Building Sustainable Rice Data and Information System in Africa: A Multi-Actors Partnership Efforts

Aliou Diagne
Program Leader & Impact Assessment Economist
Policy, Innovation Systems and Impact Assessment Program
Africa Rice Center (AfricaRice)

5TH CARD STEERING COMMITTEE MEETING
Freetown, Sierra Leone
February 23 – 24, 2010

Outline

- Emergency Rice Data System for Sub Saharan Africa
- Project Main Achievements and Survey Results
- Major Lessons Learned, Challenges, and Way Forward
- Example of Use of the Data

Emergency Rice Data System for Sub Saharan Africa

- The project works with NARS partners in the 21 CARD candidate countries:
  - Benin, Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, DR Congo, Guinea, Madagascar, Mali, Rwanda, Senegal, Togo, Gambia, Ghana, Kenya, Liberia, Mozambique, Nigeria, Sierra Leone, Tanzania and Uganda,
  - In 2010, Niger and Ethiopia are among the countries where Rice National surveys have been planned

- The project addresses the need for better quality rice data in all of the 21 CARD candidate countries to support the implementation and monitoring of national rice development strategies

Emergency Rice Data System for Sub Saharan Africa

Project Objectives:

1. Strengthen the capacity of national agricultural statisticians and NARS scientists on best practices on agricultural survey design, sampling methodology for rice data collection and statistical analysis and publication

2. Harmonize rice data collection methodologies

3. Collect, process, analyze and publish updated nationally representative rice statistical data in 21 countries in Sub-Saharan Africa

4. Publish policy briefs based on these data

Organization and Implementation of Project Activities

- Implemented in the same way in all the 21 countries
- Executed jointly by the NARS and the NASS at country level
- Designed to build a close and durable collaboration between the NARS and the NASS in each country to ensure the regularity of data collection
- Responsibilities of each of the two national partners have been clearly delineated and assigned with the corresponding budgets to manage

Organization and Implementation of Project Activities

- Overall in-country project coordination by the National Agricultural Research Institute (NARS)
- Design of the survey, data collection and processing by the National Agricultural Statistical Service (NASS)
- Questionnaire adaptation and training of enumerators are the joint responsibility of both partners (NARS rice researchers and NASS statisticians)
- Data analysis and publication are also a joint responsibility of both national partners

Technical assistance provided by AfricaRice

- Development of standardized questionnaires and review of countries' adapted questionnaires
- Development of the enumerator guide, reporting format along with a tabulation plan (in French and English)
- Development of countries' data entry templates (for countries using Access)
- Provision of Stata program codes to produce the tables and conduct some of the statistical analyses
- Field monitoring missions to the various countries

Survey design and data collected

Survey design and data collected

COUNTRIES	SAMPLING METHOD	SAMPLE SIZE
1. Benin	Sampling at 2 levels	1255
2. Burkina Faso	Sampling at 2 levels	760
3. Cameroon	Sampling at 2 levels	1200
4. Côte d'Ivoire	Sampling at 2 levels	3 325
5. The Gambia	Sampling at 2 levels	370
6. Ghana	Sampling at 2 levels	1120
7. Guinea	Sampling at 2 levels	1085
8. Kenya	Sampling at 2 levels	572
9. Liberia	Sampling at 3 levels	1500
10. Madagascar	Sampling at 3 levels	1606
11. Mali	Sampling at 2 levels	2 495

Survey design and data collected

- **Sampling Method and Sample Size**

Countries	Sampling Method	Sample Size
12. Mozambique	Sampling at 2 levels	492
13. Nigeria	Sampling at 2 levels	10,500
14. Central African Republic	Sampling at 2 levels	2140
15. Democratic Republic of Congo	Sampling at 2 levels	848
16. Rwanda	Sampling at 2 levels	395
17. Senegal	Sampling at 2 levels	1863
18. Sierra Leone	Sampling at 2 levels	1300
19. Tanzania	Sampling at 4 levels	1050
20. Togo	Sampling at 2 levels	727
21. Uganda	Sampling at 2 levels	1537

Type of Information Collected

- **Farmer/household level:**
  - Knowledge and experience of main biotic and abiotic stresses (frequency, area affected and yield losses)
  - Socioeconomics constraints (access to key input, post harvest, product market etc.)
  - Knowledge and cultivation of village varieties
  - Seed access and management by variety (availability, source and transaction)
  - Rice area cultivated, production and sale by variety
  - Land allocation and input used for all crops
  - Assets (non-productive, agricultural, livestock, etc..)
  - Food and non-food expenditures
  - Access to communication (Radio, TV and mobile)

….Type of Information Collected

- **Village level**
  - Main rice growing ecologies (areas, varieties, and yield)
  - Main biotic and abiotic stresses (frequency, area affected and yield losses)
  - Socioeconomics constraints (access to key input, post harvest, product market etc.)
  - Inventory and characteristics of all varieties in the village
  - Village infrastructures and wages for different agricultural tasks
- **NARS scientists' (country/province level)**
  - Main rice growing ecologies (areas and constraints)
  - Main biophysical and socio-economic constraints in rice production in the country
  - Information on improved rice varieties in the country

Project Main Achievements and Survey Results

Main Achievements

- Successful completion of the Project (only 1 country has not submitted report & data),
- Countries reports/datasets and regional synthesis report available,
- Rice Data publication with NARS on-going: data compilation contributing to Rice Facts Book/Trends and DIIVA project,
- Use of the data collected to conduct rice competitiveness studies and rice research priority setting (GRiSP & AfricaRice)
- Web site is: https://sites.google.com/site/aricejapanerip/ and the individual countries have a site similar to this, linked to the central hub such as: https://sites.google.com/site/Ghanaerip/

Major Lessons Learned, Challenges and Way Forward

Major Lessons Learned

Lessons learned	Countries concerned	Observations
Good quality of project report	Benin, Burkina, Guinea & Senegal	
Good quality of databases	Benin, Burkina, CAR, DRC, Nigeria, Rwanda, Senegal, Togo, Uganda	
Use of raising factors	Benin, Guinea, Madagascar, Nigeria, Sierra Leone, Senegal	
Substantial support from AfricaRice	All countries	**Through workshops, e-mail & monitoring missions**
Good partnership between NARS and NASS	**All countries**	

Major Challenges

1. Technical

- Minor cases of shortfalls and internal operational difficulties faced by a few countries
- Incomplete data (Liberia) and incomplete geographical coverage (Mozambique)
- Significant delays in data collection (Liberia, Mozambique and Tanzania)
- Significant delays in Data entry/processing and timely availability of the survey results (Mali and Tanzania)
- High turnover of the project statistics staff due to major institutional changes (Mali)

Major Challenges

Major difficulties	Countries	Observations
Initial start up of activities	Benin, Tanzania	
Delays in data collection	Mozambique, Tanzania	
Delays in data entry	Mozambique, Tanzania, Uganda	
Data entry software used	Cameroon	**Excel**
Raising factors not yet computed	Burkina, Cameroon, The Gambia, Côte d'Ivoire, Ghana, Kenya, Liberia, Mali, Mozambique, CAR, DRC, Rwanda, Tanzania, Togo, Uganda	**Raising Factor will be used to have aggregate statistics at national level**
Questionnaires sent were not used	Liberia	
Database not received in appropriate (usable) format	The Gambia, Liberia	
Limited country-capacity in advanced statistical tools for analysis	Some countries	
Database standardization	**All countries**	**The standardization of names and databases format and structure**

Major Challenges

2. Organizational and other

- Maintain the partnership established by this project and continue the work started for the next five years
- Monitoring and updating these national country statistics on a regular basis
- Sustainable funding to meet such objective

Way Forward

Way Forward: 2011 workplan

- Collaborate with country team to continue cleaning the country data sets and incorporate the raising factors for the national Statistics

- Support to country teams to conduct in-depth analysis of data collected to:
  - Analyze competitiveness of local rice production
  - Complete the Africa Rice Facts Book using the collected data
  - Update the data used in the NRDS
  - Prepare papers for the 2011 conference and special journal issue/Book

- Publish the cleaned data in interactive Google Maps and make it available through the Web

Way Forward: A platform for Rice Policy Research & Impact Assessment in Africa

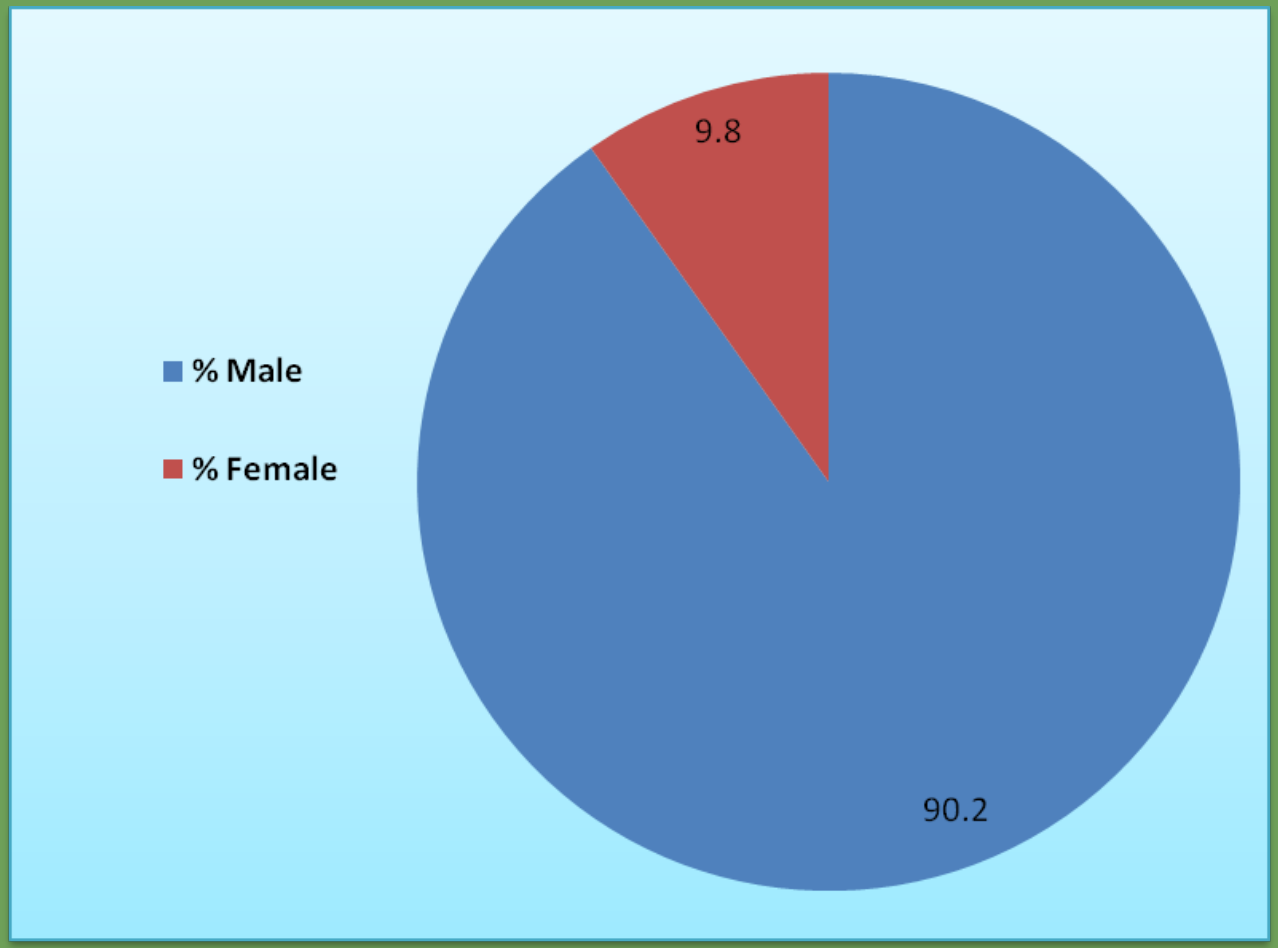
- Build on the Rice data systems project collaborative framework
- Develop national and regional pools of policy analysts & impact assessment experts

- Use the data collected to:
  - Conduct Priority setting for rice research
  - Conduct ex-ante impact assessment of the NRDS
  - develop more precise policy analysis and forecasting tools for the African rice sectors

- Update regularly the data collected in 2009

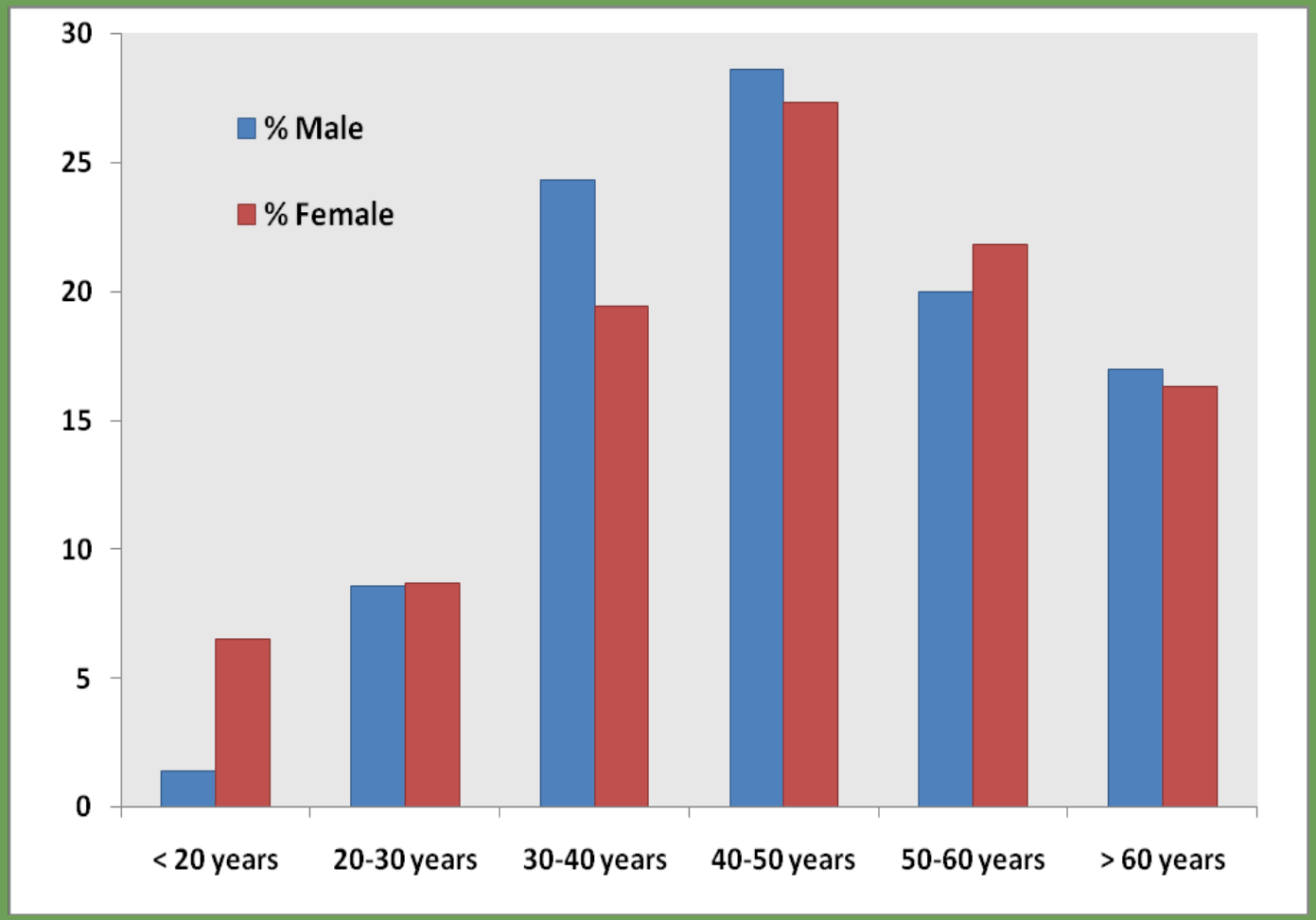
Survey Results
(Not final: Data cleaning still ongoing at country and AfricaRice levels)

Distribution of Rice Farming Households' Heads by Gender



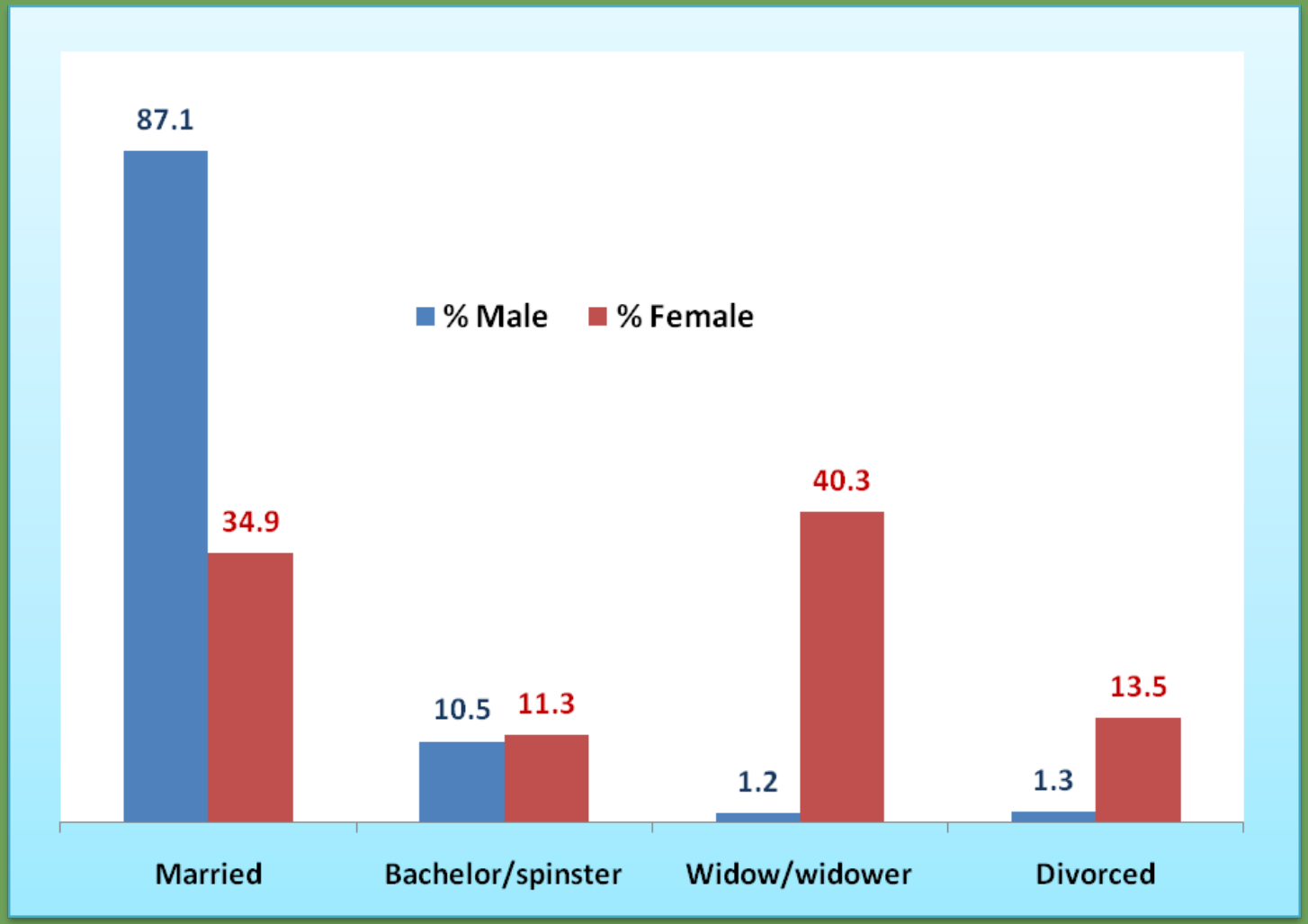
17 countries: Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea, Kenya, Madagascar, Mozambique, Nigeria, Democratic Republic of Congo, Central African Republic, Rwanda, Senegal, Sierra Leone, Togo, Uganda

Distribution of Rice Farming Households' Heads by Age and Gender (%)



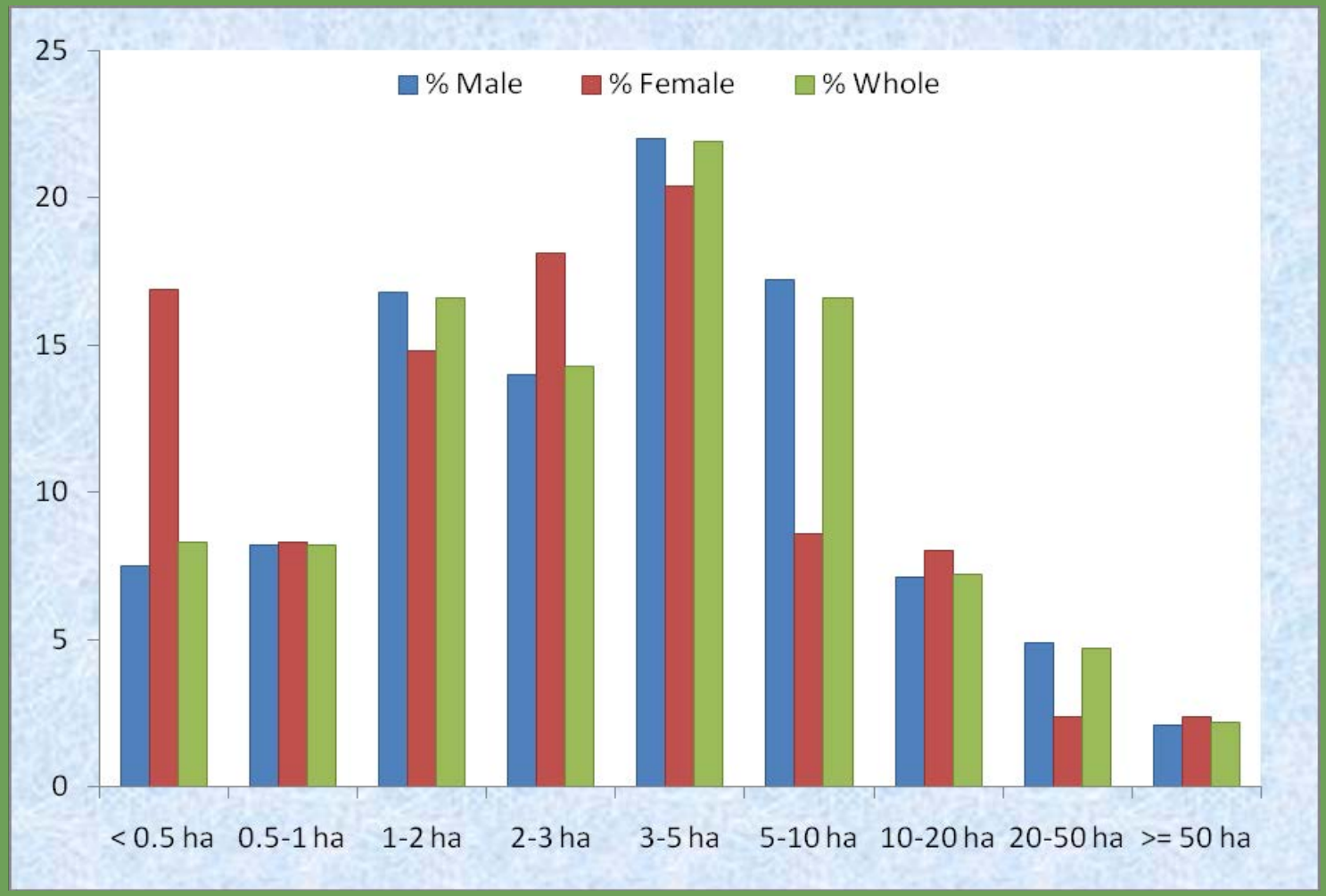
17 countries: Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea, Kenya, Madagascar, Mozambique, Nigeria, Democratic Republic of Congo, Central African Republic, Rwanda, Senegal, Sierra Leone, Togo, Uganda

Distribution of Heads of Rice Farming Households by Marital Status and Gender



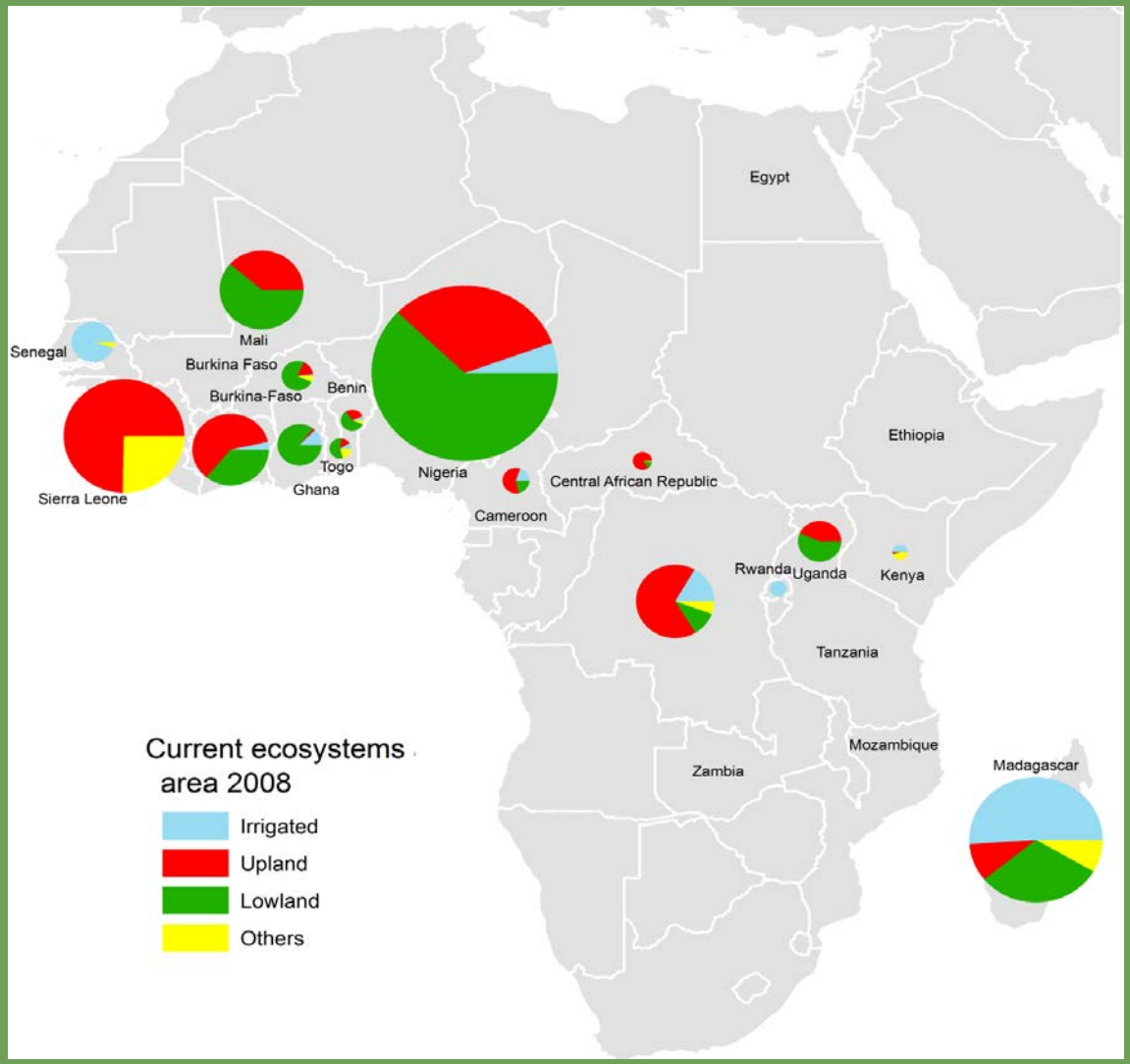
17 countries: Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea, Kenya, Madagascar, Mozambique, Nigeria, Democratic Republic of Congo, Central African Republic, Rwanda, Senegal, Sierra Leone, Togo , Uganda

Proportion of Rice Farmers by Field Size and Gender



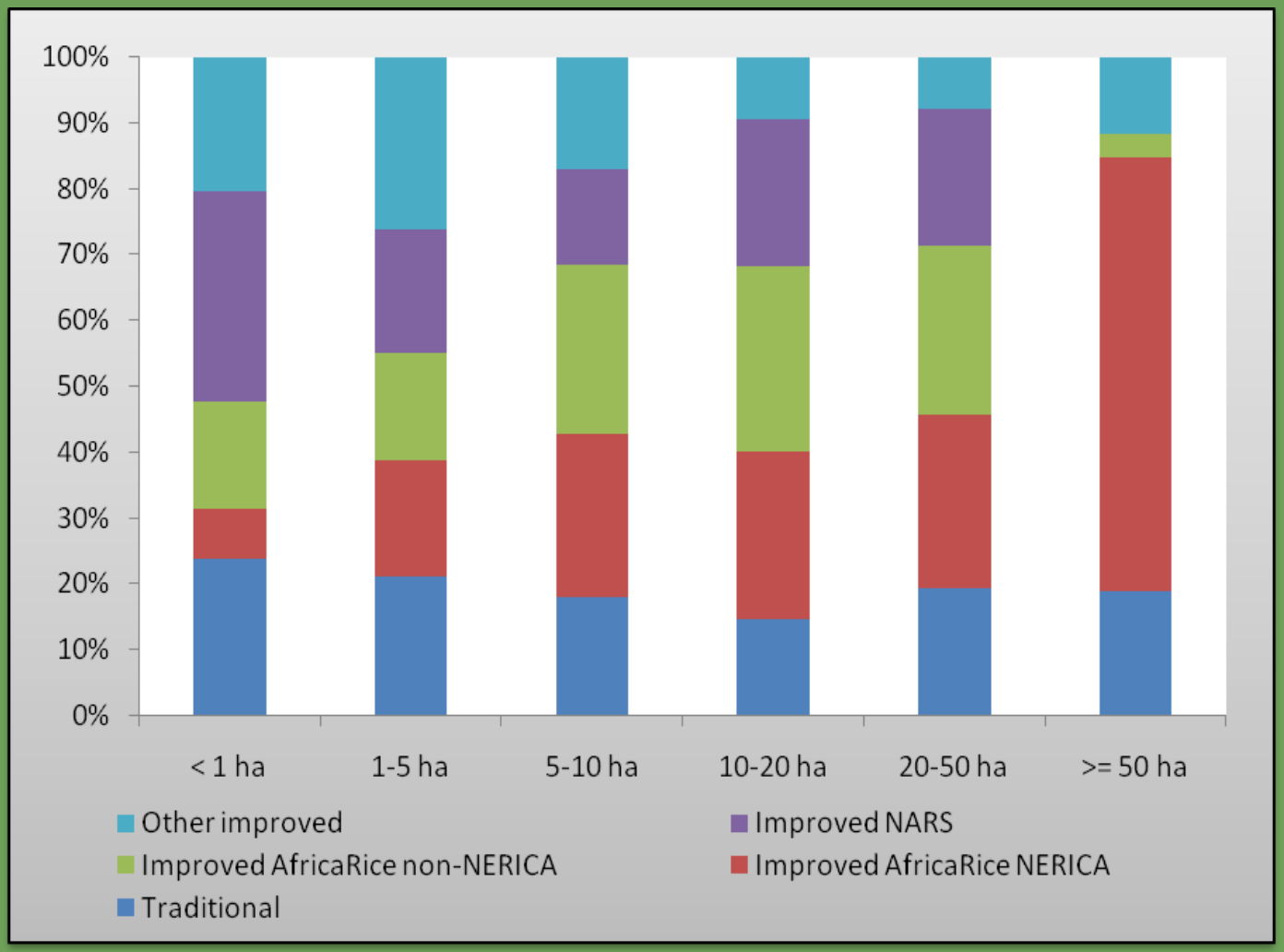
16 countries: Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea, Kenya, Madagascar, Nigeria, Democratic Republic Central, Central African Republic, Rwanda, Senegal, Sierra Leone, Togo, Uganda

Total area under rice cultivation by ecology



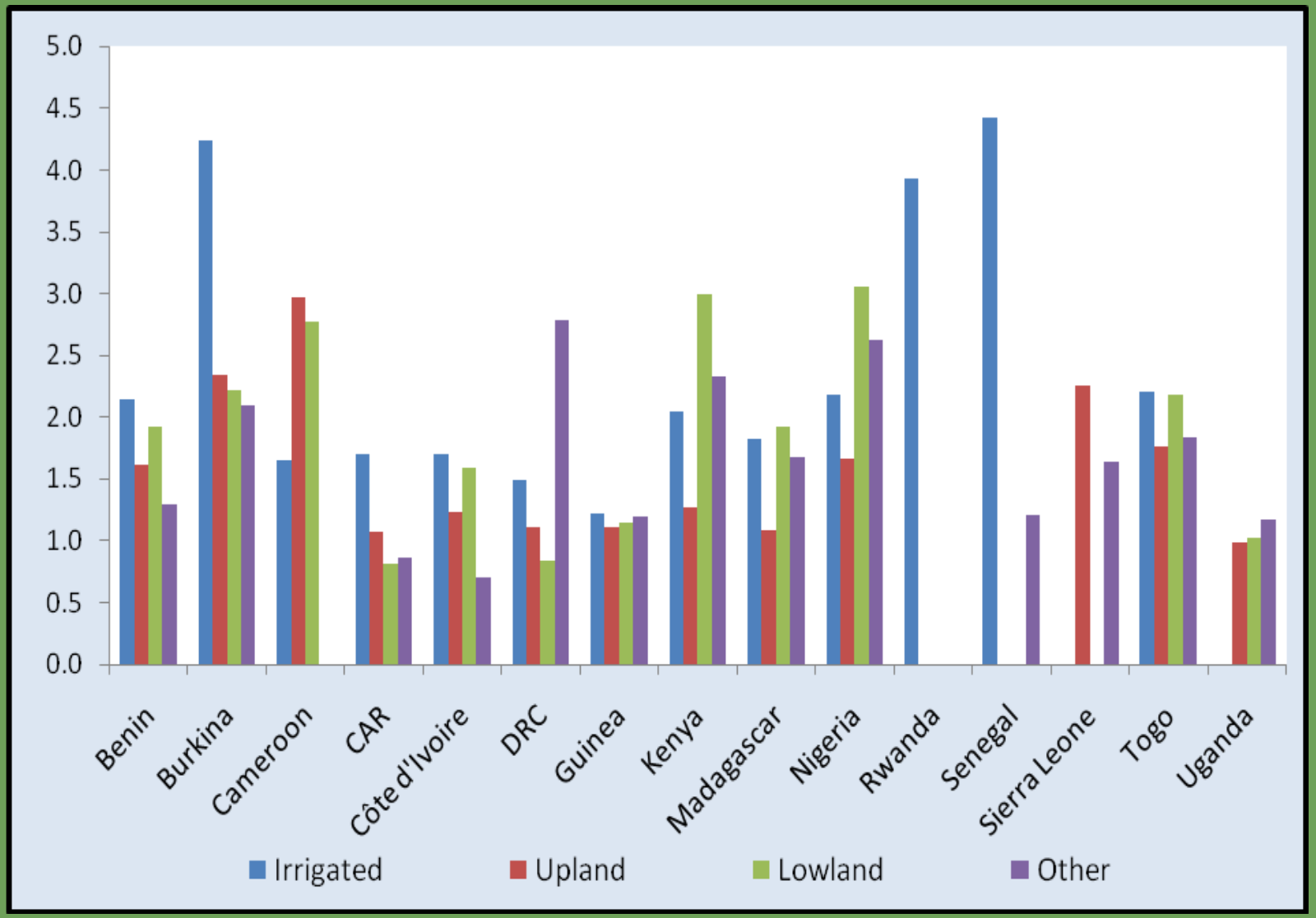
Data Source: ERIP project except for Mali (from STRASA project which did not cover the irrigated ecology). Data from Tanzania and Mozambique not available yet

Distribution of grown varieties by field size



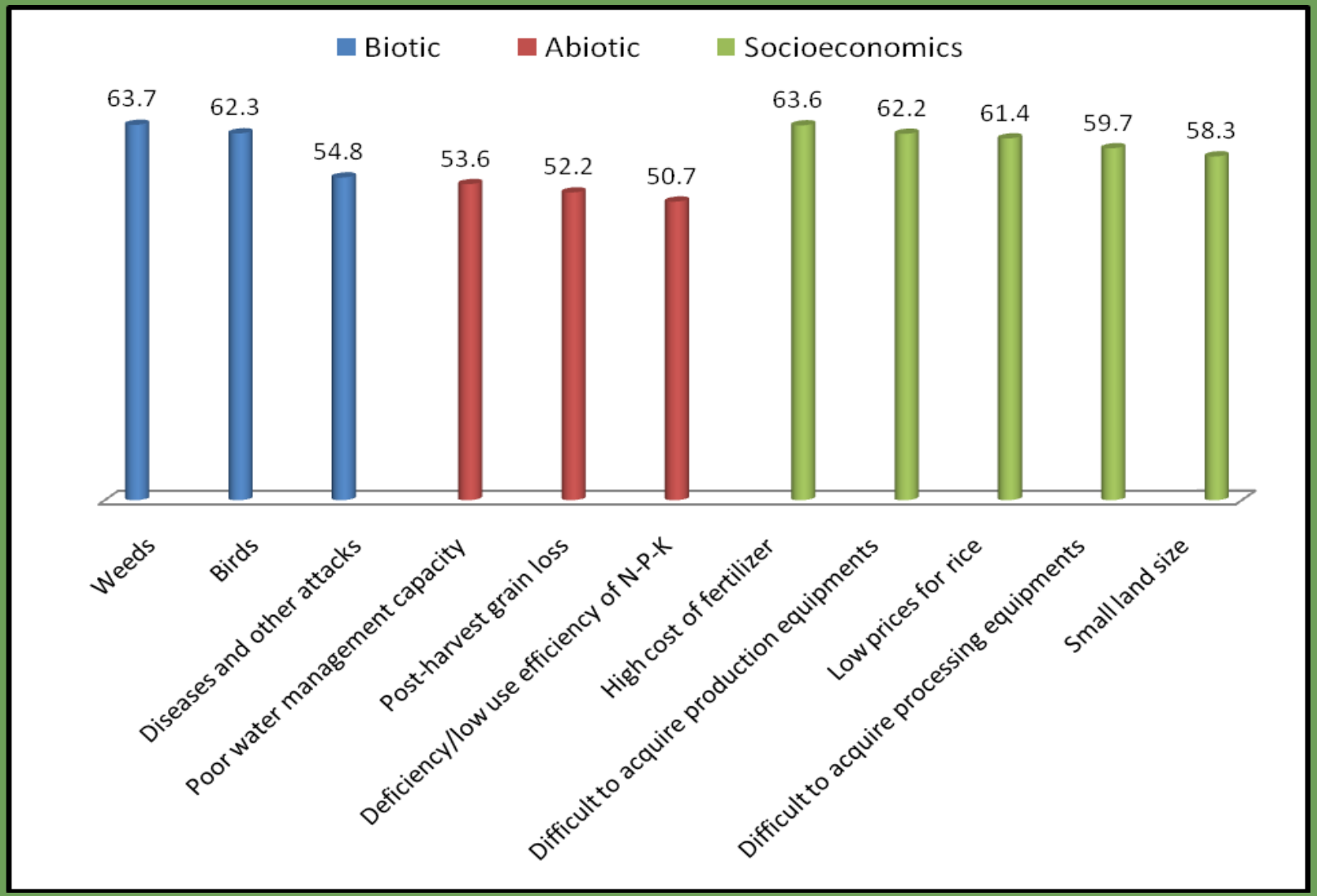
15 countries: Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, Guinea, Kenya, Madagascar, Nigeria, Democratic Republic of Congo, Central African Republic, Rwanda, Senegal, Sierra Leone, Togo, Uganda

Average Yield by Country and Ecology (t/ha)



Incidence of Constraints in Irrigated Ecology

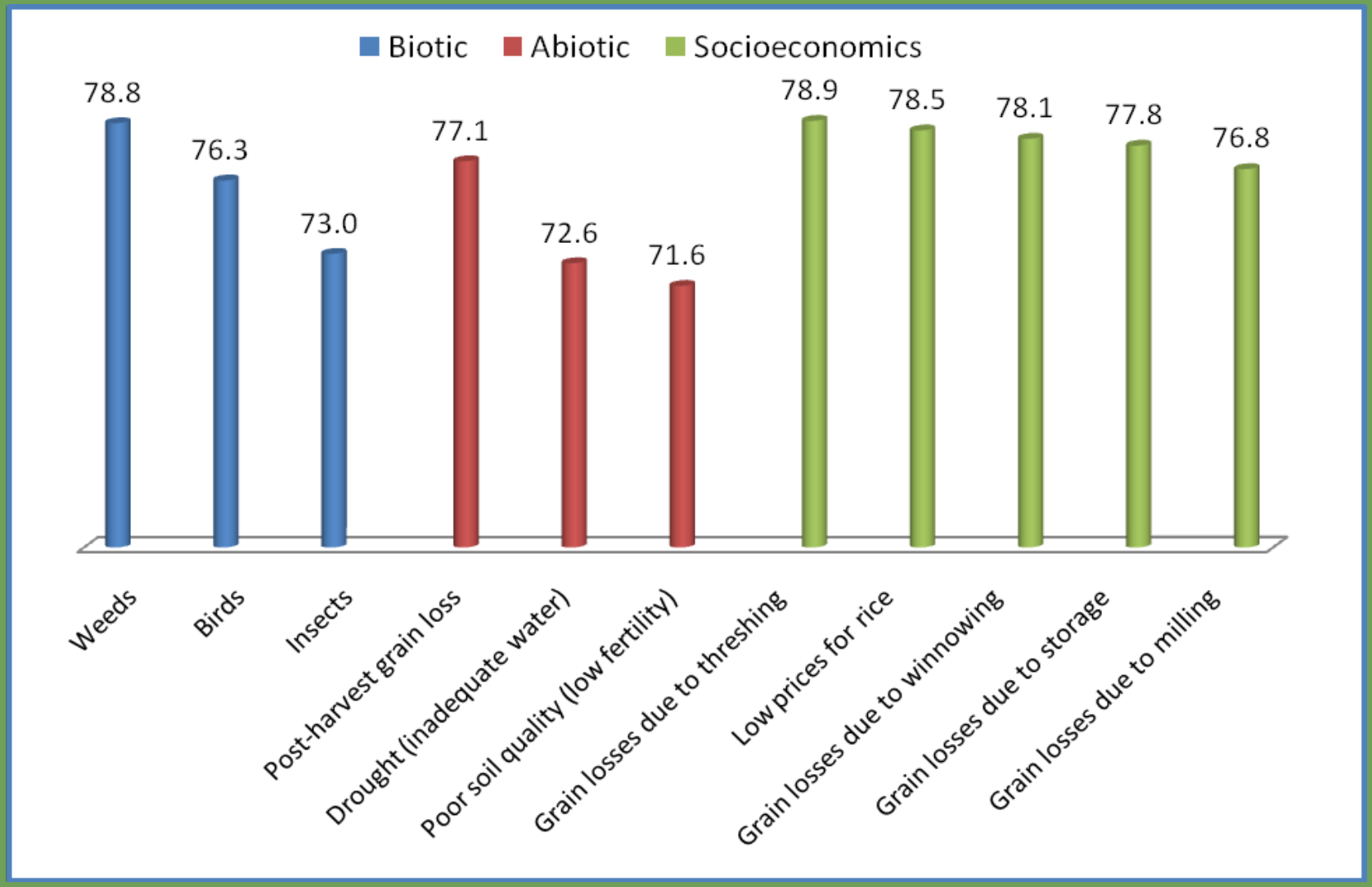
(% of farmers affected)



8 countries: Benin, Burkina, Cameron, Madagascar, Central African Republic, Democratic Republic Congo, Rwanda, Togo

Incidence of Constraints in Upland Ecology

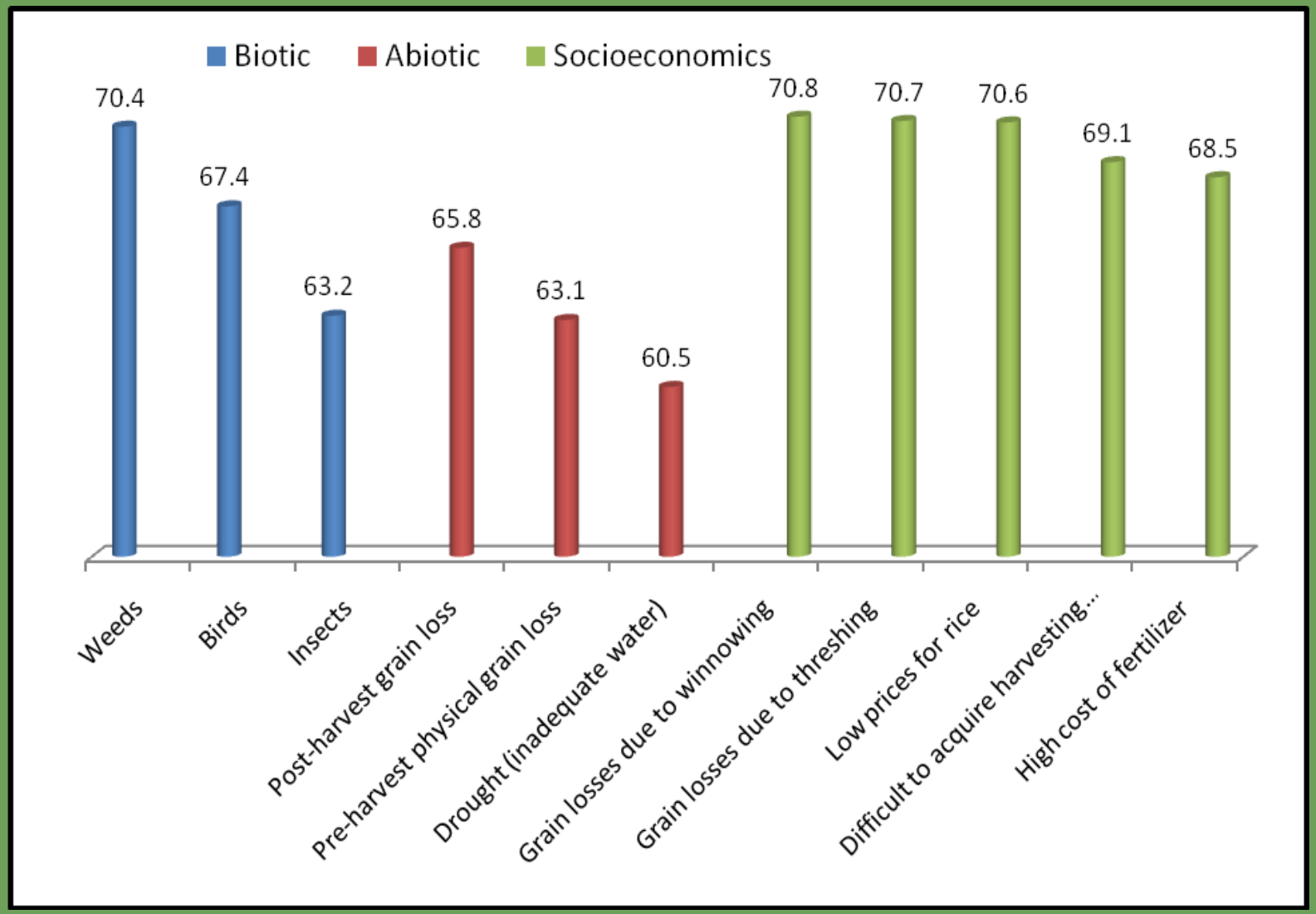
(% of farmers affected)



9 countries: Benin, Burkina, Madagascar, RCA, DRC, Guinea, Sierra Leone, Togo, Uganda

Incidence of Constraints in Lowland Ecology

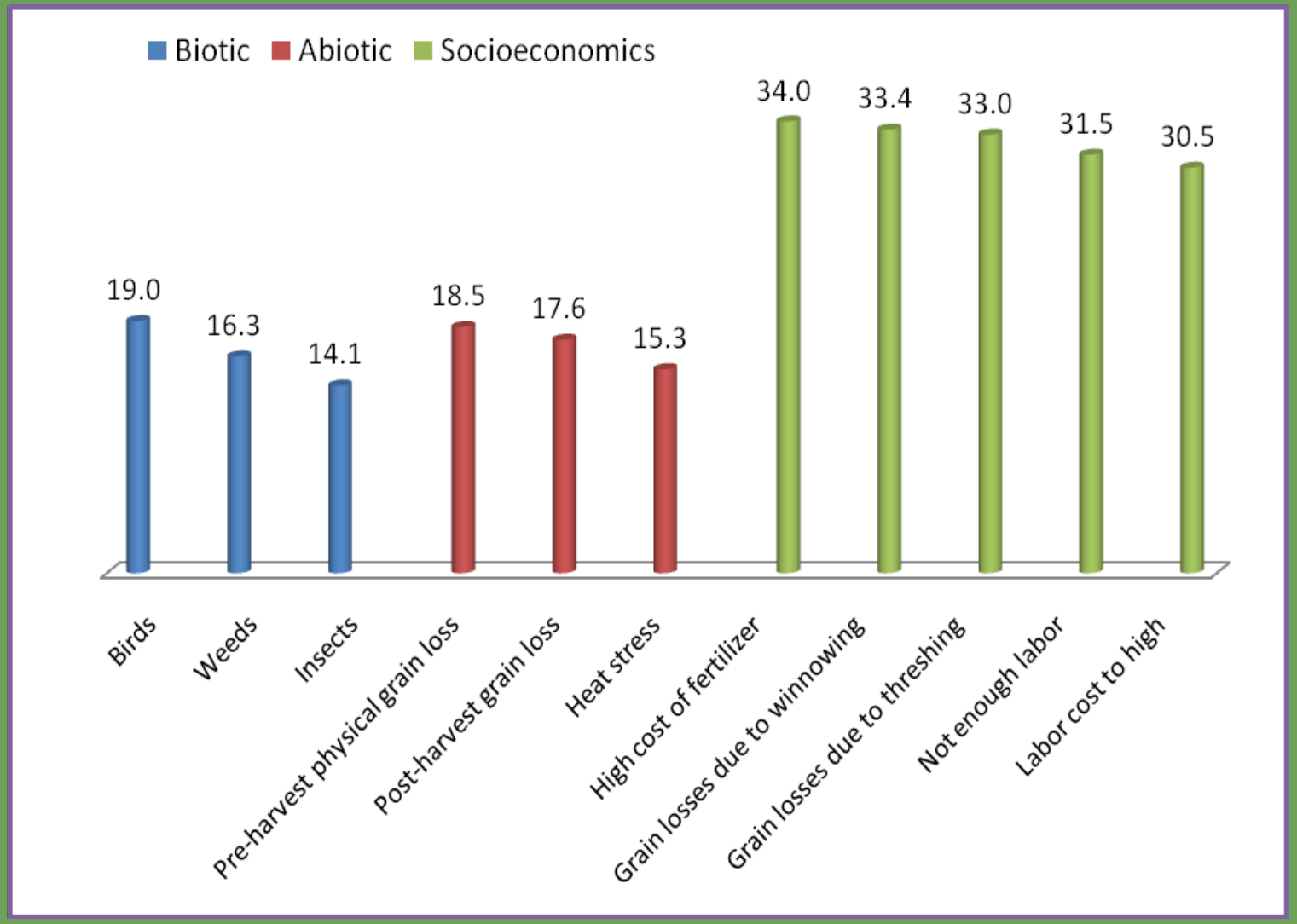
(% of farmers affected)



8 countries: Benin, Burkina, Madagascar, Central African Republic, Democratic Republic of Congo, Guinea, Togo, Uganda

Incidence of Constraints in Mangrove Ecology

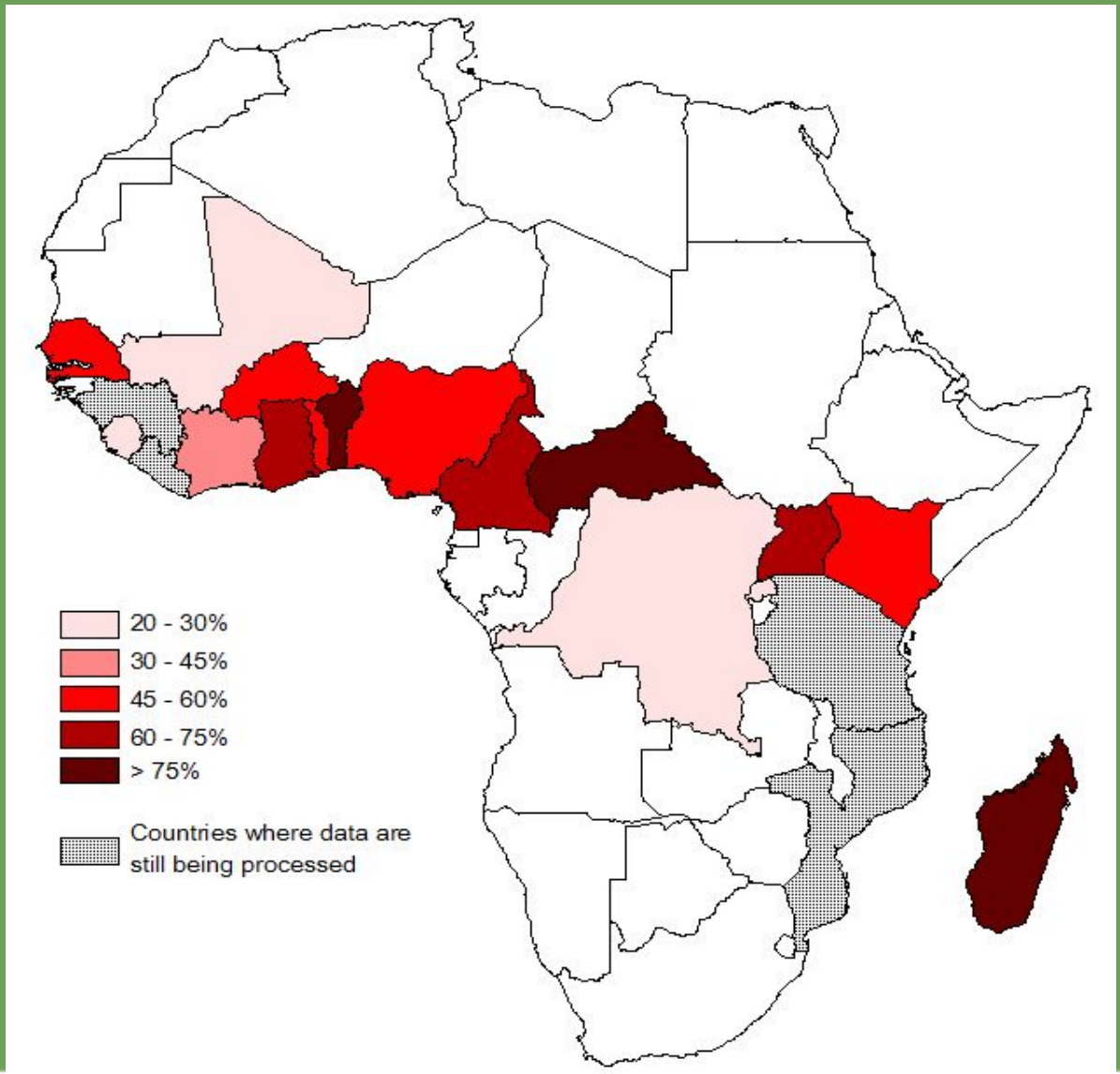
(% of farmers affected)



5 countries: Benin, Burkina, Central African Republic, Guinea, Sierra Leone

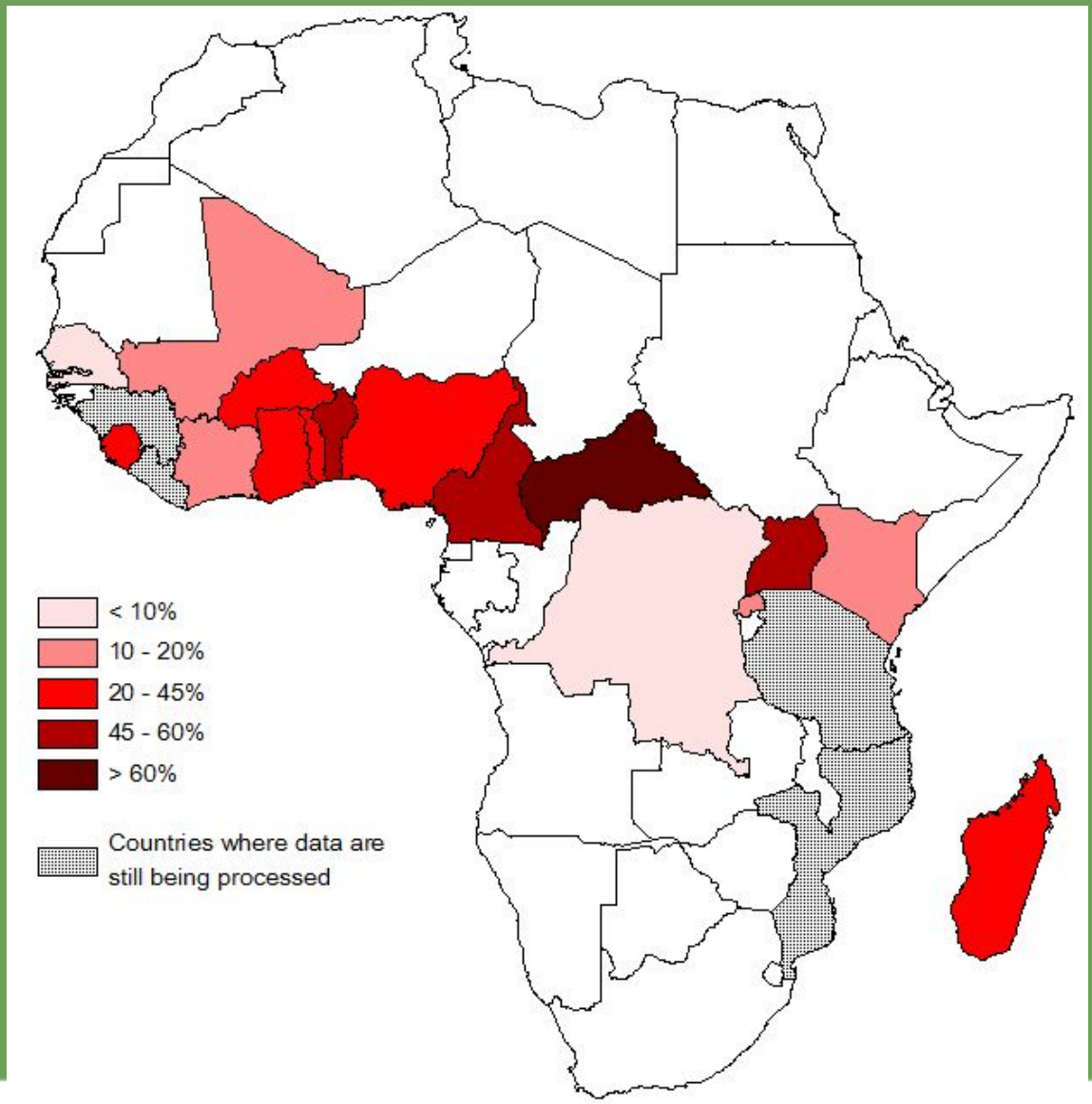
Knowledge of local varieties (2009)

- In general, local rice varieties are known by a majority of farmers across surveyed countries (55%)
- Less than 30% know local varieties in DRC, Mali, Rwanda, and Sierra Leone
- More than 75% know local varieties in In Benin, Central Africa Republic, Madagascar and Uganda



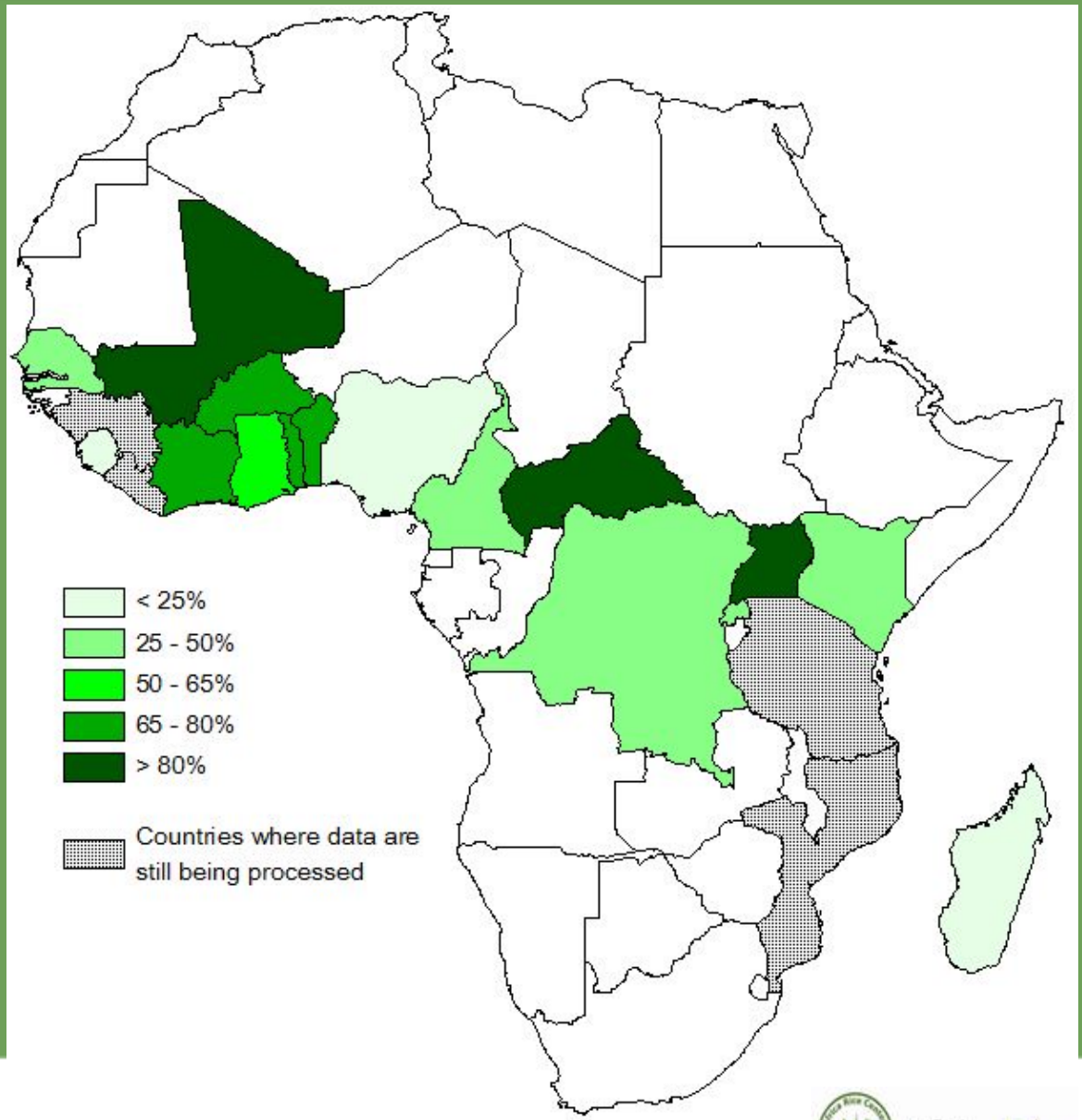
Adoption of local varieties (2009)

- Local varieties are the most cultivated in Sub-Saharan Africa
- Average actual adoption rate of local varieties across all countries is 33.1%.
  .
- Is relatively high in CAR, Cameroun and Benin (over 55%)
- From medium to high in Uganda, Madagascar, Ghana, and Nigeria.
- Low in DRC and Senegal



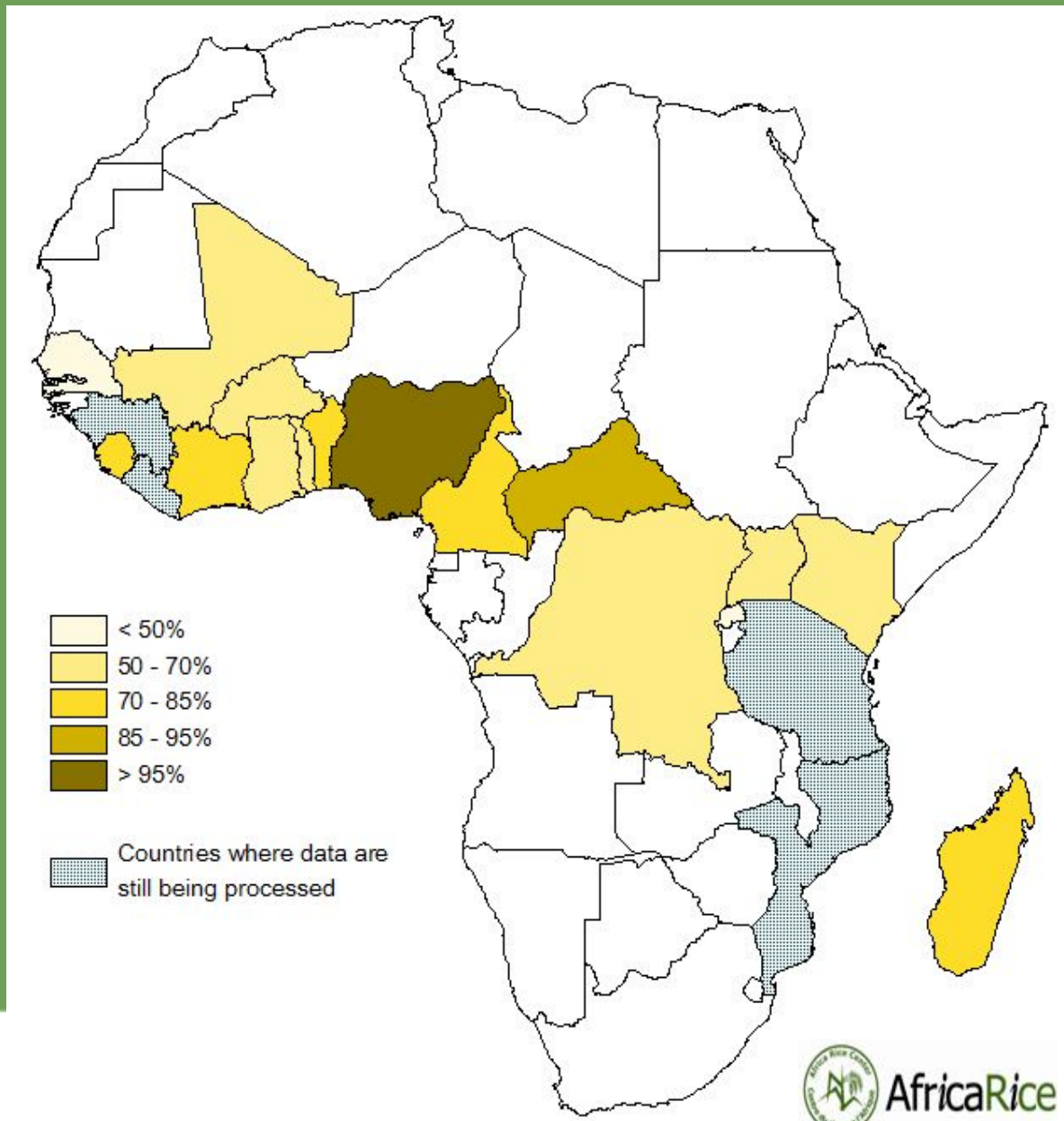
Knowledge of improved varieties (2009)

- In general, a relatively high proportion of rice farmers (60%) have knowledge of improved rice varieties.
- In all the surveyed countries, (except Nigeria, Madagascar and Sierra Leone), the large majority of rice farmers (more than 65%) are aware of the existence of improved rice varieties
- In CAR, Mali, and Uganda e the proportion of those who know these varieties is over 80%



Adoption of improved varieties (2009)

- On average, improved rice are adopted by a high proportion of surveyed farmers across all countries (67.7%) and mainly in Nigeria and Central Africa where over 85% of the surveyed farmers adopted improved varieties.
- In all other countries, medium to high proportion of farmers adopted improved varieties except in Senegal where less than 50% of farmers adopt them.

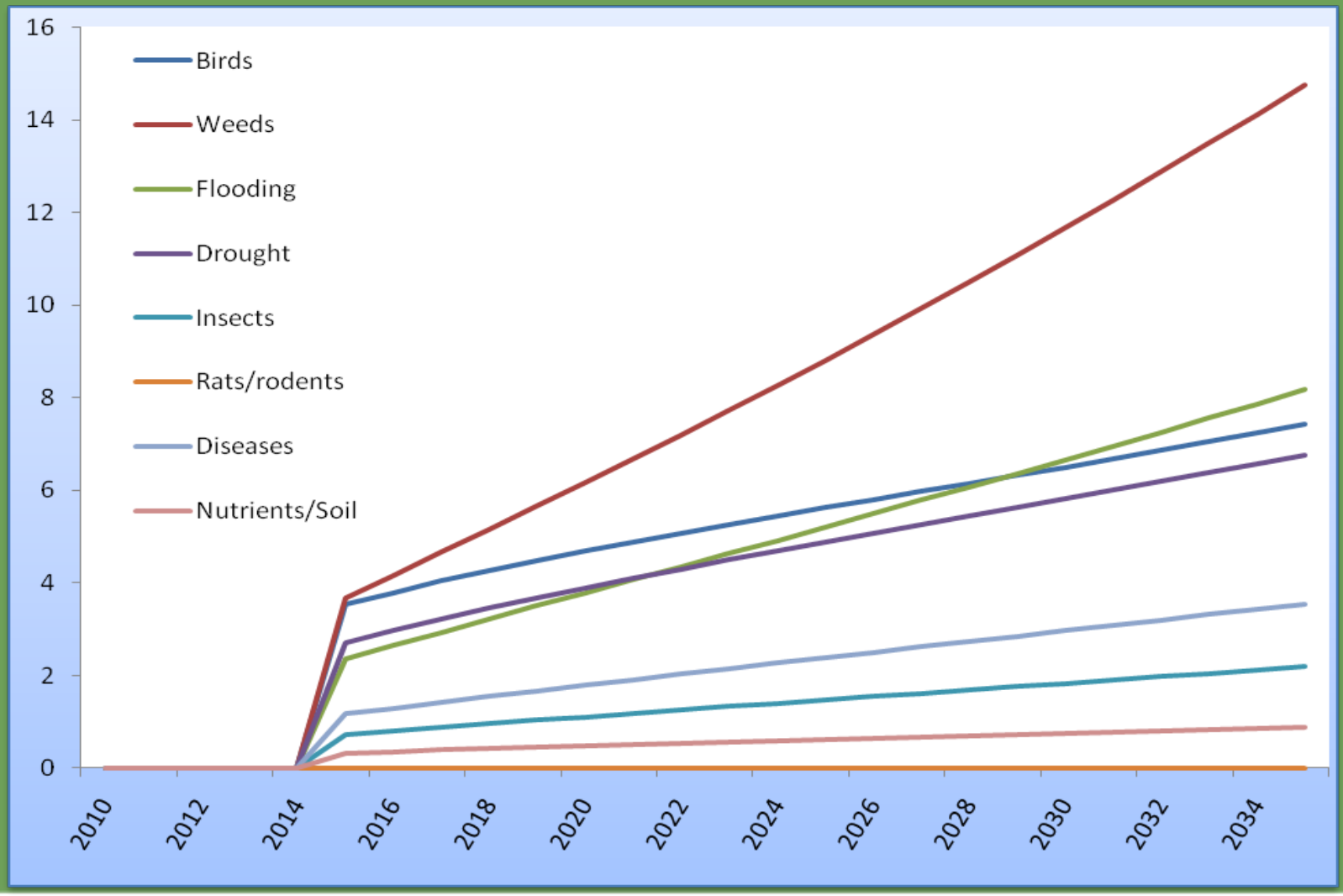


AfricaRice

Example of Use of the Data: Ex-ante impact Assessment of GRiSP in Africa

Ex-ante Potential impact of GRiSP

Number of African rice farmers (in millions) lifted out of poverty as a result of research that reduces yield loss in each major production constraints experienced by farmers



Japan-AfricaRice Emergency

Seed Project

Contribution to the Emergency Rice Initiative:

Improving access to quality seed to poor resource farmers in Africa

Amadou BEYE, Seed Expert, Coordinator JEP
Robert Anyang, Extension Agronomist Consultant

Objective

Provide access to seed to a minimum of 2,500 vulnerable farmers in each of the 20 target countries in West and East Africa to boost rice production in 2010 and beyond through improved farmer access to quality seed

Main activities

- Identify best partners and procedures to produce quality seed to be used by farmers in 2010
- Produce 30 t per country of registered and/or certified seed
- Conduct two training courses (one Anglophone course and one Francophone course) for staff involved from both the public and private sector on the production of quality seed, including both technical production aspects, marketing and quality control issues
- Contribute to the establishment of a sustainable seed production infrastructure, including **basic threshing and seed processing equipment**

Expected outputs

Output 1: Partners and procedures to produce quality seed clarified

Output 2: Needs for foundation seed quantified

Output 3: At least 30 T of quality seed of improved varieties, including Nericas available

Output 4: Better trained staff in both the public and private seed production

Output 5: Better access to basic threshing and seed processing equipment to produce quality foundation seed

- Achievements -

Output 1: Partners and procedures to produce quality seed involved	
Number of NAREs	20
Number of institutions actively	73
Number of agro-input dealers	19
Number of seed companies	11
Number of NGO's /private institutions	23

Output 2 & 3 seed production of quality foundation, registered / certified seed	
Activities	**Results**
Total production of foundation seed across the 20 countries	106.9 tons
Total production of registered /certified seed across the 20 countries	668.4 tons
Number of rice seed varieties used across the 20 countries	29 varieties
Total acreage expected to be covered under foundation seed in 2010-2011 season	835 ha
Total acreage expected to be covered under improved seed in 2010-2011 season	10,284ha

- Achievements

Output 4: Better trained staff in both the public and private seed production	
Activities	**Result**
Number of NARES , Extensionists, Input dealers , Traders, etc trained in seed production and certification	562 (190 women)
Number of PEWS/TOTs trained in seed production and extension methodologies	13,900
Total number of beneficiaries reached	58,226 (at least 55% women farmers)

Output 5: Better access to basic threshing and seed processing equipment to produce quality foundation seed	
Number of power-tillers purchased	3
Number of seed-cleaners purchased	8
Number of threshing equipment purchased	15
Number of rice milling machines purchased	3
Number of rice transplanters (seed drillers) purchased	2

Project effects and projections for 2010-2014

- **The first effect is the ability in one year to reach 58,226 vulnerable farmers who will get certified seed of high-yielding improved varieties**

- **The second effect relates to the establishment of sustainable seed systems. The project helped to reinforce local seed systems by establishing all seed classes (Breeder, Foundation, Registered and Certified seed) and by giving possibilities for the seed certification system to function accordingly.**

- **Another effect was the availability of quality rice seeds at grassroots level. The strategy was to encourage farmers to make their own selection of improved as well as traditional varieties, multiply and store seed of such varieties and sell to other farmers. The project provided small-scale seed growers the training in better selection, treatment and storage of seed from their own farms.**

Thank you