Public-Private Partnership As Game Changer for Technology Development & Deployment in Africa

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Outline

- Why Innovative Technologies for African Farmers
- Gaps in African Agriculture
- AATF's Intervention
- P-P-P for Innovative Technologies
- Examples: P-P-P for Developing & Developing *Climate-smart* Technologies for SHFs in Africa
- Conclusion

Why Innovative Technologies for Africa

- Agricultural productivity in Africa remains far below region's potential
- Although Africa has experienced tremendous progress in the last decade, adoption of modern technologies still lags behind other continents
- The successes of agricultural research has yet to fully translate into appreciable rapid agricultural growth and poverty reduction

AATF's Intervention in African Agriculture

AFRICAN AGRICULTURAL TECHNOLOGY FOUNDATION
FONDATION AFRICAINE POUR LES TECHNOLOGIES AGRICOLES

Better Tools, Better Harvests, Better Lives

'A prosperous and a food secure Africa'

AATF & Partners (PPP Approach)

Technological & Non Technological solutions to SSA farmers

Increase productivity, improve food security, strengthen agri-business through private sector

CREATE WEALTH in SSA

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What We Do Through P-P-P

Identify Technologies

- Broker & negotiate appropriate technologies for SHFs

Product Formulation

- Business plan, baseline study, communication strategy, risk management

Product Development

- Work with national & international research organizations to develop and adapt technologies

Product Deployment

- Ensure product development complies with existing regulations, laws and policy requirements
- Contract seed production
- Sub-license seed companies and other groups to test and deploy seed-based technologies
- Product stewardship along value-chain
- Capacity enhancement of stakeholders

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Examples: P-P-Ps for Developing & Deploying *Climate-smart* Maize & Rice for Africa

Water Efficient Maize for Africa (WEMA Project)

- A public-private partnership to develop & deploy royalty-free African drought-tolerant and insect-pest protected white maize varieties to farmers
- ***Aim***: Increase yield stability, and protect and promote farmers' investment in adopting best management practices (BMPs)
- **Under moderate drought, WEMA maize varieties expected to increase yields by 20–35% over Year 2008 varieties**

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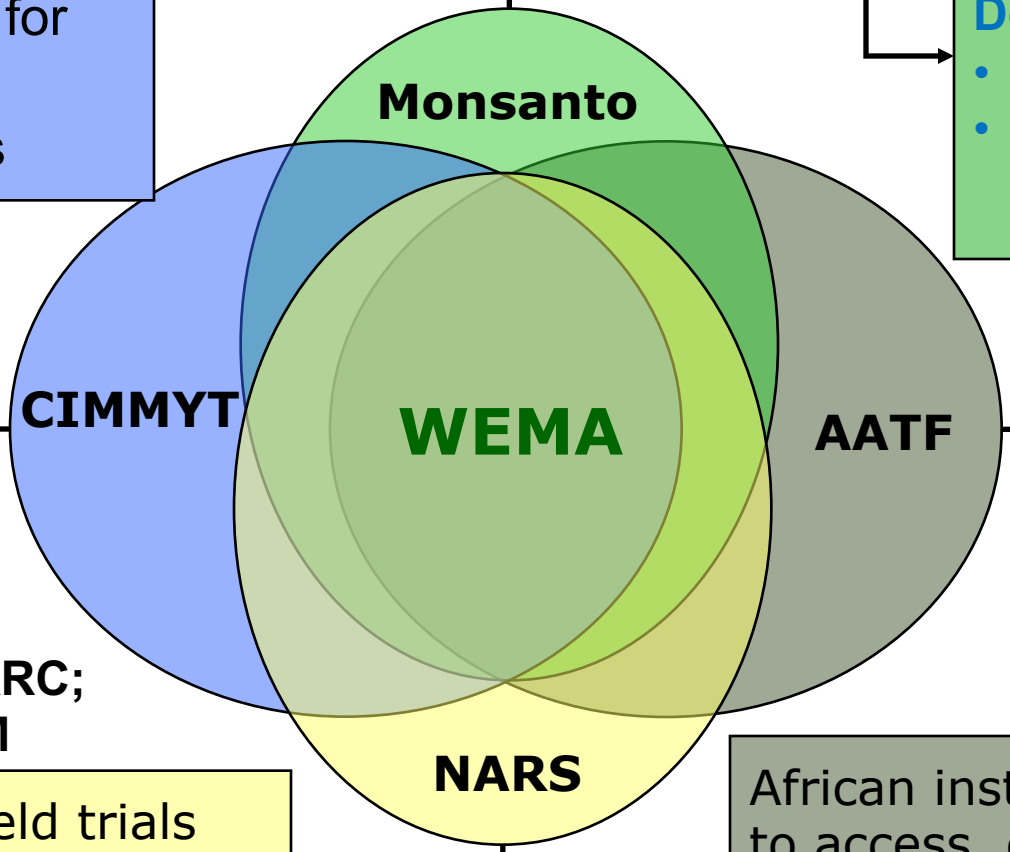
WEMA Partnership Structure

World leader for breeding maize for African agro-ecological zones

World leader in gene discovery

Donated:

- **3 transgenes**
- **~700 global germplasm royalty-free**



KALRO; NARO; ARC; COSTECH; & IIAM

- Expertise in field trials
- Breeding/Test DT maize
- Adapted checks
- **Capacity building opportunities**

African institution mandated to access, develop, & deliver **appropriate agricultural technologies** to smallholder African farmers **royalty-free**

WEMA Product Options for SHFs

- **Conventional *Climate-smart* (Drought-Tolerant) Maize Hybrids; trademarked *DroughtTEGO*® - 85 *Climate-smart TEGOs* available for commercialization**
- **Conventional *Climate-smart* (Drought-Tolerant) Maize with MLN Virus Resistance**

WEMA Product Options for SHFs

- Transgenic (GM) *Climate-smart* Maize with Insect-pest Protection (*Bt*-gene); trademarked *TELA*™ – from 2017 (?)
- Transgenic (GM) *Climate-smart* Maize with two Stacked-traits (*Bt* + DT *Csp*-gene); trademarked *TELA*™ – from 2018 (?)
- Hybrids & Parental Lines are commercialized through sub-licensing to seed companies

Summary of DT GM Trials in WEMA

From 34 hybrids with same base genetics evaluated for 3 or more years in KE, RSA & UG, five DT GM hybrids gave **8–14%** greater yield than non-GM versions (without DT *Csp*-gene)

DT GM maize: Moderate-drought Stress

DT GM maize: Well-watered Condition

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Impact of *Bt*-maize in Stem-borer Control

Non-*Bt* maize attacked by stem-borers

Bt maize protected from stem-borers

Commercializing *DroughtTEGO®*

Promotional Sales

Ngila Kimotho, Dryland Seeds

Musungu's New House

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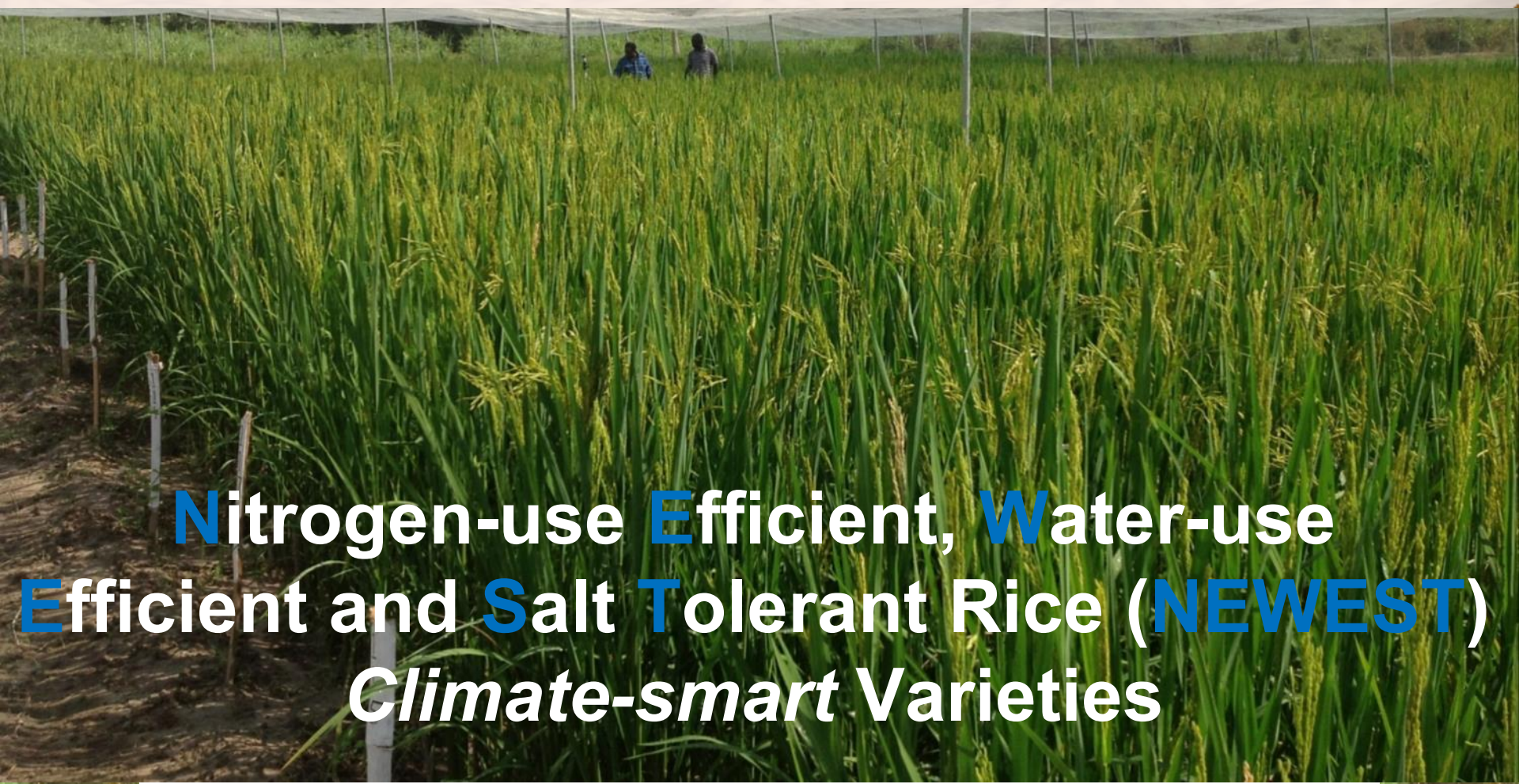
NEWEST Nitrogen & Water Efficient Salt Tolerant Rice



Nitrogen-use Efficient, Water-use Efficient and Salt Tolerant Rice (NEWEST) *Climate-smart* Varieties

Project Goal

Develop & deploy farmer preferred and locally adapted **N**itrogen-use **E**fficient, **W**ater-use **E**fficient and **S**alt **T**olerant (NEWEST), Rice Varieties for use by smallholder farmers in sub-Saharan Africa (SSA)

With:

- **Traits that mitigate causes of climate change**
- **Traits that harness against effects of climate change**
- **GM Climate-smart Rice with 3 Stacked Traits for:**
    - Nitrogen-use Efficiency
    - Water-use Efficiency
    - Salt-tolerance
- **To help African farmers maintain productivity under variable conditions**

NEWEST Rice Public-Private Partners

USAID: This project is made possible through the generous support of the American People through the United States Agency for International Development (USAID)

ARCADIA Biosciences – Private Organization: Transformation & conduct of genotyping activities

Council for Scientific and Industrial Research Ghana: Conduct Confined Field Trials (CFTs) for identification of lead events; and Introgression of NEWEST traits into farmer preferred varieties

National Agricultural Research Organization Uganda: Conduct CFTs for identification of lead events; and Introgression of NEWEST traits into farmer preferred varieties

National Cereals Research Institute Nigeria: Conduct CFTs for the identification of lead events; and Introgression of NEWEST traits into farmer preferred varieties

CIAT: Conduct CFTs for the identification and reconfirmation of lead events

AATF: Coordination **using entire product value chain** (IP management, business development, project management, regulatory affairs ,& communication and outreach)

Transformation & Events Generation

- Transformation of **NERICA 4** to produce transgenic rice by Arcadia Bioscience in two pipelines:
  - **15 Nitrogen Use Efficient (NUE) Events**
  - **18 NEWEST Rice Events**
- Events are under-going CFTs in Ghana, Nigeria & Uganda

NEWEST Rice Key Achievements

- More than 6 NUE Rice events showed average yield Increases of 19% in 10 confine field trials already conducted under low nitrogen condition
- Early Food Safety Evaluation completed for alanine aminotransferase (AlaAT) protein
- Capacity of NARS strengthened in conducting climate smart trials through human and infrastructural development
- Regulatory compliance maintained in project countries without any infringement

Conclusion

- Use of P-P-P model in technology development and deployment along the entire product value-chain is a game-changer in enhancing food security and for poverty reduction in Africa

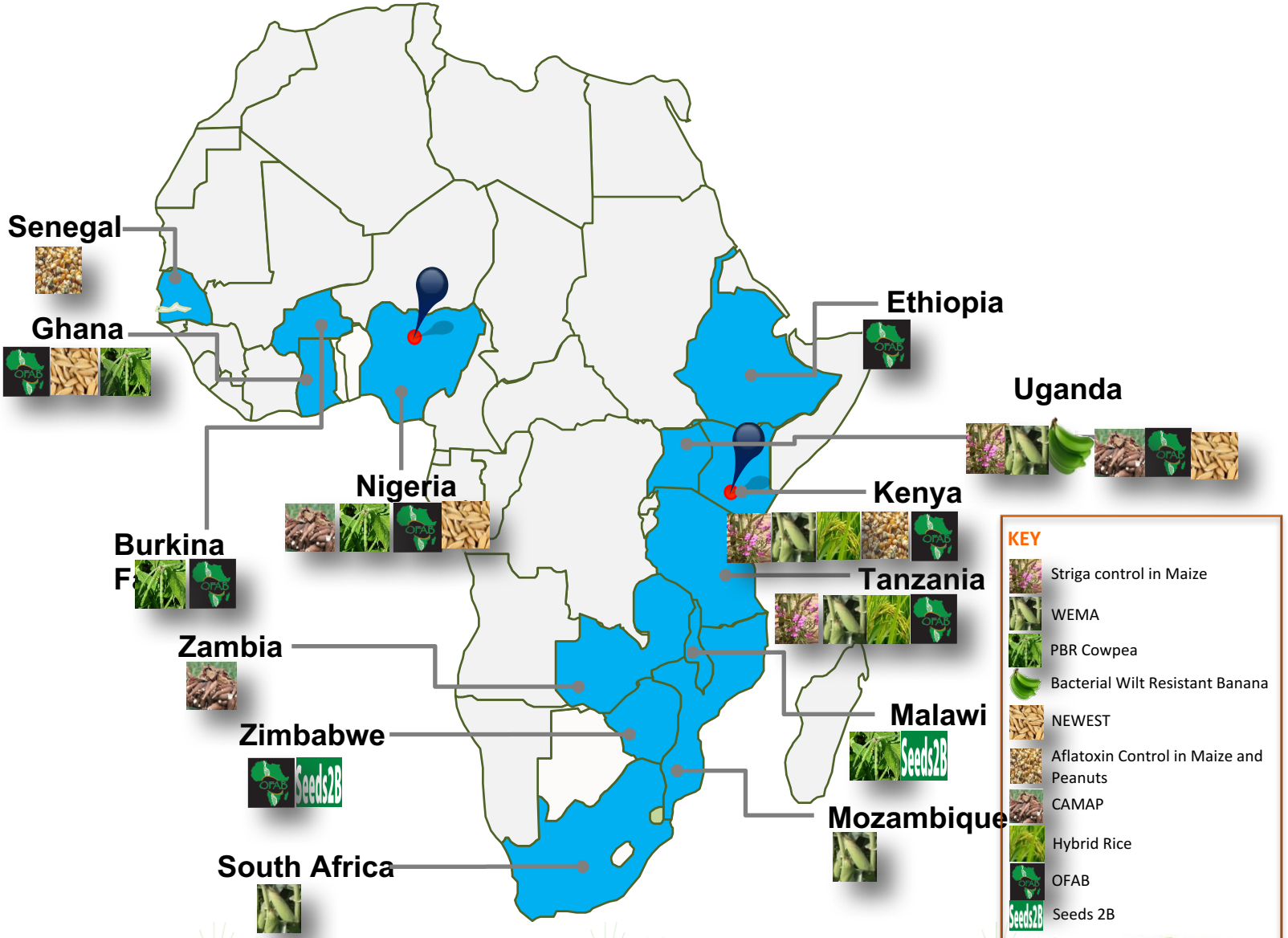
- But partners **MUST** trust themselves; & willing to participate and share responsibilities and risks to achieve a common goal

Where We Work in Africa

13
Countries

11
Projects

6
Crops



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Thank You


Extension Service providers
NGOs
CBOs
Agro dealers
Seed Companies
NARs
CAADP
CORAF/WECARD
icipe
MONSANTO imagine
ACADEMIA SINICA
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