IITA Seed Systems Technologies

IITA seed system aims to strengthen the production, multiplication, certification, and distribution of quality seeds for cassava, banana, plantain, and yam. Existing technologies include improved varieties, EGS models, tissue culture propagation, SAH systems, and disease-resistant and nutrient-dense crop varieties.

13 TECHNOLOGIES | CREATED ON OCT 14, 2025 BY TAAT PROFILING TEAM | LAST UPDATED DEC 10, 2025

TECHNOLOGIES IN THIS TOOLKIT

- **Improved Cassava Varieties**: Market-driven cassava breeding an...
- **Improved Varieties of Plantain for Tropical Lowlands**
- **Golden cassava varieties (Vitamin A fortified)**
- **Disease resistant cassava varieties**
- **Cassava varieties with high dry matter and starch content**
- **SAH**: Semi-Autotrophic Hydroponics for yam multiplication
- **SAH cassava**: Semi Autotrophic Hydroponics for Cassava...
- **Propagation of Banana and Plantain Disease-Cleaned Suckers**
- **In-Vitro Banana Tissue Culture Propagation**
- **Cassava seed-bulking farms**
- **Cassava EGS Model**: Early Generation Seed Production of...
- **BASICS Model**: A Seed System Model for Cassava Transformation
- **KABANA 6H/NARITA7 hybrid**: High yielding and disease tolerant...

https://taat.africa/atd

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

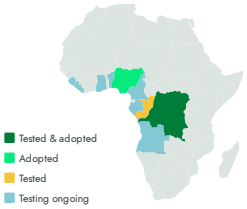
Categories

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

Best used with

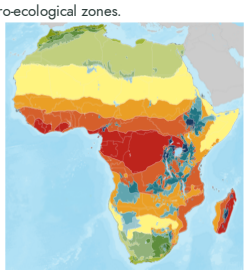
Cassava seed-bulking farms, Marketing strategies for cassava seed system, Capacity Building Strategies on Cassava Seed System, Cassava Seed Field Multiplication Protocol,...
See all 5 technologies online

Tested/adopted in



Where it can be used

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



Improved Varieties of Plantain for Tropical Lowlands

Better Plantain Varieties for Thriving Farmers

The "Improved Varieties of Plantain for Tropical Lowlands" makes stronger and healthier plantains that can resist diseases and pests. It does this by mixing different kinds of plantains to create new varieties. These special plantains grow well in different climates and have more leaves and fruits.

This technology is TAAT1 validated.

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

Inclusion assessment 3

Climate impact 7

Problem

- Black leaf streak disease causing significant yield losses ranging from 33% to 50%.
- Weevils and nematodes undermining corm and root systems.
- Declining soil fertility due to poor management practices.

Solution

- This technology aims to combat black leaf streak disease, weevils, and nematodes.
- Focus on high productivity and drought resilience to mitigate yield losses.
- Emphasis on preferred cooking traits to meet consumer preferences.
- Adaptation to diverse climatic and production conditions.

Key points to design your project

The adoption of improved plantain varieties offers significant benefits for food security and income in disease-prone areas with fluctuating climates. Here's a concise summary:

Key Activities:

- **Selecting suitable cultivars** based on climate, management, production goals, and market needs.
- **Educating stakeholders**—multipliers, farmers, processors—about the advantages like disease resistance and higher yields.
- **Creating training hubs** for seed multipliers and farmers on propagation techniques and best farming practices.

A dedicated team of trainers should be engaged to provide comprehensive training and support during the project implementation. The budget should cover the costs for training sessions and post-training assistance.

1400 USD
Production inputs and labor per ha

IP
Open source / open access

International Institute of Tropical Agriculture (IITA)
Moses Nyine

Technology from

ProPAS

Commodities

Bananas & plantains

Sustainable Development Goals

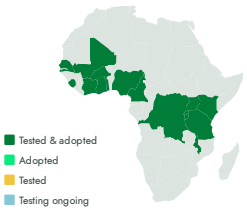
Categories

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

Best used with

In-Vitro Banana Tissue Culture Propagation, Propagation of Banana and Plantain Disease-Cleaned Suckers, Intercropping Strategies for Banana and Plantain, Spacing and Stand...
See all 6 technologies online

Tested/adopted in



Where it can be used

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

Golden cassava varieties (Vitamin A fortified)

Yellow-fleshed cassava rich in vitamin A

Yellow-fleshed cassava is a vitamin A-enriched variety. The variety is the result of the cross-breeding of natural lines containing high levels of provitamin A and hybrid lines with higher yield potential disease resistance and drought tolerance.

International Institute of Tropical Agriculture (IITA)
Elizabeth Parkes

This technology is TAAT1 validated.

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

Inclusion assessment 4

Climate impact 5

Problem

- Lack of essential nutrients in conventional cassava varieties, notably vitamin A deficiency affecting 50% of children.
- Insufficient vitamin A leading to preventable blindness and weakened immune systems in children.
- Limited nutritional value and agronomic challenges, such as disease susceptibility and low yield potential.

Solution

- Golden cassava varieties are enriched with provitamin A, addressing vitamin A deficiency and hidden hunger.
- Through breeding, golden cassava exhibits enhanced traits like disease resistance and drought tolerance.
- These varieties contain 2 to 3 times more provitamin A, meeting nutritional needs in cassava-dependent communities.
- Golden cassava suits various agro-ecosystems, enhancing its reach.

Key points to design your project

To integrate it into your project:

1. Establish quality parameters with stakeholders.
2. Engage seed companies for high-quality seeds.
3. Stimulate demand among consumers.
4. Provide financial assistance to farmers.

Consider seed quantity, delivery costs, training, communication support, and collaboration with local agricultural institutes and companies for successful implementation.

IP

Open source / open access

Technology from

ProPAS

Commodities

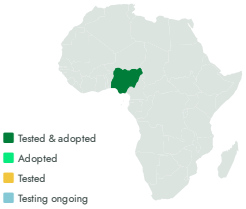
Cassava

Sustainable Development Goals

Categories

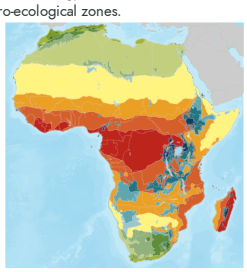
Production, Improved varieties, Yield improvement, Quality improvement

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Seed companies

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

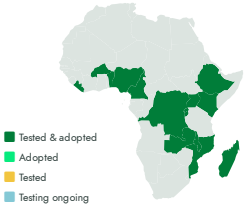
Cassava

Sustainable Development Goals

Categories

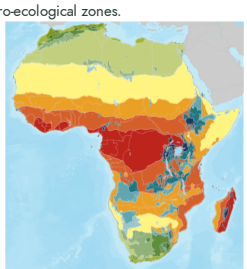
Production, Improved varieties, Disease resistance

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Seed companies

Cassava varieties with high dry matter and starch content

Enhancing cassava yields and quality for greater food security in Africa.

This technology involves improved varieties of cassava with enhanced dry matter content. Through conventional breeding and other methods, these cassava varieties have been developed. These high-quality roots are well-suited to the needs of farmers and various industrial processes.

International Institute of Tropical Agriculture (IITA)
Elizabeth Parkes

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

- **Low Dry Matter and Starch Content**: Traditional cassava varieties often have low dry matter and starch content, reducing their economic value and utility in food and industrial applications.
- **Limited Variety Options**: Farmers have limited access to high-quality cassava varieties, which restricts their ability to improve crop yields and quality.

Solution

- **Higher Dry Matter & Starch:** Enhances root quality for fresh and industrial use.
- **Increased Yields:** Boosts cassava yield and economic returns.
- **Adaptability:** Resistant to pests, diseases, and harsh conditions.
- **Food Security:** Produces nutritious, high-yield crops.

Key points to design your project

The cassava varieties with high dry matter and starch content technology significantly contribute to sustainable development. To integrate this technology into your project,

- Focus on identifying or developing suitable cassava varieties,
- Estimate the quantity of cassava roots needed, including delivery costs.
- Consider a team of trainers for support and develop communication materials.

35 ton/ha	40 - 45 %	80 - 95 %	IP
potential yield	dry mater content	starch content	Plant variety protection

Technology from

ProPAS

Commodities

Cassava

Sustainable Development Goals

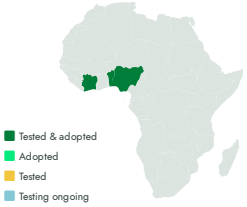
Categories

Production, Improved varieties, Yield improvement, Quality improvement

Best used with

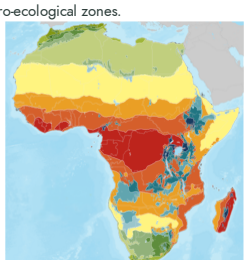
Digital Decision Support Tool
See all 1 technologies online

Tested/adopted in



Where it can be used

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



SAH: Semi-Autotrophic Hydroponics for yam multiplication

Multiplying Seeds, Securing Harvests, Ensuring Food Security!

SAH is a low-cost licensed technology designed for mass multiplication of yam through leaf nodal cuttings, which are grown in a sterile planting medium such as peat moss, decomposed sawdust, rice husk, or cocopeat. These cuttings are placed in transparent plastic containers under controlled conditions, where they develop roots, shoots, and eventually tubers.

International Institute of Tropical Agriculture (IITA)
Pelemo Olugboyega Success

This technology is pre-validated.

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

Inclusion assessment 2

Climate impact 5

Problem

- **Insufficient Seed Supply**: The production of seed yam is inadequate to meet national food security needs.
- **High Seed Costs**: Seed yam accounts for up to **50% of total production costs**, making it unaffordable for many farmers.
- **High Seed Consumption from Previous Harvests**: Farmers typically **use up to 33% of their previous year's harvest** as seed, reducing food availability for consumption and sale.

Solution

- **High Multiplication Rate**: A **single box of 25 seedlings** can yield up to **500 plants in 90 days**, and over **1,000 plants** when transplanted into pots for further multiplication.
- **Space Efficiency**: **1 million planting materials** can be produced within **60 square meters**, ensuring year-round supply.
- **Scalability**: The technology is adaptable for **formal seed systems and commercial seed enterprises**, supporting the growth of the yam seed sector.

Key points to design your project

Semi-Autotrophic Hydroponics (SAH) enables year-round, cost-effective yam seed multiplication, addressing seed shortages and high production costs. To integrate this technology,

- Estimate plantlet needs (50,000 for 16 hectares), factor in delivery and import costs, and include training for successful implementation.
- Collaborate with agricultural institutes and seed companies to ensure sustainable integration and increased food security.

60,000 USD	10,000—25,000 USD	20,000 USD	15,000 USD	IP
Construction or acquisition of the fixed assets	Labor cost in West Africa per year	Laboratory setup including shelving	Consumables (Substrates, plastic box, nutrients and non-consumables and maintenance)	Open source / open access

Commodities

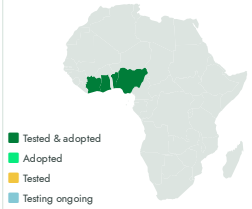
Yam

Sustainable Development Goals

Categories

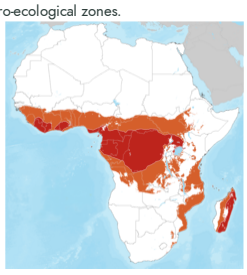
Pre-production, Practices, Yield improvement, Seed system

Tested/adopted in



Where it can be used

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



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

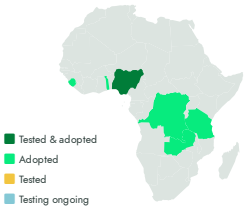
Cassava

Sustainable Development Goals

Categories

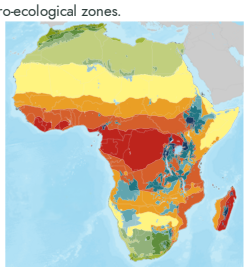
Pre-production, Practices, Seed system

Tested/adopted in



Where it can be used

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



Target groups

Farmers

Propagation of Banana and Plantain Disease-Cleaned Suckers

Propagate Success with Clean Suckers

Macro-propagation involves two techniques: field-based (decapitation) and detached corm (beds). It ensures disease-free seedlings, promoting uniform growth and stress resistance. Clean knives and hardened sprouts are vital for success.

Complete decapitation with excised meristem (top) and sprouting suckers (bottom)

International Institute of Tropical Agriculture (IITA)
Amah Delphine

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

- Natural regeneration often results in contaminated banana and plantain planting materials, harming productivity and lifespan.
- Traditional methods result in non-uniform growth, affecting the overall efficiency of banana and plantain cultivation.
- Conventional methods may lead to stress-prone plantlets, negatively impacting their adaptation and performance in the field.

Solution

- Macro-propagation ensures the production of banana and plantain seedlings free from pests and diseases, promoting healthier and more resilient crops.
- Macro-propagation contributes to increased productivity and prolonged lifespan of banana and plantain plants .
- This technique reduces financial barriers by offering a low-cost method of obtaining disease-free seedlings
- Macro-propagation ensures more uniform growth of banana and plantain seedlings.

Key points to design your project

The adoption of Propagation of Disease-Cleaned Suckers technology presents an opportunity to enhance banana and plantain production. To integrate this technology into your project, consider the following steps:

- Ensure access to disease-free suckers for banana and plantain farmers at affordable prices.
- Educate farmers about the benefits of using disease-cleaned suckers and encourage their adoption of this technology.
- Provide training and certification to farmers on proper sucker selection and planting techniques to maximize yield.
- Collaborate with agricultural extension services to disseminate information and support the implementation of disease-cleaned sucker propagation.

340 USD	**2,300** USD	IP
2,500 plantlets shade house	Cost of chamber of 8,000 plantlets	Open source / open access

Technology from

ProPAS

Commodities

Bananas & plantains

Sustainable Development Goals

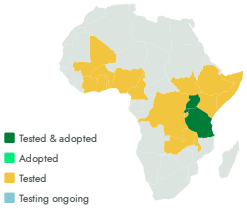
Categories

Pre-production, Practices, Seed system

Best used with

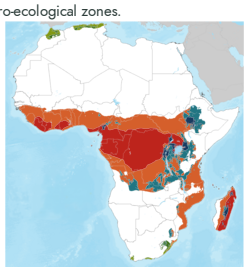
Improved Varieties of Plantain for Tropical Lowlands, Improved Varieties of Banana for the African Highlands
See all 2 technologies online

Tested/adopted in



Where it can be used

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



Target groups

In-Vitro Banana Tissue Culture Propagation

A rapid quality plantlets delivery technology for banana

In-Vitro Tissue Culture Propagation involves a series of steps including initiation, multiplication, shooting and rooting, and hardening, all performed in controlled, sterile laboratory conditions to produce disease-free banana and plantain plantlets.

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

- Traditional crops were more susceptible to extreme weather conditions, leading to significant crop damage and reduced yields.
- Traditional propagation methods were more susceptible to diseases, resulting in widespread outbreaks
- Natural disasters and disease outbreaks often led to slow recovery in agricultural systems

Solution

- In vitro micro-propagation eliminates all pests and diseases except for viruses.
- TC plants have the benefits of uniformity and fast propagation of large numbers of plantlets.
- These advantages enable marketing and more rapid recovery from broad-scale damage such as disease outbreak and extreme weather.

Key points to design your project

The adoption of in-vitro propagation technology offers a significant opportunity to enhance banana and plantain production while reducing losses from pests and diseases. To integrate this technology into your project, consider steps such as

- Business planning and market analysis, securing financing for equipment acquisition,
- Staff training on handling and quality control,
- Farmer awareness campaigns on planting and propagation of tissue culture (TC) plantlets,
- Additionally, explore partnerships with agricultural research institutes and government agencies to promote widespread adoption and improvement of banana and plantain production nationwide.

3000 Tissue Culture plantlets

A nursery business can produce 3,000 TC plantlets per cycle

IP

No formal IP rights

International Institute of Tropical Agriculture (IITA)
Amah Delphine

Technology from

ProPAS

Commodities

Bananas & plantains

Sustainable Development Goals

2 ZERO HUNGER

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

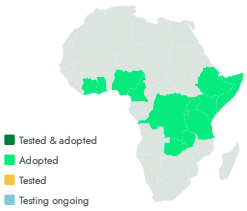
Categories

Pre-production, Practices,
Pest control (excluding weeds),
Yield improvement

Best used with

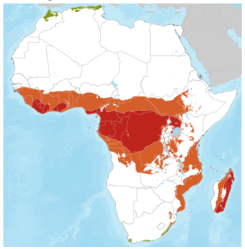
Improved Varieties of Plantain for Tropical Lowlands, Improved Varieties of Banana for the African Highlands, Propagation of Banana and Plantain Disease-Cleaned Suckers
See all 3 technologies online

Tested/adopted in



Where it can be used

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



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

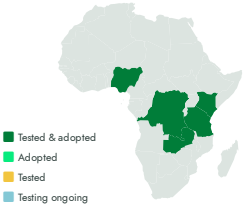
Pre-production, Practices, Seed system

Best used with

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

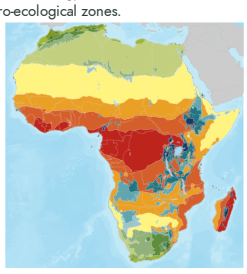
See all 3 technologies online

Tested/adopted in



Where it can be used

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



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.

3,195 USD
Revenue/hectare for seed companies

IP
No formal IP rights

Commodities

Cassava

Sustainable Development Goals

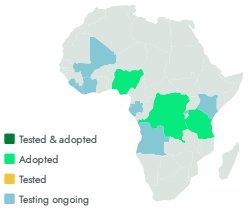
Categories

Pre-production, Practices, Seed system

Best used with

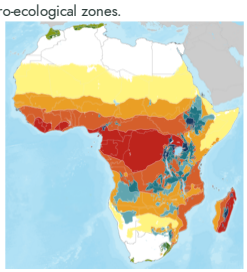
Cassava Seed Field Multiplication Protocol
See all 1 technologies online

Tested/adopted in



Where it can be used

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



Target groups

Breeders, Development institutions, Farmers, Governments, Seed companies,

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

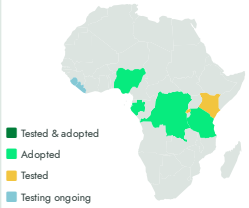
Pre-production, Practices, Yield improvement, Seed system

Best used with

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

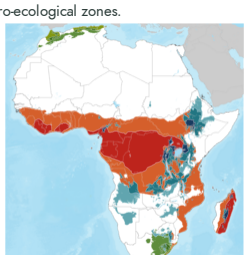
See all 14 technologies online

Tested/adopted in



Where it can be used

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



KABANA 6H/NARITA7 hybrid: High yielding and disease tolerant banana

long lasting banana nicknamed 'kiwangazi' by farmers.

The KABANA 6H/NARITA7 banana hybrid is a high-yielding variety resistant to black Sigatoka, banana weevils, and nematodes. It can produce 57.7 kg per bunch with a potential yield of 60 tons/ha/year. Developed by IITA and NARO, it's a practical solution for farmers, particularly in Uganda, enhancing plantation longevity and economic return.

International Institute of Tropical Agriculture (IITA) and NARO
Michael Batte

This technology is validated.

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

Inclusion assessment 4

Climate impact 4

Problem

- **Decreased Yield**: Banana plantations have been facing a decline in yield due to various factors.
- **Black Sigatoka Disease**: This leaf spot disease significantly reduces banana yield.
- **Pest Infestation**: Banana weevils and nematodes cause root damage and reduce plantation longevity.
- **Short Plantation Lifespan**: Pests and diseases have been reducing the lifespan of banana plantations, particularly in Uganda.

Solution

- **Disease Resistance**: It's tolerant to black Sigatoka, a leaf spot disease, which helps in maintaining the yield.
- **Pest Resistance**: The hybrid is resistant to banana weevils and nematodes, addressing the issue of pest infestation and root damage.
- **Longevity**: The resistance to common pests and diseases increases the lifespan of banana plantations, solving the problem of short plantation lifespan.

Key points to design your project

The high-yielding, disease-tolerant banana hybrid Kabana 6H (NARITA 7) addresses major challenges in banana production, especially in regions prone to disease and climate variability. By boosting yields and promoting climate adaptation, it enhances food security, reduces poverty, and promotes women's economic empowerment.

To integrate Kabana 6H (NARITA 7) into your project:

- **Collaboration**: Partner with breeders and research institutions to select suitable varieties.
- **Cultivar Selection**: Choose cultivars based on climate, production goals, and market needs.
- **Training**: Provide local training on macro-propagation and agronomic practices.
- **Planting Material**: Estimate planting needs (1111 plants/ha) and use clean materials.
- **Cost**: Budget USD 2,542/ha, including inputs, labor, and delivery costs.
- **Outreach**: Create communication materials to promote the technology.

57.7 kg per bunch	**60** tons/ha/year	IP
Real-life yield	Potential yield	Plant variety protection

Commodities

Bananas & plantains

Sustainable Development Goals

1 NO POVERTY

2 ZERO HUNGER

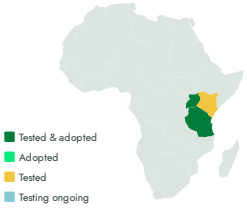
Categories

Production, Improved varieties, Disease resistance, Yield improvement

Best used with

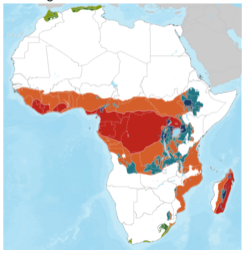
Propagation of Banana and Plantain Disease-Cleaned Suckers, Intercropping Strategies for Banana and Plantain, Spacing and Stand Management in Banana and Plantain, Value...
See all 5 technologies online

Tested/adopted in



Where it can be used

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



Target groups

Breeders, Farmers, Governments, Seed companies, Sellers

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

Technologies for African Agricultural Transformation

IITA Seed Systems Technologies

https://taat.africa/atd

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).

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

Technologies for African Agricultural Transformation

CONTACT

Chrys Akem – TAAT Program Coordinator: +234 8169020531
Dr Solomon Gizaw – Head, TAAT Clearinghouse: +251 900461992
taat-africa@cgiar.org | https://e-catalogs.taat-africa.org

TAAT is funded by the African Development Bank, the TAAT Clearinghouse is co-funded by the Bill and Melinda Gates Foundation and the African Development Bank.