MOLECULAR MARKER TRAINING

IITA supports the cassava product component through training for use of molecular markers to select elite progeny lines. This enables RAB scientists to identify and advance the most promising disease-resistant cassava lines with precision, accelerating the breeding pipeline.

MOLECULAR CHARACTERISATION

DDPSC supports the cassava breeding component by training RAB scientists in techniques required to characterise new cassava lines at the molecular level. This includes event-specific PCR, T-DNA copy number assessment, DNA sequencing and bioinformatics, and expression of the RNAi cassette in F1 progeny lines.

VIRUS DIAGNOSTICS & CAPACITY

Training is also provided in virus diagnostics for detection of the pathogens that cause CBSD and CMD. Although applied to cassava, most of these techniques are applicable to all transgenic crops and will raise capacity for this type of analysis at RAB — ensuring participants can transfer skills and establish them independently.

CENTRE OF EXCELLENCE IN CROP BIOTECHNOLOGY AT RAB RUBONA STATION

These activities lay the groundwork for Rwanda to take a leadership role in agricultural biotechnology. Through targeted investments in infrastructure, capacity building, and product innovation, the Centre of Excellence for Crop Biotechnology at RAB Rubona will become a nationally anchored platform for science-based food security solutions.

BioCap

BUILDING RWANDAN CAPACITY for Accelerated Development, Deregulation, and Deployment of Enhanced Crops

THE SCIENCE OF RWANDAN GROWTH

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RAB RWANDA

CIP INTERNATIONAL POTATO CENTER
A CGIAR RESEARCH CENTER

BIOTECH CASSAVA

SECURING CASSAVA AGAINST VIRAL DISEASES

ALLIANCE FOR SCIENCE RWANDA | MICHIGAN STATE UNIVERSITY | DONALD DANFORTH PLANT SCIENCE CENTER | IITA CGIAR

AFRICAN CROPS BY AFRICAN SCIENTISTS, FOR AFRICAN FARMERS

1. THE CHALLENGE

Cassava is a strategic food security crop supporting millions of rural households in Rwanda. Yet production is severely constrained by Cassava Mosaic Disease (CMD) and Cassava Brown Streak Disease (CBSD), two viral diseases that significantly reduce yields and destroy root quality.

These diseases are difficult to control because they spread through infected planting materials and insect vectors. Farmers frequently experience severe production losses despite investing time and labor in their fields, limiting household food availability and market opportunities.

2. THE BIOTECHNOLOGY SOLUTION

Through the Rwandan Agricultural Biotech Capacity Building programme, Rwanda will strengthen its ability to generate the next generation of biotech crops locally. For cassava, this means building RAB capacity to develop, evaluate, and steward virus-resistant cassava varieties while preserving farmer-preferred traits and supporting clean planting material systems.

The investment document positions biotechnology as both a product pipeline and a national capability. Cassava work will therefore combine transformation, molecular diagnostics, virus-resistance testing, regulatory-quality data generation, and deployment planning so Rwanda can reduce CMD and CBSD losses while deepening local ownership of biotechnology R&D.

Expected benefits include:

- Virus-resistant cassava
- Higher yields
- Improved root quality
- Increased food security
- Better farmer incomes

3. PARTNERSHIP FOR INNOVATION

The Cassava Biotechnology Programme is implemented through a strong international partnership:

National leadership for cassava research, in-country evaluation, regulatory submissions, seed system coordination, stewardship, and farmer deployment planning.

Grantee and overall coordination partner for the Rwanda biotechnology capacity-building investment, responsible for project governance, partner alignment, institutional strengthening, and cross-crop support

Lead technical support for cassava transformation, virus-resistance technologies, regulatory-quality data generation, and transfer of protocols to RAB scientists.

Graduate education, technical mentorship, and institutional strengthening for RAB teams in biotechnology, biosafety, data management, and responsible crop deployment.

(AfS-Rwanda) Communication and outreach partner for farmer field learning, media engagement, policymaker dialogue, public understanding of cassava biotechnology, and stewardship messaging.

4. BUILDING RWANDA'S FUTURE

Centre of Excellence in Crop Biotechnology: Cassava Platform

The investment will establish and strengthen a Centre of Excellence for Crop Biotechnology at RAB, capable of conducting genetic transformation, genome editing, advanced molecular diagnostics, contained evaluation, and regulatory-quality data generation. The cassava platform will apply these capabilities to virus-resistant cassava, clean planting material verification, and evidence packages needed for responsible approval and deployment.