Cassava Seed System Toolkit

IITA's BASICS-II project has packaged proven cassava seed innovations into one accessible toolkit, covering elite breeding through market-ready plant material production. It connects breeders, seed producers, extension services, and farmers in a commercially viable value chain.

14 TECHNOLOGIES | CREATED ON APR 30, 2025 BY TAAT PROFILING TEAM | LAST UPDATED MAY 30, 2025

TECHNOLOGIES IN THIS TOOLKIT

- **BASICS Model**: A Seed System Model for Cassava Transformation
- **Improved Cassava Varieties**: Market-driven cassava breeding an...
- **Cassava virus indexing**: Molecular diagnostics for cassava seed health...
- **Cassava EGS Model**: Early Generation Seed Production of...
- **Cassava Seed Field Multiplication Protocol**
- **CassQual**: Cassava Seed Quality Management system
- **SeedTracker**: Digital Tool for Strengthening Seed Governance an...
- **Disease Diagnosis**: Nuru for in-field Pest
- **CSE Model**: Cassava Seed Entrepreneur Business Model
- **CSAM**: Organized support networks for cassava seed entrepreneurs
- **Marketing Strategies**
- **Capacity Building Strategies**
- **ME-CASS**: Cassava Seed Monitoring System
- **Cassava Seed System Advocacy and Scaling Model**

https://taat.africa/ozk

BASICS

BUILDING AN ECONOMICALLY SUSTAINABLE, INTEGRATED CASSAVA SEED SYSTEM

Cassava Seed System Toolkit

The Cassava Seed System Toolkit provides a comprehensive approach to transforming cassava production through a commercially viable, sustainable, and disease-free seed system.

At its heart is the BASICS model - a blueprint designed to reliably deliver high-quality stems of improved cassava varieties to farmers and processors. This model connects actors across the cassava seed value chain, from breeders to seed entrepreneurs to farmers, ensuring that quality materials are continuously available.

Through a series of **13 interlinked technologies** – ranging from virus diagnostics and rapid propagation techniques to digital certification tools like Seed Tracker and PlantVillage Nuru – the toolkit guides implementers in setting up a robust seed system. Each technology is described in detail in this Toolkit, offering key information, practical steps for adoption and contacts for implementation support.

Certified seeds under BASICS have **boosted farmer yields by over 135 % in Tanzania and tripled revenues in Nigeria** for seed entrepreneurs.

Impact

Real world results speak for themselves: certified seeds under BASICS have boosted farmer yields by over 135 % in Tanzania and tripled revenues in Nigeria for seed entrepreneurs.

As cassava demand rises across Africa's food and processing industries, this toolkit offers governments, private sector partners and development agencies a proven, step by step pathway to transform cassava productivity, strengthen rural livelihoods and support climate resilient agriculture.

TAAT Technology Profiles and BASICS Modules

The TAAT technology profiles and pitches distill BASICS' technologies in a concise format – highlighting key benefits, brief specifications and click-to-contact links – ensuring that decision-makers can quickly grasp relevance and align investments.

Certified seed gives boost to cassava farmers in Tanzania. Photo by cassavematters.org.

The BASICS program has also created an accompanying set of cassava seed system modules which provide more detail for those users who would like more in-depth information on aspects such as standard operating procedures, diagnostic protocols, background data and business planning templates.

By linking every module directly to its technology profile on the e-catalogs, stakeholders gain a seamless bridge between high-level overviews and in-depth guidance. During implementation, leaders can use the concise e-catalogue profiles to set priorities and secure buy-in, then hand off to technical teams who access the full module manuals to execute each step with precision - thereby uniting strategic clarity with operational rigor.

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

Gender 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 ›
- Cassava Seed Entrepreneur Business Model ›
- Nuru for in-field Pest ›
- Cassava Seed Quality Management system ›
- Cassava Seed Monitoring System ›
- Digital Tool for Strengthening Seed Governance and Certification Systems ›
- Organized support networks for cassava seed entrepreneurs ›
- Cassava Seed System Advocacy and Scaling

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

Gender 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

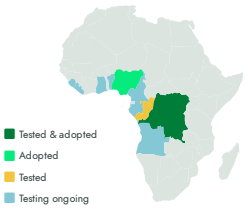
Categories

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

Best used with

- Cassava seed-bulking farms ›
- Marketing Strategies ›
- Capacity Building Strategies ›
- Cassava Seed Entrepreneur Business Model ›

Tested/adopted in

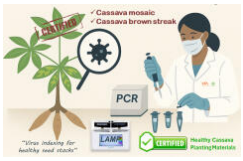


Where it can be used

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

Cassava virus indexing: Molecular diagnostics for cassava seed health certification

Virus diagnostic tool for cassava seed health certification by seed producers and seed certifiers.



International Institute of Tropical Agriculture (IITA)
Lava Kumar

Cassava virus indexing is a method used to detect and remove virus-infected cassava plants early in the seed production process. It uses advanced diagnostics like **PCR** and **LAMP** to ensure only virus-free plants are used. This helps maintain seed quality, strengthens crop health, and supports seed certification efforts, making it essential for seed producers and certifiers in cassava-growing regions.

This technology is pre-validated.

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

Gender assessment 4

Climate impact 3

Problem

- Virus-infected cassava planting materials are often unknowingly used in seed production.
- Vegetative propagation (e.g., stem cuttings) increases the risk of virus transmission.
- Cassava crops are highly vulnerable to damaging viruses like CMD (Cassava Mosaic Disease) and CBSD (Cassava Brown Streak Disease).
- Lack of effective screening tools leads to poor seed quality and crop losses.

Solution

- **Accurate detection** of viruses using PCR and LAMP techniques.
- **Virus-free planting material** selection for better seed quality.
- **Improved seed certification** by enabling diagnostic-based certification.
- **Increased crop resilience** and yield by using healthy seeds.

Key points to design your project

Cassava Virus Indexing helps improve seed quality and prevent virus spread in cassava production. It supports food security and seed certification by detecting infected planting materials early.

To adopt it in your projects:

- Estimate testing needs and equipment (PCR, LAMP kits, reagents).
- Budget for lab setup (USD 3/sample).
- Train staff on sample collection, diagnostics, and analysis.
- Create awareness materials for seed stakeholders.
- Partner with research centers and seed certifiers for smooth integration.

20,000 USD
Initial setup cost for a diagnostic lab

3 USD
Cost per sample for testing

IP
No formal IP rights

Commodities

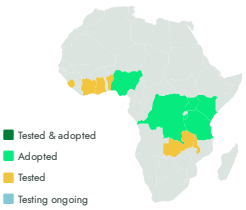
Cassava

Sustainable Development Goals

Categories

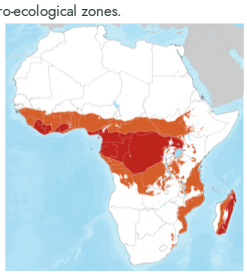
Pre-production, Practices,
Pest control (excluding weeds), Seed system

Tested/adopted in



Where it can be used

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



Target groups

Breeders, Seed companies,
Advisory and Extension Services,
Seed Regulators

Cassava EGS Model: Early Generation Seed Production of Cassava

Breeder & Foundation Cassava Seeds—Always Within Reach

This model enables agribusinesses, seed producers, and agro-dealers to multiply clean, improved cassava seeds from research centers into certified breeder and foundation seeds, following national standards. The certified seeds are then supplied to farmers and seed sellers.

IITA
Elohor Mercy Diebiru-Ojo

This technology is pre-validated.

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

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

Problem

- **Shortage of Quality Seed:** Hard to find enough clean and improved cassava cuttings to sell.
- **Seed Disease and Mixing:** Sometimes seeds are mixed up or carry diseases, causing customer complaints.
- **Certification Challenges:** It is difficult to get certified seeds that meet national standards.
- **Limited Supply of Foundation and Breeder Seeds:** Lack of reliable sources for foundation and breeder seeds affects business growth.

Solution

- **Direct Access to Improved Seeds:** Businesses get clean, improved seeds straight from research centers.
- **Quality and Disease Control:** Strict standards and inspections keep seeds healthy and pure.
- **Easier Certification:** The model helps companies meet national certification rules.
- **Steady Seed Supply:** Reliable multiplication ensures a constant stock of breeder and foundation seeds.

Key points to design your business plan

The EGS Model is a business opportunity to produce certified cassava seed. Here's what to keep in mind:

- This is certified seed production—not root sales.
- Partner with a research institute (e.g., IITA) to access breeder seed.
- Get licensed by the national seed authority (e.g., NASC, TOSCI).
- Set up a clean, well-managed field using good agronomic practices.
- Certification and inspections are required before selling.
- Focus on high-demand varieties like drought-tolerant or biofortified cassava.
- Use demos and field days to educate farmers and boost sales.
- Budget around **$830 per hectare**; returns are possible within 1–2 seasons.
- Work with agro-dealers or cooperatives for distribution.
- Reach out to **IITA GoSeed** for technical guidance and support.

Gender assessment 4

Climate impact 6

Commodities

Cassava

Sustainable Development Goals

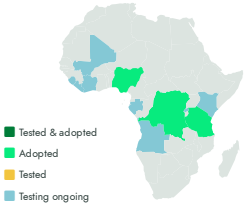
Categories

Pre-production, Practices, Seed system

Best used with

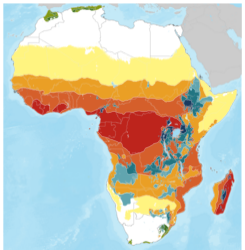
- Cassava Seed Field Multiplication Protocol ›

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,

Cassava Seed Field Multiplication Protocol

From planting to certification—seed production made simple.

The Field-Based Propagation of Cassava approach enables fast, efficient, and scalable production of high-quality, disease-free cassava seeds using methods like SAH plantlets and pencil stems. With SeedTracker for certification and traceability, businesses can meet the growing demand for reliable seeds and invest in sustainable agriculture.

IITA
Elohor Mercy Diebiru-Ojo

This technology is pre-validated.

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

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

Problem

- **Low-quality seeds**: Traditional methods result in poor-quality, diseased seeds, limiting market demand.
- **Slow seed production**: Conventional methods are time-consuming, leading to insufficient seed supply.
- **Market access challenges**: Limited infrastructure and inefficient distribution make it hard to get certified seeds to farmers.

Solution

- **Faster production**: Using SAH plantlets and pencil stems, seeds are multiplied more quickly and efficiently.
- **High-quality seeds**: Ensures disease-free, high-quality seeds, meeting market standards and increasing demand.
- **Seed certification and traceability**: With **SeedTracker**, seeds are certified, ensuring quality and transparency in the supply chain.

Key points to design your business plan

The private sector ensures efficient seed production, quality control, and market access.

Key Elements:

- Secure high-quality seeds from reliable sources.
- Isolate fields to prevent disease contamination.
- Use **SeedTracker** for seed certification and traceability.
- Invest in necessary infrastructure like irrigation systems.
- Develop a business plan for sustainable profitability in 2-4 years.

Gender assessment 4

Climate impact 5

Commodities

Cassava

Sustainable Development Goals

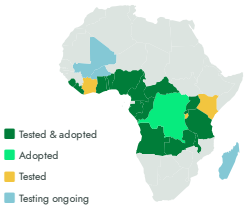
Categories

Pre-production, Practices, Seed system

Best used with

- Semi Autotrophic Hydroponics for Cassava Multiplication ›
- Early Generation Seed Production of Cassava ›

Tested/adopted in



Where it can be used

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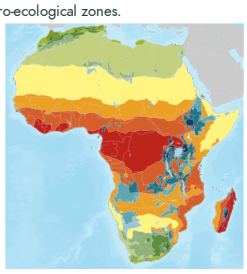


Target groups

CassQual: Cassava Seed Quality Management system

Enhancing cassava productivity through healthy planting material

The system aligns with national seed regulations to ensure quality from breeder seed to farmer distribution. Regulators oversee certification and promote community-based Quality Declared Seed (QDS) models. Digital tools like Seed Tracker and PlantVillage Nuru streamline inspections and disease diagnostics.

IITA
James Legg

This technology is pre-validated.

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

Gender assessment 2

Climate impact 3 3

Problem

- High spread of viral diseases (CMD, CBSD) reducing national cassava yields
- Weak or non-existent cassava seed certification frameworks
- Limited capacity to trace and monitor seed distribution

Solution

- Official inspection protocols and standards to maintain seed quality
- Adoption of digital tools for real-time seed system monitoring
- Labeling systems to improve traceability and market transparency
- National strategies that integrate cassava into regulated seed systems
- Protocol for self-certification by QDS or community level seed producers

Key points to design your project

The Cassava Seed Quality Management System strengthens national seed systems by formalizing cassava certification and improving farmer access to clean, high-yield planting material.

- It aligns with national food security and climate goals, contributing to SDGs 2, 5, 13, and 15.
- Governments can adopt it by aligning policies, developing certification guidelines, training inspectors, and supporting field-level implementation with digital tools.
- Supporting CSEs at QDS or community level to self-certify using Seed Tracker will increase the coverage and cost-efficiency of seed quality management

251,400 USD
To set up the system

916 %
ROI calculated for a scenario involving 300 seed producers

60,000 USD
Annual monitoring cost

25,000 USD
Annual certification costs

135 %
Yield increased

IP
Open source / open access

Commodities

Cassava

Sustainable Development Goals

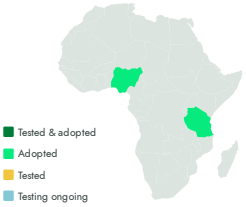
1 NO POVERTY

2 ZERO HUNGER

Categories

Pre-production, Practices,
Pest control (excluding weeds), Seed system

Tested/adopted in



Where it can be used

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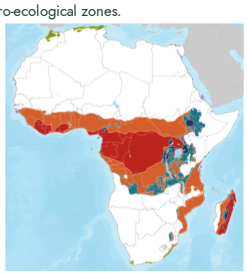


Target groups

Breeders, Seed companies,
Advisory and Extension Services,
Seed Regulators

SeedTracker: Digital Tool for Strengthening Seed Governance and Certification Systems

Build an efficient seed system!

SeedTracker is a web- and mobile-based application designed for national and decentralized seed system management. It enables registration of seed producers and fields, records inspection activities, provides real-time access to certification status, and generates georeferenced data for decision-making. It works offline and in multiple languages, making it suitable for rural deployment. Regulatory agencies can use it to oversee field activities remotely, support decentralized certification, and build national seed databases.

International Institute of Tropical Agriculture (IITA)
Lava Kumar

This technology is pre-validated.

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

Gender assessment 3

Climate impact 3

Problem

- **Fragmented seed certification systems:** Many countries still rely on paper-based, decentralized systems, making it difficult for regulators to ensure compliance and quality.
- **Limited oversight in rural areas:** National agencies struggle to monitor seed activities in distant communities.
- **Weak data systems:** Planning for seed demand, pest outbreaks, and variety deployment is limited due to poor data availability.

Solution

- **Centralized certification and registration system:** Allows regulators to digitally record and validate seed field inspections and certification at all levels.
- **Digital traceability:** Tracks each seed lot from registration to sale, helping prevent fraud and improving transparency.
- **Georeferenced seed data:** Provides evidence for better planning, resource allocation, and response to seed system gaps.

Key points to design your project

The **SeedTracker** technology ensures traceability and quality assurance for cassava planting materials, enhancing smallholder farmers' access to high-quality, climate-resilient varieties.

- It supports national priorities on climate resilience, gender inclusion, and SDGs, empowering governments to make data-driven decisions.
- Key activities include stakeholder mobilization, capacity building, digital certification integration, real-time monitoring, and impact tracking. A toolkit with training materials and dashboards is available to support implementation.

5,000 USD
Minimum cost

-
Not yet estimated

IP
No formal IP rights

Commodities

All Crops

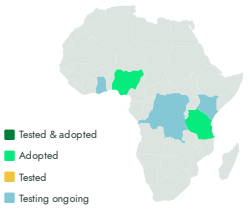
Sustainable Development Goals

2 ZERO HUNGER
5 GENDER EQUALITY
13 CLIMATE ACTION
17 PARTNERSHIPS FOR THE GOALS

Categories

Pre-production, Digital applications, Supply chain management, Advisory and information service, + 0 more

Tested/adopted in



Where it can be used

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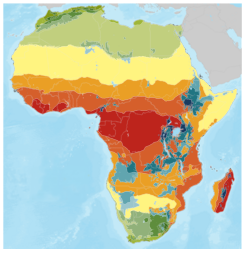


Target groups

Seed companies,
Advisory and Extension Services

Disease Diagnosis: Nuru for in-field Pest

Crop Care in Your Pocket: Nuru App, Your Farming Companion

PlantVillage Nuru is an innovative smartphone app that uses artificial intelligence for offline diagnosis of crop damage by diseases and pests. It offers instant diagnoses and guidance on disease and pest control, empowering farmers to enhance agricultural productivity and food security.

Penn State University
David Hughes

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 often struggle to identify crop damage caused by diseases and pests, which can lead to reduced crop yields and economic losses.
- Many farmers lack access to expert advice and information on how to manage and control crop diseases and pests effectively.
- Language barriers can make it challenging for farmers to access relevant information and guidance on crop protection.

Solution

- PlantVillage Nuru offers instant offline diagnosis of crop damage symptoms caused by diseases and pests using artificial intelligence and machine learning.
- The app connects users to a network of nearby users and provides information on how to control the identified diseases and pests, offering expert advice and solutions.
- The app is available in multiple languages, making it accessible to a wider range of users and overcoming language barriers.
- The app employs machine learning and object recognition, allowing it to continuously improve and enhance its accuracy in diagnosing crop issues.

Key points to design your project

PlantVillage Nuru is a smartphone app using AI for offline crop damage diagnosis. It provides instant diagnoses and pest management guidance, aiding farmers in improving productivity and food security. To integrate it into a project:

- Raise awareness and provide training to farmers and extension officers.
- Build local capacity for technology use.
- Promote the app through various channels.
- Collaborate with relevant stakeholders.
- Use the app freely.
- It synergizes with SeedTracker for seed registration and certification, expanding its impact beyond Nigeria and Tanzania.

IP

Open source / open access

Technology from

ProPAS

Commodities

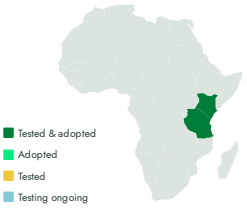
Maize, Cassava, Other root/tuber

Sustainable Development Goals

Categories

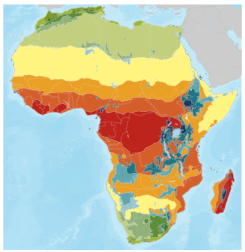
Production, Digital applications,
Advisory and information service

Tested/adopted in



Where it can be used

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



Target groups

Farmers

CSE Model: Cassava Seed Entrepreneur Business Model

Transforming Cassava Farming Through Entrepreneurial Innovation!

The CSE Business Model empowers local entrepreneurs by providing training and certification in seed production and a straightforward digital quality-control platform, links them to buyers through pre-agreed contracts and cooperative financing, and has scaled to deliver over 11 million disease-free cuttings annually in Tanzania and Nigeria.

The International Institute of Tropical Agriculture (IITA)
James Legg

This technology is pre-validated.

9·3 Scaling readiness: idea maturity: 9/9; level of use: 3/9

79 %

ROI estimated by the technology provider

IP

Open source / open access

Problem

- Low-margin, uncertified cassava seeds cap yields at ~8 t/ha.
- Fragmented supply chains deter investment and scale.
- No traceability undermines buyer confidence.

Solution

- Empower entrepreneurs with agronomy and business training.
- Use SeedTracker™ for real-time certification and traceability.
- Unlock a profitable, scalable seed market with clear ROI.

Key points to design your business plan

- **High-Margin, Scalable Supply Chain:** Professionalize cassava seed multiplication, certification and market linkages for premium, disease-free planting materials.
- **Traceability & ESG Alignment:** Guarantee origin and quality via SeedTracker™, while advancing your gender-inclusion and climate-resilience targets.
- **Strategic Partnerships & Contracts:** Map input suppliers and impact investors, then structure off-take JVs with CSEs for volume, quality and revenue-share certainty.
- **Capacity Building & Co-Branding:** Sponsor train-the-trainer workshops and launch joint marketing campaigns to showcase clean-seed benefits and drive ROI.

Gender assessment 3

Climate impact 7

Commodities

Cassava

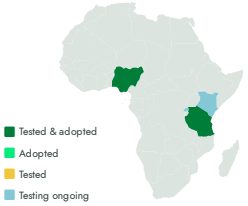
Sustainable Development Goals

1 NO POVERTY
2 ZERO HUNGER
5 GENDER EQUALITY
8 DECENT WORK AND ECONOMIC GROWTH
17 PARTNERSHIPS FOR THE GOALS

Categories

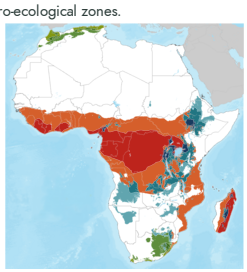
Pre-production, Practices, Yield improvement, Seed system

Tested/adopted in



Where it can be used

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



Target groups

Farmers, Processors, Seed companies, Advisory and Extension Services, Seed Regulators

CSAM: Organized support networks for cassava seed entrepreneurs

Building stronger cassava seed businesses for African seed entrepreneurs and farmers.

Cassava Seed Association Model (CSAM) formalizes cassava seed production by forming structured associations of seed entrepreneurs. These associations enable access to certification, finance, training, and policy advocacy, improving seed quality and market access.

This technology is pre-validated.

9·3 Scaling readiness: idea maturity 9/9; level of use 3/9

Gender assessment 3

Climate impact 6

Problem

- Fragmented seed production leads to high costs, poor quality, and limited access to certification and finance.
- Free seed distribution undermines the development of a sustainable, commercial seed market.
- Weak advocacy and policy influence due to lack of formal structures.

Solution

- Establishes formal associations, providing joint certification and collective marketing.
- Improves access to financing and market opportunities.
- Strengthens advocacy for favorable policies and long-term investment.

Key points to design your project

- **The Cassava Seed Association Model (CSAM)** transforms fragmented cassava seed production into an inclusive, sustainable, and market-driven system by legally organizing seed producers into empowered associations.
- It facilitates access to certification, finance, training, and policy platforms—advancing gender equity, youth participation, and resilience in line with SDGs.
- A complete implementation toolkit and technical support are available to scale impact through partnerships with NARS, regulators, and the TAAT network.

IP

Open source / open access

The International Institute of Tropical Agriculture (IITA)
Regina Kapinga

Commodities

Cassava

Sustainable Development Goals

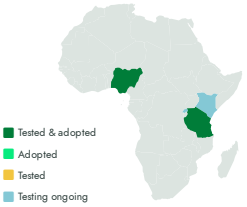
Categories

Prevention & storage, Practices, Yield improvement, Seed system

Best used with

- Digital Tool for Strengthening Seed Governance and Certification Systems ›

Tested/adopted in



Where it can be used

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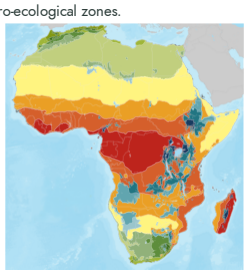


Target groups

Farmers, Seed companies, Researcher center,

Marketing Strategies

Sell Smart, Grow Fast

Marketing Strategies is a practical toolkit that helps cassava seed producers improve market access and visibility. It offers guidance on customer targeting, product positioning, and demand-driven marketing. By tackling issues like low awareness, weak customer ties, and poor pricing, it supports seed entrepreneurs, especially those working with vegetatively propagated crops, in building trusted, profitable, and resilient businesses.

International Institute of Tropical Agriculture (IITA) & Sahel Consulting Agriculture and Nutrition Limited
Temi Adegoroye

This technology is pre-validated.

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

392 USD

Cost of deploying the marketing strategy

IP

Open source / open access

Problem

- **Low farmer awareness** of high-quality certified cassava seeds
- **Preference for traditional planting materials**, limiting demand for certified seeds
- **Weak market linkages** between seed producers and buyers
- **High transport costs**, creating bottlenecks in seed distribution
- **Limited access to affordable certified seeds**, due to high prices and lack of financing
- **Limited reach of traditional marketing channels**, such as radio and extension services
- **Underutilization of digital marketing tools**, reducing visibility and customer engagement
- **Barriers to business growth and seed adoption** for producers of vegetatively propagated crops (VPCs) like cassava

Solution

- **Increase awareness** through campaigns and demo plots.
- **Improve affordability** with flexible pricing and financing.
- **Train seed producers** in marketing and customer engagement.
- **Strengthen distribution** via dealers, cooperatives, and direct delivery.
- **Leverage digital tools** (SMS, radio, marketplaces).
- **Build trust** with branding and certification.
- **Support local marketers** with low-cost promotion strategies.

Key points to design your business plan

The *Marketing Strategies* toolkit helps cassava seed companies grow profitable, trusted brands by promoting seed quality, traceability, and customer confidence. By integrating tools like QR codes and data platforms, businesses can improve transparency, strengthen customer engagement, and use verified seed quality as a key marketing advantage. Strategic partnerships and data insights further support smarter marketing and expanded market reach, making the toolkit a powerful asset for scaling adoption and boosting profitability.

Gender assessment 4

Climate impact 7

Commodities

Cassava

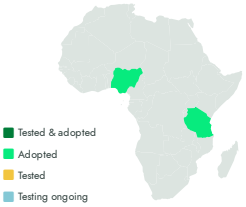
Sustainable Development Goals

1 NO POVERTY · 2 ZERO HUNGER · 8 DECENT WORK AND ECONOMIC GROWTH

Categories

Production, Policies

Tested/adopted in



Where it can be used

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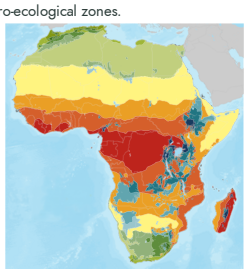


Target groups

Farmers, Processors, Seed companies, Advisory and Extension Services

Capacity Building Strategies

From Knowledge to Yield — Empowering Cassava Seed Systems.

Building Capacity is a hands-on toolkit that helps cassava seed producers get better at what they do. It provides easy-to-use training materials, business tips, and ways to work better with others. The goal is to improve seed quality, increase harvests, and help seed businesses grow in a way that lasts.

International Institut of Tropical Agriculture (IITA) & Sahel Consulting Agriculture and Nutrition Limited
Temi Adegoroye

This technology is pre-validated.

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

28,800 USD

Capacity building for 1,350 farmers

3,000 USD	3,000 USD	10,000 USD	10,800 USD	IP
Training manual development	Training Venue and other facilities	Facilitators Expense	Cost of printing the training materials	Unknown

Problem

- **Limited Technical Skills** – Many seed producers lack the know-how for quality seed production.
- **Weak Business Knowledge** – Producers struggle to run seed ventures as profitable businesses.
- **Poor Market Access** – Limited connections to buyers reduce sales and visibility.
- **Weak Regulatory Links** – Little collaboration with seed authorities leads to certification issues.

Solution

- **Targeted Training** – Builds technical skills based on producers' real needs.
- **Business Tools** – Strengthens seed business planning and management.
- **Market Access** – Helps producers connect with more buyers.
- **Regulatory Support** – Improves compliance with seed quality standards.
- **Demo Fields** – Offers hands-on learning opportunities.
- **Needs Assessment** – Identifies gaps to guide training.
- **Impact Tracking** – Monitors progress and results.

Key points to design your business plan

The *Building Capacity* toolkit is designed to strengthen cassava seed systems by addressing capacity gaps among seed producers. Key steps include **assessing capacity needs**, developing a **tailored training program**, and **building partnerships** with stakeholders such as **research institutions** and **seed regulatory agencies**. The toolkit provides **hands-on learning** through **on-farm trials**, and establishes **monitoring metrics** to track progress. Local trainers are also trained to provide **ongoing support**. By following these steps, the toolkit enhances seed quality, boosts productivity, and fosters a sustainable, profitable seed system for cassava.

Gender assessment 4

Climate impact 7

Commodities

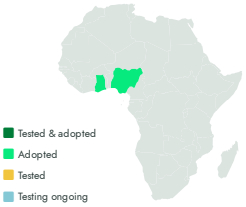
Vegetatively Propagated Crops

Sustainable Development Goals

Categories

Production, Policies

Tested/adopted in



Where it can be used

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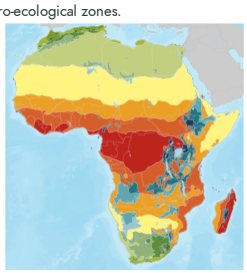


Target groups

Farmers, Seed companies

ME-CASS: Cassava Seed Monitoring System

Making Cassava Seed Systems Work Better

ME-CASS helps governments track the release, certification, and distribution of cassava varieties to ensure farmers get quality seeds. It also supports policy planning with real-time data on seed flows and adoption, improving regulation, accountability, and investment targeting.

IITA
Richardson Okechukwu

This technology is pre-validated.

7·3 Scaling readiness: idea maturity 7/9; level of use 3/9

Gender assessment 4

Climate impact

Problem

- Difficult to track which varieties are in circulation due to renaming and poor recordkeeping.
- National certification agencies struggle to document and monitor seed distribution.
- No tools to assess whether improved seeds reach farmers or support system-wide improvements.

Solution

- ME-CASS offers full traceability of seed flows across all system levels.
- It integrates data from certification agencies to improve transparency and compliance.
- Governments can monitor adoption rates, seed quality, and producer performance to inform policy and investments.

Key points to design your project

To adopt ME-CASS, government projects need more than just software—they need coordination, trained teams, and structured data systems. Here are key tips:

- Use or connect ME-CASS to existing national databases.
- Assign a small team with digital and monitoring skills.
- Define clear indicators like variety names, seed volumes, and target zones.
- Involve breeders, seed producers, and regulators from the start.
- Pilot in 1–2 regions before scaling nationally.
- Budget for devices and internet access (with offline options where needed).
- Align ME-CASS with existing government reporting systems.
- Keep the system flexible to add other crops later (e.g., yam, sweetpotato).

IP

Open source / open access

Commodities

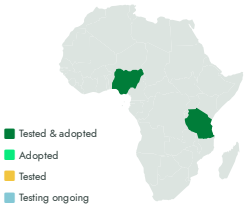
Cassava

Sustainable Development Goals

Categories

Production, Market, Pre-production, Digital applications, Advisory and information service, Crop management, + 0 more

Tested/adopted in



Target groups

Breeders, Governments, Seed companies, Researcher center, Seed Regulators

Cassava Seed System Advocacy and Scaling Model

From Advocacy to Action: Replicating Success with Lasting Investment

This model helps governments and development partners build strong national cassava seed systems. It promotes long-term solutions by integrating proven technologies—like Early Generation Seed, SAH, and digital tools—into national plans and policies. Through coordinated advocacy and planning, the model strengthens local leadership, supports seed entrepreneurs, and improves farmer access to clean, improved cassava seed. It has already been used in over 10 countries, showing strong potential for scaling and sustainability.

This technology is pre-validated.

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

Gender assessment 4

Climate impact 5

Problem

- Free seed distribution creates market distortions, dependency, and blocks private seed business development.
- Innovative models remain small due to lack of advocacy, funding, and policy integration.
- Weak advocacy and coordination prevent innovations from influencing national decisions and attracting investment.
- Short-term, project-based approaches end without lasting impact or sustainability mechanisms.

Solution

- Promotes commercial seed systems to reduce dependency on free seed.
- Helps scale successful models by integrating them into national policies and budgets.
- Builds advocacy platforms to align governments, donors, and seed actors.
- Replaces short-term projects with long-term, coordinated national programs.

Key points to design your project

This model helps governments lead the reform of cassava seed systems through national policies, coordinated action, and sustainable investment.

Key Points:

- **Contact IITA early** to access tools and technical support.
- **Secure institutional buy-in** from ministries or national research systems.
- **Host stakeholder workshops** to align roles and responsibilities.
- **Use MoUs or agreements** to formalize collaboration with partners.
- **Integrate into existing platforms** like cassava task forces or seed programs.
- **Apply standardized tools** for advocacy, training, and monitoring.
- **Commit public funding** to demonstrate ownership and attract donor support.
- **Start with a seed system assessment** to identify key gaps.
- **Strengthen existing institutions** rather than creating new ones.
- **Scale progressively** based on available resources and capacity.

IP

Open source / open access

IITA
Regina Kapinga

Commodities

Cassava

Sustainable Development Goals

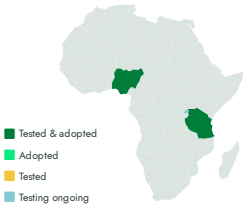
Categories

Pre-production, Policies

Best used with

- Cassava Seed Monitoring System ›
- Early Generation Seed Production of Cassava ›

Tested/adopted in



Where it can be used

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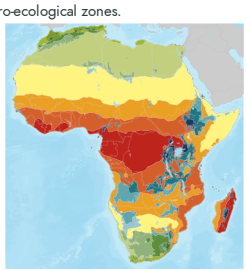

Target groups

PROSSIVA (Program for Seed System Innovation for Vegetatively-propagated crops (VPCs) in Africa) is a public–private partnership initiative designed to strengthen informal and semi-formal seed systems for vegetatively propagated crops, with a particular focus on cassava. By linking local seed entrepreneurs, community associations and agri-input suppliers, PROSSIVA pilots decentralized multiplication and distribution models that mirror the principles of the BASICS approach. Through targeted capacity-building, quality-declared seed schemes and market facilitation, PROSSIVA enhances smallholder access to disease-free, improved cassava planting materials while fostering sustainable business practices at the grassroots level.

IITA is a CGIAR research center dedicated to improving livelihoods in Africa through agricultural innovation. As originator and co-leader of the BASICS model, IITA provides the scientific foundation, technical assistance and coordination needed to implement robust cassava seed systems. From virus indexing and rapid propagation protocols to large-scale deployment of digital tools like SeedTracker and PlantVillage Nuru, IITA's multidisciplinary teams guide governments, private-sector partners and NGOs in establishing commercially viable, disease-free supply chains that elevate productivity and resilience across the continent.

Gates Foundation

The Gates Foundation is a major investor in agricultural development, supporting projects that catalyze market-driven solutions for smallholder farmers. In the cassava sector, Gates Foundation funding has underwritten critical components of the BASICS rollout - financing pilot seed-enterprise networks, underwriting the integration of digital quality-assurance platforms and facilitating impact evaluations. By de-risking early-generation seed companies and fostering cross-sector partnerships, the Foundation helps scale proven models that deliver high-quality cassava stems, drive yield gains and improve food security for millions of rural households.

The modules in this Cassava Seed System Toolkit have been developed by the IITA-led BASICS-II and PROSSIVA projects through collaboration between a consortium of the following partners in Nigeria and Tanzania. These contributions are all gratefully acknowledged.

Nigeria: Catholic Relief Services (CRS); GoSeed; National Agricultural Seeds Council (NASC); National Root and Tuber Crops Research Institute (NRCRI); Sahel Consulting; Umudike Seeds; Sasakawa Africa Association

Tanzania: Tanzania Agricultural Research Institute (TARI); Tanzania Official Seed Certification Institute (TOSCI); Mennonite Economic Development Associates (MEDA)

Cassava Seed System Toolkit

https://taat.africa/ozk

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).

CONTACT

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