



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FOR PDF COPY, SCAN HERE



Brochure

AGRO-INPUT PACKAGES FOR LIBERIA

 **PAIRED EnGRAIS**
led by CORAF



USAID
FROM THE AMERICAN PEOPLE




Introduction

Poor agricultural productivity in West African countries and Chad is partly related to the insufficient use of suitable agricultural inputs, including improved seed varieties and appropriate fertilizers. Indeed, it is generally said that in this region the rate of coverage of quality certified seed requirements is still around 25% and that the average amount of nutrients used in ECOWAS region is about 17 kg/ha of nutrients less than half of the 50 kg/ha set to be achieved by 2015 as advocated by the Abuja Summit of June 2006, below the 24 kg/ha of nutrients on average for Africa and far below the world average of 123 kg per hectare of nutrients. Among the many reasons that have caused this situation is the poor availability and accessibility of quality inputs and poor access to agricultural extensions services, to knowledge and in short to accurate information about agricultural inputs.

The Feed the Future Partnership for Agricultural Research, Education and Development (PAIRED) and Enhancing Growth through Regional Agricultural Inputs Systems (EnGRAIS) are two, five-year (2017-2022 and 2018-2023, respectively) projects funded by the United States Agency for International Development West Africa Regional Mission (USAID/WA) and implemented by the West and Central African Council for Agricultural Research and Development (CORAF) and the International Fertilizer Development Center (IFDC), respectively. PAIRED and EnGRAIS, within the framework of their close cooperation and backed by their implementers, have a common objective to develop and make available to West African producers and other agricultural sector actors both agricultural input packages (AIPs) and an online platform as decision making tools. The AIPs contain information on locally adapted improved seeds, appropriate fertilizers, and information on good agricultural practices (GAPs) specific to each crop variety and agro-ecological zone (AEZ) across West Africa and Chad designed to boost agricultural yields and productivity.

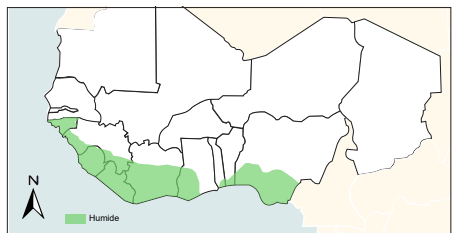
EnGRAIS and PAIRED projects, have a common objective that aims to develop and make available to producers in West Africa AIPs and an online platform that will enable the actors of the agricultural sector to have information on improved seeds, appropriate fertilizer recommendations and GAPs for the main crops of the region according to the different AEZs to boost agricultural yields and productivity. To this end, they have developed AIPs and the Fertilizer and Seed Recommendations for West Africa Map, (FeSeRWAM) platform (www.feserwam.org). The FeSeRWAM platform is the successor of the Fertilizer recommendations for West Africa Map, (FeRWAM), and will be deployed online as well as the associated AIPs, to be available to all stakeholders. The AIPs are embedded in the FeSeRWAM platform, accessible online via internet, cell phones, computers and several other means of dissemination are planned.

EnGRAIS and PAIRED to ensure that access to online documents is not a hindrance for the main targets which are private and public extension agents, fertilizer, and seed dealers have decided to produce these catalogs that can be used in the field to sensitize, advise and train the end users which are farmers. Therefore, country catalogs have been developed and a regional catalog which partly covers the region for this first version but whose goal is to cover all the countries of

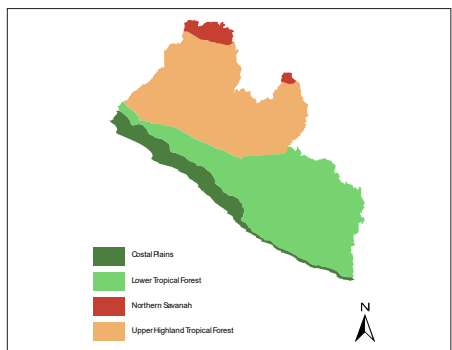


the ECOWAS area, Chad, and Mauritania. These country catalogs and the regional one is of course likely to be revised periodically to consider new technologies but also the demand of the beneficiaries.

In the country as well as regional booklet, the AIPs are organized by crop. The booklet is a synthesis of the most relevant technical information with some illustrations to guide the technicians in their dialogue with the producers so that, depending on his specific locality, the producer can produce efficiently through judicious choices of crops seed/ varieties, appropriate fertilizers, GAP's and have a good technical instruction that will guide them to obtain optimal production. For this reason, the AIP booklet provides information on the Crop (varieties, varietal characteristics, local names, performance, and resistance to various constraints), Fertilizer (nutrient recommendations, type of fertilizer, rates, periods, mode of application and appropriate organic fertilizer) , Crop Management (tillage, water management, weed management, crop residue management, management of organic manure and organo-mineral amendments), and the Locality(regional AEZ, country AEZ, specific locations and many other relevant information).



WEST AFRICA AGRO-ECOLOGICAL ZONE
HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE
UPPER HIGHLAND TROPICAL FOREST
Isohyet range (mm/per year) > 1500-2000

DESCRIPTION

Crop name	Cassava
Variety name	Bassa girl
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	
Seed Unit	
Spacing	1 m x 1 m
Grain/Flesh Color	
Planting / Sowing Time	April - May
Production system (Ecology en Français)	Rainfall
Number of days from sowing / planting to maturity	300-330
Potential Yield	8 tonnes/ha
Country Average	8 tonnes/ha
Pest resistance	Low
Disease resistance	Low
Other stresses	
Nutritional quality	
Other qualities	

NUTRIENT RECOMMENDATIONS

68N-12P2O5-88K2O

ORGANIC FERTILIZER

Application rate: -

FERTILIZER SPECIFICATION ①

Application rate 148 kg of Urea (3 bags of 50 kg/ha) (kg/ha):
Time of Application: 2 - 6 Weeks after splanting

FERTILIZER SPECIFICATION ②

Application rate 60 kg of SSP (1.2 bags of 50 kg/ha) (kg/ha):
Times of Application (kg/ha): 2 - 6 Weeks after splanting

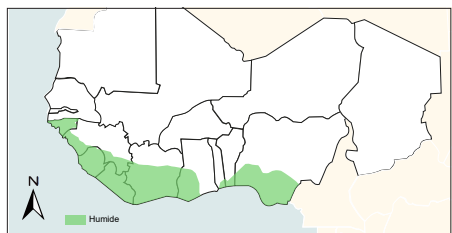
FERTILIZER SPECIFICATION ③

Application rate: 147 kg of MOP (3 bag of 50 kg/ha)
Application period: 2 - 6 Weeks after splanting

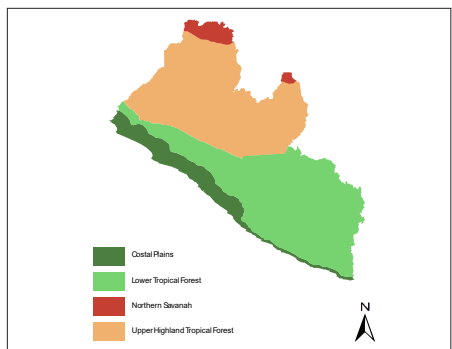


GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough, harrow, Minimum/zero tillage
Method of fertilizer application	Side placement, Broadcasting
Amendments	
Water Management	Upland Rainfed
Pest Management	Scout for insects and apply pesticide (IPM)
Weed Control	Good agricultural practices (manual weeding) and use of herbicide
Cropping System	Intercrop legumes



WEST AFRICA AGRO-ECOLOGICAL ZONE
HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE
UPPER HIGHLAND TROPICAL FOREST
Isohyet range (mm/per year) > 1500-2000

DESCRIPTION	
Crop name	Rice
Variety name	LAC 23
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	
Seed Unit	kg/ha
Spacing	25 cm x 25 cm
Grain/Flesh Color	Red
Planting / Sowing Time	March-April
Production system (Ecology en Français)	Rainfall
Number of days from sowing / planting to maturity	120
Potential Yield	4 tonnes/ha
Country Average	4 tonnes/ha
Pest resistance	Low
Disease resistance	Low
Other stresses	
Nutritional quality	High in Protein
Other qualities	



FERTILIZER SPECIFICATION 1	
Application rate (Kg/ha):	80 kg of Urea (1.6 bags of 50 kg/ha)
Times of Application:	During transplanting

FERTILIZER SPECIFICATION 2	
Application rate (kg/ha):	250 kg of SSP (5 bags of 50 kg/ha)
Time of Application:	During transplanting

FERTILIZER SPECIFICATION 3	
Application rate:	50 kg of MOP (1 bag of 50 kg/ha)
Application period:	During transplanting

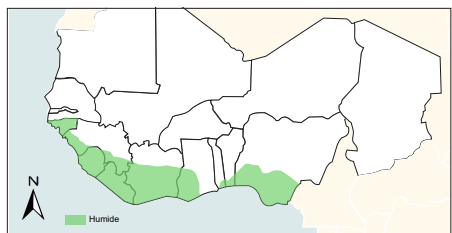
FERTILIZER SPECIFICATION 4	
Application rate:	80 kg of Urea (1.6 bag of 50 kg/ha)
Application period:	2-3 weeks after transplanting

NUTRIENT RECOMMENDATION	
120N - 50P2O5 - 30K2O	

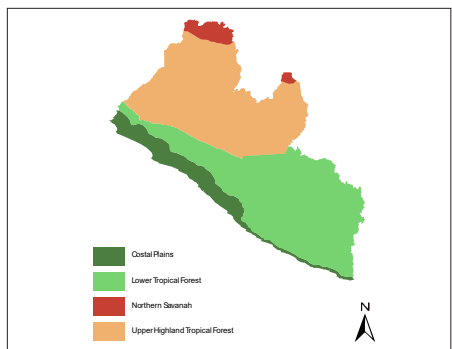
ORGANIC FERTILIZER RECOMMENDATION	
Application rate:	80 kg of Urea



GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT	
Soil and Water Conservation Techniques	Plough, harrow, Minimum/zero tillage
Method of fertilizer application	Side placement, Broadcasting
Amendments	
Water Management	Upland Rainfed
Pest Management	Scout for insects and apply pesticide (IPM)
Weed Control	Good agricultural practices (manual weeding) and use of herbicide
Cropping System	Intercrop with cassava/legumes



WEST AFRICA AGRO-ECOLOGICAL ZONE
HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE
UPPER HIGHLAND TROPICAL FOREST
Isohyet range (mm/per year) > 1500-2000

DESCRIPTION	
Crop name	Rice
Variety name	Nerica 14
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	
Seed Unit	kg/ha
Spacing	25 cm x 25 cm
Grain/Flesh Color	white
Planting / Sowing Time	March-April
Production system (Ecology en Français)	Rainfall
Number of days from sowing / planting to maturity	90-100
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	Low
Disease resistance	Low
Other stresses	
Nutritional quality	
Other qualities	



FERTILIZER SPECIFICATION 1	
Application rate (Kg/ha):	80 kg of Urea (1.6 bags of 50 kg/ha)
Times of Application:	During transplanting

FERTILIZER SPECIFICATION 2	
Application rate (kg/ha):	250 kg of SSP (5 bags of 50 kg/ha)
Time of Application:	During transplanting

FERTILIZER SPECIFICATION 3	
Application rate:	50 kg of MOP (1 bag of 50 kg/ha)
Application period:	During transplanting

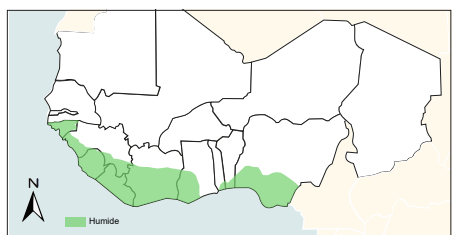
FERTILIZER SPECIFICATION 4	
Application rate:	80 kg of Urea (1.6 bag of 50 kg/ha)
Application period:	2-3 weeks after transplanting

NUTRIENT RECOMMENDATION	
120N - 50P2O5 - 30K2O	

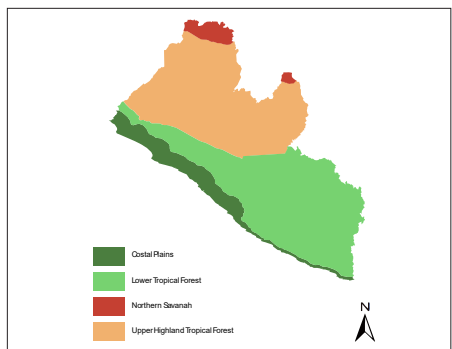
ORGANIC FERTILIZER RECOMMENDATION	
Application rate:	80 kg of Urea



GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT	
Soil and Water Conservation Techniques	Plough, harrow, Minimum/zero tillage
Method of fertilizer application	Side placement, Broadcasting
Amendments	
Water Management	Upland Rainfed
Pest Management	Scout for insects and apply pesticide (IPM)
Weed Control	Good agricultural practices (manual weeding) and use of herbicide
Cropping System	Intercrop with cassava/legumes



WEST AFRICA AGRO-ECOLOGICAL ZONE
HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE
UPPER HIGHLAND TROPICAL FOREST
Isohyet range (mm/per year) > 1500-2000

DESCRIPTION 

Crop name	Rice
Variety name	Nerica LI9
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	
Seed Unit	kg/ha
Spacing	25 cm x 25 cm
Grain/Flesh Color	white
Planting / Sowing Time	March-April
Production system (Ecology en Français)	Rainfall
Number of days from sowing / planting to maturity	90-100
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	Low
Disease resistance	Low
Other stresses	
Nutritional quality	
Other qualities	



FERTILIZER SPECIFICATION **1**

Application rate (Kg/ha):	80 kg of Urea (1.6 bags of 50 kg/ha)
Times of Application:	During transplanting

FERTILIZER SPECIFICATION **2**

Application rate (kg/ha):	250 kg of SSP (5 bags of 50 kg/ha)
Time of Application:	During transplanting

FERTILIZER SPECIFICATION **3**

Application rate:	50 kg of MOP (1 bag of 50 kg/ha)
Application period:	During transplanting

FERTILIZER SPECIFICATION **4**

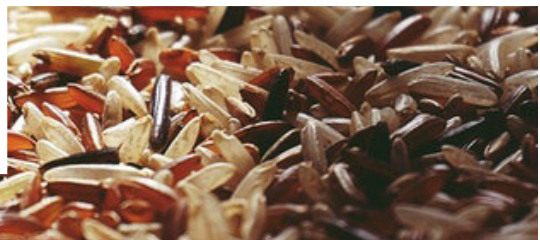
Application rate:	80 kg of Urea (1.6 bag of 50 kg/ha)
Application period:	2-3 weeks after transplanting

NUTRIENT RECOMMENDATION 

120N - 50P2O5 - 30K2O

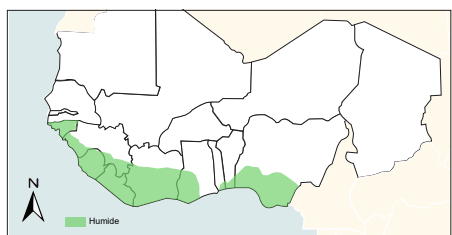
ORGANIC FERTILIZER RECOMMENDATION 

Application rate:	80 kg of Urea
-------------------	---------------

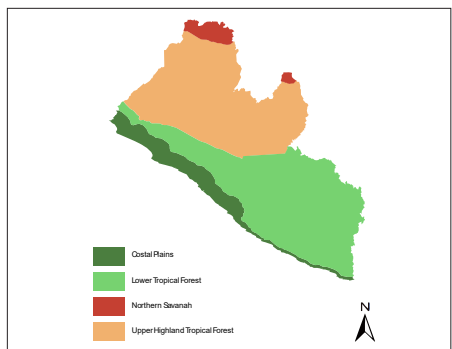


GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT 

Soil and Water Conservation Techniques	Plough, harrow, puddling and leveling, bunding, minimum/zero tillage
Method of fertilizer application	Side placement, Broadcasting, UDP
Amendments	
Water Management	Basin, alternate wetting and drying, drainage
Pest Management	Scout for insects and apply pesticide (IPM)
Weed Control	Good agricultural practices (manual weeding) and use of herbicide
Cropping System	Continuous monocropping



WEST AFRICA AGRO-ECOLOGICAL ZONE
HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE
UPPER HIGHLAND TROPICAL FOREST
Isohyet range (mm/per year) > 1500-2000

DESCRIPTION 

Crop name	Rice
Variety name	Suakoko 8
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	
Seed Unit	kg/ha
Spacing	25 cm x 25 cm
Grain/Flesh Color	white
Planting / Sowing Time	March-April
Production system (Ecology en Français)	Rainfall
Number of days from sowing / planting to maturity	120
Potential Yield	4 tonnes/ha
Country Average	4 tonnes/ha
Pest resistance	Low
Disease resistance	Low
Other stresses	
Nutritional quality	
Other qualities	Resistance to lodging



FERTILIZER SPECIFICATION **1**

Application rate (Kg/ha):	80 kg of Urea (1.6 bags of 50 kg/ha)
Times of Application:	During transplanting

FERTILIZER SPECIFICATION **2**

Application rate (kg/ha):	250 kg of SSP (5 bags of 50 kg/ha)
Time of Application:	During transplanting

FERTILIZER SPECIFICATION **3**

Application rate:	50 kg of MOP (1 bag of 50 kg/ha)
Application period:	During transplanting

FERTILIZER SPECIFICATION **4**

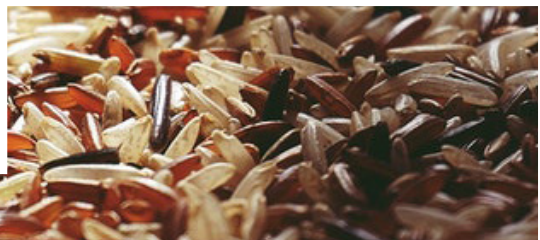
Application rate:	80 kg of Urea (1.6 bag of 50 kg/ha)
Application period:	2-3 weeks after transplanting

NUTRIENT RECOMMENDATION 

120N - 50P2O5 - 30K2O

ORGANIC FERTILIZER RECOMMENDATION 

Application rate:	80 kg of Urea
-------------------	---------------



GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT 

Soil and Water Conservation Techniques	Plough, harrow, puddling and leveling, bunding, minimum/zero tillage
Method of fertilizer application	Side placement, Broadcasting, UDP
Amendments	
Water Management	Basin, alternate wetting and drying, drainage
Pest Management	Scout for insects and apply pesticide (IPM)
Weed Control	Good agricultural practices (manual weeding) and use of herbicide
Cropping System	Continuous monocropping



FOR PDF COPY, SCAN HERE



Dr. Marcus JONES
Director General, CARI
dawolo2005@yahoo.com

Robert K. Fagans
Ministry of Agriculture
rfagans@moa.gov.lr

Venus McGill

Emmanuel Lincoln
Ministry of Agriculture
e.lincoln@yahoo.com

Moses G. Zolue
Ministry of Agriculture
mozolue@yahoo.com

Janjay Nupe Mensah
Ministry of Agriculture
janjaynclarke@gmail.com



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



EnGRAIS



USAID
FROM THE AMERICAN PEOPLE



Acknowledgements

Special thanks go to all stakeholders, including national experts, individuals, and organizations for their contribution to AIP data collection and validation. Special thanks also to our various national and regional stakeholders from public and private sectors and civil societies ones who participated in various meetings and workshops to develop and validate the AIPs and the FeSeRWAM. We wish to thank IFDC and CORAF staff who were involved in the process, as well as supervisors who provided guidance and advice during the process. Finally, our thanks go to USAID/WA for their support through project funding and technical assistance and guidance provided to both EnGRAIS and PAIRED projects. We thank you all for your involvement and contribution in various ways to achieve this result.