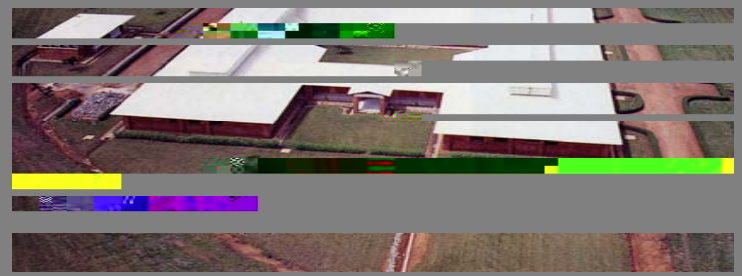
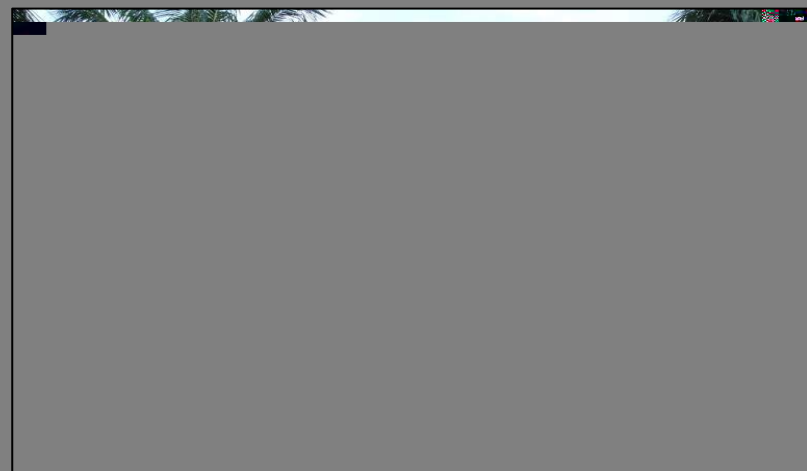
Outline

- Current food crisis undermines a strategic commodity like rice
- Crisis presents an opportunity to boost rice production in Africa
- Strategic interventions by WARDA and partners seeks Canadian support
- Optimism for African green revolution

Africa Rice Center (WARDA)

- Association established 1971
- CGIAR membership 1987
- One of the 15 CGIAR Centers
- 22 African Member States
- Stations:
  - Benin
  - Côte d'Ivoire
  - Senegal
  - Nigeria
  - Tanzania



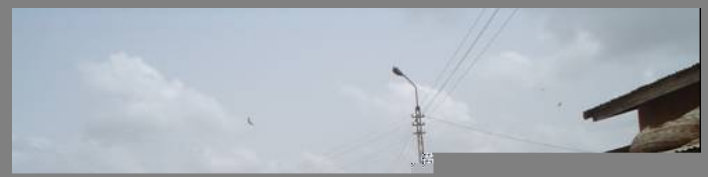


Importance of Rice in SSA

- Employs more than 20 million farmers

- Sustain the livelihood for 100 million people

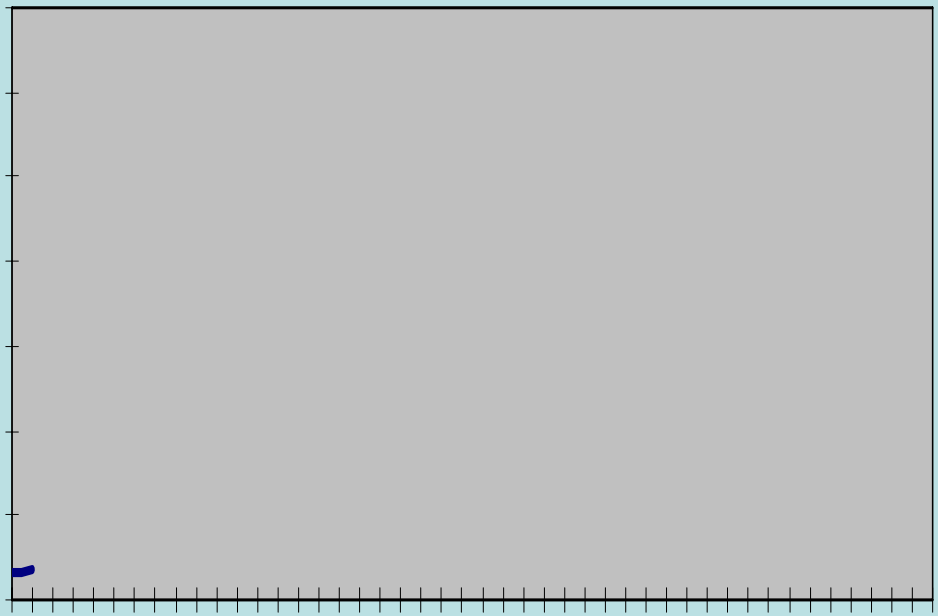
Processors



Producers

Traders

Growing Rice Consumption in SSA



Rice Crisis in SSA: Threats and Opportunities

Africa Rice Center R4D priorities

SHORT TERM

- Raising productivity in farmers' fields: bridging the yield gaps ('extension agronomy', access to inputs, including seed of best-bet varieties)
- Re-working existing stocks of rice knowledge into formats ready for dissemination

MEDIUM TERM

- Producing the next generation of NERICA varieties: varieties for upland and lowland conditions, resistant to major (a) biotic stresses
- Expanding rice cultivation: tap Africa's vastly under-utilized rainfed lowlands
- Adopting and adapting agricultural machinery for land preparation, harvest and post-harvest: adding more 'energy to rice farming
- Building rice value chains: adding value to rice produce (grain quality)
- Harmonizing rice policies (varietal release, seed legislation, input subsidies, import tariffs…)
- Diversifying rice-based systems

LONG TERM

- Invest in research and extension capacity building in Africa
- Adapt to and mitigate effects of climate change

WARDA's new R4D structure

Research programs:

- Genetic diversity and breeding
- Productivity enhancement
- Learning and innovation systems
- Policy and impact

- SWEP: Inland Valley Consortium
- Networks: ARI, ROCARIZ/ECARRN, INGER
- Rice research alignment with IRRI (especially for ESA)
- RiceTime Unit (Rice Training, Information Management and Extension) to lead contribution to Emergency Rice Initiative and rice information management and capacity building efforts (by January 1, 2009)

NERICA development

- Development of lowland NERICA (strong collaboration with NARS: 60 varieties in total)
- Molecular profile of upland and lowland NERICAs: about 10% from *glaberrima* parent
- Use of MAS to speed up breeding process (e.g. introgression of RYMV gene)
- Drought screening and phenotype x genotype analysis of importance of rooting depth (Ibadan)
- Exploring O. *barthii*

Crisis a reminder of Major Challenges

- Seed issue
  - Seed System - Breeder Seed- Quality Control
- Technology transfer
  - Scaling out/up of successful technology
  - Better/faster technology transfer
- Educating the policy makers, Politicians
- Marketing our technologies
- Exploiting the network base

Research Challenges	Strategic Opportunities
Low Level of productivity	Raise productivity from 1.2/1.5 to 5t/ha, reduced yield gap
Poor quality of the market product	Addressing Post harvest
Unfavorable market and policy environment	Improving policies and market access
Sustainability of natural resource base	Greater focus on natural resource Management

Partnership with national programs through WARDA's research network

- Screening and evaluation of the first progenies
- Selected material sent to three countries (Burkina Faso, Togo and Mali)
- Shuttle Breeding: WAS122-IDSA1-FKR-2-TGR-8

Productivity enhancement

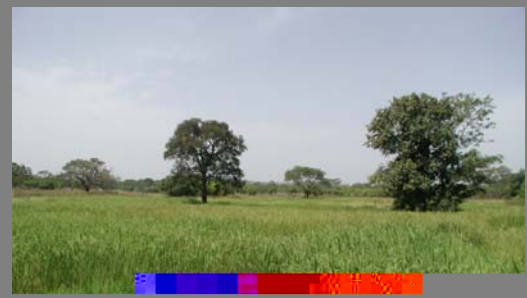
- Integrated management options for weeds, pests and diseases
- Sustainable intensification options for rice-based systems
- Profitable opportunities for diversification
- Use of environmental services optimized and safeguarded

-> Farmer organizations, NGOs, NARES, Univ. of Hannover, IRD, NRI, Univ. of California, WorldFish, CIRAD, Univ. of Hohenheim, Wageningen University, IWMI

-> WARDA member countries, Madagascar, Tanzania

Intensification / diversification of lowland – Opportunity for better water management

Project sites in Nigeria, Burkina Faso and Ivory Coast



The Rice Crisis in sub-Saharan Africa: Threats and Opportunities

- The potential for enhancing rice production in Africa includes:
  - Availability of modern rice technologies,
  - Availability of large and diversified ecologies
  - Availability of underutilized water resources
  - Accessibility of competitive domestic rice production systems.

Potential for Production Expansion

Agro-Ecology	Actual harvested Areas (Ha)	Potential cultivable Areas (Ha)
Rainfed Upland	1.8 million	-
Rainfed Lowland	630,000	19 million
Irrigated lowland Humid/semi humid areas	160,000	-
Irrigated lowland Sahel	200,000	3 million
Mangrove Swamp	190,000	1 million
Deep Water Floating	187,000	630,000

Source : WARDA

Learning and innovation systems

Collaboration with
Farm Radio International - Canada

Role of Policy and impact

Adoption of NERICA in Benin

- **Impact on rice productivity:**
  - Impact on rice income: $28 per capita
- **Impact on child schooling:**
  - 6% increase in school attendance rate
  - About $20 increase per child in school expenditure
- **Impact on child health:**
  - 5% increase in the hospital attendance frequency when sick
  - About $12 increase in health expenses per sick child

Interventions for boosting domestic rice supply

- Short term measures
  - Seed relief and seed multiplication programs
  - Support to NARS and producer groups
  - Access to critical inputs such as mineral fertilizers
  - Access to improved post-harvest technologies
  - The need for regional coordination of rice sector development

Interventions for boosting domestic rice supply

- Medium term investment measures
  - Diffuse improved crop management practices
  - Reduce structural constraints to the availability of rice seed
  - Rehabilitate existing irrigation facilities
  - Invest in rice research and capacity building
  - Sensitize consumers, trade unions and importers' lobby groups

Interventions for boosting domestic rice supply

WARDA's Long Term Strategic interventions m

- Over the last five years WARDA and its NARS partners have developed close to 100 improved rice varieties for major rice growing ecologies in Africa

- Characteristic of these improved varieties are:
  - –Early maturity:
    - Upland takes 90 – 100 - vs. 120 – 150 days
    - Lowland takes 115 – 120 vs. 135 – 170 days
    - Irrigated takes 115 – 120 vs. 135 – 170 days
  - –High yields:
    - Upland: from 900 kg to more than 2 tons/ha
    - Lowland from 1000 kg to more than 4 tons/ha
    - Irrigated from 4 tons to more than 6 tons/ha

Optimism on African self sufficiency in rice

- Increased rice production in several West African countries cited by FAO Rice Monitor.
- Rice production is increasing in East Africa (Uganda, Rwanda, Ethiopia)
- Recent food self sufficiency in Malawi includes rice
- Madagascar plans to double its rice production
- Several countries in Africa have established strategic plans for rice

Conclusions

- Africa is determined to overcome the current food crisis - the case of rice
- Emergency initiatives launched by WARDA and partners designed to boost rice production
- WARDA is ready to work with Canadian institutions to realize African green revolution
- Success stories in Africa show it can be done provided support is mobilized to address constraints
- The unique partnerships of CGIAR/NARS/WARDA present an opportunity to address the crisis