

Country F : GUINEA

# GUINEE- RIZICULTURE

*Dynamique et Amabilité*

## Plan de la présentation

- 1-Présentation du pays
- 2-Dynamique de la riziculture en Guinée
- 4-Le NERICA
  - a. Niveau de diffusion
  - b. Performances
  - c. Contraintes et perspectives

Tableau synoptique de l'agriculture Guinéenne

Superficie	243 852 km <sup>2</sup>
Pluviométrie	1 210 à 2 000 mm
Réseau hydrographique	65 000 km
Ressources en eau de surface	338 milliards de m <sup>3</sup>
Ressources en eau souterraines	72 milliards de m <sup>3</sup>
Potentiel d'irrigation (superficies aménagées)	161 000 ha
Superficies aménagées	11 200 ha
Superficies cultivables	6 200 000 ha
Superficies cultivées annuellement	1 500 000 ha
Système de culture	Défrichement à brûlis
Rendement moyen du riz	1,5 t/ha
Consommation moyenne d'engrais minéraux	5 kg/ha
Parcelles recevant la fumure	25 %

## DYNAMIQUE DE LA RIZICULTURE EN GUINEE

### CONTEXTE et CONTRAINTES DU SECTEUR AGRICOLE

- ✓ Ressources naturelles peu valorisées
- ✓ Les terres cultivées en pluvial et les forêts sont menacées par la pression démographique
- ✓ les pratiques agricoles inadéquates
- ✓ La dégradation des ressources conduit elle-même à l'appauvrissement des sols et partant à une baisse de la productivité agricole
- ✓ des contraintes d'ordre structurel du fait que l'agriculture guinéenne est de type familial et de subsistance
- ✓ La taille des exploitations est inférieure à 2 hectares et le système de culture dominant est la défriche brûlis (90% des exploitations). Le niveau d'équipement est de 1,6 à 1,8 unités, en moyenne de petit outillage (hache, bêche, machette coupe-coupe, faucille, couteau), 14 charnières pour 100 exploitations et 6 tracteurs pour 1 000 exploitations

- des contraintes techniques liées à la productivité des filières vivrières et commerciales d'exportation, malgré un niveau appréciable de transfert aux producteurs des paquets technologiques par les services de recherche et de vulgarisation
- La troisième contrainte majeure de l'agriculture guinéenne est son faible taux d'utilisation d'intrants agricoles (engrais, produits phytosanitaires, semences améliorées) qui est l'un des plus bas de l'Afrique subsaharienne. En effet l'agriculture guinéenne consomme en moyenne 5 kg/ha d'engrais
- La faible maîtrise de l'eau constitue une autre contrainte majeure à l'intensification agricole. Sur un potentiel en terres irrigables de l'ordre de 364 000 ha, seulement 30 200 ha ont fait l'objet d'aménagement sur les plaines intérieures de mangroves et d'aïère mangroves et dans les bas-fonds

## Evolution des superficies rizicoles et des rendements

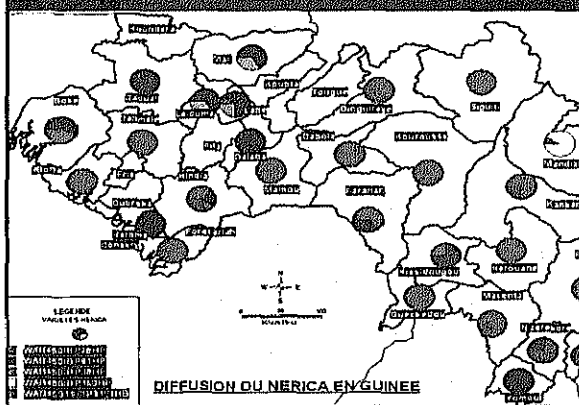
Année	1997	1998	1999	2000	2001	2002	2003	2004	2005
Superficie (ha)	457,06	480,00	503,00	526,00	574,00	601,00	630,00	659,70	691,08
Rendement (t/ha)	1,47	1,49	1,52	1,55	1,71	1,72	1,73	1,74	1,81
Production (t)	675	715	765	815	981	1.034	1.090	1.148	1.267
Equivalent (t)	438,75	464,75	497,75	529,75	637,65	672,10	708,50	746,20	801,13

## EVOLUTION DE L'IMPORTATION DU RIZ

Année	1997	1998	1999	2000	2001	2002	2003	2004	2005
Tonnes	205.318	164.000	228.000	151.500	281.300	323.486	327.619	331.236	282.278

## LE NERICA

## COUVERTURE NERICA EN GUINEE



Parmi les 7 variétés NERICA suivantes

1. WAB 450-I-B-P-38-IIB ou NERICA 1
2. WAB 450-I-I-P-31-I-IB ou NERICA 2
3. WAB 450-I-B-P-28-IIB ou NERICA 3
4. WAB 450-I-B-P-91-IIB ou NERICA 4
5. WAB 450-I-I-I-P-31-IIB ou NERICA 5
6. WAB 450-I-B-P-160-IIB ou NERICA 6
7. WAB 450-I-B-P-20-IIB ou NERICA 7

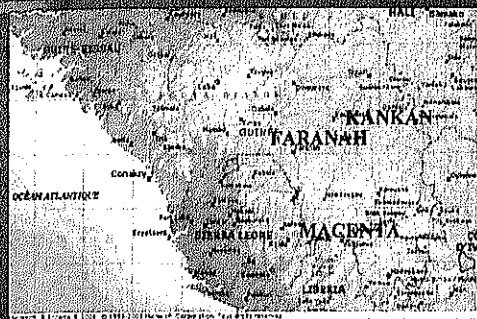
Les variétés les plus diffusées et adaptées sont celles-ci :

NERICA 1  
NERICA 2  
NERICA 3

Les variétés les plus demandées actuellement sont les variétés de Bas fonds en plus de celles citées plus haut

## DIFFUSION DU RIZ NERICA EN GUINEE

## La République de Guinée



## Système de riziculture pluviale de coteau en Guinée Forestière



## SITUATION DES SEMENCES DISTRIBUES (2006)

Variété reçue	Quantité (kg) Reçue de l'ADRAO	Quantité (kg) de semences de base Distribuées
NERICA 1	115	202
NERICA 2	154	600
NERICA 3	172	855
NERICA 4	102	1120
NERICA 6	102	165
TOTAL	645	2942

## Production de semences de contre saison

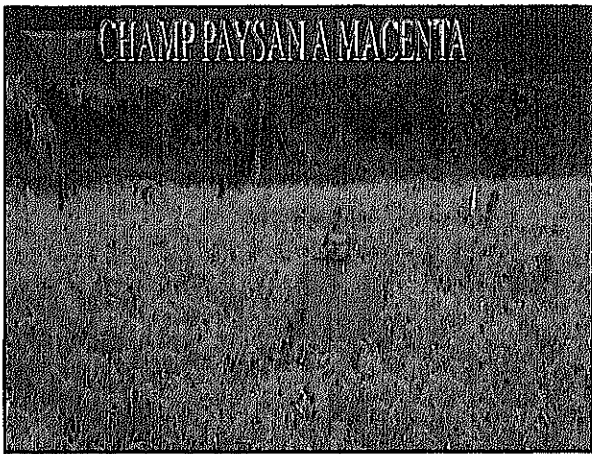


## Statistique des activités de production

Nbre de groupements servis en semences

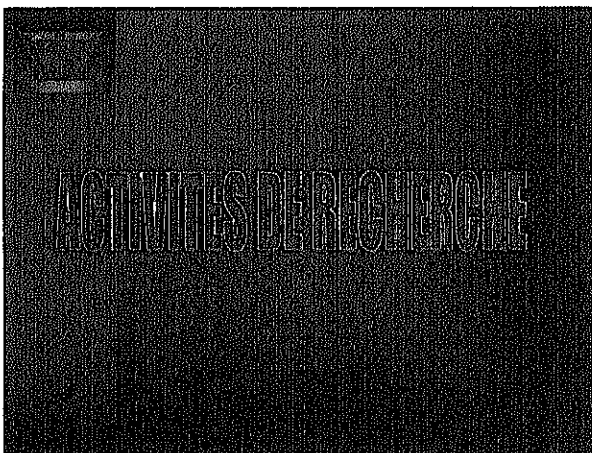
Quantité d'engrais distribués

Superficie semencière mise en valeur



RENDEMENT DU RIZ NERICA DANS QUELQUES CHAMPS PAYSANS A FARANAH

Localités	Groupements	Rendement t/ha
Dantilla	Benkady	3,95
	K. Kolet Samoura	4,27
Heremakono	Maire Yanko	2,19
Kamara	Benkady	3,17
Kamedankounde	Kamedankounde	2,65
Kelemen	Sergent Dioulde Sow	3,98
Marche	Mamoudou Tomkara	3,00



SITES	NERICA BAS BAS FONDS	NOMBRE DE VARIETES (NERICA PLANT)
BORDO	-	17 variétés dont 6 anciennes et 11 nouvelles
ISAV (Faranah)	-	17 variétés dont 6 anciennes et 11 nouvelles
SEREDOU	24 Variétés dont 20 NERICAS 3 CK 1 Variété égyptienne	17 variétés dont 6 anciennes et 11 nouvelles



DRA VÉGÉTARISATION		
SITES	VARIETES	NOMBRE DE PVS
Faranah	N1,N3,N4,N6 Sonsompolo (TR)Nankin(VP)	2
Kankan	N1,N2,N3,N4,Nankin(TR-VP)	2
Mandiana	N1,N2,N3,N4,TR,VP	3
Macenta	N1,N3,N6,TR(DJOUKEME), VP(KAZEZA)	3
TOTAL		10

UNIVERSITE D'AGRICULTURE ET DE PÊCHERIE  
GOVERNEMENTAL  
THEMES

- Essai de fertilisation du NERICA (Bordo/Kankan)
- Essai herbicide sur NERICA (Bordo/Kankan, ISAV/Faranah)
- Maintenance pureté variétale (Bordo/Kankan)  
Seredou/Macenta, SG2000  
Kilissi/Kindia) SG2000
- Collection vive du riz pluvial (Kilissi/Kindia)

Partenariat

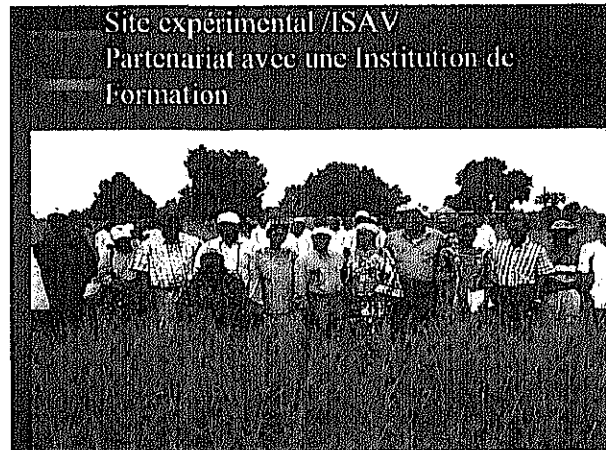
- IRAG - Execution de la composante F1
- CRA - Execution de la composante Appui à la Production
- CRA - Maintenance pureté variétale des NERICAS
- CRA - Contrôle et certification des semences
- DNGR - Etudes et Contrôle de la réhabilitation des pistes



PARTENARIAT AVEC UNE INSTITUTION DE FORMATION

M.E.S.R.S  
I.S.A.V  
DEPARTEMENT: AGRICULTURE  
SELECTION PARTICIPATIVE DE DIX SEPT (17)  
VARIETES DE RIZ NERICA (1, 2, 3, 4, 6, 3, 5, 9,  
10, 11, 12, 13, 14, 15, 16, 17 ET 18)

FINANCEMENT: PROJET DE DIFFUSION  
DU RIZ NERICA (ARI)  
REALISATION: DEP. AGRICULTURE/IRAG  
FARANAH, JUILLET 2006



(suite)

### Institutions de formation

- ✓ ICRISAT : PVS Recherche et Technologies complémentaires
- ✓ ICRISAT : Mircris : Production de semences
- ✓ ICRISAT : Mircris : Production de semences

Projet Le Développement

PDVAF 3000 Kanak

• Formation de semenciers et engrais

• Formation des groupements

### Contraintes pour la diffusion

- ✓ Le NERICA sur sol pauvre ne supporte pas l'enherbement
- ✓ Le NERICA nécessite l'application d'une fertilisation adéquate pour assurer une bonne production
- ✓ Le NERICA n'a pas de dormance et germe très facilement au champ directement après la récolte en cas d'humidité favorable
- ✓ Le NERICA est difficile à battre et nécessite souvent l'emploi d'une batteuse
- ✓ Les petits producteurs qui préfèrent le NERICA sont souvent assez pauvres pour s'approvisionner en engrais

### Perspectives

- ✓ Existence de plus de 1.500.000 ha de superficie rizicultivable sur coteau
- ✓ Possibilités de collaboration entre le projet et le programme KR2 de la coopération japonaise
- ✓ Appui de la diffusion du riz NERICA par la coopération Japonaise en Guinée et en Ouganda (Projet envisagé)

MERCI DE VOTRE ATTENTION

**RAPPORT PREPARE ET PRESENTE AU SEMINAIRE TENU A ACCRA  
DU 06 AU 08 DECEMBRE 2006**

**Par Conde Aly Directeur General SNPRV/coordonateur projetARI  
El Hadj Mody Sidy Diallo chargé SE/projet ARI  
Dr. Sidafa Conde Chef Division R/D au SNPRV  
Famoi Béavogui Coordinateur scientifique CRA/Bordo  
Aboubacar Camara S/E BCEPA**



County: GUINEE

Name of writer Conde Aly, El Hadj Mody Sidy Diallo, Sidafa Conde, Famoï Beavogui, and Camara Aboubacar

1. Present Status of NERICA

(1) Research situation in your country

item	contents
<p>1. Implementation structure for NERICA research:</p>	<p>Name of the NERICA related organizations: <i>Institut de la Recherche Agronomique de Guinée (IRAG)</i></p> <p>Research institute or center for NERICA research and/or trial (Please describe laboratory name, address, telephone number, and representative etc.):</p> <p><i>1- Centre de Recherche Agronomique de Bordo(Kankan)</i>  <i>2- Centre de Recherche Agronomique de Sereidou (Macenta)</i>  <i>3- Centre de Recherche Agronomique de Kilissi (Kindia)</i>  <i>4- Institut des Sciences Agrovétérinaires de Faranah</i></p> <p>Position of the Research Institute or Center mentioned above in the NERICA related organization (show by Fig., please)  <i>L'IRAG est responsable de la composante Transfert de Technologies</i></p>
<p>2. Content of research topics</p>	<p>Trial conducted in 2006</p> <p><i>a) Essai de fertilisation du NERICA</i>  <i>b) Essai herbicides sur NERICA</i>  <i>c) Maintenance de la pureté variétale des NERICA</i>  <i>d) Collection Vivante de riz pluvial</i>  <i>e) PVS –Recherche sur 17 variétés de NERICA pluvial</i>  <i>f) PVS – Recherche sur 73 variétés de riz de bas fonds y compris des NERICA</i></p>
<p>3. Lines and Varieties of upland rice (including NERICA lines)</p>	<p>*) Please attach the lists of varieties and its quantity</p> <p>1. WAB 450-I-B-P38-HB ou NERICA 1            2. WAB 450-11-1-P31-1-HB ou NERICA 2            3. WAB 450-I-B-P-28-HB ou NERICA 3            4. WAB 450-I-B-P-91-HB ou NERICA 4            5. WAB 450-11-1-1-P31-HB ou NERICA 5            6. WAB 450-I-B-P-160-HB ou NERICA 6            7. WAB 450-I-B-P-20-HB ou NERICA 7            8-WAB450-1-BL1 136 HB            9-WAB450 B 136 HB            10-WAB450 11-1-1-P41 HB            11-WAB450 ·16·2B22-DV1            12-WAB880 1-38-20-17-P1 HB</p>

	13-WAB880 1-38-20-28 P1 HB 14-WAB880 1-32-1-2 P1 HB 15-WAB881 10-37-18-3 P 1HB 16-WAB881 -101-37-18-9 P1 HB 17-WAB881 -10-37-18-13P1 HB 18-WAB881-10-137-18-12P3 HB
--	--

(2) Results of some trials in 2006 (if you conducted any)

2. NERICA Dissemination Plan

- 1) Situation of NERICA dissemination -

item	contents
Implementation Structure for NERICA Dissemination	<i>Service National de la Promotion Rurale et de la Vulgarisation (SNPRV)</i> <i>Direction Régionale de la Vulgarisation</i> <i>Partenariat dans la génération de technologies et la formation des producteurs et conseillers agricoles dans le cadre de convention établie entre la coordination du projet et l'IRAG et le SNPRV</i>
Variety release procedure	<i>Semences du sélectionneur</i> <i>PVS -Recherche</i> <i>PVS- vulgarisation</i> <i>Homologation/Diffusion</i> <i>Production/Multiplication</i> <i>Contrôle /certification</i>
Seed production	<i>150 tonnes de semences de NERICA(1, 2, 3, 4, 6 )sont attendues à la fin de cette campagne</i>
Estimated area(ha) suitable for NERICA (upland rice)	<i>Actuellement 493.000 ha de coteau sont cultivés annuellement en Guinée Qui conviennent tous à la culture du NERICA mais il existe 1.500.000 ha de superficie NERICACULTIVABLE</i>
Major cultivation area	<i>Haute Guinée,</i> <i>Guinée Forestière,</i>

NERICA cultivation area (ha)	Time course change of cultivation area of NERICA (HA)				
	line/Variety name	2003	2004	2005	2006
	<i>NERICA 1, 2, 3 4</i>	50824	71154	85384	93923

*Rendement dans quelques champs paysans semenciers à Faranah, l'une des zones principales du projet ARI*

Localités	Groupements	Rendement T/ha
Dantilia	Benkady	3,95
	Karamo Kolet Samoura	4,27
Heremakono	Maire Yanko	3,14
Kamara	Benkady	3,17
Kamedankounde	Kamedankounde	2,65
Kelementen	Sergent Dioulde Sow	3,98
Marche	Mamoudou Tounkara	3,00

*- 2) Constraints of dissemination -*

- 1. Le NERICA sur sol pauvre ne supporte pas l'enherbement*
- 2. Le NERICA nécessite l'application d'une fertilisation adéquate pour assurer une bonne production*
- 3. Le NERICA n'a pas de dormance et germe très facilement au champ directement après la récolte en cas d'humidité favorable*
- 4. Le NERICA est difficile à battre et nécessite souvent l'emploi d'une batteuse*
- 5. Les petits producteurs qui préfèrent le NERICA sont souvent assez pauvres pour s'approvisionner en engrais*

### 3. NERICA Research Plan for 2007

Implementation organization: *Centre de Recherche Agronomique (CRA) de Sere dou*  
*Centre de Recherche Agronomique (CRA) de Bordo*  
*Centre de Recherche Agronomique (CRA) de Kilissi*

Project name if you have or will have any:

- a) *Poursuite des PVS- Recherche sur le riz pluvial*
- b) *Poursuite des PVS Recherche sur le riz de bas fonds*
- c) *Poursuite essai fertilisation*
- d) *Poursuite essai herbicide*
- e) *Poursuite essai maintenance pureté variétale NERICA 1,3,4*
- f) *Poursuite de l'essai cultural du NERICA au CRA de Bordo (Haute Guinée) et conduite du même essai au CRA de Sere dou (Guinée Forestière)*
- g) *Rotation du NERICA avec les plantes de couverture*

Period: *Mai –Novembre 2007*

Output

*1 Identification des meilleures variétés adaptées au milieu et au gout des paysans*

*2 Evaluation des performances des variétés créées*

*3 Connaissance des périodes des doses et des combinaisons optimales d'engrais et des herbicides pour les différentes variétés*

*4-Production de semences de qualité et réponse à la question de mélange physique et/ou de la ségrégation*

Activity

*1-Installer les essais*

*2-conduite des essais*

*3-Collecte et analyse des données*

*4- Redaction des rapports*

Input: *Semences, Engrais, Herbicides*

Budget: *20.000 USD*      Budget resource: *FAT/ARI :12.000USD*

How many staffs will be involved on NERICA research?

*Chercheurs: 6*

*Techniciens: 12*

What kind of assistance do you need for NERICA research?

*Seed : Semences en NERICA bas fonds*

*Budget: Complément de budget à rechercher : 8.000 USD*

*Technical: formation et Supervision Technique*

*Equipments: humidimètre*

**Country G : MADAGASCAR**



NERICA RELATED PROGRAMME  
IN  
MADAGASCAR

- SITUATION
- ACHIEVEMENTS

background

- Rice surface area cultivated : 1.3 millions ha
- Great diversity of rice growing environments
- Low average of rice yield production : about 2.3 t/ha
- High consumption per capita : 120 to 150 kg/pers/year

• PROGRAMME FOR THE  
PROMOTION OF THE NERICA

IMPLEMENTED IN 2002

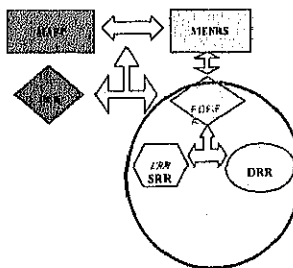
• PRELIMINARY STUDIES  
QUESTIONED THE DISSEMINATION  
PLAN OF THE NERICA in 2005

- Lack of seeds
- Lack of nERICA – related information
- Weakness of NERICA-related organisational structure

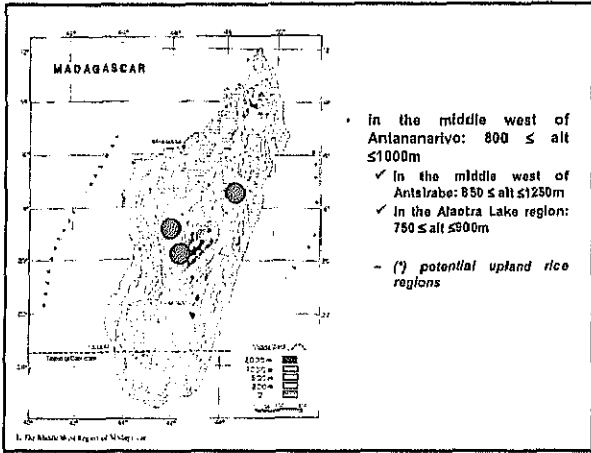
Only on-station activities in 2006

- Collection of nERICA-related data
- Identification of potential varieties including the NERICA

Institutional organization



- JICA-Madagascar: Japanese International Cooperation Agency
- MAEP : Ministry of Agriculture, Livestock and Fisheries
- MENRS: Ministry of National Education and Scientific Research
- SRR : FOFIFA Regional Research Station
- FOFIFA: National Center for Applied Research in Rural Development
- DRR: FOFIFA Department of Rice Research



## Trials conducted at the Regional Research Station of Kianjasoa

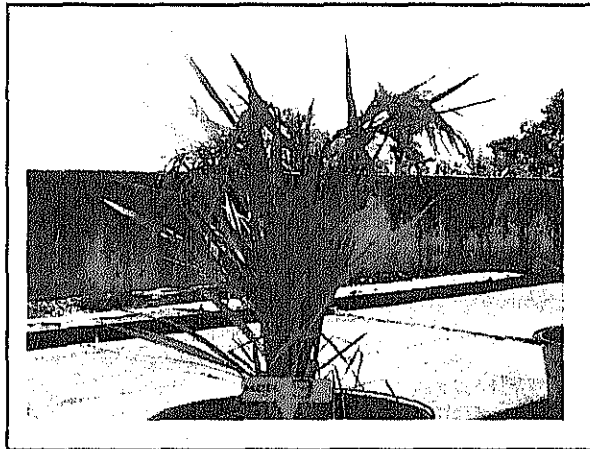
- Varietal trial
- Agronomic trial
- Seed multiplication

## Varietal trial

- Pot cultivation

- Nerica # 7 to 18
- *Oryza glaberrima*
- Koshihikari

(result in table n° 1)

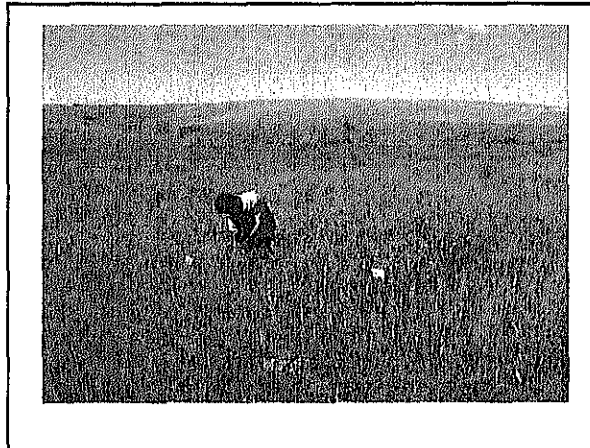


## Varietal trial cont'd

Evaluation of the performance of upland rice varieties including the Nerica under irrigated lowland conditions

- rainy season (feb 2006- June2006)
- dry season (sept 2006- dec2006)

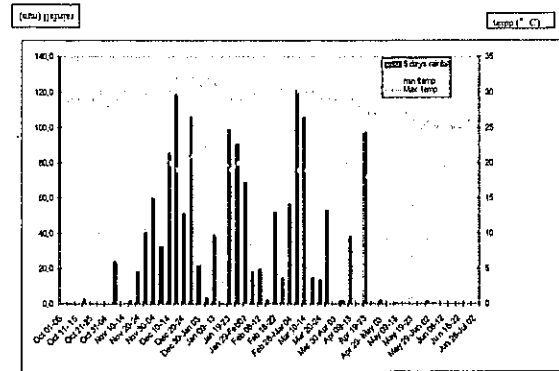
(result in table n° 2 and 3)



## Agronomic trial

- Identification of optimal date of sowing -
  - Nerica # 1 to 6 vs 3737
  - Date of sowing
    - D1 : 24-11-2005
    - D2 : 14-12-2005
    - D3 : 04-01-2006

(results in table n° 4)



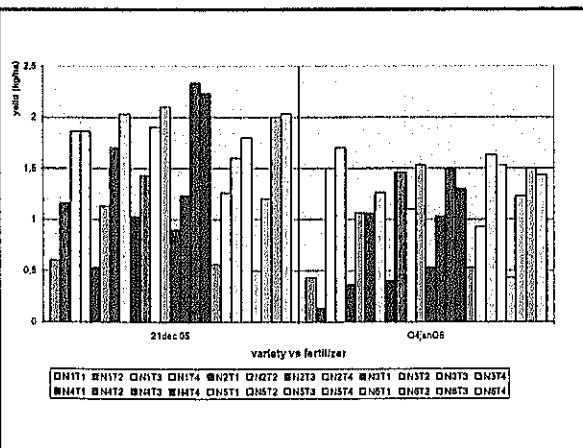
Evaluation of the performance of the Nerica vs upland soil-fertility management system - cont'd

- - **experimental design**
- RCBD with 3 replications
- Plot size : 6 x 5m (30m<sup>2</sup>)
- Sowing method : by dibbling at 20x20cm spacing , 3-5 seeds/hill

## Agronomic trial cont'd

Evaluation of the performance of the Nerica vs upland soil-fertility management system

- **Varieties:** Nerica n° 1, 2, 3, 4, 5, 6 and 3737 as check
  - **Fertilizer application**
  - To : no fertilizer :
  - T1: organic manure (5t/ha )
  - T2 : 22-44-32 NPK+20 N as urea (top dressed)
  - T3: 22-44-32 NPK + 5t/ha Fu + 20 N as urea (top dressed)
- (results in table n° 5)



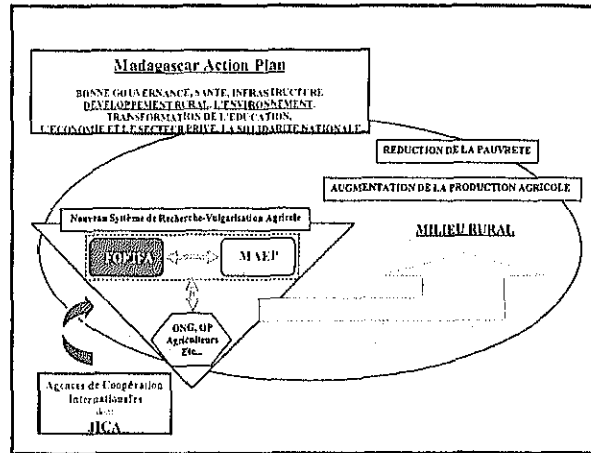
## Nerica seed multiplication

- - To avail of enough quantity of Nerica seeds for future research work
- - Land surface used for seed production : 150 to 200 m<sup>2</sup> per variety

Variety	seed produced
• Nerica 1	139kg
• Nerica 2	178kg
• Nerica 3	163kg
• Nerica 4	210kg
• Nerica 5	165kg
• Nerica 6	145kg

- **Conclusion**

- Agronomic performance of Nerica n° 2.3 and 4 similar to 3737 under the trial conditions of Kianjasoa
- On-station activities concerned the evaluation of the performance of upland Nerica varieties at hand (n° 1 to 18) under lowland and upland rice growing conditions
- Need of more information to be gathered because of the great diversity of the rice growing environments in Madagascar



Country: Madagascar

Name of writer: RASOLOFO Pierre Randrianarivony

## 1. Present Status of NERICA

(1) Research situation in your country

### 1-Implementation structure for Nerica research

The **Program for the Promotion of the NERICA** in Madagascar has been implemented since the year 2002. Since then, the National Center for Applied Research in Rural Development (**FOFIFA**) was first mandated to carry out research activities on the adaptability of the introduced Nerica varieties at research station level. During the rainy season of the year 2005 (November 2004 to May 2005), through the collaboration of **JICA**, the Ministry of Agriculture, Livestock and Fisheries (**MAEP**) and FOFIFA, on-farm participatory varietal selection (PVS) activities were carried out at different agro-ecological zones in Madagascar and the results of which were presented at the JICA-AICAD seminar organized in Kenya in December 2005.

So far, in view of the great diversity of the rice growing environments in Madagascar, Nerica-related results from the previous activities are appraised to be insufficient to sustain future dissemination of selected Nerica products. Therefore, for this year 2006 trials on Nerica were only performed at on-station level, both during the rainy season (November 2005 to May 2006) and dry season (August to December 2006) cropping periods. This research activity reorientation will help getting more information on the NERICAs and on their adaptability to major cropping conditions in Madagascar.

### Name of the Nerica related organizations

JICA-Madagascar

FOFIFA (National Center for Applied Research in Rural Development)

### Research Institute or center for Nerica research and/or trial

FOFIFA Direction Générale

FOFIFA – DRR Antananarivo

BP 1690 – 101 Antananarivo

FOFIFA – CALA – Agronomy Center of Lac Alaotra

Ambohitsilaozana /Ambatondrazaka

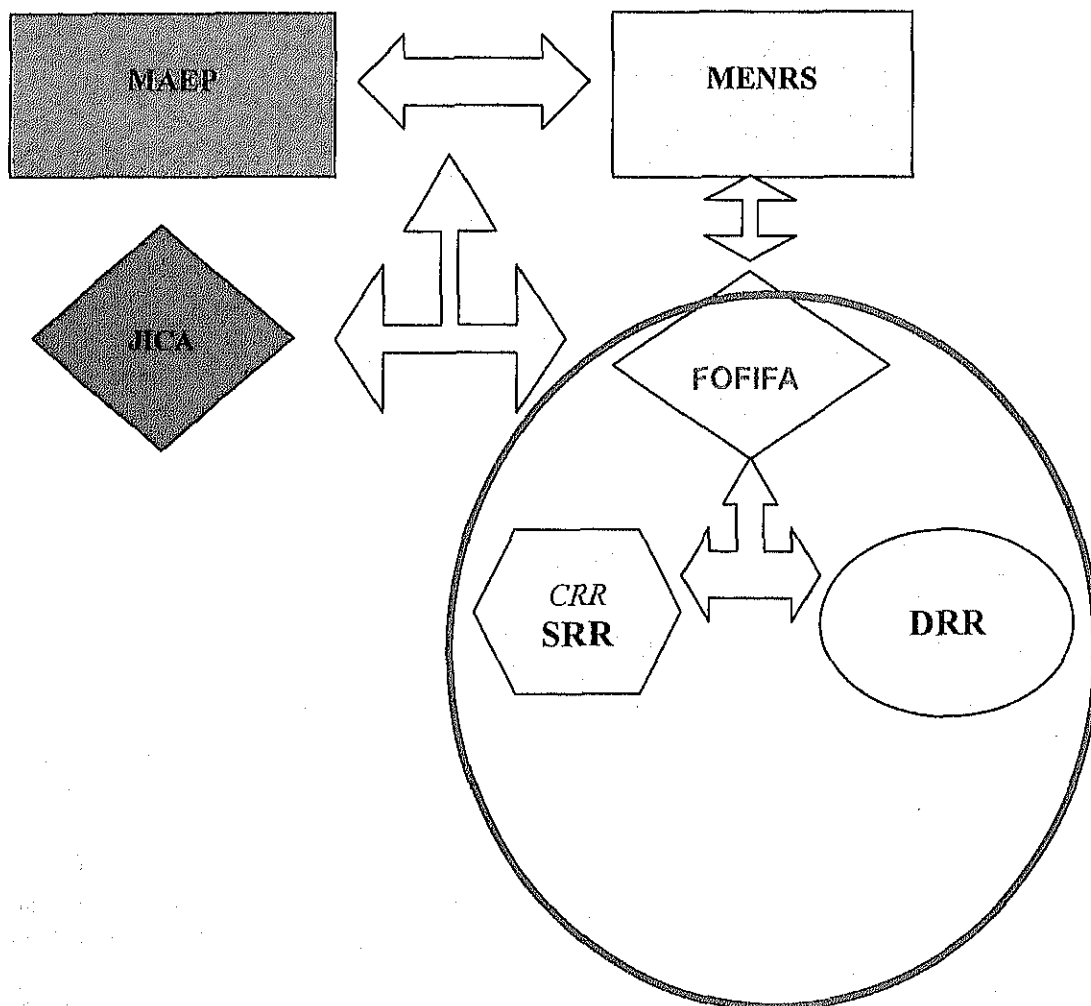
FOFIFA- Regional Research Station, Kianjasoa

BP 61 Ankadinondry Sakay, 119 Tsiroanomandidy



Position of the research Institute or center mentioned above in the NERICA related organization

### Institutional organization



- JICA-Madagascar:** Japanese International Cooperation Agency
- MAEP :** Ministry of Agriculture, Livestock and Fisheries
- MENRS:** Ministry of National Education and Scientific Research
- FOFIFA:** National Center for Applied Research in Rural Development
- DRR:** FOFIFA Department of Rice Research
- SRR :** FOFIFA Regional Research Station

## 2- Content of research topics

During the year 2006, research activities addressed to the characterization and evaluation of the performance of upland rice varieties including Nericas under irrigated lowland conditions. Under upland conditions, trials to identify the optimal date of sowing for the Nericas and the effect of soil fertility management by fertilizer application were also conducted. Activity on Nerica seed multiplication was also carried out.

### 3- Results of some trials in 2006

#### 1)- Nerica characterization trial by pot cultivation

##### Objectives

- to observe the phenotypic and agronomic characters of newly introduced rice varieties and Nerica
- to avail of seeds of rice varieties for future research activities

##### Methodology

- Location : Kianjasoa (Jan 2006)

##### varieties

Nerica n°7, 8,9,10,11,12,13,14,15,16,17, 18; Koshihikari ; Oryza glaberrima

##### Plastic buckets

- Two to three 10 day-old seedlings of each variety were transplanted into a 15l plastic bucket filled with a mixture of red mineral soil (3/4 vol) + organic manure (0.5kg) + mineral fertilizer (2g per pot as NPK) and watered every day.
- one pot represented a variety with no replication

##### data collected

plant height at maturity, panicle length, tiller number, grain size (length, width, thickness), 1000grains weight, growth duration and others based on SES

##### Results

Results are presented in table 1

The following points were worth noting :

- Nerica 8, 9, 10, 11 and Koshihikari were very short maturing varieties
- Nerica 8, 11, 13, 16, 17, 18 shattered easily while Koshihikari was hard to thresh

The collected seeds were used for field observations under irrigated lowland condition during dry cropping season (Sept to Dec 2006)

Table 1 : Agronomic traits of Nerica varieties under pot cultivation- FOFIFA (jan 2006)

Nerica	plant height (cm)	panicle length (cm)	Tiller number	grain size (mm)			1000grains weight (gramme)	growth duration (day)	other characters
				length	width	thickness			
Nerica7	97.0	15.3	17	9.6	3.2	2.3	31.2	125	weak culm
Nerica 8	94.0	19.9	12	9.4	3.1	1.9	26.0	112	high shattering
Nerica 9	91.0	19.5	21	9.6	3.0	1.9	26.1	92	short growth duration; high shattering; weak culm high grain sterility
Nerica10	81.5	17.8	13	9.2	2.9	2.2	29.1	112	short growth duration; high shattering
Nerica11	80.0	15.0	12	9.3	3.2	1.9	22.6	96	weak culm; high shattering
Nerica12	98.0	20.9	19	10.0	3.1	2.1	32.2	122	
Nerica13	109	20.1	19	9.7	3.1	2.3	33.5	125	late maturing; high shattering. ant attack
Nerica14	90.5	19.0	21	10.0	3.0	2.1	28.4	125	late maturing; ants attack
Nerica15	110.0	20.3	14	10.0	3.2	2.0	32.4	125	late maturing. strong culm; high grain sterility
Nerica16	105.0	19.0	16	9.8	3.0	2.1	31.4	125	late maturing; high shattering
Nerica17	97.0	20.7	27	10.0	3.1	2.2	35.1	125	weak culm; high shattering ants attack
Nerica18	103.0	18.5	20	9.8	2.9	1.9	29	110	high shattering; ants attack.
Koshihikari	71.0	14.4	21	8.6	2.6	1.8	22.3	105	short growth duration ; hard to thresh; difficult thoesability
O.glaberima	91.0	20.3	17	7.13	3.30	1.80	22.9	125	late maturing ; ants attack ;

2) Varietal evaluation trial of upland rice varieties including Nericas under irrigated lowland ricefield during rainy (RS) and dry (DS) seasons

**Objectives**

- To evaluate the performance of upland rice varieties under irrigated lowland conditions.
- To identify potential varieties for both upland and lowland cultivation

**Methodology :**

**Treatments :**

- 20 day-old seedlings of the above plant materials transplanted in 2-3 now 2m long at 20 x 10cm spacing, and one seedling/hill
- Fertilizer application : 22-44-32 + 15AN as dressing

**Rainy season trial**

- 44 upland rice varieties/lines from FOFIFA's upland rice collection including Nerica n°1, 2, 3, 4, 5, and 6
- No replication

**Dry season trial**

- Nerica n° 7 to 18, Koshihikari
- 2 replications

**Results**

Results from these trial are presented in table n°2 and n°3

- potential rice varieties were identified and will be used in further evaluation trials
- dry season trial still on going

Table n°2 :Phenotypic acceptability of upland under lowland conditions SRR, Kianjasoa (2006)

Varieties	PAcp	Varieties	PAcp	Varieties	PAcp
<b>NERICA</b>		Sebota8FA67	unacceptable	<b>FOFIFA</b>	
Nerica 1	good	Sebota8FA281	unacceptable	B22 (3872)	good
Nerica 2	good	Sebota SBSL2000	unacceptable	3728	good
Nerica 3	good	New introductions		3737	good
Nerica 4	good	SFn 6	good	3747	good
Nerica 5	heterogenous	SFn 55	good		
Nerica 6	poor (high grain sterility)	SFn 172	good	<b>IRAT</b>	
<b>SEBOTA</b>		SFn 185	good	IRAT 134	good
Sebota 33	unacceptable	SFn 194	good	IRAT 261	poor (high grain sterility)
Sebota 41	good	Coll 35	good		
Sebota 68	good	Coll45	good		
Sebota 86	unacceptable	Coll69	good	<b>Serie X</b>	
Sebota 94	unacceptable	CT1432	unacceptable	X 1721	good
Sebota101	unacceptable	<b>FOFIFA (Riz d'Alitude)</b>		X 1741	good
Sebota147	stérilité	FOFIFA62	good		
Sebota182	good	FOFIFA116	good		
Sebota200	good	FOFIFA153	good		
Sebota281	unacceptable	FOFIFA154	good		
Sebota330	unacceptable	FOFIFA154	good		
Sebota 337	good	FOFIFA161	good		

**PAcp:** phenotypic acceptability at maturity



table n° 3: agronomic traits of Nerica-upland varieties under lowland condition - Kianjasoa dry season 2006

Variety	plant height		fertile tiller	sterile tiller	P Acp	observations	
	culm lenght	panicle length				development	encountered problems
Nerica1	55	20.5	14	4	good	dough stage	
Nerica2	56.7	19.7	16	2	fair	maturity	
Nerica3	61.3	17.3	14	4	fair	dough stage	borer attack
Nerica4	62.3	17.2	10	3	good	dough stage	
Nerica5	51.8	17.8	13	2	fair	maturity	
Nerica6						heading	
Nerica7						heading	
Nerica8	61.0	18.5	14	2	good	maturity	
Nerica9	60.8	20.5	12	3	fair	dough stage	
Nerica10	58.2	18.5	13	2	good	maturity	
Nerica11	54.8	19.8	8	3	good	maturity	
Nerica12	72.7	21.0	11	3	fair	dough stage	
Nerica13						booting stage	
Nerica14	55.2	22.2	12	3		milky stage	
Nerica15						booting stage	
Nerica16	65.5	18.5	10	2	good	dough stage	
Nerica17	57.2	20.8	8	2		milky stage	
Nerica18	74.5	19.5	10	2		milky stage	
Koshihikari	46.5	13.8	15	3	good	maturity	

**PAcp** : phenotypic acceptability

3) Trial for the evaluation of the performance of the NERICA, at different dates of sowing

justification: changes of the rainfall pattern during the last decades

**Objectives :**

- to know the optimal date of sowing for upland rice cropping
- to study environmental factors that may affect the productivity of the upland at different dates of sowing

**Methodology :**

treatments

- varieties : Nerica n° 1, 2, 3, 4, 5, 6 and FOFIFA 3737 used as check
- date of sowing : **D1** : 24-11-2005  
**D2** : 14-12-2005  
**D3** : 04-01-2006
- experimental design
  - + RCBD with no replication
  - + plot size : 5mx 6m (30m<sup>2</sup>)
  - sowing method : by dibbling at 20X20cm spacings , 3-5 seeds/hill
- Fertilizer rate : 22-44-32 NPK+5t/ha FU + 30N as urea for topdressing

Date collected : plant height, tiller number; panicle length, grain yield

## Results :

Presented in table n°4

table n°4 : agronomic traits of the Nerica at different dates of sowing under upland conditions  
Kianjasoa 2006

	plant height			tiller number			yield		
	D1	D2	D3	D1	D2	D3	D1	D2	D3
N1	50.8	75	57.2	8	8	7	2.6	0.75	1.85
N2	60.2	73.4	60.4	7	12	8	2.1	1.0	1.85
N3	75.6	88.8	66.7	8	10	8	3.2	2.1	2.8
N4	81.6	73.2	70	7	7	8	1.1	0.70	2.35
N5	70.4	78	67.7	8	15	9	2.1	1.2	1.75
N6	74.6	90	68.9	9	10	8	3.1	1.1	2.3
3737	90.4	85	82.6	9	7	9	3	1.3	2.2

**D1** : 24-11-2005

(N1) : Nerica 1

**D2** : 14-12-2005

**D3** : 04-01-2006

- Higher grain yields were obtained in **D1**
- Plant growth was more profuse in **D2** comparatively to **D1** and **D3**, it was the lowest in **D3**
- At any sowing date, grain yield of N3 was relatively stable
- Lower yield obtained in **D2** was attributed to severe insect damages

#### 4) Evaluation trial of the performance of the Nerica under soil- fertility management system by fertilizer application

### Objectives :

- To evaluate the yield performance of the Nerica variety by fertilizer application in upland soil fertility management system

### Methodology :

#### Treatment :

##### varieties

Nerica n° 1, 2, 3, 4, 5, 6 and 3737 as check

##### Fertilizer application

To : no fertilizer :

T1: organic manure (5t/Ha )

T2 : 22-44-32 NPK+20 N as urea (top dressed)

T3: 22-44-32 NPK + 5t/Ha Fu + 20 N as urea (top dressed)

**- experimental design**

- RCBD with 3 replications
- Plot size : 6 x 5m (30m<sup>2</sup>)
- Sowing method : by dibbling at 20x20cm spacing , 3-5 seeds/hill

**Results :**

Presented in table n° 5

Table n°5 : agronomic traits of the NERICA upland varieties based on soil fertility management system at 2 dates of sowing, Kianjasoa -2006

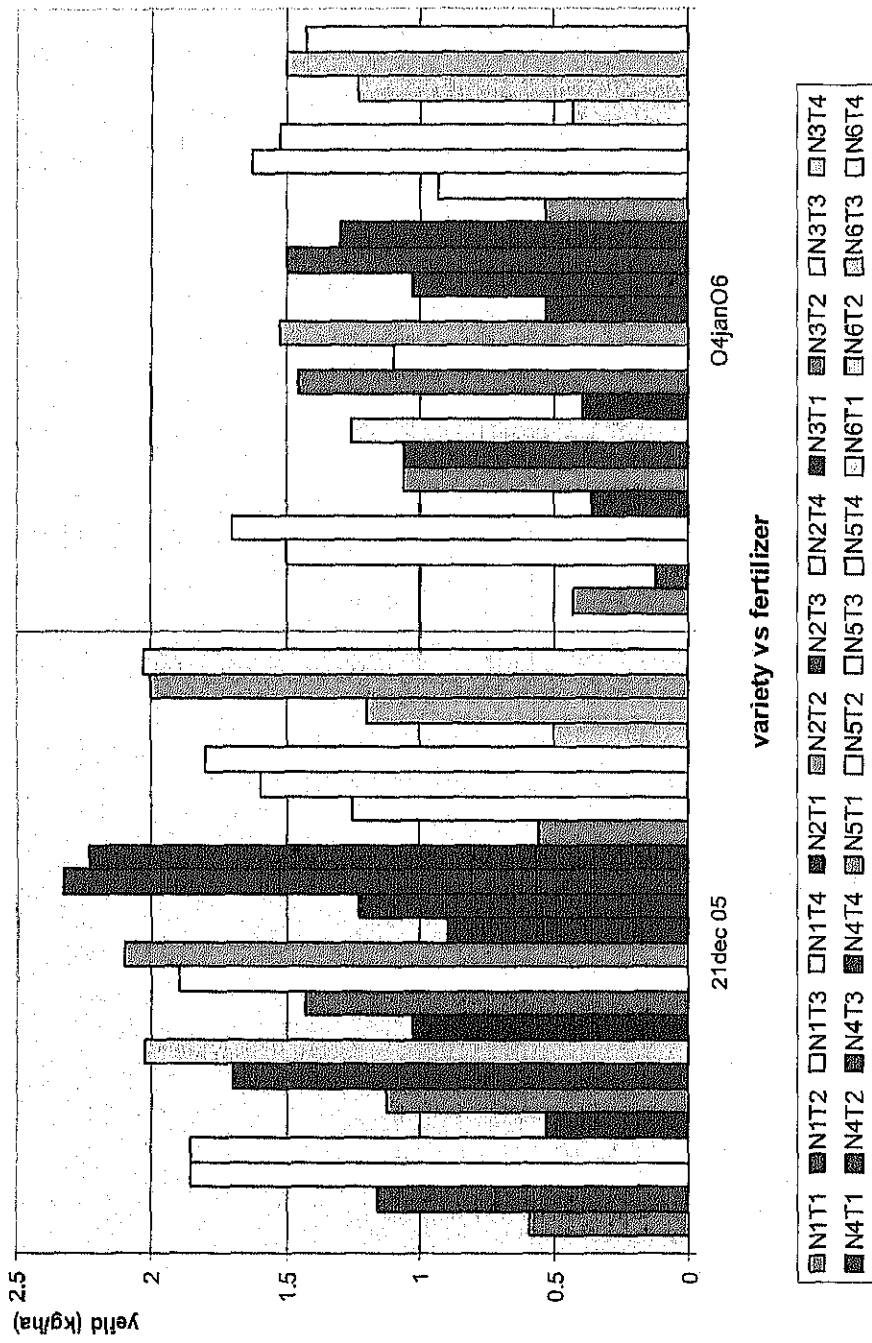
		(21déc 2005)				(04jan2006)			
		yield (t/ha)	tiller (nbr)	plant heigth (cm)	paniel length. (cm)	Yield (t/ha)	tiller (nbr)	plant heigth (cm)	panicle length (cm)
N1	T0	<b>0.60</b>	6	53.3	15.7	<b>0.43</b>	7	58.1	16.7
	T1	<b>1.16</b>	9	64.9	18.1	<b>0.13</b>	9	67.4	17.7
	T2	<b>1.86</b>	10	72.9	17.8	<b>1.50</b>	8	71.4	18.6
	T3	<b>1.86</b>	11	69.2	18.4	<b>1.70</b>	11	73.3	18.5
N2	T0	<b>0.53</b>	7	54.3	16.7	<b>0.36</b>	6	62.7	17.2
	T1	<b>1.13</b>	8	63.1	18.3	<b>1.06</b>	11	71.5	19.9
	T2	<b>1.70</b>	9	69.1	19.1	<b>1.06</b>	9	73.1	20.0
	T3	<b>2.03</b>	11	71.1	19.0	<b>1.26</b>	12	75.5	20.7
N3	T0	<b>1.03</b>	7	65.3	17.7	<b>0.40</b>	6	69.7	18.4
	T1	<b>1.43</b>	9	82.6	19.8	<b>1.46</b>	10	86.2	21.6
	T2	<b>1.90</b>	10	82.0	20.3	<b>1.10</b>	9	84.5	21.2
	T3	<b>2.10</b>	10	86.1	19.4	<b>1.53</b>	10	86.5	21.7
N4	T0	<b>0.90</b>	7	60.5	17.9	<b>0.53</b>	7	73.3	18.9
	T1	<b>1.23</b>	9	66.1	17.9	<b>1.03</b>	10	87.7	21.5
	T2	<b>2.33</b>	11	86.0	19.6	<b>1.50</b>	8	82.1	19.7
	T3	<b>2.23</b>	10	80.1	19.4	<b>1.30</b>	11	89.0	21.1
N5	T0	<b>0.56</b>	6	59.5	17.2	<b>0.53</b>	6	64.4	17.2
	T1	<b>1.26</b>	10	63.6	17.5	<b>0.93</b>	9	69.0	19.4
	T2	<b>1.60</b>	10	71.4	18.8	<b>1.63</b>	11	72.8	19.9
	T3	<b>1.80</b>	10	66.9	18.0	<b>1.53</b>	10	70.4	20.1
N6	T0	<b>0.50</b>	6	63.5	19.5	<b>0.43</b>	5	69.9	18.4
	T1	<b>1.20</b>	8	82.1	20.7	<b>1.23</b>	9	90.1	22.1
	T2	<b>2.00</b>	10	97.5	19.9	<b>1.50</b>	11	92.9	22.4
	T3	<b>2.03</b>	9	94.1	21.4	<b>1.43</b>	10	97.0	23.5
3737 (check)	T0	<b>0.80</b>	7	58.5	17.8	<b>0.72</b>	7	58.5	16.5
	T1	<b>1.53</b>	9	76.0	17.8	<b>1.12</b>	8	75.6	17.8
	T2	<b>2.41</b>	10	85.1	20.7	<b>2.0</b>	10	80.2	19.3
	T3	<b>2.38</b>	10	83.6	20.2	<b>1.89</b>	10	83.2	19.4
CV		<b>3.8%</b>				<b>11.9%</b>			

(N1) : Nerica 1 ;

T0 : no fertilizer - T1: organic manure (5t/Ha )

T2 : 22-44-32 NPK+20 N as urea (top dressed)

T3: 22-44-32 NPK + 5t/Ha Fu + 20 N as urea (top dressed)



variety vs fertilizer

N1 : Nerica n° 1  
 T1 = no fertilizer application  
 T2 : organic manure (5t/ha)  
 T3 : 22-44-32 NPK+20 N as urea (top dressed)  
 T4 : 22-44-32 NPK + 5t/ha Fu + 20 N as urea (top dressed)

fig1 : grain yield of Nerica varieties vs soil fertility management system by fertilizer application vs date of sowing – Kianjasoa 2006

The following points are worth noting ;

Variety ;:

- higher grain yield obtained from Nerica 4 and Nerica 1 compared to Nerica 2 , 3, 5 and 6 under any type of soil fertility management assessed
- no statistically significant difference between yields of Nerica vs 3737

fertilizer application :

- significant difference between T0 and T1,T2 and T3
- significant difference between T1 and T2 , T3
- no significant difference between T2 and T3

period of planting

higher grain yield of the Nerica crop in december planting compared to january planting

*5) Seed multiplication*

- To avail of enough quantity of Nerica seeds for future research work
- Land surface used for seed production : 150 to 200 m<sup>2</sup> per variety

Variety	Production
Nerica 1	139kg
Nerica 2	178kg
Nerica 3	163kg
Nerica 4	210kg
Nerica 5	165kg
Nerica 6	145kg

**Conclusion**

- ✓ Agronomic performance of Nerica n° 2,3 and 4 similar to 3737 under the trial conditions of Kianjasoa
- ✓ On-station activities concerned the evaluation of the performance of upland Nerica varieties at hand (n° 1 to 18) under lowland and upland rice growing conditions
- ✓ Need of more information to be gathered because of the great diversity of the rice growing environments in Madagascar

PROBLEMS AND CONSTRAINTS OF THE RESEARCH WORK

1

NERICA DISSEMINATION PLAN

none

NERICA Research Plan for 2007

On-station activities dealing with

- Varietal trials under different cropping conditions
- Agronomic trials on soil fertility management

How many staffs will be involved on NERICA research?

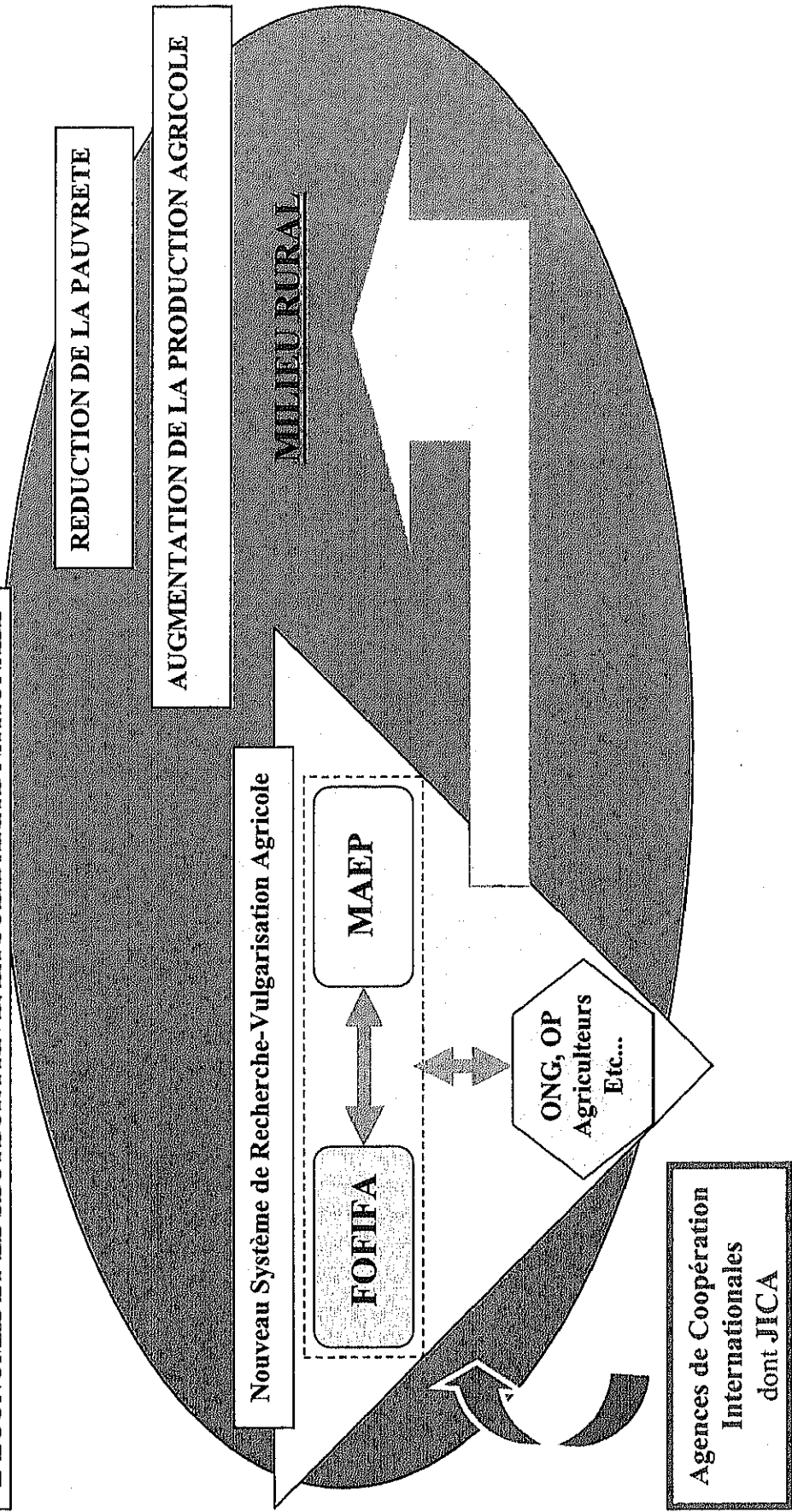
Multidisciplinary approach on process

What kind of assistance do you need for NERICA research?

- technical
- equipments

# Madagascar Action Plan

BONNE GOUVERNANCE, SANTE, INFRASTRUCTURE  
DEVELOPPEMENT RURAL, L'ENVIRONNEMENT,  
TRANSFORMATION DE L'EDUCATION,  
L'ECONOMIE ET LE SECTEUR PRIVE. LA SOLIDARITE NATIONALE



5 day rainfall and temperature pattern from October 2005 to June 2006 – SRRR kianjasoa

rainfall (mm)

temm (°C)

