best used with

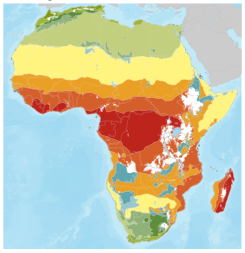
Drought Tolerant Maize Varieties and Water Efficient Maize Varieties
See all 1 technologies online

Tested/adopted in



Where it can be used

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



Target groups

SAH cassava: Semi Autotrophic Hydroponics for Cassava Multiplication

A rapid quality seed delivery technology for cassava

SAH for Cassava Multiplication is an innovative technology using controlled environments for cost-effective and adaptable cassava propagation. It fosters robust root growth, reduces diseases, and yields high-quality plantlets, expediting access to new cassava varieties and boosting overall productivity in farming.

International Institute of Tropical Agriculture (IITA)
Mercy Elohor Diebiru-Ojo

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 7

Problem

- Traditional methods are time-consuming.
- Conventional propagation prone to pests and diseases.
- Seed and tissue culture methods have low multiplication ratios.
- Stem cuttings may be more susceptible to pests and diseases when planted in open fields.

Solution

- SAH enables rapid access to new cassava varieties.
- Creates a controlled environment for healthy root growth.
- SAH significantly improves ratios compared to seed and tissue culture.
- Planting materials from SAH are more resilient and less susceptible to pests and diseases in open fields.

Key points to design your project

To integrate the technology, estimate plantlet quantities, consider delivery costs, and account for training and communication support.

Additionally, optimize by combining the technology with disease-resistant and golden cassava varieties.

Collaboration with agricultural institutes and seed multiplication companies is recommended for implementation in your country.

0.05 USD	0.05 - 1 USD	116 %	IP
operating cost per plant	Production cost	ROI over 3 year	Unknown

Technology from

ProPAS

Commodities

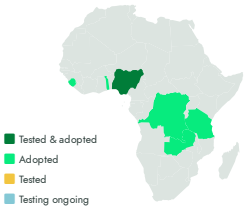
Cassava

Sustainable Development Goals

Categories

Pre-production, Practices, Seed system

Tested/adopted in



Where it can be used

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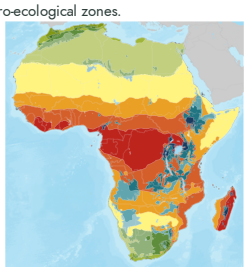


Target groups

Farmers

GEM system: Parboiling equipment for rice

Reduce milling losses, enhance nutritional and organoleptic quality

The technology improves rice parboiling with a new design, replacing traditional methods prone to emissions. Tailored for small to medium-scale processors, it enhances efficiency and product quality, reducing steaming time and improving grain quality significantly.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 4

Problem

Traditional, Old-Fashioned Parboiling Methods are:

- Inefficiency and high labor requirements
- Excessive losses during dehulling
- Degradation of nutritional value
- Inferior sensory qualities

Solution

- Reduces steaming time to 20-25 minutes, minimizing emissions exposure.
- Improves grain translucency, reduces chalkiness, and boosts nutritional value.
- Provides low glycemic index, increased fiber, and higher vitamin B availability.
- Allows longer storage as rice flour, aiding food security.
- Made from simple, locally available materials.

Key points to design your project

To integrate it into your project, follow these steps:

- Raise awareness among processors and consumers about GEM parboiling systems.
- Assist in selecting the right system size and configuration.
- Ensure a steady supply of high-quality rice.
- Develop marketing strategies for rice flour and derived products.

0.64 USD
firewood per 100kg of rice

IP
Open source / open access

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

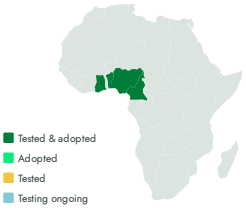
Categories

Post-production, Equipment, Agrifood processing

Best used with

Advanced rice varieties for Africa, High yield rice varieties for Africa, RiceAdvice digital support
See all 3 technologies online

Tested/adopted in



Where it can be used

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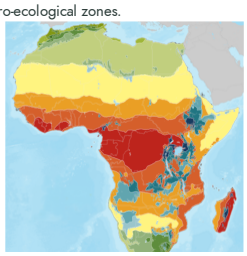


Fast Growing and Hybrid African Catfish

Boosting Aquaculture with Resilient, Fast-Growing Catfish Hybrids

Fast Growing and Hybrid African Catfish" is developed to enhance freshwater farming in Sub-Saharan Africa. This technology involves the selective breeding and hybridization of two catfish species to create a superior hybrid offspring (Hetero-Clarias). The process of hybridization requires hormone-induced egg release in female catfish and the collection of seminal fluids from male catfish, subsequently combined to produce the hybrid.

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Limited availability of quality fingerlings
- Inadequate hatchery facilities
- High cost of fish feed
- Need for training for fish farm operators

Solution

- The Hetero-Clarias hybrid exhibits superior growth rate, higher survival, and greater hardiness compared to the parent species.
- Certified hatcheries provide a secure means to increase local supply of fast-growing and hybrid catfish.
- The produced hybrid catfish is sterile, allowing it to channel energy primarily into growth, resulting in better feed conversion and growth rates.

Key points to design your project

The fast-growing and hybrid African Catfish technology presents significant benefits for food security enhancement and climate resilience. To integrate this technology, consider activities such as:

- Pond construction, ensuring water quality, sourcing matured breeds or fingerlings, and providing balanced feed.
- Conduct awareness campaigns among farmers, ensure equitable access to fingerlings, estimate quantity and costs, engage trainers for support, and develop communication materials.

2500—3500 USD
Feed inputs for 8600—10000 Catfish fingerlings

IP
Open source / open access

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

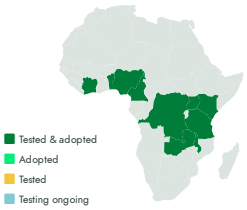
Categories

Production, Improved varieties, Yield improvement

Best used with

Pond Liners to Save Water and Ease Maintenance, Hapa Nets for Fingerling
See all 2 technologies online

Tested/adopted in



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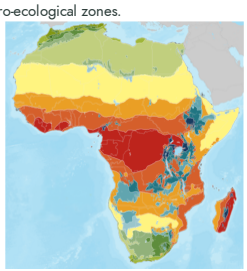


Foliar micronutrient addition for healthier rice

Targeted nutrients for stronger crops and richer grain

Foliar micronutrient addition involves spraying liquid fertilizers onto rice leaves and stems. This ensures quick nutrient absorption, improving yields and grain quality with smaller quantities than soil application. Farmers apply the solution at key growth stages. This method boosts crop resilience and productivity, especially in nutrient-deficient soils.

AfricaRice

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- **Micronutrient Deficiencies and Low Yields:** Rice crops often lack essential micronutrients like zinc, copper, and boron, leading to low yields and poor grain nutrition.
- **Soil Nutrient Depletion:** Soils in Sub-Saharan Africa are increasingly depleted of vital nutrients, impacting crop health.
- **Inefficient Nutrient Uptake and Crop Vulnerability:** Traditional soil-based fertilizers result in inefficient nutrient absorption, making crops more susceptible to diseases and environmental stresses

Solution

- **Targeted Micronutrient Application and Efficient Uptake:** Spraying essential micronutrients like zinc, copper, and boron directly onto leaves addresses deficiencies, enhances nutrient availability, and maximizes absorption efficiency.
- **Increased Yields and Grain Quality:** Improved nutrient uptake results in higher rice yields and better nutritional quality.
- **Soil Health Improvement and Crop Resilience:** Supplementing with foliar micronutrients counteracts soil nutrient depletion and strengthens crops against diseases and environmental stress.

Key points to design your project

This technology on rice addresses low micronutrient content in Sub-Saharan Africa. It promotes sustainable agriculture, aligning with goals for food security and poverty reduction. To integrate this technology,

- Inform farmers, assess micronutrient deficiencies, formulate application plans, and provide resources.
- Estimate fertilizer and sprayer quantities, considering delivery costs.
- Training, communication support, and collaboration with agricultural institutes are crucial for successful implementation.

40 USD	**30—45** USD	IP
Protective kits per person	Knapsack sprayers with a tank of 20 liter	Open source / open access

Technology from

ProPAS

Commodities

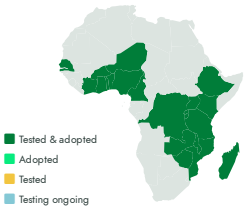
Rice

Sustainable Development Goals

Categories

Production, Inputs, Fertilizer

Tested/adopted in



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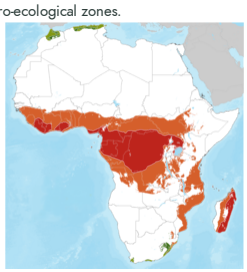


Target groups

Farmers

GIFT "Genetically Improved Farmed Tilapia": All Male Tilapia Fingerlings with Greater Yield and Uniformity

Greater yield and uniformity in tilapia farming

The technology involves predominantly growing male tilapia. This can be achieved through various methods such as manual selection, hormone treatment, or natural techniques. Specifically bred tilapia (GIFT) is recommended for commercial farming.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Mixed-sex tilapia culturing often leads to lower yields and non-uniform harvests.
- Manual sex selection at the beginning of the production cycle is time-consuming.
- Hormonal alteration of fry involves the application of α-Methyltestosterone, which may pose concerns regarding its use in feed and its impact on fish health and the environment.

Solution

- Utilizing improved lines of tilapia breeds can enhance the effectiveness of manual selection, hormonal treatment, YY male technology, and GIFT.
- Crossbreeding strategies can produce 100% male offspring, improving mono-sex tilapia production efficiency.
- Careful management of brood stock selection in hatcheries, focusing on younger brooders free from wounds and parasites, ensures high-quality and abundant fish seed production.

Key points to design your project

The mono-sex male tilapia technology aligns with Sustainable Development Goals, promoting food security, gender equality, climate action, and marine life preservation. To integrate this technology, consider:

- Feasibility studies,
- Legal frameworks, and specialized training for farmers. Training costs and
- Communication support should be included.
- Accompanying solutions include Hapa Nets for Mass Fingerling Hatchery Production.

0.1 USD	**300 - 900** g	IP
Cost of one month mono-sex fingerlings in Kenya	Weight of male fingerlings stocked in cages in 5 to 8 months of culture	Patent granted

WorldFish Center
Bernadette Fregene

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

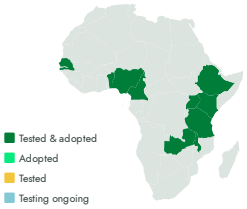
Categories

Production, Improved varieties, Yield improvement

Best used with

Hapa Nets for Fingerling
See all 1 technologies online

Tested/adopted in



Where it can be used

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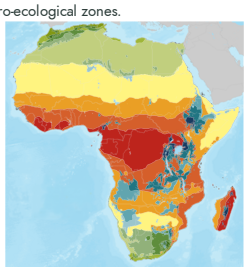


Target groups

Breeders

Community-based multiplication of sweet potato vines and cuttings

Boost Your Yield and Cut Costs with Community-Sourced Sweet Potato Vines.

Community-based multiplication of sweet potato vines is a scalable agricultural technology that enhances the quality and availability of planting materials in rural communities. It addresses challenges such as cost reduction, pest management, and timely distribution, while utilizing local resources. This adaptable method supports smallholder farmers, making it a valuable tool for rural communities.

This technology is TAAT1 validated.

5·5 Scaling readiness: idea maturity 5/9; level of use 5/9

Inclusion assessment 4

Climate impact 7

Problem

1. Limited access to quality materials.
2. High prices and distribution issues.
3. Lack of effective measures.
4. Limited access for smallholder farmers.
5. High susceptibility in crops.

Solution

1. Organize large-scale multiplication of sweet potato vines.
2. Establish reliable supply chains and improve rainy season distribution.
3. Enhance quality, reduce prices, and achieve economies of scale.
4. Maintain hybrid and resistant varieties effectively.
5. Guard against pests and diseases using local resources.

Key points to design your project

The community-based multiplication of sweet potato vines and cuttings is a technology that can significantly impact gender equality, climate resilience, and multiple Sustainable Development Goals (SDGs). It empowers women by providing them with agricultural opportunities, enhances climate resilience through the cultivation of a resilient crop, and contributes to several SDGs, including ending hunger, promoting decent work and economic growth, and supporting responsible consumption and production.

To integrate this technology into a project, the steps include project planning, dissemination of advantages, planning of multiplier sites, procurement of planting materials, implementation of the multiplication process, quality control and pest management, distribution of planting materials, and monitoring and evaluation. The success of the project relies on the collaboration and participation of the entire community.

10,000 USD

Capital investments for a screen house, irrigation system, fertilizers and disease control agents to set up a sweet potato multiplication site Per 0.4 ha

IP

Open source / open access

International Potato Center (CIP)
Norman KWIKIRIZA

Technology from

ProPAS

Commodities

Sweet Potato

Sustainable Development Goals

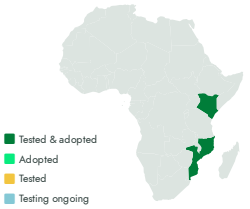
Categories

Pre-production, Practices, Seed system

Best used with

Orange-Fleshed Sweet Potato (High provitamin A), Drought and Virus Tolerant Orange-Fleshed Sweet Potato, Tent-style greenhouse for multiplication of sweet pot...
See all 4 technologies online

Tested/adopted in



Where it can be used

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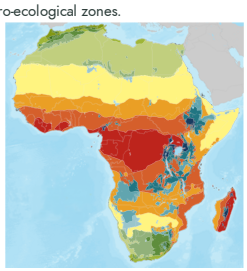


Target groups

Flour Milling and Blending Systems for Wheat, Sorghum and Millet

Produce a premium wheat, sorghum and millet flour close to production areas

This technology comprises milling and blending systems that enable the production of premium flour products in both rural and urban areas. Different milling systems are available, meeting industry standards. An abrasive grain mill typically includes a feed-in hopper, roller table for grinding, rotary sieve for bran separation, and a conveyor belt.

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 3

Problem

- The traditional grinding and cooking of millet and sorghum grains are associated with significant time, energy burden, and labor intensity.
- Transport and cost issues arise in the distribution of raw grain to rural consumers.
- A lack of value addition to raw grain for products sold in urban markets and food processing.

Solution

- The milling and blending systems automate the process, saving time, energy, and labor.
- They reduce the necessity to transport raw grain over long distances, lowering costs for rural consumers.
- The flour processing adds value to raw grain.

Key points to design your project

This technology can be integrated into nutrition projects, offering job opportunities. To implement it, focus on :

- Awareness,
- Product standards,
- Efficient production setups,
- Collaboration with food processor companies.

38,000 USD
Base price for a fully automatic flour mill with a capacity of 30 ton flour per day

80—82 %
maximal recovery of flour

18—20 %
maximal recovery of bran

IP
Open source / open access

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

Technology from

ProPAS

Commodities

Sorghum/Millet, Wheat

Sustainable Development Goals

2 ZERO HUNGER
8 DECENT WORK AND ECONOMIC GROWTH

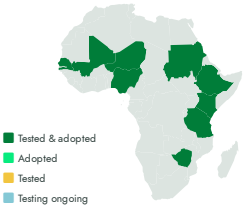
Categories

Post-production, Equipment, Agrifood processing

Best used with

Millet and Sorghum Varieties for Better Nutrition and Stress Resistance
See all 1 technologies online

Tested/adopted in



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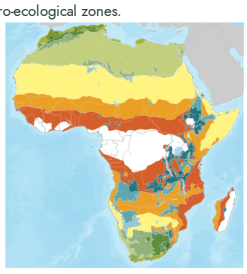


Local Production of Quality Affordable Poultry Feed

Cutting Costs, Boosting Nutrition

This practice involves blending various ingredients to create a balanced feed ration for chickens, optimizing their growth and production. The basic formulation includes maize or wheat, soybeans, bran, oil press cake, fish and bone meal, poultry supplement, limestone, and salt. The feeds are further processed into mash for chicks or pelleted for larger birds.

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 6

Problem

- Limited access to safe and low-cost poultry feed inhibits enterprise profitability and expansion.
- Dependence on expensive purchased feeds restricts small-scale farmers from scaling their operations.
- Balancing the ration with the right combination of nutrients is essential for poultry health and productivity.
- Leveraging locally available ingredients for feed production can reduce costs and enhance profitability.

Solution

- Utilizing locally available and seasonal materials for feed production.
- Blending local energy and protein ingredients with purchased additives to create formulated feeds.
- Reducing feed costs through free-ranging practices and using local by-products.
- Implementing proven technologies to improve local meat and egg supplies.

Key points to design your project

- The technology reduces poultry feed costs, aiding small-scale farmers and improving food security.
- It fosters economic growth by creating local job opportunities and promoting sustainable practices.
- Steps for implementation include assessing nutrient requirements, analyzing feed ingredients, evaluating equipment needs, and considering collaboration with stakeholders.
- Training and communication efforts are essential, along with exploring integration with complementary technologies for optimization.

100—200 kg
feed production per hour

5 years
life span

IP
Open source / open access

International Livestock Research Institute (ILRI)
Tunde Amole

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

Categories

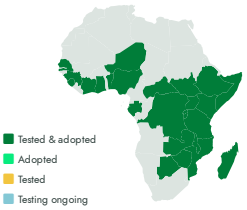
Pre-production, Equipment, Animal feed production

Best used with

Cassava Peels for Animal Feed Production

See all 1 technologies online

Tested/adopted in



Where it can be used

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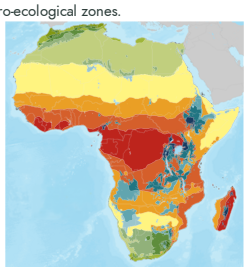


Target groups

Maize-legume rotation and intercropping

Maize-legume: Savings in Soil, Growth in Profit

This practice utilizes legumes' biological nitrogen fixation to boost maize productivity. It enhances soil fertility, reduces weed infestation, and mitigates soil erosion. Certain legumes also combat parasitic weeds in maize, while tall maize crops regulate soil temperature and improve water efficiency.

African Agricultural Technology Foundation (AATF)
Jonga Munyaradzi

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Subsistence farming faces soil nutrient deficiencies, such as nitrogen, hampering crop growth and yields.
- Commercial farmers grapple with high costs associated with nitrogen-based fertilizers, impacting profitability.
- Weed infestation competes with crops for resources, reducing overall yields.
- Pest and disease outbreaks can cause significant damage to crops, affecting both quality and quantity, leading to financial losses.
- Crop failures due to factors like drought or pest attacks can result in food scarcity, impacting household nutrition and well-being.

Solution

- Utilizes biological nitrogen fixation in legumes to enrich soil and promote healthier plant growth.
- Reduces dependency on expensive synthetic fertilizers through maize-legume rotation and intercropping.
- Effectively manages weed growth, minimizing infestation and enhancing overall crop productivity.
- Reduces harmful Striga weed infestations in maize crops through intercropping with specific legumes.
- Cultivating two complementary crops on the same land ensures a more reliable food supply and enhances food security for subsistence farmers.

Key points to design your project

This technology improves crop productivity, ensures food security, and promotes economic sustainability by optimizing nitrogen management, reducing reliance on synthetic fertilizers, and fostering healthier plant growth.

It also contributes to ecosystem preservation by effectively managing weeds and combating Striga weed infestations, all while promoting sustainable agricultural practices.

To integrate this technology, educate farmers, provide guidance on cultivation methods and seed selection, allocate funds for training and support, develop communication materials, and establish partnerships.

For enhanced optimization, consider associating with other complementary agricultural practices.

30—70 kilograms
of nitrogen carried over from soybean to maize crops

IP
Unknown

Technology from

ProPAS

Commodities

Maize

Sustainable Development Goals

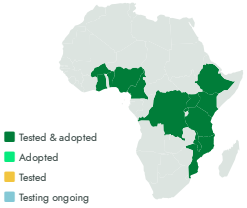
Categories

Production, Practices, Soil fertility

Best used with

Drought Tolerant Maize Varieties and Water Efficient Maize Varieties, Fall Armyworm Integrated Pest Management, Pre-plant blended fertilizers and nitrogen topdressin...
See all 3 technologies online

Tested/adopted in



Where it can be used

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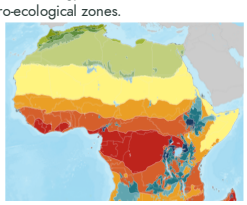


Rice Threshing and Polishing Machines: Axial flow thresher and improved quality polishing

Efficient rice threshing and polishing for premium quality grains, boosting income and market access in african communities.

Axial flow threshers utilize a rotating drum to separate rice grain from the surrounding husk, while abrasive polishers remove outer bran layers. Key parts are made of stainless steel for durability and hygiene. These equipment can be powered by diesel/petrol generators or solar installations for easy use in rural areas.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- High grain losses due to manual threshing methods.
- Inefficiencies in the traditional polishing process, particularly manual rubbing.
- Time-consuming and labour-intensive artisanal practices.
- Difficulty in processing large volumes of rice in communities.

Solution

- The motorized axial flow threshers reduces grain breakage and loss compared to traditional manual methods.
- The mechanized equipment drastically reduces the time and labour required for threshing and polishing.
- The mobile units are designed to be highly mobile and can be easily transported to even remote rural areas.

Key points to design your project

The adoption of Axial flow thresher and improved quality polishing offers a solution to enhance agricultural efficiency and reduce labor-intensive tasks. Key steps to integrate this technology include:

- Inform rice farmers, cooperatives and millers about the benefits of motorized threshers and polishers for increasing value addition and market access, and reducing post-harvest costs and losses.
- Identify suitable setup and size of mobile rice processing equipment
- Establish reliable supply of rice by drawing up contracts and delivery schedules for farmers.
- Provide loans to community-based and commercial processors for acquiring mobile units.

15000—20000 USD
Advanced polishers and whiteners

3000 USD
Small bench-top polishers

IP
Patent granted

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

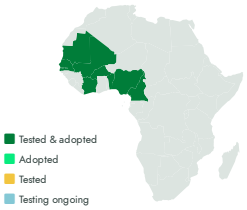
2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

Categories

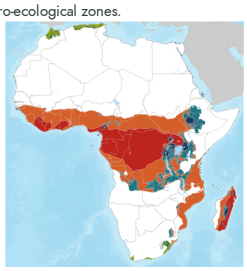
Post-production, Equipment, Post-harvest handling

Tested/adopted in



Where it can be used

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

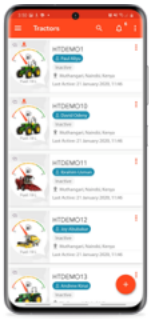


Target groups

Farmers

Hello Tractor: Contract mechanization apps

Enhance crop productivity, reduce labour costs, and increase incomes with Hello Tractor - the digital platform revolutionizing agricultural mechanization in Sub-Saharan Africa.



Hello Tractor is a digital platform facilitating the sharing of agricultural power equipment, connecting owners and smallholder farmers. It incorporates monitoring devices to gather vital data about tractors, harvesters, and other equipment, allowing for efficient management and optimization.

Hello Tractor
Rispa Miliza

Technology from

ProPAS

Commodities

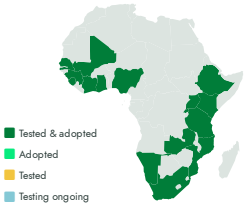
Maize, Rice, Wheat, Sorghum/Millet, Cowpea, Groundnut, + 5 more

Sustainable Development Goals

Categories

Production, Market, Digital applications, Supply chain management, Crop management

Tested/adopted in



Where it can be used

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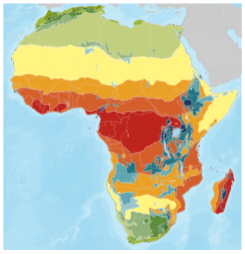


Target groups

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Limited access to modern agricultural technologies for small-scale producers.
- High costs and risks associated with operating tractors and power equipment on farms.
- Inadequate information and communication channels for farmers to access mechanization services.
- Inefficient management of agricultural equipment, leading to underutilization and suboptimal performance.
- Limited scalability of mechanization services in smallholder farming communities.

Solution

- Access to modern agricultural technologies for small-scale producers
- Cost-effective and risk-minimized operation of agricultural equipment
- Improved information and communication channels for farmers
- Efficient management of agricultural equipment
- Scalability of mechanization services in smallholder farming communities

Key points to design your project

- Hello Tractor revolutionizes agriculture by making mechanized farming affordable and efficient, thereby reducing poverty and combating hunger.
- It also promotes gender equality and stimulates rural economic growth by creating job opportunities.
- Through its digital platform, Hello Tractor innovates agriculture and enhances infrastructure efficiency.
- To integrate the technology, purchase smart devices, upload data, and monitor operations closely.
- Collaborate with relevant organizations and invest in training and communication materials for successful implementation.

Cost: $$$ **75 - 210 USD**

Cost of getting the technology

60—70 USD

Cost of renting a four-wheel tractor for 4 hours

IP

Copyright

Biosecurity for Disease Prevention

Safeguarding Poultry Health

The "Biosecurity for Disease Prevention" technology involves practices and strategies in poultry farming to prevent disease spread. It focuses on three main elements: isolation, traffic control, and sanitation, along with training for farmers and workers. This technology emphasizes early disease detection and diligent surveillance to minimize impact. Biosecurity is crucial throughout the poultry value chain, from breeding to feed processing, to protect against various pathogens, including those harmful to humans.

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- High risk of disease introduction and transmission due to large, concentrated bird populations.
- Diseases can cause mass culling and significant economic losses.
- Effective strategies are needed to prevent disease transmission.
- Certain diseases, like Salmonella and Avian Influenza, also threaten human health.

Solution

- Implementing preventative measures such as isolation, traffic control, and sanitation.
- Emphasizing early disease detection through diligent surveillance.
- Offering training to poultry farmers and workers on the importance of biosecurity for health and profitability.
- Applying biosecurity practices across all stages of the poultry value chain, from breeding to processing.
- Protecting against a wide range of poultry pathogens, safeguarding both poultry and human health.

Key points to design your project

Implementing biosecurity measures in poultry farming can enhance gender equality (SDG 5) by improving working conditions, particularly benefiting women. These measures also boost climate resilience by preventing disease outbreaks and reducing waste. Additionally, biosecurity supports various Sustainable Development Goals (SDGs), including good health (SDG 3), decent work (SDG 8), and responsible consumption (SDG 12).

To integrate biosecurity practices into your project, consider the following:

- Design secure premises with veterinarians and engineers.
- Engage with technology providers on the importance and profitability of biosecurity.
- Develop communication materials like flyers, videos, and radio broadcasts.
- Provide a team of trainers for installation, training, and support, including costs for these services.

Accompanying solutions include universal vaccination against Newcastle disease and adding value to poultry manure.

0.036—0.076 USD

Materials per birds

International Livestock Research Institute (ILRI)
Adeniyi Adediran

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

Categories

Production, Practices,

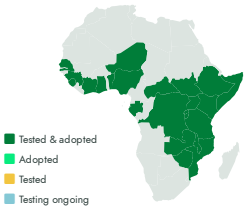
Pest control (excluding weeds)

Best used with

Poultry Vaccination against Newcastle Diseases, Value Addition to Poultry Manure

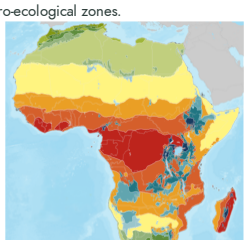
See all 2 technologies online

Tested/adopted in



Where it can be used

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



Proactive Management of Striga Infestation

Striga defended for farmers' empowerment

Sorghum severely infested by Striga

The technology for managing Striga infestation aims to tackle challenges like Striga weed and declining soil fertility. It involves simple farming methods like using less fertilizer, recycling organic matter, rotating crops, and planting Striga-tolerant varieties.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 6

Problem

- Striga attaches to the roots of maize, millet, sorghum, and rice, extracting nutrients and water delayed crop growth.
- Its causes a significant reduction in crop yield.
- The presence of Striga in fields can contribute to soil impoverishment.

Solution

- This technology proposes various agronomic practices such as fertilizer micro-dosing, organic matter recycling, crop rotation, intercropping, the use of Striga-tolerant varieties, seed dressing, pre-emergence herbicides, and hand weeding.
- It has led to an increase in sorghum and pearl millet yields by up to 60% within four years.

Key points to design your project

To integrate the technology:

- One needs to estimate fertilizer quantities,
- Consider delivery costs, provide training,
- Develop communication support, and
- Consider collaboration with agricultural institutes for optimal implementation.

IP

Open source / open access

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

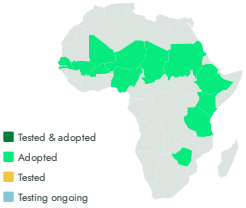
Categories

Production, Practices, Weed management

Best used with

Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement
See all 1 technologies online

Tested/adopted in



Where it can be used

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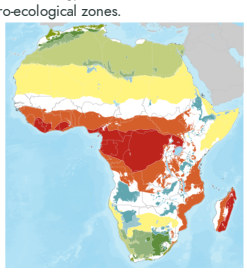
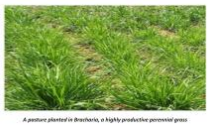


Target groups

Best practices in pasture management: Pasture Improvement



Revitalize Your Pastures, Sustain Your Livestock

This technology aims to enhance productivity in managed pastures through intensive management practices like fertilization, seeding, and irrigation. It includes controlling weeds, partially disturbing the land, and introducing high-yield grasses and legumes, along with other methods such as planting grazing species in croplands and establishing shrub hedgerows.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Limited Access to Affordable Feed
- Inefficient Pasture Establishment
- Climate and Region-specific Challenges
- Weed Invasion and Reduced Productivity
- High Costs of Pasture Establishment
- Limited Knowledge Sharing and Accessibility

Solution

- Provides cost-effective methods for establishing pastures.
- Reduces reliance on expensive purchased feed.
- Equips producers with valuable pasture management skills.
- Advises on suitable species and management practices.
- Tailors advice to the region's climate and conditions.
- Offers strategies for weed management and productivity.

Key points to design your project

- Steps to incorporate the technology into a project include identifying project needs, conducting training sessions, selecting suitable pasture species and practices, ensuring access to quality seeds and inputs, implementing management practices, and collaborating with stakeholders.
- Budget estimation involves allocating costs across land preparation, weed control, fertilizer, and seed, considering an average cost of USD 400 to 600 per hectare spread over several years.
- Adequate training and post-training support are essential, along with the development of communication materials to promote the technology.
- Collaboration with private seed companies, cooperatives, seed growers, and farmers is crucial for successful technology implementation.

IP

Open source / open access

Technology from

ProPAS

Commodities

Small livestock

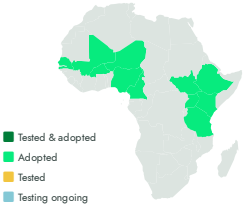
Sustainable Development Goals

Categories

Pre-production, Practices,

Animal feed management

Tested/adopted in



Where it can be used

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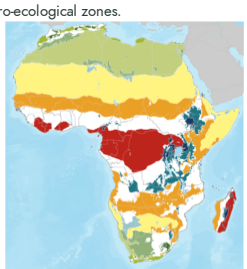


Target groups

Farmers

Biological Control of Sorghum and Millet Insect Pests with Natural Enemies

Protect crops using natural pest allies for sustainable pest control in Africa

Biological control uses indigenous predators and parasitoids to combat pests like the Millet Head Miner and Fall Armyworm. Released into fields, these natural enemies prevent pest outbreaks and crop damage. This eco-friendly method enhances ecosystems and food security, reducing the need for chemical pesticides.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Pests cause significant crop losses, threatening food security in Sub-Saharan Africa.
- Overuse of pesticides leads to environmental harm and health risks.
- Many farmers lack access to effective pest management solutions, increasing vulnerability to infestations.

Solution

- Parasitoid wasp *Habrobracon hebetor* targets pests' caterpillars.
- Biological control techniques reduce infestations and ensure food supply.
- Parasitoid wasp *Telenomus remus* prevents Fall Armyworm outbreaks.

Key points to design your project

Biological control aligns with SDGs 2, 12, and 15 by mitigating climate change, reducing pesticide use, and supporting biodiversity.

To integrate it into a project:

1. **Risk Assessment**: Identify pest levels and risks.
2. **Monitoring**: Establish protocols for parasitoid rearing and release.
3. **Awareness**: Run campaigns about biological control benefits.
4. **Training**: Educate agents and farmers on mass-rearing and release techniques.
5. **Resources**: Organize supply of materials for starter colonies.
6. **Evaluation**: Implement a system for project effectiveness and feedback.
7. **Partnerships**: Collaborate with local communities and organizations.
8. **Funding**: Estimate costs, secure funding, and consider long-term cost-effectiveness.

6,000 USD	3—4 USD	IP
per year for operation	per "ready-to-use" bag	Open source / open access

Technology from

ProPAS

Commodities

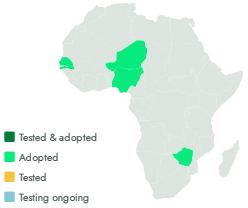
Sorghum/Millet

Sustainable Development Goals

Categories

Production, Inputs, Natural Enemies

Tested/adopted in



Where it can be used

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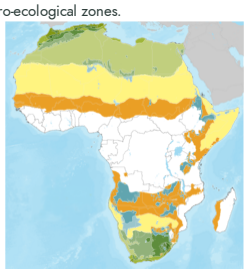


Target groups

Farmers

Combine Harvesters for Wheat and Fleet Management tool

Efficient Harvesting, Smarter Fleet Management

The combine harvester is a modern agricultural machinery designed to perform multiple harvesting operations as threshing, gathering, and winnowing, all in a single process. Available in various sizes, its suitable for crops like wheat, maize, rice, soybean, barley, sunflower, and more.

Combine harvester operating in Sudan

International Center for Agricultural Research in the Dry Areas (ICARDA)
Zewdie Bishaw

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 6 1

Problem

- Traditional manual harvesting is time-consuming and demands significant labor.
- Conventional threshing methods are slow and risk potential grain loss.
- Manual separation of grain from chaff is inefficient, leading to impurities.
- Older methods may have limited capacity, resulting in slower operations.

Solution

- Combine harvesters automates the harvesting process, reducing the need for manual labor.
- Its offers threshing mechanisms, minimizing grain loss during harvesting.
- Its incorporate separation technologies, ensuring effective grain separation and reducing impurities.
- Help to increases harvesting capacity.

Key points to design your project

Combine harvesters and fleet management offer transformative solutions to challenges in traditional grain harvesting by minimizing yield losses. Integrating this technology involves:

- Evaluating unit sizes and costs, considering sources.
- Training, communication support, and
- Collaboration with agricultural institutes.

56—63 USD
harvesting unit cost per Ha

IP
Unknown

Technology from

ProPAS

Commodities

Maize, Rice, Wheat, Soybean

Sustainable Development Goals

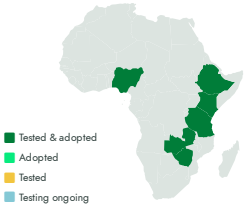
Categories

Post-production, Equipment, Land preparation

Best used with

Contract mechanization apps
See all 1 technologies online

Tested/adopted in



Where it can be used

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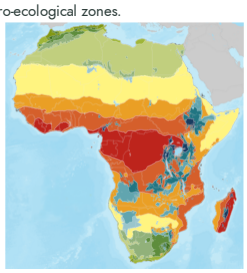


Target groups

Cassava seed-bulking farms

Quality cassava cuttings close to the fields

The practice of seed-bulking farms for cassava provides quality planting material directly to smallholder farmers, situated near their fields. This facilitates access to improved varieties and reduces the cost of transporting cuttings, leading to increased profitability.

International Institute of Tropical Agriculture (IITA)
Abass Adebayo

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- The distribution of cassava stem cuttings is problematic as they rapidly lose their sprouting vigor when stored.
- Their bulk and weight drive up transport costs, limiting the supply of improved cassava planting material.
- Smallholder farmers often rely on seed companies with limited geographical coverage, restricting their access to improved cassava varieties.

Solution

- Seed-bulking farms provide high-quality, disease-free cassava stem cuttings, improving access to superior cassava varieties.
- Reduced transport times and decentralized production enhance planting material survival.
- This approach supports community-based businesses, boosting incomes for farmers and processors.

Key points to design your project

This technology promotes transformative impacts.

Integrating it in project involves:

- Identifying suitable cassava varieties.
- Training farmers on seed-bulking.
- Optimizing production and distribution.
- Providing access to loans.

20 ha of cutting harvested

per ha planted every 16 months

IP

Open source / open access

Technology from

ProPAS

Commodities

Cassava

Sustainable Development Goals

Categories

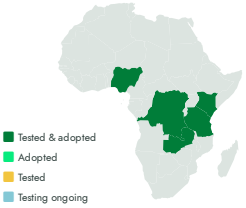
Pre-production, Practices, Seed system

Best used with

Disease resistant cassava varieties, Golden cassava varieties (Vitamin A fortified), Cassava varieties with high dry matter and starch content

See all 3 technologies online

Tested/adopted in



Where it can be used

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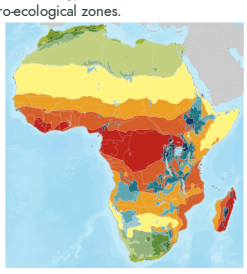


Target groups

Semi-Automatic Incubator for artificial hatching

Hatching Success, One Chick at a Time

This technology reproduces the natural incubation process on a larger scale. They are designed to accommodate 50 to 150 eggs at a time. They can be heated using kerosene or a battery-powered light bulb, offering an alternative to mains electricity.

International Livestock Research Institute (ILRI)
Adeniyi Adedirian

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Limitation of natural incubation in producing chicks, with a capacity of only 10-12 chicks per hatch.
- Difficulty in responding quickly to the market demand for chicks.
- Risk of the spread of parasites and diseases in the natural incubation process.

Solution

- This technology has the ability to hatch day-old chicks in just 21 days, increasing the capacity to produce a large number of chicks in a short time in response to market demand.
- High success rate of 85-90% in artificial incubation, increasing production efficiency.
- Reduced risk of the spread of parasites and diseases in the artificial incubation process.

Key points to design your project

The Artificial Hatching in Semi-Automatic Incubators technology transforms poultry farming by accelerating chick production and ensuring a reliable supply. To integrate it in your project:

- Conduct awareness campaigns, assist in selecting incubators, and develop marketing strategies.
- Evaluate quantity, consider delivery costs, and collaborate with institutes for implementation.
- Training and communication support are vital, and association with other poultry farming practices enhances sustainability.

150 USD	200 USD	500 USD	IP
64-egg manual solar unit	fully automated 96 egg unit	Hatchery start up requirement	Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

Categories

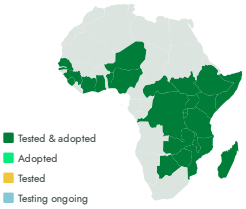
Pre-production, Equipment

Best used with

Genetically Improved Poultry Breeds for Optimized Meat and Egg Production, Dual-Purpose Chicken for Small-Scale Producers

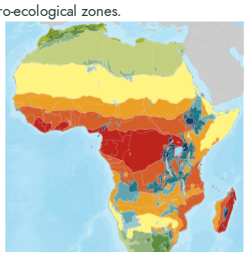
See all 2 technologies online

Tested/adopted in



Where it can be used

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



Motorized Planter and Fertilizer Applicator (Sénékéla): Mechanized Tillers, Planters and Fertilizer Applicators

Make farming easier with planting and fertilizing machines

The motorized planter and fertilizer micro-dose applicator, known as "Sénékéla", provides precise and fast placement of seeds and mineral inputs on prepared soils or ridges. This technology is designed to reduce the workload for millet and sorghum producers.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 5

Problem

- Preparing the land, planting seeds and adding fertilizer by hand are too hard for farmers.
- It's take a lot of time to do and farmers spend much of money on animals or services to help

Solution

- Mechanizing farm activities to reduce the physical strain on farmers and lower the costs associated with maintaining animals or hiring services.
- It enables timely and efficient field operations, leading to increased crop productivity and higher profits.

Key points to design your project

The adoption of Mechanized Tillers, Planters, and Fertilizer Applicators offers a promising solution to enhance agricultural efficiency and reduce labor-intensive tasks. To integrate this technology, consider:

- Building public-private partnerships, demonstrating benefits to farmers,
- Providing training and technical support, linking to credit facilities,
- Evaluating equipment needs and costs and collaborating with agricultural institutes or fleet managers for implementation.

IP

Open source / open access

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondj

Technology from

ProPAS

Commodities

Sorghum/Millet

Sustainable Development Goals

2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

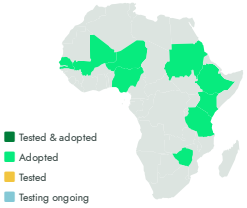
Categories

Production, Equipment, Land preparation

Best used with

Precision Fertilizer Micro-Dosing for Millet and Sorghum Yield Enhancement
See all 1 technologies online

Tested/adopted in



Where it can be used

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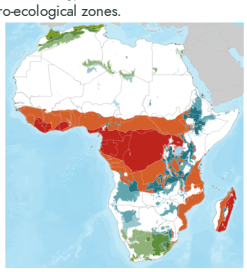


Target groups

ARICA: Advanced rice varieties for Africa

Arica rice, the high yield, disease and stress tolerant rice

ARICA hybrid rice lines offer high yields and resistance to diseases and environmental stresses. Developed through advanced breeding methods, they must surpass benchmarks in yield and grain quality over three seasons. Field tests show ARICA 1, 2, and 3 outperform NERICA-L 19, boosting rice production and food security in Africa.

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Traditional rice varieties in Africa yield inadequately.
- Common rice diseases and pests diminish yields and threaten food security.
- Environmental variability poses significant challenges, affecting crop growth and productivity.
- Traditional rice varieties struggle to adapt to diverse agroecosystems, resulting in suboptimal performance.

Solution

- ARICA varieties offer increased productivity and profitability.
- ARICA lines resist common rice diseases and pests, ensuring stable yields.
- ARICA hybrids withstand environmental stresses, ensuring consistent yields.
- ARICA varieties thrive in diverse agroecosystems, providing flexibility to farmers.
- Some ARICA lines possess traits like drought resistance and iron toxicity tolerance, addressing specific challenges.

Key points to design your project

- Steps to integrate ARICA technology:
  - Develop and certify tailored ARICA varieties.
  - Raise farmer awareness about benefits.
  - Facilitate financial support for seed purchases.
  - Provide training on cultivation and management.
- Accompanying solutions:
  - Deep urea placement for nitrogen management.
  - Foliar micronutrient addition for crop nutrition.
  - Engineered irrigation surfacing and water lifting.
  - Motorized weeders for effective weed control.
  - RiceAdvice digital support for comprehensive guidance.

356 USD
Planting, maintenance, harvesting and winnowing

50 - 111 %
Potential yield

IP
Open source / open access

AfricaRice

Africa Rice Center
Sali Atanga Ndindeng

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

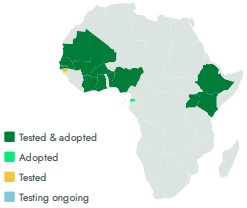
Categories

Production, Improved varieties,
Yield improvement, Quality improvement

Best used with

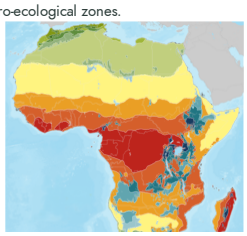
Nitrogen management for Efficient Rice Fertilization, Foliar micronutrient addition for healthier rice, Precision Rice Irrigation and Surface Leveling, Motorized weeders f...
See all 5 technologies online

Tested/adopted in



Where it can be used

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



Short-Term Fattening and Supplemental Feeding

Fast Feed, Fast Fatten, Fast Fortune: The Future of Livestock Farming!

Goat fattening with excess feed and limited movement

The technology is a strategic feeding method used in feedlots to quickly fatten livestock, particularly goats and sheep, for slaughter. It aims for optimal fat deposits and three fattening cycles per year, timed with festive seasons for peak demand and prices. This ensures quick turnover, aligns with market dynamics, and makes the practice profitable and responsive to market needs.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Limited space for extensive livestock farming.
- High risks associated with livestock ventures.
- Long timeframes for returns in traditional farming.
- Challenges in implementing movement restrictions for intensive feeding.

Solution

- Feedlot Farming: Maximizes space usage.
- Profitable Turnover: Minimizes risks.
- Quick Returns: Ensures fast results.
- Effective Restrictions: Manages animal movement.

Key points to design your project

This technology aids in achieving SDG 2 (Zero Hunger) by boosting meat production and can support SDG 5 (Gender Equality).

For successful integration into a project, key steps include:

- Engaging stakeholders to tailor the technology to regional needs.
- Training breeders on the technology and its benefits.
- Developing necessary infrastructure like feedlots and feed storage.
- Managing supply chain for steady animal and feed supply.
- Monitoring and evaluating the project's progress and impact.

These steps should align with regional context and government livestock farming policies.

70 USD
cost to finish a young animal in four months

IP
Open source / open access

Technology from

ProPAS

Commodities

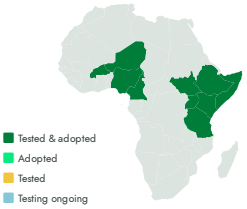
Small livestock

Sustainable Development Goals

Categories

Production, Practices,
Animal feed management

Tested/adopted in



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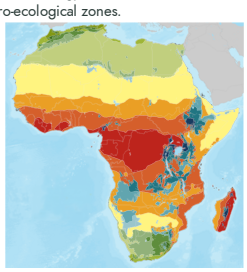


Target groups

Breeders

Agrocares Scanner: Soil, Feed and Leaves Nutrient Scanner

Scan Nutrients. Get Answers. Act Fast.

The Nutrient Scanner gives government teams a quick and portable way to assess soil and crop nutrition in the field. It scans samples with NIR light, connects to a smartphone, and sends data to the cloud for instant nutrient analysis and recommendations. It supports data-driven extension without needing a lab.

AgroCares
Mukami Gitau

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 7

Problem

- **Limited Extension Capacity**
  Agents can't diagnose nutrient issues on-site.
- **Fertilizer Inefficiency**
  Blanket application leads to waste and low yields.
- **Labs Out of Reach**
  Testing services are slow, costly, and hard to scale.
- **No Field-Level Data**
  Policies lack current soil fertility insights.

Solution

- **Field-Ready Tool for Agents:** Extension staff can test and advise farmers instantly.
- **Smarter Fertilizer Use:** Reduce waste with precise nutrient recommendations.
- **Rural Reach Made Easy:** Works offline for scanning; syncs later.
- **Improves Soil Data Systems:** Generates real-time info to support planning and policy.

Key points to design your project

Modernize soil and crop advisory with on-site diagnostics.

- **Equip extension agents** with handheld scanners and apps.
- **Train staff and embed testing** into regular field visits.
- **Use scan data** to guide fertilizer policy, subsidies, and restoration programs.
- **Engage communities and local leaders** to increase adoption.
- **Monitor results** to adjust strategy and maximize impact.

IP

Patent granted, Copyright, Trademark

Commodities

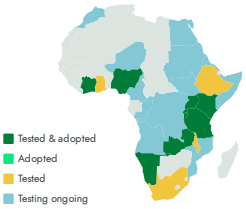
Maize, Wheat, Cassava, Soybean, Canola, Sorghum/Millet, + 3 more

Sustainable Development Goals

Categories

Production, Pre-production, Equipment, Analysis and Diagnostic tool

Tested/adopted in



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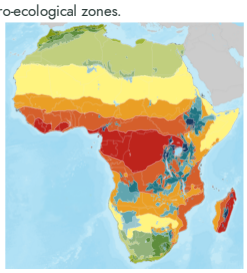


Target groups

Breeders, Development institutions, Farmers, Governments, Seed companies, Sellers, + 4 more

Multifunctional biopesticide: Ecopticide Agri

Ecopticide Agri, your 3-in-1 bio product against insect, fungi and nematode

Ecoticide Agri is a multi-functional solution acting as an insecticide, fungicide, nematicide, and bactericide, offering comprehensive protection against various pests and pathogens. Its formulation prevents resistance development among pests and reduces the risk of infestations when used preventively.

This technology is validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 5

Climate impact 7

Problem

- Traditional pest management products cause harvest losses, reducing agricultural productivity.
- Conventional pest control harms the environment, causing soil depletion, heightened drought vulnerability, and biodiversity loss.
- Pests develop resistance to existing products, posing ongoing challenges for farmers.
- Chemical pesticides have limited effectiveness against new pest species like the fall armyworm, leaving crops inadequately protected.

Solution

- It acts as a pesticide, fungicide, and nematicide, addressing pest and disease challenges.
- It is fully biodegradable, reducing concerns about soil depletion and biodiversity loss.
- The concentrated formula boosts crop output by tackling low production yields associated with traditional pest management.
- It contains no harsh solvents, ensuring environmental safety and minimal ecosystem impact.

Key points to design your project

- Educate farmers on the benefits of Ecopticide in managing pests and diseases while improving crop yields and quality.
- Ensure fair access and financial support for local suppliers and smallholder farmers.
- Confirm compliance with national pesticide regulations and secure necessary authorizations.
- Estimate the required quantity and costs, including delivery and import fees.
- Include training and post-training support costs in the project budget.
- Develop communication materials to promote the technology.
- Collaborate with agricultural institutes, fertilizer suppliers, and service companies for implementation support.

Cost: $$$ **20 - 35 USD**

Cost of 1L of the product

ROI: $$$ **200 %**

Benefit

300 000 USD

Initial investment for manufacturer

30 000 USD

Operating Investment

Arknergie Innovation
Dr. Kofi Abokitse

Commodities

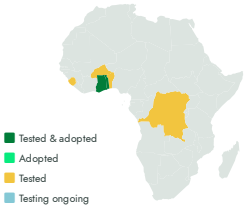
Maize, Fruits, Vegetable crop, Other root/tuber

Sustainable Development Goals

Categories

Production, Inputs, Pesticide

Tested/adopted in



Where it can be used

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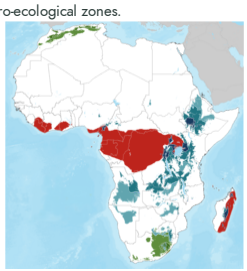


Target groups

Farmers

KABAMANOJ F1: High yield and drought tolerant orange maize hybrid

Unleashing the Power of High-Yielding Orange Maize Across Africa!

KABAMANOJ F1 is a high-yielding, drought-tolerant maize variety with a short cycle (70-105 days), making it resilient to challenging climates. It produces up to 10 tons per hectare and is rich in protein, suitable for both food and poultry farming. Registered with ECOWAS, it is well-adapted to African climates and supports food security and agricultural sustainability.

UPL
Florent Clair

This technology is validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 4

Problem

- Increased frequency and severity of droughts impacting maize growth.
- Inadequate agricultural practices leading to suboptimal productivity.
- Limited access to high-yielding maize varieties.
- Extended growth cycles delaying harvest and affecting overall efficiency.
- Vulnerability to pests such as stem borers and diseases like maize streak virus.

Solution

- Short maturation period (80-100 days) addresses long maturity challenge.
- High yields (up to 10 tonnes/ha); substantial cob weight (160 g) and optimal cob length (26 cm) combat poor yield.
- Excellent resistance to drought and diseases mitigates climate-related challenges.
- Protein-rich content enhances nutritional value; specifically adapted to African climate for climate change resilience.

Key points to design your project

- Technology addresses drought and disease challenges, enhancing food security and agricultural productivity
- Disease resistance ensures healthier crops, improving nutrition
- Adapts to climate change, aiding in its mitigation and ecosystem preservation
- Collaboration is crucial for development and dissemination, fostering sustainable development
- Integration steps include estimating seed quantity, considering delivery costs, allocating resources for training, developing communication materials, enhancing optimization with complementary practices, and collaborating with agricultural development institutes and seed multiplication companies

Cost: $$$ **110** USD/ha
Seed cost

40 %
Yield increased

170 USD/ha
Operation cost

560 USD/ha
Benefit

IP
Unknown

Commodities

Maize

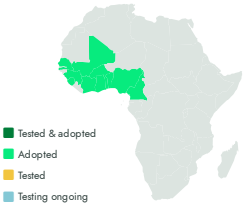
Sustainable Development Goals

2 ZERO HUNGER · 5 GENDER EQUALITY · 13 CLIMATE ACTION

Categories

Production, Improved varieties, Yield improvement, Drought tolerance

Tested/adopted in



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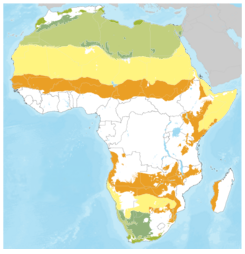


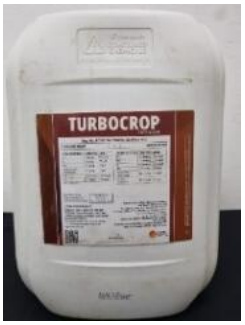
Target groups

Farmers, Seed companies

Turbocrop: Field crop plant establishment biostimulant

Specialized biostimulant for root development and vegetative growth on field crops

Turbocrop is a specialized biostimulant product designed to enhance the development of roots and promote vegetative growth in crops. It is specifically formulated to improve plants' ability to withstand and cope with abiotic stress factors, such as extreme temperatures, drought, or nutrient deficiencies.



UPL
Florent Clair

This technology is validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 6 1

Problem

- Imbalances in soil nutrients hinder optimal plant growth and productivity.
- Factors constrain the potential size and structure of plants, impacting overall yield.
- Restrictions in root development impede nutrient uptake, affecting plant health and productivity.
- Inefficiencies in nutrient absorption and utilization by plants result in suboptimal growth.
- Various factors contribute to limitations in crop yields, affecting agricultural productivity and food security.

Solution

- Stimulates root hair formation for enhanced nutrient absorption.
- Promotes stem elongation and leaf growth, particularly during tillering.
- Provides a balanced blend of essential nutrients for optimal crop growth.
- Improves nutrient utilization efficiency for better plant performance.
- Offers a holistic approach to plant growth, addressing root development, stem elongation, leaf formation, and nutrient optimization.

Key points to design your project

Turbocrop technology improves food security, nutrition, and climate resilience by boosting yields, enhancing nutrient absorption, and supporting sustainable, biodiverse farming.

Integration steps:

- Align with project needs
- Estimate required quantity and costs (including training/support)
- Select reliable suppliers
- Plan for integration, staff training, and performance monitoring
- Promote the technology through communication efforts
- Collaborate with development institutes and agri-service partners for success

Cost: $$$ **10 - 20 USD**
Fertilizer cost

460 Kg/ha	**170** USD/ha	IP
Yield increase	Benefit on maize in South Africa	Patent granted

Commodities

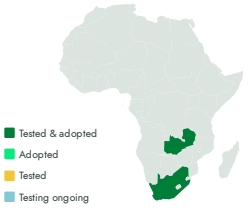
Wheat, Maize, Groundnut, Common bean, Other commodity

Sustainable Development Goals

Categories

Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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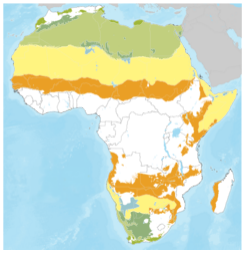


Target groups

Farmers

PAC 501: High yielding and drought tolerant white grain sorghum hybrid

Unleash Prosperity with Our Drought-Tolerant White Grain Sorghum Hybrid

Advanta Seeds
Florent Clair

PAC 501 is a high-yielding, drought-tolerant sorghum hybrid that produces 4-4.5 tons per hectare, with early maturity and high nutritional value. It is widely adopted in Africa, improving productivity and resilience in areas with unpredictable rainfall.

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 4

Problem

- Sorghum crops face suboptimal yields, posing challenges for food security and farmers' income.
- Inefficient cultivation methods and less productive sorghum strains contribute to these low yields.
- Frequent periods of moisture stress negatively impact the growth and development of sorghum crops.
- Inadequate water availability during critical growth phases can result in significant yield losses.

Solution

This new varieties:

- Demonstrates robust performance under water scarcity conditions, mitigating crop growth impact.
- Highly responsive to key inputs, particularly fertilizer, optimizing resource use for improved yield and quality.
- Offers double the yield potential compared to Open Pollinated Varieties (OPVs), addressing low yields in traditional sorghum cultivation.

Key points to design your project

- The high yielding white grain sorghum hybrid technology boosts sorghum yields, aiding in poverty alleviation and combating food insecurity.
- Its drought tolerance enhances agricultural resilience to climate change.
- Improved cultivation practices contribute to land resource conservation and biodiversity.
- Steps for integration include conducting awareness campaigns, collaborating with public and private entities, providing capacity building for seed producers, and facilitating access to low-interest credit options.
- Collaboration with stakeholders such as seed companies, cooperatives, growers, and farmers is crucial for successful implementation.

Cost: $$$ **28 USD/ha**
Average cost of seeds for farmer

ROI: $$$ **288 %**
Gross income/inputs costs

800 USD/ha
average gross income

Commodities

Sorghum/Millet

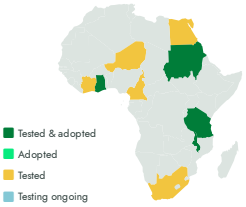
Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
13 CLIMATE ACTION

Categories

Production, Improved varieties, Yield improvement, Quality improvement

Tested/adopted in



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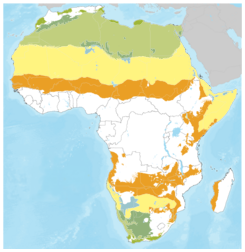


Target groups

Farmers, Seed companies

GrainMate: Grain Moisture Meter

Control the moisture content of grains and reduce post-harvest losses.

The Grain Moisture Meter helps African farmers prevent mold and post-harvest losses. Ministries of Agriculture, extension services, and food safety agencies use it to ensure quality control, improve storage, and enforce market standards. It supports fair trade, enhances food security, and boosts market value at both farmer and national levels.

Sesi Technologies Limited
Isaac Sesi

This technology is pre-validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 4

Problem

- **Grain Losses:** FAO reports 10–20% of grain is lost in Sub-Saharan Africa due to poor post-harvest handling.
- **Unreliable Methods:** Farmers use biting or tossing grains, which are inaccurate.
- **Lack of Moisture Meters:** Many farmers can't afford or find reliable grain moisture meters.
- **Mold Risk:** Grains above 13.5% moisture quickly develop mold.
- **Poultry Impact:** High-moisture grains reduce egg production and increase bird disease and deaths.

Solution

- **Eliminates Guesswork:** The meter replaces unreliable methods, enabling informed storage decisions.
- **Improves Accessibility:** Affordable and easy to use, priced at $60, it's accessible to many farmers.
- **Reduces Grain Losses:** It helps farmers measure moisture accurately, preventing post-harvest losses and ensuring food security.
- **Supports National Planning:** Reliable data aids governments in monitoring grain quality, predicting risks, and shaping food security policies.

Key points to design your project

The GrainMate Moisture Meter addresses challenges in traditional grain moisture measurement. To integrate this technology into your project, you mainly need to:

- Assess the quantity of GrainMate Moisture Meters needed,
- Account for delivery costs to your project site,
- Provide training.

Commodities

Maize, Sorghum/Millet, Soybean, Wheat, Groundnut

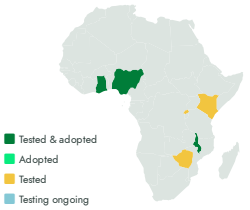
Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH

Categories

Post-production, Equipment, Post-harvest handling

Tested/adopted in



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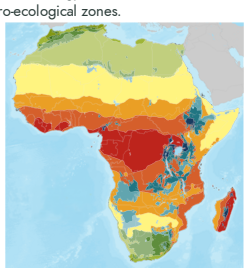


Target groups

Farmers, Processors, Warehouse Operators, Advisory and Extension Services

PAC 740: Orange maize hybrid

High yielding orange maize hybrid, medium maturity with high field tolerance to drought

Orange Maize PAC 740 is a high-yielding, protein-rich variety that produces up to 11 tons per hectare and matures in 115 days. It is drought-tolerant and resistant to maize leaf blight, making it ideal for food and poultry farming in challenging environments across India, Thailand, and several African countries.

Advanta Seeds
Ibrahim Shiundu

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 6

Problem

- Farmers struggle with low yields, affecting productivity and food security.
- Water scarcity in water-stressed regions limits crop growth and agricultural viability.
- Farmers seek versatile maize varieties for both grain production and livestock fodder.
- Targets diseases like blight, which can harm crop health and yield.
- Aims to boost profitability by offering seeds with double yield potential compared to traditional varieties.

Solution

- It resists foliar diseases like blight, ensuring healthier crops and minimizing yield loss.
- Thrives in limited water conditions, mitigating the impact of moisture stress.
- Designed for increased productivity compared to standard varieties.
- Serves as both grain producer and livestock fodder.
- Offers twice the yield potential of standard varieties, ensuring higher returns on investment.

Key points to design your project

This technology improves crop yields, food security, and farmer income while aiding poverty reduction. Its drought-tolerant maize variety enhances climate resilience, and its disease resistance and soil health promotion support sustainable land management and biodiversity. Its dual-purpose nature promotes resource efficiency. To integrate it into a project:

- Estimate seed quantity needed based on cost and seed requirement.
- Consider delivery costs and import clearance from Kenya.
- Allocate resources for training and post-training support.
- Develop communication materials.
- Optimize the maize variety with legume intercropping and manure application.
- Collaborate with agricultural institutes and seed companies for implementation.

Cost: $$$ **127 USD/ha**
Average cost of seeds for a farmer

30 %
Estimated ROI

540 USD/ha
Total input costs

2000 USD/ha
Estimated average gross income

IP
Open source / open access

Commodities

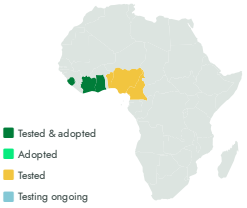
Maize

Sustainable Development Goals

Categories

Production, Improved varieties, Yield improvement, Quality improvement

Tested/adopted in



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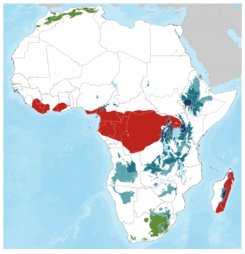


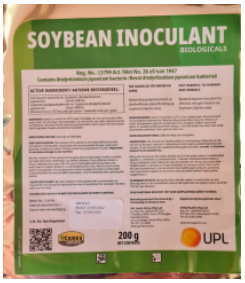
Target groups

Farmers, Seed companies

Soybean inoculant: Rhyzobium inoculant range, various strains

N-fixing bacteria to reduce chemical fertilizer use

Stimuplant is a specialized range of inoculants designed for various legume crops. It capitalizes on a unique symbiotic relationship between the legume plants and a beneficial bacterium known as Rhizobia. This natural partnership results in the addition of significant nitrogen levels to the soil, ranging from 40 to 150 kg per hectare.



UPL
Florent Clair

This technology is validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 5

Climate impact 7

Problem

- Nitrogen limitation hampers plant growth, particularly affecting legume crops.
- Soil degradation arises from excessive reliance on chemical fertilizers.
- These factors culminate in economic hardships and food insecurity among farmers.

Solution

- UPL Powder Carrier Technology shields bacteria from harsh environmental conditions like high temperatures and pH fluctuations.
- It holds the CERES organic certification, meeting stringent organic standards.
- Tailored packaging suits the needs of smallholder farmers, enhancing accessibility.
- The powder formulation extends shelf life to 9 months, reducing wastage and improving efficiency.

Key points to design your project

To integrate this technology into your project, follow these steps:

- Estimate the quantity of products needed based on a cost range of USD 15-25 per hectare.
- Consider the accessibility of the technology in South Africa and calculate delivery costs, including potential import clearance and duties.
- Arrange training and support from a team of trainers during installation, factoring in the associated costs.
- Develop communication materials such as flyers, videos, and radio broadcasts to raise awareness about the technology.
- Enhance the effectiveness of the improved maize variety by companion planting with soybean varieties resistant to pests and diseases, and focus on nutrient fertilization.
- Collaborate with agricultural development institutes and agro-dealers to facilitate technology implementation in your country.

Cost: $$$ **15—25 USD**
Product cost /ha

ROI: $$$ **35 %**
Yield increase

IP
Open source / open access

Commodities

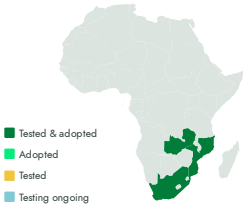
Soybean, Groundnut, Cowpea, Common bean

Sustainable Development Goals

Categories

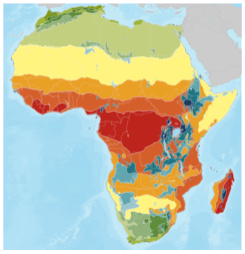
Production, Inputs, Inoculant

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Mechanized Threshing Operations

Efficient Threshing for Productive Farms

The thresher consists of a 1) feed chute, 2) threshing chamber, 3) exit chute, 4) blower, 5) seed collection chute, and 6) petrol engine

Mechanized Threshing Operations is equipment used to separate seeds or grains from harvested plants. It utilizes small petrol engines to process seeds and grains rapidly, offering a significant improvement in efficiency.

ImaraTech
Alfred Chengula

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 2 3

Problem

- Manual threshing methods are inefficient, requiring approximately four hours of work to recover 100 kg of seed.
- Reliance on manual labor for threshing may limit agricultural productivity and efficiency.
- Limited availability or access to multi-crop threshers may hinder the processing of diverse crops.

Solution

- Different types of crops can be processed based on the screen mesh used in the thresher.
- Mechanized threshing is labor-efficient, processing 150 to 500 kg of saleable product per hour, depending on the crop.
- Processing times vary based on the size of the seed, with smaller seeds being processed more rapidly.

Key points to design your project

The Mechanized Threshing Operations technology offers an efficient solution for separating seeds or grains from harvested plants, reducing labor requirements and costs. Key steps to integrate this technology into your project include

- Promoting awareness, providing training,
- Evaluating costs and quantities needed,
- Offering ongoing support, developing communication materials, and collaborating with relevant stakeholders.

50 %
Threshing cost reduced

225 kg per hour
Maize processing

IP
No formal IP rights

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

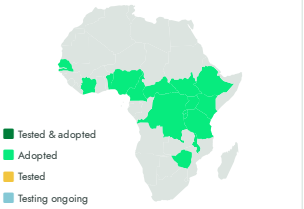
Categories

Prevention & storage, Equipment, Post-harvest handling

Best used with

- Hermetic Bags for Safe Storage of grain ›

Tested/adopted in



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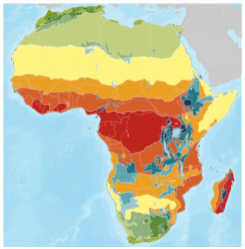


IPM: Integrated Management of Insects, Diseases and Weeds in common bean

Smart Solutions for Safer Farming

IPM is a holistic approach to managing pests, diseases, and weeds in common bean cultivation, emphasizing environmental sustainability and food safety. It reduces reliance on chemical pesticides and promotes natural control mechanisms for crop productivity and food security.

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Justin Mabeya Machini

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 6

Problem

- Common beans face threats from pests and diseases, affecting productivity.
- Chemical pesticides, though effective, pose health and environmental risks and can lead to pest resistance.
- Poor pest management can result in food insecurity and income loss for bean growers.
- Overreliance on pesticides disrupts natural ecological balance and control mechanisms.

Solution

- Holistic approach to crop protection
- Minimization of chemical pesticide usage
- Balanced ecosystems maintenance
- Understanding beneficial organisms' life cycles and interactions
- Utilization of strategies like natural predator release and cultural practices
- Effective against common bean pests, diseases, and weeds
- Adaptability to diverse soil and climate conditions

Key points to design your project

Integrated Pest Management (IPM) boosts crop productivity, ensures food security, and reduces pesticide-related health risks, promoting sustainability and biodiversity conservation. To integrate IPM into your project:

1. Identify pests and beneficial organisms, devising management strategies.
2. Understand short- and long-term benefits for pest control and costs.
3. Access control agents like predators and bio-pesticides, seeking guidance on their use.
4. Estimate needed quantities and provide proper training for application, factoring in training costs.
5. Develop communication materials and integrate IPM with other management practices.
6. Collaborate with agricultural institutes for successful implementation.

Cost: $$$ **5,000 USD**

Installation of rearing colonies of parasitoid wasps

6,000 USD	**0.5 - 1 USD**	**25 - 35 USD/Ha**	**IP**
Operation cost per year	Coating 1kg of seed	Pre-emergence herbicides	Open source / open access

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

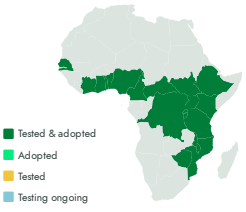
Categories

Production, Practices,
Pest control (excluding weeds),
Weed management

Best used with

- Mechanical and Chemical Weed Management ›
- Seed dressing of Seed with Fungicide and Insecticide ›

Tested/adopted in



Where it can be used

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

Cage Systems for Fish farming

Cage Culture: Dive Deep for a Sustainable Leap!

Cage Systems for Fish Culturing is a method where young fish are grown in submerged cages in large water bodies. The cages protect the fish, provide nourishment, and monitor their health. Once mature, the fish are harvested. This technique allows for natural, secure, and regulated fish farming, akin to a floating aquaculture facility.

Floating cage for tilapia farming inside Lake Victoria (Credit: Erick Ochieng Ogello)

WorldFish
Bernadette Fregene

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 3

Climate impact 1

Problem

- **Space and Control:** Traditional fish farming requires large, expensive land and lacks control in open waters, leading to losses from predators and disease.
- **Water Quality:** In other forms, especially in small ponds, water quality can deteriorate quickly causing problems like low oxygen levels and harmful substance buildup.
- **Environmental Impact:** Some methods can negatively impact the environment, such as causing pollution from waste products.
- **Unpredictable Events:** In open waters, upwelling events can drastically change conditions in the cage, affecting fish health.

Solution

- **Space and Control**: Cage systems efficiently use water bodies, reducing the need for large land areas and providing a controlled environment for the fish.
- **Water Quality**: They help manage water quality issues common in other forms of aquaculture.
- **Environmental Impact**: Cage systems aim to minimize the environmental impact of aquaculture.
- **Upwelling Events**: High-tech solutions have emerged to predict and mitigate upwelling events.

Key points to design your project

Cage aquaculture systems are transforming fish farming in Africa. They offer a scalable, eco-friendly solution that boosts income and aligns with sustainability goals.

Successful implementation requires farmer training, key partnerships (including cage system manufacturers, feed suppliers, aquatic veterinarians, certification bodies, and local fishermen communities), water source assessment, understanding of market demand, and logistics planning.

Research institutions play a crucial role in providing the latest research on cage system technologies and best practices. Each partner brings unique resources and expertise, ensuring the project's success and sustainability.

150 USD

Fish cage of 8 cubic meter

IP

Open source / open access

Commodities

Fish

Sustainable Development Goals

1 NO POVERTY

2 ZERO HUNGER

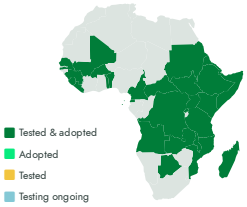
Categories

Production, Equipment, Aquaculture Systems

Best used with

- All Male Tilapia Fingerlings with Greater Yield and Uniformity ›
- Fast Growing and Hybrid African Catfish ›

Tested/adopted in



Where it can be used

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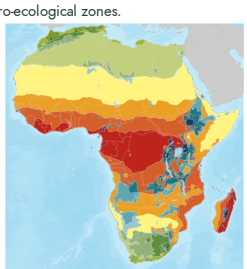


Target groups

Fish Farmers

EcoCycle Larvae System: Black Soldier Fly Larvae (BSFL) proteins for low cost feeds

BSFL proteins for sustainable local fish and chicken feed production

International Institute of Tropical Agriculture (IITA)
Rousseau Djouaka

BSFL composting is a biological method that uses Black Soldier Fly larvae to break down organic waste like food scraps and manure. The process produces nutrient-rich larvae for animal feed and a compost by-product called frass.

This technology is validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 7

Problem

- Fish and poultry farming in sub-Saharan Africa face inconsistent and unreliable year-round feed supplies.
- The feed prices significantly increase production costs, making it difficult for fish farmers to sustain operations.
- 30-40% of food and organic is wasted, resulting in to negative environmental impacts, such as pollution and resource depletion.

Solution

- Using BSFL to decompose organic waste provides a sustainable way to waste and reduce environmental harm.
- BSFL technology produces nutrient-rich larvae that can be used as a low-cost feed for fish and poultry.
- Encouraging the adoption of BSFL technology supports a circular economy model that fosters long-term economic stability and environmental protection.

Key points to design your project

Black Soldier Fly Larvae (BSFL) Composting Technology enables sustainable waste management in sub-Saharan Africa by converting organic waste into affordable, nutrient-rich livestock feed. Implementing this technology involves setting up waste collection systems, BSFL rearing facilities, and marketing feed. with initial costs ranging from 1,000 to 2,400 USD. Key project partners may include waste management organizations and government agencies, and training is essential for effective management of BSFL systems.

IP

Unknown

Commodities

Fish

Sustainable Development Goals

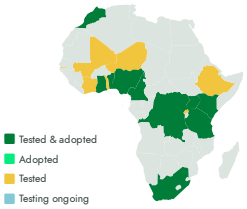
Categories

Pre-production, Inputs, Animal healthcare

Best used with

Fast Growing and Hybrid African Catfish, Cage Systems for Fish farming, Tank Systems for Fish farming, Organic fertilizer for soil improvement
See all 4 technologies online

Tested/adopted in



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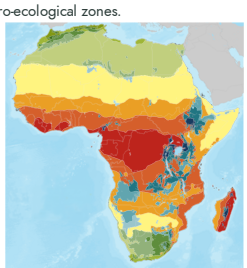


Target groups

BM START: Organic Biostimulant for flowering and fruit setting

Improve your performance, Increase your Income

BM START® is a liquid biostimulant made from GoActiv®, a seaweed extract derived from Ascophyllum nodosum. It enhances plant growth by promoting chlorophyll synthesis, root development, and enzyme production, leading to improved nutrition and vegetative growth. The technology also stimulates flowering hormones, increasing flower-to-fruit conversion and fruit coloration. BM START® supports optimal crop development and productivity.

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 2 2

Problem

- Nutrient inefficiency limits plant growth and yield.
- Poor flowering and low fruit set reduce yield potential.
- Abiotic stresses (e.g., temperature fluctuations, water scarcity) impact plant growth and productivity.

Solution

- Enhanced Nutrient Absorption: BM START® boosts chlorophyll synthesis, root development, and enzyme production, promoting faster growth and healthier plants.
- Improved Flowering & Fruit Setting: Stimulates flowering hormones and enhances flower-to-fruit conversion, leading to higher quality and larger harvests.
- Resilience to Abiotic Stress: Strengthens plants' resistance to environmental stress, maintaining yield under challenging conditions.

Key points to design your project

BM START® is a biostimulant that improves plant nutrition, flowering, and resilience to abiotic stress, boosting crop productivity and food security while reducing agriculture's carbon footprint.

To integrate BM START® into your project:

- **Estimate Product Needs**: Use 2 liters per hectare for each of three applications per crop cycle.
- **Consider Availability**: Assess local market availability and delivery costs.
- **Organize Farmer Training**: Provide training and post-training support to maximize effectiveness.
- **Develop Communication Materials**: Create outreach materials to inform farmers about BM START®.
- **Promote Supplementary Fertilization**: Combine with base fertilization for optimal yield.
- **Collaborate with Institutions**: Partner with agricultural institutes and agro-dealers for implementation.

These steps will enhance productivity and support sustainable, climate-resilient farming practices.

Cost: $$$ **12.33 USD**
Initial cost for 1L

ROI: $$$ **231 %**
Yield increase on mango

3,102.40 USD
Additional revenue per hectare

IP
Patent granted, Copyright

NPP Natural Plant Protection by UPL

UPL
André Monteiro

Commodities

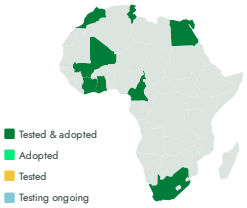
Vegetable crop, Fruits, Other root/tuber, Soybean, nuts

Sustainable Development Goals

Categories

Production, Inputs, Biostimulant

Tested/adopted in



Where it can be used

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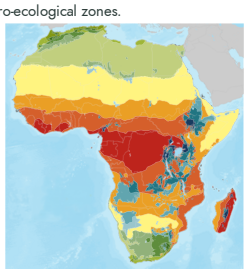


Target groups

Farmers, Sellers

Demi-lune technology: Rainwater harvesting method

Catch the Rain, Grow with the Grain!

The Demi-lune (Half-moon) technology is a simple rainwater harvesting method for dry regions. Farmers dig semi-circular pits (2–3 meters wide, 15–30 cm deep) to trap rainwater and enrich the soil with compost. This boosts crop growth, restores degraded land, reduces erosion, and improves soil fertility, making drylands productive again.

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 7

Problem

- Scarce and erratic rainfall limits crop growth and productivity.
- Severe soil degradation and erosion reduce land fertility.
- Low crop yields threaten food security and economic stability.
- Lack of irrigation infrastructure leaves farmers reliant on unpredictable rainfall.
- Nutrient-poor soils hinder healthy plant development.

Solution

- Captures rainwater to boost water availability during dry spells.
- Prevents soil erosion and restores soil fertility.
- Increases crop yields and farming resilience.
- Low-cost, accessible alternative to irrigation.
- Enhances soil nutrients with organic matter.
- Restores vegetation and supports biodiversity.
- Strengthens food security and farmer livelihoods.
- Promotes sustainable, eco-friendly farming.

Key points to design your project

The **Half-Moon Implementation Framework** offers a structured approach to scale the use of half-moon pits for land restoration and climate-resilient agriculture. It focuses on integrating financial, technical, and capacity-building strategies to ensure sustainable, community-driven interventions in dryland areas.

Key Steps:

1. **Define Objectives**: Align with national priorities such as land restoration and climate adaptation.
2. **Develop Financial Plan**: Mobilize resources and promote farmer-driven scaling.
3. **Assess Capacity**: Provide necessary training for efficient implementation.
4. **Conduct Needs Assessment**: Tailor solutions to local conditions.
5. **Implement Monitoring**: Track progress on yields, soil health, and water retention.
6. **Evaluate and Refine**: Regularly assess impacts and adjust based on feedback.

This framework helps promote sustainable, scalable solutions to improve soil fertility, food security, and climate resilience in vulnerable regions.

IP

Open source / open access

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dougbedji Fatondji

Commodities

Sorghum/Millet, Maize, Cowpea, Common bean

Sustainable Development Goals

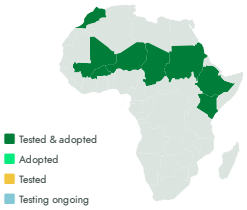
Categories

Production, Practices, Water management, Soil fertility

Best used with

Water Harvesting and Soil Improvement, Contour Bunds for Water Harvesting
See all 2 technologies online

Tested/adopted in



Where it can be used

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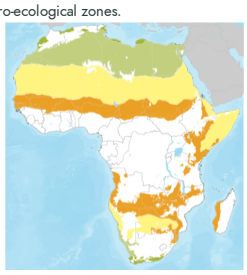


BASICS Model: A Seed System Model for Cassava Transformation

An economically sustainable integrated cassava seed system!

The **BASICS Model** is a full-package solution to modernize cassava seed production and distribution. It moves away from giving free stems to farmers and instead supports a **commercial approach** where certified cassava seeds (stem cuttings) are produced, inspected, and sold by trained seed entrepreneurs.

IITA and Sasakawa Africa Association
Dr Godwin Atser

This technology is pre-validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 5

Climate impact 2

Problem

- Cassava yields remain low due to farmers using infected, uncertified planting material.
- This increases food insecurity and keeps rural incomes low.
- Most national seed systems lack regulation and traceability.

Solution

- **Reliable access to improved varieties**: BASICS ensures farmers get **disease-free**, **high-yielding** planting materials.
- **Disease control through virus indexing**: Early-generation seed is tested and verified to be virus-free using diagnostics tools, reducing disease incidence.
- **Sustainable business model**: Seed is **sold, not given away**, creating **local jobs** and ensuring long-term supply through seed entrepreneurs.
- **Digital monitoring**: Tools like **Seed Tracker** support regulators and seed producers in quality control, increasing transparency and traceability.
- **Boosted yields**: Adoption of the system can **double cassava yields** from less than 10 tons/ha to **20 tons/ha or more**.

Key points to design your project

Cassava demand is rising fast with new processing industries. To implement it:

- Identify market-demanded and registered cassava varieties for promotion through the seed system
- Set up a public or hybrid early-generation seed (EGS) unit.
- Install SAH labs to rapidly multiply improved varieties.
- Support youth-led Cassava Seed Entrepreneurs (CSEs) as a job creation tool.
- Strengthen regulatory agencies for quality assurance.

IP

Open source / open access

Commodities

Cassava

Sustainable Development Goals

Categories

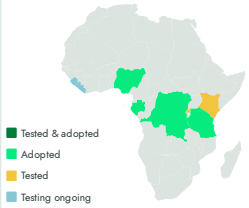
Pre-production, Practices, Yield improvement, Seed system

Best used with

Early Generation Seed Production of Cassava, Capacity Building Strategies, Marketing Strategies, Molecular diagnostics for cassava seed health certification, Cassa...

See all 14 technologies online

Tested/adopted in



Where it can be used

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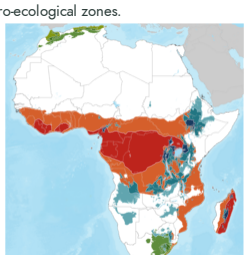


Cassava Seed Field Multiplication Protocol

From planting to certification—seed production made simple.

This approach helps governments improve food security by ensuring farmers have access to high-quality cassava seeds. Using efficient multiplication methods like SAH plantlets, it boosts seed production and supports agricultural productivity through public-private collaboration.

International Institute of Tropical Agriculture (IITA)
Elohor Mercy Diebiru-Ojo

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- **Inadequate seed supply**: Farmers lack access to reliable, disease-free cassava seeds, affecting food security and productivity.
- **Slow seed multiplication**: Traditional methods fail to meet the increasing demand for certified cassava seeds.
- **Disease spread**: Use of infected planting materials contributes to the spread of harmful cassava diseases.

Solution

- **Efficient seed multiplication**: Using SAH plantlets and pencil stems, seed production is faster and more reliable.
- **Improved food security**: Guarantees a steady supply of certified, disease-free seeds to farmers.
- **Public-private collaboration**: Governments can partner with the private sector to scale up seed production and distribution.

Key points to design your project

Governments create the regulatory framework and support infrastructure for cassava seed production.

Key Elements:

- Enforce seed certification standards through agencies like **NASC** and **TOSCI**.
- Support seed entrepreneurs with financial assistance and training.
- Build infrastructure, especially irrigation systems, for seed production.
- Develop policies that support the growth of the cassava seed industry.
- Promote the adoption of tools like **SeedTracker** and **PlantVillage Nuru**.

1,864 USD/ha	**77.88 %**
Production Cost	ROI
3,316 USD/ha	**IP**
Revenue	No formal IP rights

Commodities

Cassava

Sustainable Development Goals

1 NO POVERTY · 2 ZERO HUNGER · 8 DECENT WORK AND ECONOMIC GROWTH · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

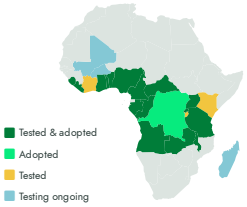
Pre-production, Practices, Seed system

Best used with

Semi Autotrophic Hydroponics for Cassava Multiplication, Early Generation Seed Production of Cassava

See all 2 technologies online

Tested/adopted in



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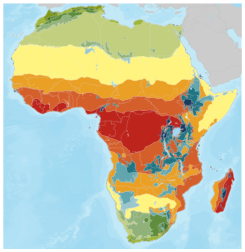


Target groups

Cassava EGS Model: Early Generation Seed Production of Cassava

Breeder & Foundation Cassava Seeds—Always Within Reach

This model helps government projects secure a steady supply of quality cassava seeds by linking research centers with certified seed producers. It ensures national standards, supports disease control, and improves farmer access to reliable planting material, making large-scale cassava production more effective.

International Institute of Tropical Agriculture (IITA)
Elohor Mercy Diebiru-Ojo

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 6

Problem

- **Limited Certified Seed for Scaling:** Not enough certified cassava cuttings for large-scale distribution.
- **Poor Seed Quality:** Poor quality seeds make it hard to improve national cassava yields.
- **Traceability Problems:** Difficult to control and trace where seeds come from.
- **Slow Rollout of New Varieties:** Delays in getting new improved varieties to farmers.

Solution

- **Better Seed Distribution:** Organizes and expands access to certified seeds nationwide.
- **Higher Seed Quality:** Regular checks guarantee only healthy seeds reach farmers.
- **Seed Traceability:** Seeds can be tracked for better monitoring and control.
- **Quicker Release of New Varieties:** Fast-tracks improved varieties from research to farmers.

Key points to design your project

The Cassava EGS Model helps build strong national seed systems. To implement it successfully, consider the following:

- Focus on building a lasting seed system, not just seasonal distribution.
- Budget for initial investment in training, farm setup, and inspections.
- Ensure the seed certification system is functional—or plan to strengthen it.
- Allow one full season for breeder seed multiplication and planning for scale.
- Secure access to breeder seed early through formal agreements with research centers.
- Support seed companies or cooperatives with training and resources.
- Raise farmer awareness about certified seed through demos and outreach.
- Use tools like SeedTracker for monitoring, certification, and traceability.
- Start in regions with high cassava demand or agro-industrial potential.
- Coordinate across ministries and contact **IITA GoSeed** for technical support in setting up and scaling the model.

1,753.20 USD
Production Cost/ hectare for seed companies

82 %
Return on investment / year for seed companies

3,195 USD
Revenue/hectare for seed companies

IP
No formal IP rights

Commodities

Cassava

Sustainable Development Goals

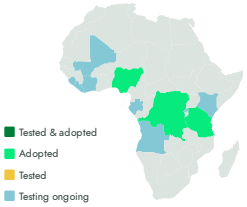
Categories

Pre-production, Practices, Seed system

Best used with

Cassava Seed Field Multiplication Protocol
See all 1 technologies online

Tested/adopted in



Where it can be used

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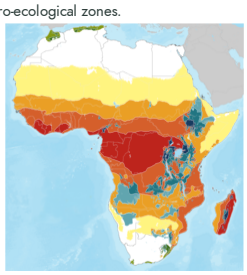


Target groups

Breeders, Development institutions,

Improved Cassava Varieties: Market-driven cassava breeding and promotion system

Improved cassava varieties crucial for enhancing food security, increasing farmer incomes, and reducing poverty in Africa.

This technology is a demand-led cassava breeding system that develops and promotes improved varieties tailored to market needs. It defines product profiles (e.g., fresh market, processing, biofortified) through stakeholder input, applies standard breeding and field testing, and works with regulators to release farmer-friendly varieties. Adoption is driven through demos, launch events, and media campaigns, ensuring better market alignment and wider uptake.

International Institute of Tropical Agriculture (IITA)
Mercy Diebiru-Ojo

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 5 1

Problem

- Poor alignment between available cassava varieties and market demands
- Low adoption of improved varieties by farmers
- Weak stakeholder engagement in variety development
- Limited availability of breeder/pre-basic seeds
- Delays in official variety release processes
- Inadequate promotion and awareness of new varieties

Solution

- Breeding cassava varieties tailored to market demands
- Involving stakeholders in defining preferred product traits
- Using structured trials to validate variety performance
- Supporting formal variety release and registration
- Promoting new varieties through demos and media campaigns

Key points to design your project

This initiative aims to improve cassava productivity by developing market-demanded varieties.

- Includes demonstration trials, awareness campaigns, and events to boost adoption.
- Enhances yields and farmer incomes by integrating these varieties into national seed systems.
- Backed by CGIAR and national institutions in countries like Nigeria and Tanzania.

IP

Open source / open access

Commodities

Cassava

Sustainable Development Goals

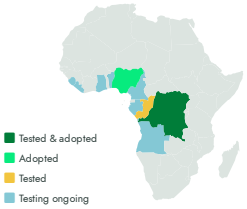
Categories

Production, Marketing, Improved varieties, Disease resistance, Insect resistance, + 0 more

Best used with

Cassava seed-bulking farms, Marketing strategies for cassava seed system, Capacity Building Strategies on Cassava Seed System, Cassava Seed Field Multiplication Protocol,...
See all 5 technologies online

Tested/adopted in



Where it can be used

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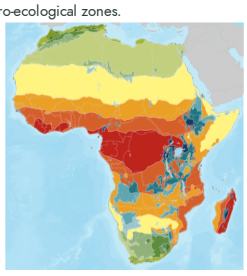


Biological control of cassava mealybug

Enhancing Cassava Resilience: Targeted Biocontrol with a Beneficial Wasp

Biological control with Anagyrus lopezi uses a natural wasp to manage cassava mealybugs without chemicals. The wasps are mass-reared, released into the field, and they lay eggs on the mealybugs—where the hatching larvae consume and kill the pests. This eco-friendly method has reduced mealybug populations by about 90% in over 20 countries, safeguarding cassava crops and saving farmers...

International Institute of Tropical Agriculture (IITA)
Neuenschwander Peter

This technology is pre-validated.

9·7 Scaling readiness: idea maturity 9/9; level of use 7/9

Gender assessment 4

Climate impact 7

Problem

- **Severe Crop Loss:** Cassava yields were decimated in the 1970s.
- **Famine:** Loss of a staple food led to widespread shortages.
- **Economic Hardship:** Millions of farmers suffered significant financial losses.
- **Ineffective Control:** Traditional pest management methods failed to contain the outbreak.

Solution

- **Natural Pest Control:** A. lopezi targets and kills cassava mealybugs by laying eggs inside them.
- **Restored Yields:** Its action reduces pest numbers by about 90%, allowing cassava crops to recover.
- **Eco-Friendly & Sustainable:** This method replaces harmful chemicals with a long-term, self-sustaining solution.

Key points to design your project

Integrating Cassava Mealybug Biocontrol into National Projects

1. **Pest Identification** – Confirm if the outbreak is due to cassava mealybug (CM) and assess soil and crop conditions that may affect A. lopezi's efficiency. Consult entomologists for accurate identification.
2. **Technical Support & Permits** – Engage IITA for guidance and obtain a quarantine permit ensuring A. lopezi's safety per FAO regulations.
3. **Importation & Release** – Import A. lopezi, conduct quarantine checks, and release it in selected fields under national supervision.
4. **Monitoring & Evaluation** – Track A. lopezi's establishment, spread, and impact on mealybug populations, cassava yield, and farmer livelihoods.

Cost: $$$ **15 000 USD**

Starter cultures, rearing and expert guidance

9.4 billion USD

Estimation of benefits over 40 years (1974–2013) across 27 African countries

IP

Open source / open access

Commodities

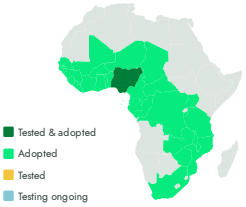
Cassava

Sustainable Development Goals

Categories

Production, Practices, Biological control

Tested/adopted in



Where it can be used

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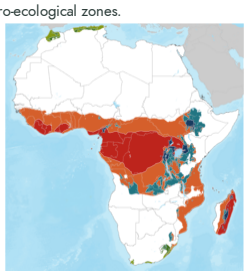


Target groups

Governments

YUKON: Biofungicide, YUKON 72 SC

Excellent natural protection for a wide range of crops, manufactured in France

Yukon is a sustainable, organic-compatible fungicide that prevents and manages fungal and bacterial diseases, improving crop quality and yield while minimizing environmental impact. Made in France and widely used across Europe, it combines brochantite-based tribasic copper sulfate with xanthane, a natural adjuvant, for enhanced efficacy and compatibility.

This technology is pre-validated.

9·8 Scaling readiness: idea maturity 9/9; level of use 8/9

Gender assessment 5

Climate impact 7

Problem

- **Fungal and bacterial diseases:** These significantly impact crop quality and reduce yields.
- **Pathogen resistance:** Overuse of conventional fungicides leads to resistant strains of pathogens.
- **Environmental impact:** Excessive use of copper per hectare in traditional fungicides contributes to environmental degradation.
- **Limited compatibility with organic farming:** Few effective solutions exist for organic agricultural practices.

Solution

- **Multisite efficacy:** The dual-action formula targets multiple stages of pathogen development, reducing the risk of resistance.
- **Environmentally friendly:** Yukon achieves high efficacy with reduced copper per hectare, lowering its environmental footprint.
- **Versatility:** It is widely compatible with other products, making it easy to integrate into existing crop protection programs.
- **Organic farming compatibility:** Its natural formulation makes it ideal for organic farmers.

Key points to design your project

Yukon is an organic-compatible fungicide that combats fungal and bacterial diseases, improving crop yield and quality while reducing environmental impact.

Integration Steps:

- Estimate needs and ensure market availability.
- Train farmers and provide support.
- Create awareness materials highlighting benefits.
- Combine with sustainable crop practices.
- Collaborate with agricultural institutions for adoption.

Yukon supports resilient and eco-friendly farming for better productivity.

Cost: $$$ **109 USD/ha/year**
End used price for Mango

ROI: $$$ **182 %**
Increase in return on mango

NPP Natural Plant Protection by UPL

UPL
André MONTEIRO

Commodities

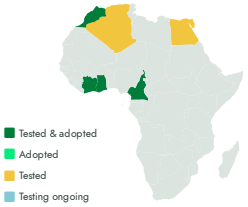
Fruits, Rice, Wheat

Sustainable Development Goals

Categories

Production, Inputs, Pesticide, Biocontrol

Tested/adopted in



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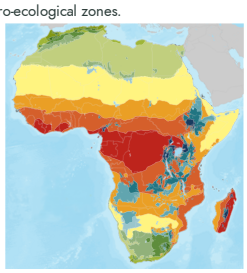


Target groups

Farmers, Sellers

Applied Biosystems: Comprehensive Animal Health Diagnostic Tools

Boost efficiency in animal sample extraction and improve target amplification

Thermo Fisher's Animal Health diagnostic technologies include advanced tools such as the Avian Influenza Kit, VetMAX Master Mixes, MagMAX Core Sample Extraction Kits, and the QuantStudio 5 Real-Time PCR system. Together, these tools are designed for the precise detection of animal pathogens, especially avian influenza, through high-sensitivity PCR-based diagnostics.

This technology is validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 1

Problem

- **High Economic Impact**: Outbreaks like avian influenza cause mass culling and major economic losses, affecting food security.
- **Yield Losses**: Disease outbreaks in livestock reduce productivity, impacting farmers' incomes, especially for smallholders.
- **Limited Lab Resources**: Many veterinary labs lack resources for reagent preparation and complex diagnostics, limiting accessibility to reliable testing.

Solution

- **High Sensitivity and Specificity**: Real-Time PCR Kits (e.g., Avian Influenza Kit) detect low pathogen levels for early disease detection and containment.
- **Streamlined Sample Processing**: MagMAX Kits simplify DNA/RNA extraction, increasing efficiency and reducing sample processing time.
- **User-Friendly and Resource-Efficient**: Simplified protocols and minimal prep make the technology accessible for smallholder farmers and resource-limited labs.

Key points to design your project

Thermo Fisher's Animal Health diagnostic technology supports improved animal health and agricultural productivity through rapid disease detection. To integrate it into your projects:

- Assess required quantities and costs of diagnostic tools.
- Factor in delivery and import costs.
- Plan for training and ongoing support for local veterinary staff.
- Develop communication materials for awareness and education.
- Collaborate with local agricultural institutes, veterinary labs, and agro-dealers for effective implementation.

Cost: $$$ **15 USD per sample**

For routine testing

150,000 USD

Installation of a qPCR workflow for extraction to result

Thermo Fisher Scientific
Thulile Nhlapo

Commodities

Livestock

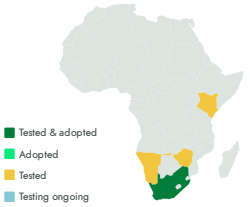
Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Production, Equipment, Pest control

Tested/adopted in



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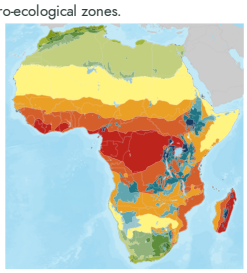


Target groups

Breeders, Veterinary Laboratories, Researcher center

Solar Bubble Dryer: Inflatable Solar Dryer for crop drying

Low-cost hygienic drying technology for high-quality products

The SBD (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.

GrainPro, IRRI & Hohenheim University
Rose Ndung'u

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion 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 project

The Solar Bubble Dryer (ISD) is a sustainable, mobile technology that uses solar energy to dry crops efficiently, reducing post-harvest losses and enhancing food quality. It supports food security and climate goals by minimizing waste and avoiding fuel-based drying methods.

To implement ISD technology, consider:

- **Cost**: Initial investment is around USD1,800 per unit.
- **Supply Chain**: Identify suppliers and account for transportation and import costs.
- **Training**: Provide hands-on training on usage and maintenance.
- **Communication**: Use materials like brochures and videos to raise awareness.

This approach can enhance project outcomes and benefit farmers by promoting eco-friendly, efficient drying methods.

500 kg of cassava per 3 day cycle
Drying Capacity from 57% to 12%

3 years
Lifespan

10,957 - 29,604 USD
Operating Costs

IP
No formal IP rights

Commodities

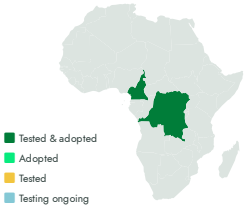
Maize, Rice, Cassava, Legume

Sustainable Development Goals

Categories

Post-production, Equipment, Post-harvest handling, Agrifood processing

Tested/adopted in



Where it can be used

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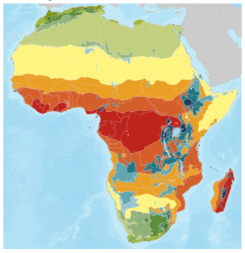


Target groups

Farmers, Sellers

Advanced Weed Management: Mechanical and Chemical Weed Management

Mechanized weeders: A mini-tiller with vertical tines (left), a cutter with horizontal rotating blade (center), and a multi-purpose backpack weeder (right)

Weed Management for Optimal Yield

The Mechanical and Chemical Weed Management technology combines mechanical and chemical methods to control weeds in agricultural fields effectively. It aims to maximize crop yields by removing weeds throughout the growing season, improving crop health, and boosting agricultural productivity.

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Common beans suffer significant yield losses due to weed encroachment.
- Weeds compete with beans for resources, hindering root and shoot development.
- Weed infestation can lead to pest and disease issues for common beans.
- Shading by tall weeds increases the risk of bean stem lodging.
- Manual weed removal is labor-intensive and costly, impacting bean farming productivity.

Solution

- Increased productivity and higher yields
- Reduced labor and costs compared to manual weed removal
- Enhanced crop health by eliminating weeds that harbor pests and diseases
- Adaptability to various common bean growing areas
- Improved profitability and economic sustainability for farmers

Key points to design your project

The technology enhances agricultural productivity, promotes food security, and creates employment while streamlining weed management and preserving land quality. To integrate it into your project:

- Raise awareness and provide capacity development.
- Facilitate access to financial support.
- Estimate costs for fertilizers and mechanical weeders.
- Consider delivery costs and import clearance.
- Provide training and post-training support.
- Develop communication materials.
- Integrate with other management practices.
- Collaborate with relevant institutions and suppliers.

250—500 USD
Mechanical weeders/unit

ROI: $$$ **35 %**
Net profit from implementing the technology in Ethiopia

27 USD
Pre-emergent herbicide and labor/Ha

46 USD/ha
Equipment and labor

743 USD
Net profit per Ha from implementing the technology in Ethiopia

IP
Open source / open access

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)
Justin Mabeya Machini

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

+ 1 more

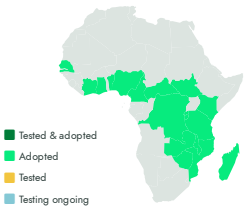
Categories

Production, Equipment, Weed control

Best used with

- Integrated Management of Insects, Diseases and Weeds in common bean ›

Tested/adopted in



Where it can be used

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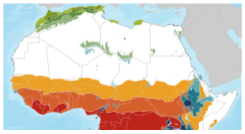
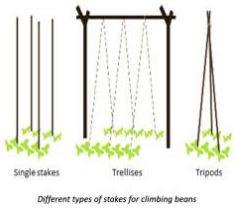


Low-Cost Staking for Climbing Beans

Empowering Beans, Sustaining Growth!



Different types of stakes for climbing beans

The Low-Cost Staking practice provides affordable solutions for supporting climbing bean cultivation, aiming to reduce reliance on wooden stakes and mitigate deforestation caused by their overharvesting.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Farmers face expense issues with plant support, leading to yield losses.
- Shortage of wooden stakes affects plant density and yield.
- Overharvesting of stakes harms forests and afforestation efforts.
- Knowledge of optimal density and stake length varies with method.

Solution

- Offers farmer-acceptable, lower-cost staking innovations.
- Utilizes tripod arrangements and string trellises to reduce wooden stakes.
- Recommends the use of agroforestry species and tall grasses for stakes.
- Improved yield and climbing bean production.

Key points to design your project

- The technology reduces bean cultivation costs, aiding poverty alleviation among small-scale farmers.
- It boosts food security with improved yields and creates job opportunities in rural areas.
- By promoting eco-friendly practices, it reduces reliance on deforestation for stakes and supports sustainability.
- Steps to integrate the technology include raising awareness, disseminating information, ensuring access to loans, and collaborating with agricultural institutions.
- Consider integrating complementary technologies for enhanced efficiency.

Cost: $$$

300 % Increase in yields compared to bush beans	**20,000—50,000 stakes per hectare** Staking density for highest yields	**2 meters** Height of stakes for highest yields	**~200,000 plants** Plant population per hectare	**IP** Open source / open access

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Justin Mabeya Machini

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

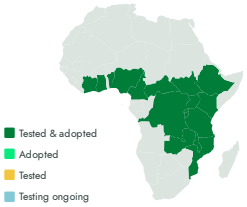
Categories

Production, Practices, Yield improvement, Production system

Best used with

- Climbing Bean with High Yield and N Fixation ›

Tested/adopted in



Where it can be used

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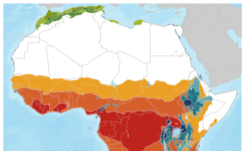


Low-dose pest control: Seed dressing of Seed with Fungicide and Insecticide

Pest control for optimum yields

Fungal wilting of seedling (left) and damage to bean sprout by stem maggots (right)

The "Seed Dressing with Fungicide and Insecticide" technology applies chemical agents to common bean seeds to combat fungal diseases and pests, boosting yields. This cost-effective and environmentally friendly method enhances crop protection making it widely applicable in agriculture.

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Common beans affected by fungal diseases (anthracnose, root rots) and insect pests (stem maggots), causing significant yield losses.
- Risk to profitability of improved crop varieties and farmers' investments in fertilizers.
- Diseases and pests harbored by seeds endanger the integrity of planting material stocks, jeopardizing future crops.
- Soil-borne diseases and insect pests pose severe risks, potentially leading to sparse plant density and crop failure, exacerbating food insecurity and economic instability.

Solution

- Dressing common bean seeds with chemical control agents presents an economical and eco-friendly method to prevent losses and boost production.
- This seed treatment approach leads to superior seedling emergence, reinforcing crop resilience throughout the growing season.
- Seed dressing ensures highly effective crop protection by uniformly applying control agents.
- Seed dressing offers a simple and adaptable solution that doesn't necessitate specialized equipment, making it easily implementable at farms and factories.

Key points to design your project

Identify and develop effective pesticides for seed treatment.

Estimate the quantity of pesticide needed.

Account for delivery costs to project sites and import clearance and duties if relevant, as the technology is available in various African countries.

Enhance the technology by associating it with other practices and technologies.

Collaborate with agricultural development institutes and seed multiplication companies to implement the technology effectively in your country.

0.5—1 USD

Fungicides and pesticides for 1-2 kg seed dressing

50 USD	500 USD	2,000 USD	IP
Equipment for manual application	Equipment for mechanized application for a small unit	Equipment for mechanized application for a large unit	Open source / open access

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Justin Mabeya Machini

Technology from

ProPAS

Commodities

Common bean

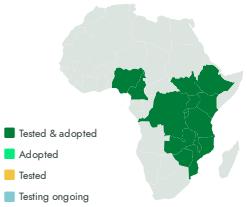
Sustainable Development Goals

Categories

Production, Practices,

Pest control (excluding weeds)

Tested/adopted in



Where it can be used

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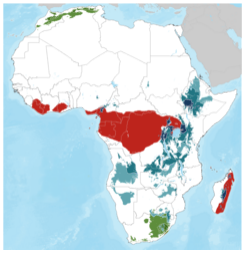


Silage production from sweet potato vines and tubers

Fodder Enrichment for Thriving Livestock

Sweet potato silage production is an agricultural innovation that efficiently turns underutilized resources into high-quality animal fodder. The fermentation process preserves nutrients, making it a valuable addition to traditional feeds. Sweet potato silage promotes rapid livestock growth and maintains good health.

International Potato Center (CIP)
Norman KWIKIRIZA

This technology is TAAT1 validated.

7·8 Scaling readiness: idea maturity 7/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- **Resource Wastage**: Leftover sweet potato parts perish in hot, moist conditions.
- **Fodder Availability**: Persistent gaps exist in fodder availability.
- **Digestibility and Nutrition**: Fresh vines have poor digestibility and nutritional value.
- **Resource Collection**: Harvesting leftover sweet potato parts is labor-intensive.

Solution

- **High-Quality Fodder**: Converts leftovers into nutritious animal feed.
- **Bridging Fodder Gaps**: Ensures consistent fodder availability.
- **Enhanced Digestibility and Nutrition**: Improves digestibility and conserves nutrients through fermentation.
- **Efficient Resource Utilization**: Reduces labor and effort in resource collection by providing a sustainable and cost-effective solution.

Key points to design your project

Sweet potato silage empowers both genders by providing sustainable livestock feed, reducing emissions, and boosting income. It supports Zero Hunger, Responsible Consumption, No Poverty, and Decent Work goals. Here's how to implement it:

1. **Educate farmers** through workshops on the benefits.
2. **Identify** ideal mixtures and storage setups based on local resources.
3. **Procure equipment** like chippers and compactors.
4. **Invest in materials** for storage (plastic sheets, sealing materials, trenches).
5. **Organize collection** of sweet potato vine and tuber waste.
6. **Establish markets** for on-farm use or local sales (cooperatives, farmers' markets).
7. **Develop communication** materials (flyers, videos, radio) to promote the technology.
8. **Collaborate** with agricultural development institutes for successful implementation.

Technology from

ProPAS

Commodities

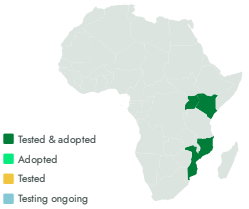
Sweet Potato

Sustainable Development Goals

Categories

Post-production, Practices, Post-harvest management

Tested/adopted in



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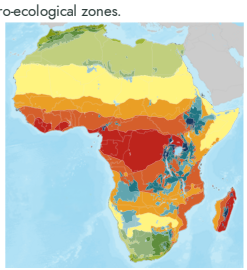


Target groups

Breeders, Farmers

Raised beds for sweet potato production and weed management

Raise tuber yields with raised beds

The raised bed technology elevates sweet potatoes for better growth. By creating designated areas with loose soil, it prevents soil compaction and weed growth, ensuring optimal nutrient absorption. This method is beneficial in areas with poor soil quality, promoting healthier crops and easier maintenance for farmers.

International Potato Center (CIP)
Kwikiriza Norman

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Uncontrolled weeds compete with sweet potatoes, reducing yields and stunting growth.
- Traditional methods can lead to poor root development and tuber growth.
- These diseases can devastate sweet potato crops, leading to lower yields and economic losses.
- Manual weeding diverts resources from other crucial activities.

Solution

- Elevates sweet potato plants, creating ideal conditions for tuber development. Prevents soil compaction and waterlogging, ensuring healthy growth.
- It provides an environment hostile to soil-borne diseases, fostering healthier crops and minimizing disease-related losses.
- It maximizes tuber yields by maintaining optimal soil conditions, reducing dependency on external inputs and manual labour.

Key points to design your project

The technology of raised beds for sweet potato production and weed management promotes healthier plant growth and ecosystem preservation. Key steps for integration include

- Educating farmers about the benefits, selecting suitable sweet potato varieties,
- Ensuring access to quality planting materials,
- Providing support for raised bed construction, and associating with complementary technologies.

IP

Open source / open access

Technology from

ProPAS

Commodities

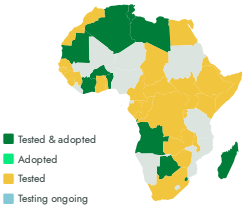
Sweet Potato

Sustainable Development Goals

Categories

Production, Pre-production, Practices, Weed management

Tested/adopted in



Where it can be used

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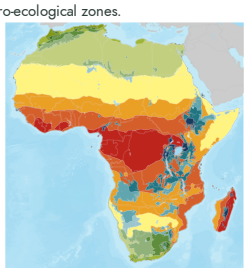


Target groups

Farmers

Tent-style greenhouse for multiplication of sweet potato vines and cuttings

Greenhouse Solutions for Thriving Sweet Potato Farms

The tent-style greenhouse, built with local materials and screen nets, provides an optimal, pest-free environment for sweet potato vines. It maintains soil moisture and ensures the production of high-quality, disease-free planting material. This cost-effective and easy-to-assemble technology is a practical tool for farmers to increase sweet potato yield.

International Potato Center (CIP)
Paul Demo

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 6

Problem

- **Planting Material**: Shortage and degradation over time.
- **Pests/Diseases**: Susceptibility impacting crop health and yield.
- **Infrastructure/Cost**: High costs and local material availability issues.

Solution

- **Efficient Production**: Multiplication of healthy vines and cuttings.
- **Pest/Disease Control**: Screen nets for a pest-free environment.
- **Cost-Effective**: Built with cheaper, locally available materials.

Key points to design your project

The tent-style greenhouse technology bolsters climate resilience, optimizes resource use, and aligns with SDGs like Zero Hunger and Climate Action.

For farmer adoption, the project activities include:

1. **Training**: Educate farmers on the greenhouse benefits and operation.
2. **Site Preparation**: Assist in location selection and site preparation.
3. **Construction**: Guide through greenhouse assembly and screen net installation.
4. **Arrangement**: Train on plant arrangement inside the greenhouse.
5. **Maintenance**: Teach soil moisture maintenance and temperature control.
6. **Feedback**: Evaluate technology effectiveness and gather farmer feedback.

The timeline depends on the farmers' specific context and needs.

4-9 USD
sales of vines per square meter

IP
Open source / open access

Technology from

ProPAS

Commodities

Sweet Potato

Sustainable Development Goals

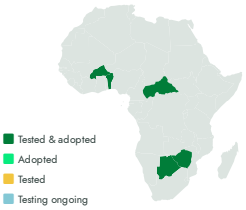
Categories

Pre-production, Equipment, Seed system

Best used with

Orange-Fleshed Sweet Potato (High provitamin A)
See all 1 technologies online

Tested/adopted in



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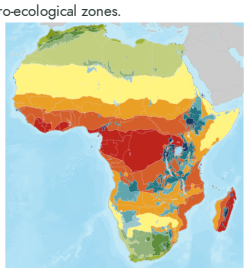


Drought and Virus Tolerant Orange-Fleshed Sweet Potato

Resilient and Nutrient-Rich OFSP for Better Agriculture

Drought and Virus Tolerant Orange-Fleshed Sweet Potato (OFSP) is a variety that withstands drought, heat stress, and common viruses. It matures in 90 days, reducing the risk of incomplete tuber filling during uncertain rainfall. This technology addresses climate, pest, and virus challenges.

International Potato Center (CIP)
Norman KWIKIRIZA

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 5

Problem

Drought and Heat Stresses negatively impacting sweet potato cultivation.

Common viruses affect sweet potato crops, causing reduced yields and crop damage.

Short Growing Seasons with Uncertain Rainfall.

Sweet potato crops are vulnerable to pests and insects causing damage to both field crops and stored tubers.

Solution

OFSP cultivars with traits like early maturation, deep roots, and high vine survival for resilience in drier and warmer climates.

OFSP varieties are resistant to common viruses, including stunt virus (SPCSV) and mottle virus (SPFMV), achieved through mass selection and genetic marker techniques.

OFSP varieties are resistant to pests like weevils, aphids, and whiteflies, safeguarding field crops and stored tubers.

Key points to design your project

Cultivating orange-fleshed sweet potato (OFSP) in Sub-Saharan Africa positively impacts gender and climate. To integrate this technology, estimate seed quantity and costs, consider delivery logistics, and plan training and communication support. Recommended measures for OFSP optimization include community-based cutting production and collaboration with agricultural institutes and seed companies.

IP

Open source / open access

Technology from

ProPAS

Commodities

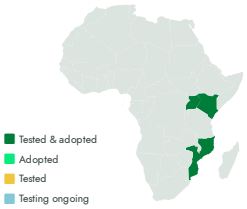
Sweet Potato

Sustainable Development Goals

Categories

Production, Improved varieties, Disease resistance, Drought tolerance

Tested/adopted in



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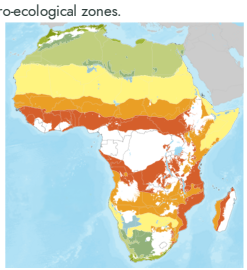


Target groups

Farmers, Seed companies

OFSP: Orange-Fleshed Sweet Potato (High provitamin A)

Orange Sweetness, Nutrient Richness, and Farmer's Success - Embrace OFSP!

Orange Fleshed Sweet Potato (OFSP) is a biofortified crop rich in beta-carotene, particularly in comparison to light-colored flesh cultivars. Upon consumption, the beta-carotene converts into vitamin A, enhancing nutrition and supplementing diets. OFSP holds significant potential for improving food and nutritional security throughout Africa.

International Potato Center (CIP)
Kwikiriza Norman

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 5

Climate impact 6 1

Problem

- Widespread vitamin A deficiency contributes to malnourishment,
- Traditional sweet potato varieties yield only 3-7 tons per hectare, resulting in limited food availability and income for farmers.
- The lack of diverse and nutrient-rich crops hampers overall nutrition, posing a challenge to addressing dietary deficiencies and promoting sustainable agriculture.

Solution

- It addresses vitamin A deficiency by providing a rich source of this essential nutrient, promoting better health and nutrition.
- OFSP's improved varieties yield 25 tons per hectare, significantly surpassing traditional varieties, thereby enhancing food security and increasing farmers' income.
- OFSP offers a versatile and nutrient-rich crop, diversifying nutrient sources and contributing to overall nutrition, promoting a sustainable and healthier agricultural ecosystem.

Key points to design your project

This technology promotes gender inclusion by improving nutrition and food security. To integrate it into your project,

- Estimate vine quantity needed,
- Actor in delivery costs and import duties,
- Provide training and support and develop communication materials.

200 kg	**25** tons	IP
vines for 1 acre (0.3 hectare)	per hectare	Open source / open access

Technology from

ProPAS

Commodities

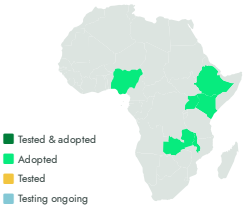
Sweet Potato

Sustainable Development Goals

Categories

Production, Improved varieties, Yield improvement, Quality improvement

Tested/adopted in



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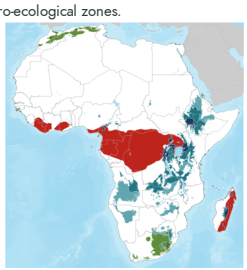


Target groups

Farmers, Seed companies

Pneumatic Cassava Dryers

Low-cost mechanized drying of cassava using Flash Dryers

This technology promote the flash dryers which has the shortest residence time of drying, the most economical and widely used drying system for solids that have been dewatered or inherently have low moisture content. Thus, it's suitability for the production of starch, high-quality cassava flour (HQCF) and powdered fufu.

International Institute of Tropical Agriculture (IITA)
Adebayo Abass

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 5

Problem

- The challenge of efficient and cost-effective of dryers.
- Heat-sensitive materials
- High residence times of dryers.

Solution

- The Flash dryers have proven to be the most economical.
- They enable the production of starch, high-quality cassava flour (HQCF), and powdered fufu efficiently.
- This technology successfully addresses the challenges by providing a system that ensures a shorter residence time for drying and high drying rates.

Key points to design your project

Mechanized drying of cassava using flash fryers offers an efficient solution for processing cassava, improving productivity. To integrate this technology into your project:

- Promote the mechanized drying technology through community-level demonstration sessions.
- Engage trainers for comprehensive training and support.
- Collaborate with agricultural institutes and food industry stakeholders for implementation.

IP

Open source / open access

Technology from

ProPAS

Commodities

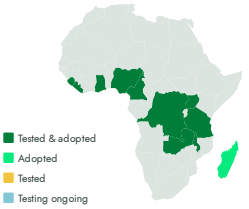
Cassava

Sustainable Development Goals

Categories

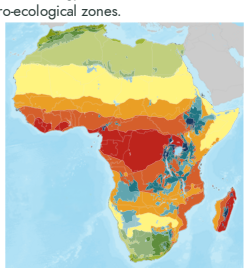
Post-production, Equipment, Agrifood processing

Tested/adopted in



Where it can be used

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



Target groups

Processors

Mechanized Cassava Planting and Harvesting

Empowering Cassava Farmers: More Yield, Less Labor, Better Quality

Mechanized cassava planting and harvesting technology is a specialized equipment of two-row planters and harvesters, typically operated by tractors. This technology improves the efficiency of cassava farming by reducing labor requirements.

International Institute of Tropical Agriculture (IITA)
Adebayo Abass

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Low cassava yields (10 t/ha) compared to global competitiveness (minimum expected yield of 25 t/ha).
- Labour-intensive and time-consuming planting and harvesting operations.
- Lack of mechanization and use of modern agricultural technologies in cassava production.

Solution

- Increase productivity and efficiency in cassava farming. The yield from mechanically managed farm could increase by 38% over the yield in the manually managed farm.
- Reduce production costs associated with manual labor.
- Improve competitiveness of the cassava sub-sector by enhancing productivity and reducing costs through mechanized operations.

Key points to design your project

The Mechanized Cassava Planting and Harvesting technology offers an efficient solution for planting and harvesting cassava. To integrate this technology, into your project,

- Promote it through demonstration sessions, provide training to operators, and ensure access to suitable farmland.
- Components of mechanized cassava production include land preparation, planting, herbicide application, fertilization, weeding, harvesting, and transportation.
- Evaluate the size and number of units needed, considering lower costs compared to manual operations.

13 USD/ha	**25** USD/ha	IP
Cost of mechanized planting	Cost of mechanized harvesting	Open source / open access

Technology from

ProPAS

Commodities

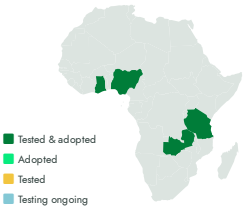
Cassava

Sustainable Development Goals

Categories

Production, Equipment, Land preparation

Tested/adopted in



Where it can be used

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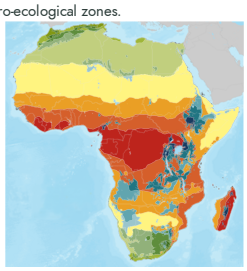


Target groups

Farmers

Pond Liners to Save Water and Ease Maintenance

Preserving Water, Pond Liners for Sustainable Fish Farming.

Pond liners, made of materials like PVC or polyethylene, act as synthetic geomembranes, preserving water, enhancing biosecurity, and simplifying pond maintenance. They are adaptable to various pond sizes and shapes, with plastic liners being robust but slightly harder to install in smaller ponds.

Excavated pond with liner

WorldFish Center
Bernadette Fregene

This technology is TAAT1 validated.

Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 3

Climate impact 7

Problem

- Water seepage on porous soils like sands and silts causes significant water loss in ponds.
- Evaporation, especially in hot climates, further reduces water availability for fish farming.
- Algal blooms due to excessive nutrient levels can degrade water quality, affecting fish health and productivity.
- Inefficient nutrient cycling between water and sediment occurs without pond liners, necessitating intensive maintenance.
- Sandy soils and regions with limited access to freshwater are particularly vulnerable to water loss, worsening water scarcity for fish farmers.

Solution

- Prevents water loss and reduces evaporation by creating impermeable barriers.
- Enhances water quality by preventing algal blooms and promoting nutrient cycling.
- Facilitates pond construction in areas with porous soils or limited freshwater access.
- Offers flexibility in pond size and shape, accommodating different landscapes.
- Provides options for different liner materials, thicknesses, and installation techniques to suit diverse needs.

Key points to design your project

The pond liners technology conserves water resources, reduces evaporation, and promotes responsible water management in aquaculture, benefiting biodiversity and sustainable fisheries. To integrate this technology into a project:

1. Assess project requirements.
2. Select suitable liner material.
3. Obtain necessary equipment.
4. Provide comprehensive staff training.
5. Implement installation according to guidelines.
6. Ensure ongoing training and support.
7. Develop communication materials.
8. Collaborate with relevant stakeholders for effective implementation.

2 - 3.5 USD/square meter

Sheet plastic

IP

Open source / open access

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

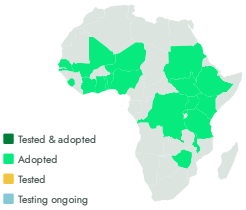
6 CLEAN WATER AND SANITATION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Pre-production, Equipment, Water management

Tested/adopted in



Where it can be used

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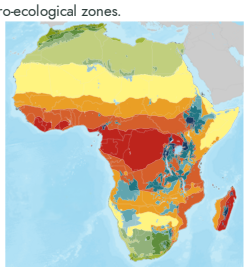


Target groups

Fish Farmers

Ethical Meat Processing: Humane Slaughtering and Meat Inspection

Enhance meat quality while prioritizing animal welfare.

The technology focuses on humane slaughtering practices in the meat processing industry. It ensures that animals are killed swiftly and without suffering, adhering to ethical standards.

Bleeding of a humanely stunned small ruminant (FAO)

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- Animals often face mistreatment during transportation and slaughter,
- Stress and suffering experienced by animals can lead to biochemical changes, affecting the flavor and shelf life of the meat.
- Many slaughterhouses fail to comply with humane slaughtering regulations,

Solution

- It advocates for the use of suitable methods and equipment for transporting animals.
- Animals are provided with overnight rest in appropriately sized holding pens.
- Emphasis is placed on bleeding the animal within one minute of unconsciousness, ensuring a swift and humane process.
- All stages of the slaughtering and carcass dressing process are subject to certified meat inspection.

Key points to design your project

To integrate humane slaughtering and meat inspection technology into your project, follow these steps:

- Conduct awareness campaigns on the benefits of humane slaughtering and improved meat inspection.
- Develop investment and regulatory frameworks with public and private entities.
- Provide training for slaughterhouse operators and meat inspectors.
- Facilitate access to low-interest credit for modernizing facilities.

25—35 %
Dressed meat value added

IP
Open source / open access

Technology from

ProPAS

Commodities

Livestock

Sustainable Development Goals

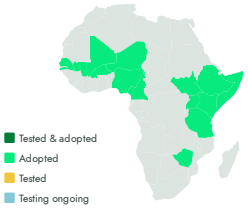
2 ZERO HUNGER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Post-production, Practices, Agri-food processing

Tested/adopted in



Where it can be used

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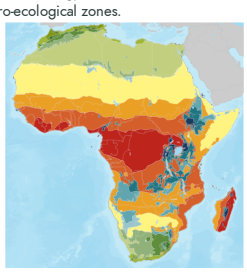


Target groups

Breeders

Relay intercropping of sweet potato with legumes

Harvest More, Worry Less with Sweet Potato-Legume Relay Intercropping

Relay intercropping of sweet potato with legumes is a farming method where two crops, sweet potato and legumes like beans or cowpeas, are grown together in the same field. Farmers can plant sweet potato first, then plant legumes later.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Reduced land productivity due to monoculture practices.
- Nitrogen deficiency in soil leading to lower crop yields.
- Vulnerability to crop failure and food insecurity due to pest attacks and droughts.

Solution

- Improved land productivity through efficient utilization of available resources.
- Enhanced soil nitrogen levels through symbiotic nitrogen fixation by legumes.
- Increased resilience to pest attacks and droughts through diversified cropping systems.

Key points to design your project

This technology boosts crop productivity, ensures food security, and fosters economic sustainability. To integrate this technology:

- Educate farmers about the benefits of intercropping sweet potato and legumes.
- Select suitable varieties based on local conditions.
- Obtain quality planting materials.
- Purchase mineral fertilizer and legume inoculants

IP

Open source / open access

International Potato Center (CIP)
Kwikiriza Norman

Technology from

ProPAS

Commodities

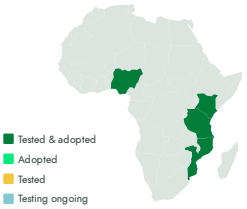
Sweet Potato

Sustainable Development Goals

Categories

Production, Practices,
Pest control (excluding weeds),
Yield improvement

Tested/adopted in



Where it can be used

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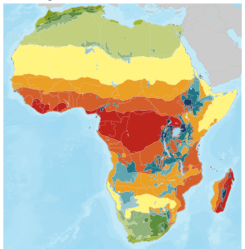


Target groups

IR maize: Imazapyr resistant maize for Striga management

Boost maize yields while eliminating the issue of Striga infestation

The genetically modified IR maize lines coated with herbicide through seed dressing, proves effective in controlling Striga with lower herbicide quantities, targeting the pest during critical crop establishment stages.

African Agricultural Technology Foundation (AATF)
Jonga Munyaradzi

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Striga weed infestations in maize crops lead to significant yield losses.
- They reduce grain yields and crop productivity by competing with maize for nutrients and water.
- This prompts herbicide reliance and the need for effective Striga control methods.

Solution

- The IR maize, coated with herbicide through seed dressing, there is increased effectiveness in Striga control, with a reduced need for herbicide.
- Its improving grain yields and minimizing Striga dispersal on farmlands.
- It is also recommended to combine this technology with appropriate soil and fertilizer management for optimal outcomes.

Key points to design your project

To integrate this technology, the following steps are recommended:

- Develop effective pesticides for seed treatment, raise awareness among farmers about the benefits of IR maize, and ensure access to seed treatment.
- Estimate the quantities of IR maize seed and pesticides, accounting for delivery and import costs, provide training, and develop communication materials.
- Associate it with other agricultural practices and collaborate with agricultural development institutes and seed multiplication companies for implementation.

IP

Open source / open access

Technology from

ProPAS

Commodities

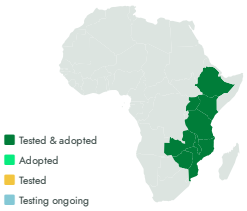
Maize

Sustainable Development Goals

Categories

Production, Improved varieties, Weed resistance, Yield improvement

Tested/adopted in



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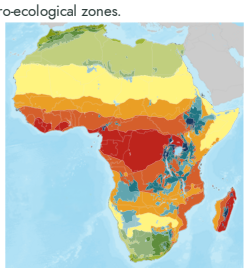


Target groups

Farmers

NERICA: High yield rice varieties for Africa

NERICA: Higher Yields, Resilience, and Profitability for African Farmers.

NERICA varieties are tailored for African conditions, offering high yields (2 to 6 tons per hectare), resistance to weeds and drought, and adaptability to poor soils. They show moderate resistance to diseases and pests, reducing the need for chemical interventions and promoting sustainable agriculture in Africa.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 4

Problem

- Traditional rice varieties often yield less, impacting food security and farmers' income.
- Conventional varieties are more susceptible to pests and diseases, leading to yield losses.
- Many varieties struggle in nutrient-poor soils and under erratic rainfall.
- Insufficient local production leads to heavy reliance on imported rice, affecting economic stability.

Solution

- NERICA varieties yield more, ensuring food security and higher income.
- They resist pests and diseases, reducing chemical use.
- Thrives in poor soils and limited water, suitable for diverse environments.
- Boosts local production, enhancing economic stability.
- Accessible to small-scale growers, improving practices and income.

Key points to design your project

To integrate NERICA technology into your project, consider the following steps:

- Develop NERICA varieties tailored to local growing conditions.
- Conduct awareness campaigns to highlight the benefits of planting improved rice varieties.
- Ensure equitable access and financial support for local suppliers and farmers.
- Estimate seed quantity needed, including technology costs and delivery expenses.
- Engage a team of trainers for installation support and develop communication materials.
- Consider optimizing NERICA with other agricultural practices like nitrogen management and weed control.
- Collaborate with agricultural institutes and seed companies for implementation.

1.7—0.7 ton per ha
with and without fertilizer

IP
Open source / open access

Technology from

ProPAS

Commodities

Rice

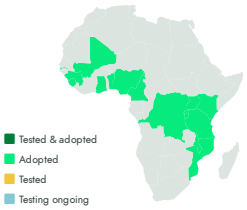
Sustainable Development Goals

2 ZERO HUNGER
13 CLIMATE ACTION
5 GENDER EQUALITY

Categories

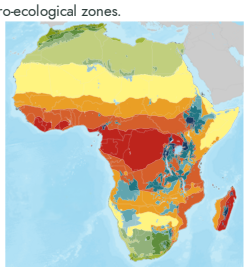
Production, Improved varieties, Yield improvement, Drought tolerance

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Seed companies

Seed Inoculation with Rhizobia

Boosting Crops, Nourishing Communities

The "two-step" procedure of seed inoculation that results in effective coverage with elite rhizobial (Source: the N2Africa Project)

Seed inoculation with elite rhizobium strains boosts legume yields by addressing nitrogen limitations through Biological Nitrogen Fixation (BNF). This cost-effective practice enhances crop production on small-scale farms in Africa, reducing reliance on expensive fertilizers, promoting environmental sustainability, and ensuring food, nutrition, and income security for farmers.

International Institute of Tropical Agriculture (IITA)
David Ojo

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- **Nitrogen Deficiency**: Soils often lack sufficient nitrogen for plant growth.
- **Incompatible Rhizobia**: Newly introduced legume species may not be compatible with local rhizobia, leading to low yields.
- **Soil Health**: Maintaining soil fertility and health is a constant challenge.
- **Plant Diseases**: Farmers constantly battle against diseases that can devastate crops.
- **Sustainability**: Balancing economic viability with environmental sustainability is a major concern.

Solution

- **Biological Nitrogen Fixation**: Rhizobia address nitrogen deficiency.
- **Specific Strain Introduction**: Inoculation ensures the presence of the needed rhizobia.
- **Rhizobia Population Boost**: Inoculation guarantees optimal nodulation and nitrogen fixation.
- **Sustainable Farming**: Rhizobia promote sustainable agriculture.
- **Stress-Tolerant Strains Introduction**: Inoculation mitigates effects of stress on nitrogen-fixing symbiosis.

Key points to design your project

Rhizobia inoculant technology is a win-win for Africa:

It boosts food security (SDG 2), increases legume yields mean more food and income for farmers, especially women (SDG 5). Climate-smart agriculture (SDG 13), less reliance on chemical fertilizers reduces emissions.

To integrate this tech in your project, consider:

- Partnering with experts for training and quality control.
- Selecting suitable legumes and effective, adaptable rhizobia strains.
- Ensuring cost-effectiveness and proper distribution with storage and quality checks.
- Educating farmers and monitoring project success.

IP

Unknown

Technology from

ProPAS

Commodities

Soybean, Common bean

Sustainable Development Goals

Categories

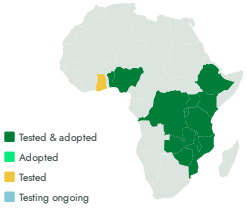
Production, Inputs, Inoculant

Best used with

Climbing Bean with High Yield and N Fixation, Biofortified Beans for Improved Nutrition, Specialty Fertilizer Blends for Common Bean

See all 3 technologies online

Tested/adopted in



Where it can be used

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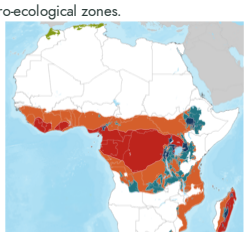


Climbing Bean with High Yield and N Fixation

Growing Prosperity: Climbing Beans for Food Security & Income Growth

Climbing beans, with their long vines and high growth, are a valuable crop for small-scale farmers in Sub-Saharan Africa. Improved varieties, bred for productivity, resilience, and superior nitrogen-fixing abilities, contribute significantly to food security and income in the region. These beans are also processed into various products for local and international markets.

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- **Agricultural Challenges**: Limited yields and susceptibility to pests and diseases affect small-scale farmers.
- **Environmental Stresses**: Drought, poor soil quality, and nitrogen-depleted soils hinder bean cultivation.
- **Food Insecurity**: These challenges contribute to food insecurity and malnutrition in small-scale farming communities.

Solution

- **Higher Yields**: Climbing beans yield more than bush beans.
- **Pest/Disease Resistance**: These varieties resist common pests and diseases.
- **Stress Tolerance**: They thrive in adverse conditions.
- **Nitrogen Fixation**: The technology reduces fertilizer costs.
- **Food Security**: They provide a reliable food source for small-scale farmers.

Key points to design your project

To incorporate this technology into a project, the following steps are recommended:

1. **Promotion**: Highlight the benefits of improved climbing beans to attract interest.
2. **Seed Transfer**: Introduce elite varieties to seed multipliers for propagation and distribution.
3. **Market Connection**: Connect bean producers with buyers and food processors to ensure a ready market.
4. **Financial Support**: Provide financial aid to farmers for necessary investments in quality seed, fertilizer inputs, and staking.
5. **Streamlining Operations**: Make netting available to commercial producers to simplify trellising operations.

Additionally, consider the technology cost, seed requirements per hectare, delivery cost, import clearance, and duties. Training and communication support should be provided, and practices that enhance nitrogen fixation, pest and disease management, and drought resistance should be associated with this technology. Collaboration with agricultural development institutes and seed multiplication companies is recommended for implementation. The technology is available in various agroecosystems across Sub-Saharan Africa.

4.6 t/ha	**92** kg	**28** %	IP
Potential yield	N fixed per ha	Increase in bean consumption	Trademark

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Josey Kamanda

Technology from

ProPAS

Commodities

Common bean

Sustainable Development Goals

2 ZERO HUNGER · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION · 5 GENDER EQUALITY · 13 CLIMATE ACTION

Categories

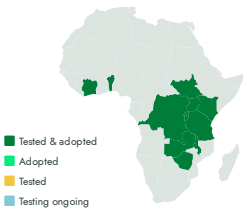
Production, Improved varieties, Disease resistance, Insect resistance

Best used with

Low-Cost Staking for Climbing Beans, Seed Inoculation with Rhizobia, Seed dressing of Seed with Fungicide and Insecticide

See all 3 technologies online

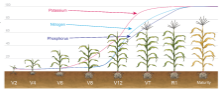
Tested/adopted in



Where it can be used

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

Pre-plant blended fertilizers and nitrogen topdressing for maize



Unlock Maize Potential with Balanced Fertilizer Bliss!

Pre-plant blended fertilizers for maize is a technology involved to carefully mixed solid granular fertilizers, including urea, calcium ammonium nitrate, and potassium chloride, to meet maize crop nutrient needs.

International Institute of Tropical Agriculture (IITA)
Jonga Munyaradzi

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Inclusion assessment 4

Climate impact 5

Problem

- Traditional fertilizer application methods often lead to uneven nutrient distribution,
- Improper dosages and application schedules of mineral fertilizers are common,
- Inefficient nutrient application practices can lead to environmental losses, including nutrient runoff and leaching.

Solution

- Implementing pre-plant blended fertilizers and nitrogen topdressing for precise and efficient nutrient delivery,
- Providing specific nutrient blends to address inadequate nutrient supply for healthier and more productive maize crops.
- Promoting responsible fertilizer use through carefully formulated blends and split applications, minimizing wastage

Key points to design your project

The technology of pre-plant blended fertilizers and nitrogen topdressing for maize offers several benefits. Key steps to integrate this technology include:

- Identifying appropriate formulations, developing mixing protocols, brokering market entries,
- Conducting farmer demonstrations, providing financial support,
- Estimating required quantities, budgeting costs, allocating funds for training and support, developing communication materials, and forming partnerships with relevant stakeholders.

0.3—0.5 ton/ha	30 %	57 %	IP
Grain yield increase	N uptake increase	P uptake increase	Trademark

Technology from

ProPAS

Commodities

Maize

Sustainable Development Goals

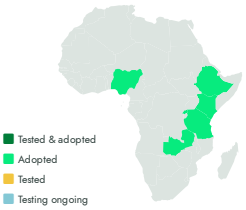
2 ZERO HUNGER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

Production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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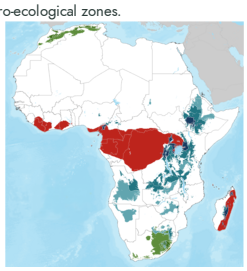


Target groups

Farmers

DroughtTEGO: Drought tolerant and high yield maize varieties

Boost yields, and income with advanced maize.

DroughtTEGO is a improved maize hybrid developed as part of the Water Efficient Maize for Africa (WEMA) project. It was created to address the impact of drought, which is exacerbated by climate change. It aims to mitigate the effects of dry spells and low rainfall, which often limit maize production in dryland areas.

This technology is TAAT1 validated.

9·7 Scaling readiness: idea maturity 9/9; level of use 7/9

Inclusion assessment 3

Climate impact 3

Problem

- Low yield associated with drought resilience in maize cultivation
- Rainfall patterns and water scarcity in agricultural landscapes
- Vulnerability of smallholder farmers to climate change impacts on crop production

Solution

- TEGO, improved maize varieties with enhanced drought tolerance
- Breeding of maize hybrids with high yield (20-35% yield increased) potential under drought stress conditions
- Empowerment of smallholder farmers through access to improved maize varieties and knowledge resources

Key points to design your project

DroughtTEGO technology is a transformative solution with significant impacts on gender equality, climate resilience, and Sustainable Development Goals (SDGs). To integrate DroughtTEGO technology into your project,

- Identify suitable varieties,
- Conduct awareness campaigns,
- Ensure access to seeds and financial support,
- Estimate seed requirements, allocating resources for training, developing communication materials,

IP

Trademark

African Agricultural Technology Foundation (AATF)

Jonga Munyaradzi

Technology from

ProPAS

Commodities

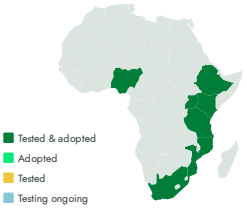
Maize

Sustainable Development Goals

Categories

Production, Improved varieties, Yield improvement, Drought tolerance

Tested/adopted in



Where it can be used

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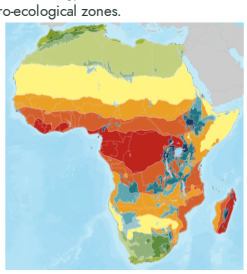


Target groups

Cut and Bury: Motorized weeders for rice production

Effortless Weed Control for Bountiful Harvests

The Motorized Weeders for rice production (cut and bury) technology eliminate weeds in rice crops. The rotating blades of the weeders ensure effective weeding while minimizing damage to rice crops and soil. These machines can be used from the germination of rice plants until the canopy closes.

Africa Rice Center
Kalimuthu Senthilkumar

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 7

Problem

- Labor-intensive manual clearing of paddy fields
- Inefficient weed control methods leading to reduced rice yields
- Limited access to affordable and effective mechanized weeders for smallholder rice farmers

Solution

- Introduction of motorized weeders for efficient clearing of paddy fields
- Adoption of mechanized weed control methods to increase rice yields
- Provision of affordable and effective mechanized weeders for smallholder rice farmers

Key points to design your project

The adoption of Motorized Weeders for rice production offers a solution to enhance agricultural efficiency and reduce labor-intensive tasks. Key steps to integrate this technology include:

- Informing farmers, importing or locally fabricating equipment.
- Organizing collective purchases or rentals, and facilitating access to small loans.
- Training and support for technology usage and maintenance are essential.

IP

Open source / open access

Technology from

ProPAS

Commodities

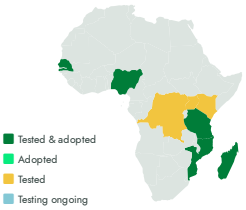
Rice

Sustainable Development Goals

Categories

Production, Equipment, Land preparation, Weed control

Tested/adopted in



Where it can be used

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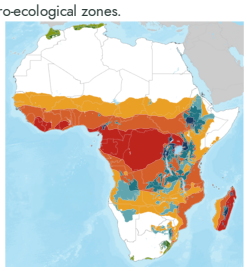


Target groups

Farmers

High quality cassava flour and industrial starches

Extend Freshness, Expand Opportunities with Cassava Flour!

High-Quality Cassava Flour (HQCF) is a non-fermented cassava product with an odorless, white/off-white appearance. It addresses the challenge of perishable fresh cassava roots, offering longer shelf life and reduced transport costs. HQCF, produced through specific steps, holds potential for various food.

International Institute of Tropical Agriculture (IITA)
Abass Adebayo

This technology is TAAT1 validated.

8·7 Scaling readiness: idea maturity 8/9; level of use 7/9

Inclusion assessment 4

Climate impact 4 1

Problem

The HQCF technology adressed several problem such as:

- Rapid perishability and molding of fresh cassava roots due to high water content.
- Toxic cyanide compounds in cassava roots, which need to be eliminated for safety.
- Traditional cassava flour production methods that do not provide significant market opportunities for smallholder cassava farmers.

Solution

- Detoxification of cassava roots through the HQCF production process, eliminating bitter taste and toxicity without fermentation.
- Utilization of HQCF for a wide range of food and industrial applications, serving as substitutes for imported wheat.
- Building capacity in remote rural communities for HQCF to enhance the competitiveness and value addition in the cassava value chain.

Key points to design your project

High-Quality Cassava Flour (HQCF) is a non-fermented solution addressing perishability in cassava roots, providing extended shelf life. It supports gender equality, reduces carbon footprint, and aligns with SDGs for poverty reduction and economic growth. Integration considerations involve estimating root quantity, logistics planning, training support, and developing communication materials.

25 %
Reduction of wheat flour in bakeries

1 ton HQCF from 5.5 tons fresh cassava roots
Cassava root to HQCF conversion ratio

IP
Open source / open access

Technology from

ProPAS

Commodities

Cassava

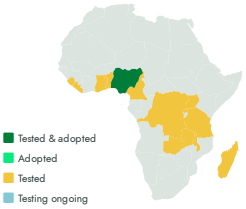
Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH

Categories

Post-production, Equipment, Agrifood processing

Tested/adopted in



Where it can be used

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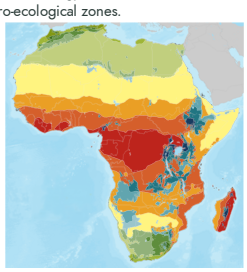


Target groups

Processors

Disease resistant cassava varieties

Disease-Resistant Cassava Cuttings for Higher Yields

"Disease Resistant Cassava Varieties" are specially bred to withstand common viral diseases like cassava mosaic and cassava brown streak in sub-Saharan Africa. Those varieties help farmers protect their crops, increase yields, and improve food security. Ongoing breeding programs aim to find more varieties for sustainable cassava production.

International Institute of Tropical Agriculture (IITA)
Edward Kanju

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 7

Problem

- Viral diseases damage cassava leaves, reducing photosynthesis and causing significant yield losses.
- Current disease control methods for cassava are ineffective against viral pathogens.
- Farmers in African countries experience yield losses ranging from 20% to 95%, valued at approximately US$1,200 – 2,300 million.

Solution

- Disease-resistant cassava varieties significantly reduce infection rates and yield losses.
- Genes from wild types are transferred into improved cassava varieties through conventional crossing techniques, offering a cost-effective approach.
- Many resistant cassava varieties also exhibit comprehensive resistance to other major cassava pathogens, benefiting integrated crop health management by farmers.

Key points to design your project

- Disease-resistant cassava varieties technology empowers women, enhances food security, and mitigates climate change impacts.
- Integration involves raising awareness, acquiring adapted cassava lines, and building stakeholder capacity.
- Costs include delivery, training, and planting materials, estimated at USD 30 to 35 per hectare.
- Collaboration with agricultural institutes and seed companies is key for effective implementation.
- Availability spans various countries, requiring consideration of import clearance and duties.

15—20 %

Incidences of cassava mosaic disease with resistant varieties

Technology from

ProPAS

Commodities

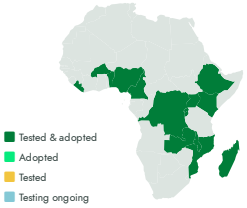
Cassava

Sustainable Development Goals

Categories

Production, Improved varieties, Disease resistance

Tested/adopted in



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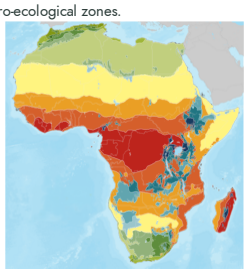


Target groups

Farmers, Seed companies

Pre-emergence herbicides for maize crops

Unlocking Maize's Full Potential

"Pre-emergence herbicides for maize crops" is an innovative technology in Sub-Saharan Africa that prevents weed seedling root development, enhancing maize crop growth and increasing grain yields cost-effectively.

African Agricultural Technology Foundation (AATF)
Jonga Munyaradzi

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 5 1

Problem

- High weed encroachment in Sub-Saharan Africa reduces grain yields and agricultural returns.
- Manual or mechanical weed removal is labor-intensive and costly.
- Other weed control methods may spread weed seeds, leading to long-term issues.
- Multiple herbicide applications are often needed throughout the growing season.
- Herbicide formulation and timing vary based on regional factors.

Solution

- Pre-emergence herbicides control weeds early, boosting maize yields.
- They improve fertilizer efficiency and crop resilience to drought.
- Prevent weed seed dispersal, reducing future encroachment and herbicide use.
- Combined with post-emergence herbicides, they optimize weed control.
- Adaptable to various climates with customizable formulations.

Key points to design your project

To integrate this technology into your project, follow these steps:

- Facilitate the marketing of pre-emergence herbicides by agro-input dealers in regions where prevalent weed species pose challenges.
- Conduct awareness campaigns among farmers to highlight the benefits of chemical control methods for food production and risk mitigation.
- Provide financial support to local suppliers and smallholder farmers to encourage investments in pre-emergence herbicides.
- Ensure compliance with national pesticide regulations and obtain necessary authorizations from relevant authorities.
- Estimate the required quantity of technology, considering delivery costs and potential import fees across multiple countries.
- Budget for herbicides and labor costs, with rates specified for different blends and active ingredients.
- Allocate funds for training and post-training support to ensure effective utilization of the technology.
- Develop communication materials to promote technology adoption.
- Collaborate with agricultural development institutes, fertilizer suppliers, and agricultural service companies to implement the technology nationally.

0.7 - 1.6 Ton per hectare
Grain yield increase

349 USD
Gross margin per hectare

IP
Open source / open access

Technology from

ProPAS

Commodities

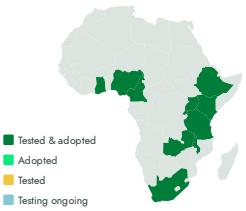
Maize

Sustainable Development Goals

Categories

Production, Pre-production, Inputs, Fertilizer

Tested/adopted in



Where it can be used

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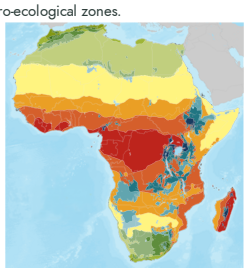


Target groups

Farmers

Golden maize varieties (High provitamin A)

Nutrition-boosting, income-enhancing maize.

These maize varieties have distinctive orange kernels, a result of high beta-carotene content. They are developed through advanced breeding techniques, combining naturally provitamin A enriched lines from Central and South America with elite land races and hybrid lines with improved agronomic traits.

African Agricultural Technology Foundation (AATF)
Jonga Munyaradzi

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment 4

Climate impact 4

Problem

- Significant population, including children and adults, faces preventable blindness and weakened immune systems due to insufficient vitamin A levels.
- Increased susceptibility to diseases such as measles, diarrhea, and respiratory infections.
- Common maize varieties lack vital vitamins and minerals, contributing to widespread malnutrition.
- 50% of children aged 0.5 to 5 years are at risk of vitamin A deficiency, leading to severe health complications and diminished quality of life

Solution

- Provitamin A enriched maize varieties provide a stable source of essential nutrients, combating deficiencies.
- Preservation of beta-carotene ensures a consistent supply of vitamin A.
- Genomic modification maintains nutrient content without compromising yield.
- Cost-effective approach for regions heavily reliant on maize.
- Tailored to meet nutritional needs, providing a significant portion of daily vitamin A requirement.
- Accessible and adaptable for diverse farming systems.

Key points to design your project

This transformative technology enhances gender inclusion, providing resilience to climate challenges and aligning with Sustainable Development Goals (SDGs) by addressing hunger and promoting well-being, especially for women and children. To integrate the technology into your project:

1. Estimate seed quantity based on a cost of 0.8 to 1.2 USD per kg and a requirement of 25 kg per ha.
2. Account for delivery costs, import clearance, and duties if applicable.
3. Include training and post-training support costs.
4. Develop communication materials for technology promotion.
5. Optimize by associating the technology with legumes, using manure, and implementing mulching.
6. Collaborate with agricultural development institutes and seed multiplication companies for effective implementation in your country.

IP

Open source / open access

Technology from

ProPAS

Commodities

Maize

Sustainable Development Goals

Categories

Production, Improved varieties,

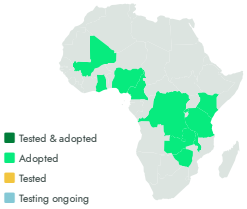
Yield improvement, Quality improvement

Best used with

Drought Tolerant Maize Varieties and Water Efficient Maize Varieties, Pre-plant blended fertilizers and nitrogen topdressing for maize, Maize-legume rotation and...

See all 4 technologies online

Tested/adopted in



Where it can be used

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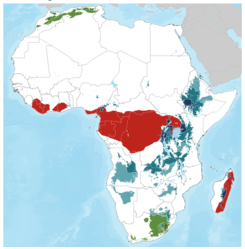


Processing and Application of Composted Manures

Turning Waste into Wealth for Greener Fields

Composted goat and sheep manure is readily compressed into organic fertilizer pellets. These fertilizer pellets are convenient for application, transportation, and storage. After composting, production involves crushing, screening, granulating, drying and further screening for pellet uniformity.

International Livestock Research Institute (ILRI)
Adeniyi Adediran

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Inclusion assessment 4

Climate impact 6 1

Problem

- Goat and sheep manure may contain human pathogens and weed seeds, posing hazards to crops and the environment.
- Nutrients in goat and sheep urine are often wasted, and improper manure handling can lead to environmental pollution.

Solution

- Composting rapidly deactivates human pathogens and weed seeds in manure, making it safe for use as compost on vegetable crops.
- Commercial technologies permit to produce organic fertilizers from goat and sheep manure, increasing its economic value and reducing waste.

Key points to design your project

The Processing and Application of Composted Manures technology offers a solution for reducing poultry feed costs. To integrate this technology into your project, follow these steps:

- Invest in compost turning and pellet making machinery.
- Analyze feed ingredient composition and identify any constraints.
- Evaluate ingredient cost and availability.
- Evaluate ingredient cost and availability.
- Engage a team of trainers for installation support and develop communication materials to highlight benefits.
- Collaborate with breeders and local stakeholders.

IP

Open source / open access

Technology from

ProPAS

Commodities

Small livestock

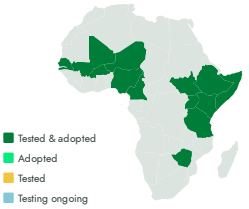
Sustainable Development Goals

2 ZERO HUNGER · 8 DECENT WORK AND ECONOMIC GROWTH · 13 CLIMATE ACTION

Categories

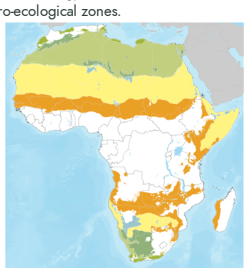
Production, Pre-production, Practices, Input processing

Tested/adopted in



Where it can be used

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



Target groups

Farmers

PIDACC Zambia

https://taat.africa/vdq

ABOUT US

TAAT

TAAT, Technologies for African Agricultural Transformation, is an African Development Bank initiative to boost agricultural productivity by rapidly rolling out proven technologies to more than 40 million smallholder farmers.

TAAT aims to double crop, livestock, and fish productivity by 2025 by engaging both public and private sectors to expand access to productivity-increasing technologies across the continent.TAAT advises African government who receive funding from international financial institutions such as the African Development Bank to help them integrate the best agricultural technologies in their development projects. TAAT also offers technical assistance for the integration of these technologies, when needed.

TAAT Technologies

TAAT definition of agricultural technologies is very broad: they include improved varieties, inputs, equipment, agricultural infrastructure, practices and agricultural policies. In short, any solution to an agricultural constraint. TAAT technologies have been developed by a wide variety of organizations: the CGIAR, other international research institutions, national research organizations, or the private sector.

TAAT Clearinghouse

Within TAAT, the Clearinghouse has the remit to select, profile and validate agricultural technologies, and showcase them in online catalogs to support the advisory role that the Clearinghouse offers to governments and the private sector. The Clearinghouse strives to be an 'honest broker' of technologies through its selection, profiling, validation and advice.

TAAT e-catalogs

The e-catalogs are designed to be used by decision-makers within governments, private sector companies or development organizations. They facilitate the search for appropriate solutions that are adapted to local conditions and requirements, and provide all necessary information, presented in jargon-free and easy to analyze technology profiles. Once a decision-maker has selected a technology of interest, the e-catalogs facilitate their direct contact with those who can help them implement the technology, whether they are a research group or a private company.

TAAT Technology Toolkits

Technology toolkits are hand-picked selections of technologies from the TAAT e-catalogs. We offer some curated toolkits for specific cases, and registered users can create their own toolkits, showcasing their selection of technologies. Toolkits can be used online and shared as links, as mini e-catalogs, they can also be downloaded, saved, shared or printed as collections of technology pitches in PDF format (pitches are one-page summaries of technology profiles, available for all technologies on the e-catalogs).

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