GOUVERNEMENT
RÉPUBLIQUE DU SÉNÉGAL

Ministère de l'Agriculture et de l'Équipement Rural

An Open Science Model: Regional Center of Excellence (RCE) on dryland crops

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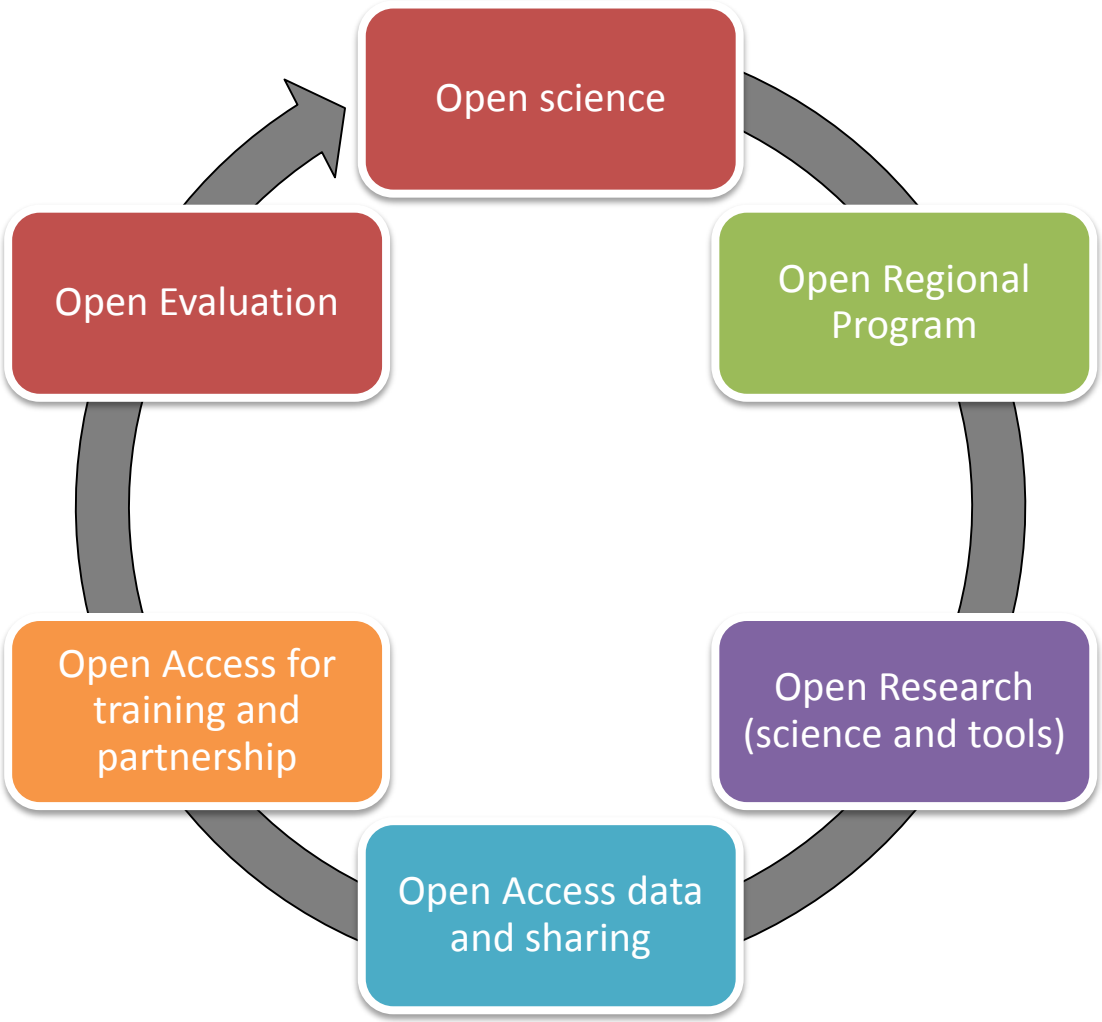
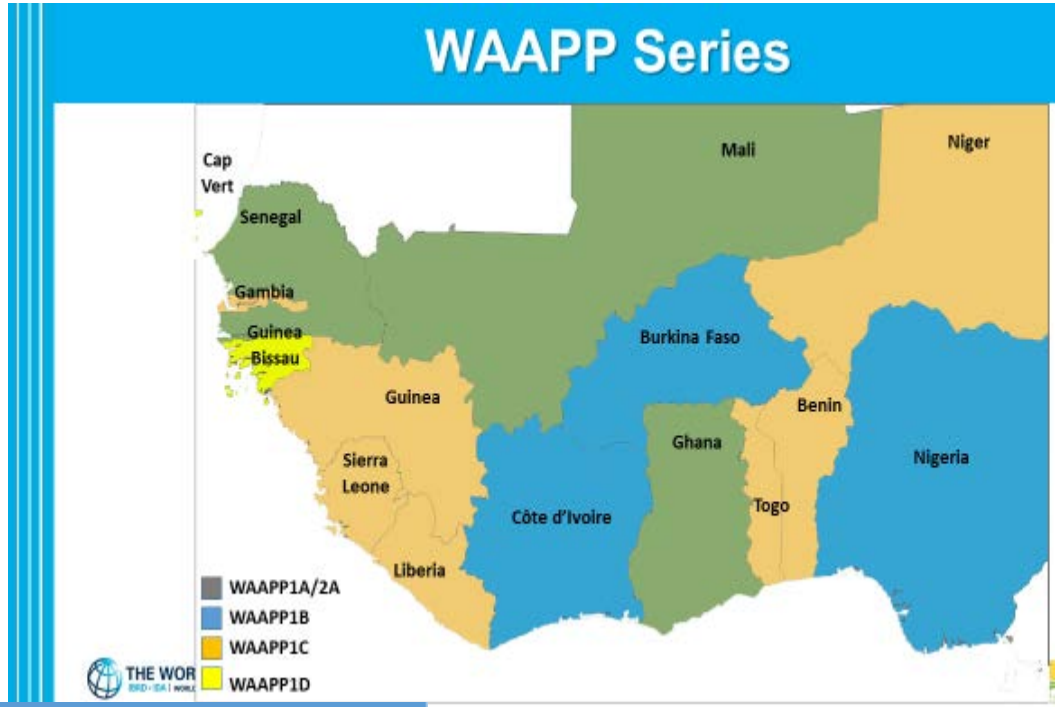
CERAAS
Centre d'étude régional pour l'amélioration de l'adaptation à la sécheresse

TAXONOMY OF OUR OPEN SCIENCE

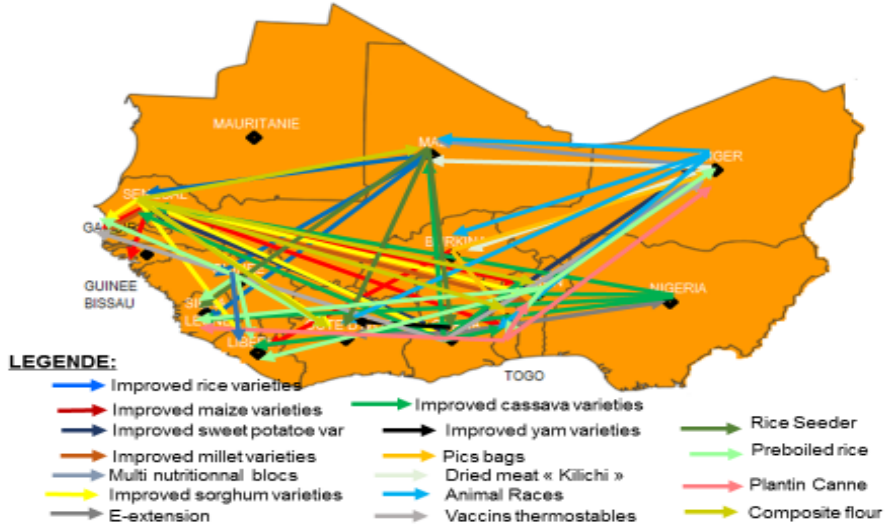


WEST AFRICAN AGRICULTURAL PRODUCTIVITY PROGRAM (WAAPP)

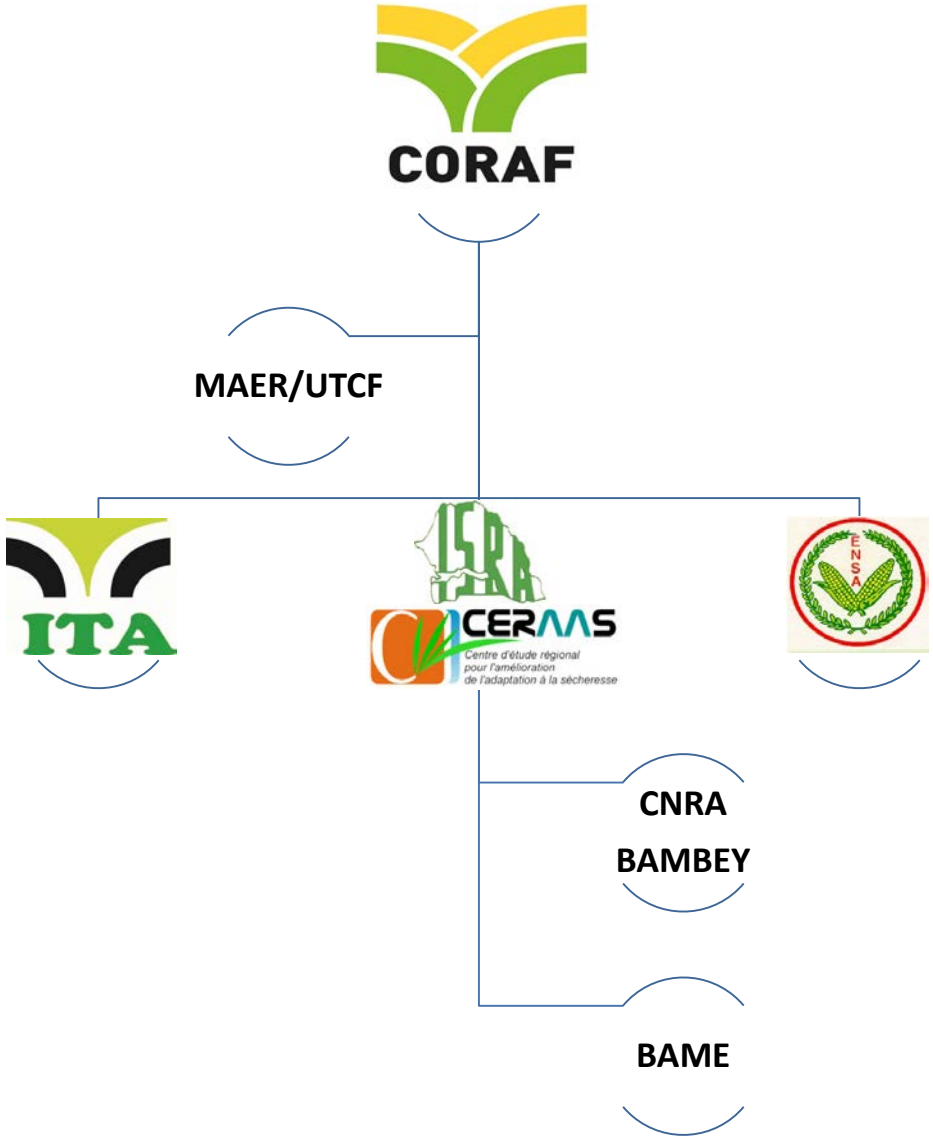
- Flagship program and a regional model of cooperation in WA
- 13 countries involved
- Generate and disseminate improved technologies



… WAAPP boosting technology and innovation exchange and adoption



Organigramme du CRE



WE ARE ADDRESSING SDGs AND CONTRIBUTING TO THE *PLAN SENEGAL EMERGENT* (PSE)

MANDATE

Generation of knowledge and technologies to improving agricultural productivity in Senegal and the dryland countries of West Africa

MISSIONS

- ❑ **Non-profit**
- ❑ Quality of research projects
- ❑ Partenership with CGIAR and ARI
- ❑ ISO Certification of the laboratories
- ❑ Capacity building of scientists, PhD and Master students
- ❑ Regional networking and research planning

WE WORK TO IMPROVE DROUGHT ADAPTATION

- Physiological and molecular basis of crop responses to drought
- Characterization of the Target Populations of dry Environments
- Crop genetic diversity and breeding
- Socio-economic studies of the target crops value chains

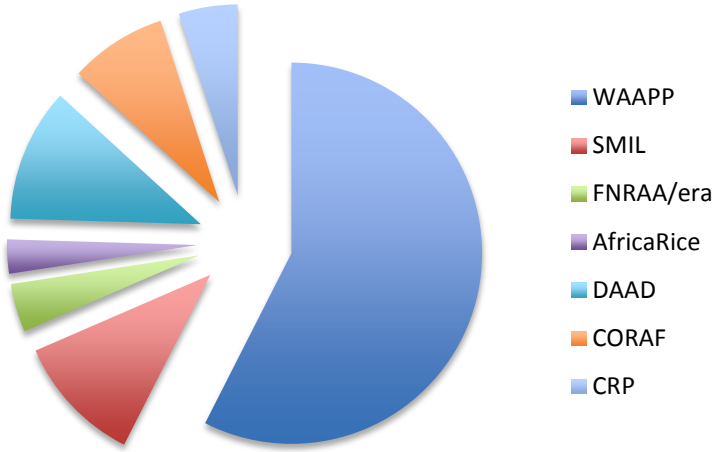
WE GENERATE DATA THROUGH RESEARCH PROJECTS (2012-2017)

CO-CONSTRUCTORS

- ❑ 84 researchers (54 PhD, 30 Master), Lab and field technicians
- ❑ Universities
- ❑ NARS and International research institutes
- ❑ Farmers organizations
- ❑ Extensions Services

CO-FUNDERS

- GCP_BMGF
- Kirkhouse
- UE (ANR, Agropolis)
- South Korean KOPIA
- German Cooperation DAAD
- USAID-FEED THE FUTURE Innovation Labs and ERA
- IFPRI
- Etc.

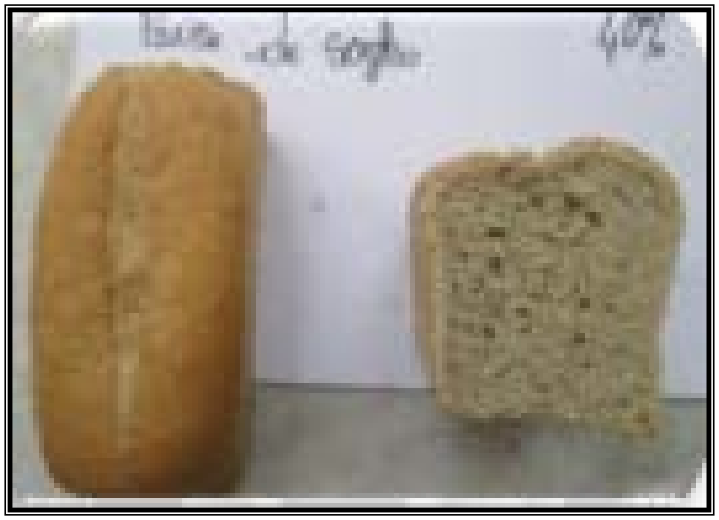


WE RELEASED DROUGHT-ADAPTED, CLIMATE SMART TECHNOLOGIES

Crops	Technologies	Characteristics	Potential (t/ha)
Sorghum	2 varieties	Short cycle	4
Cowpea	5 varieties	Short cycle	2.4 – 3
Peanut	10 varieties	8 short cycle, 2 intermediate	2.5 – 3
Sesame	5 varieties	1 extra-short and 4 short cycle	1.4 – 2.3

WE ADDED VALUE TO DATA IN ADMIXTURES TECHNOLOGIES

Crops	Technologies	Impact
Sorghum	Baking with mixed wheat and millet flour	20 – 30% of incorporation
Sorghum	Sorghum Malt	Increase the volume of the bread
Maize, millet	Mineral fertilization formula	Yield increase with good economical profitability



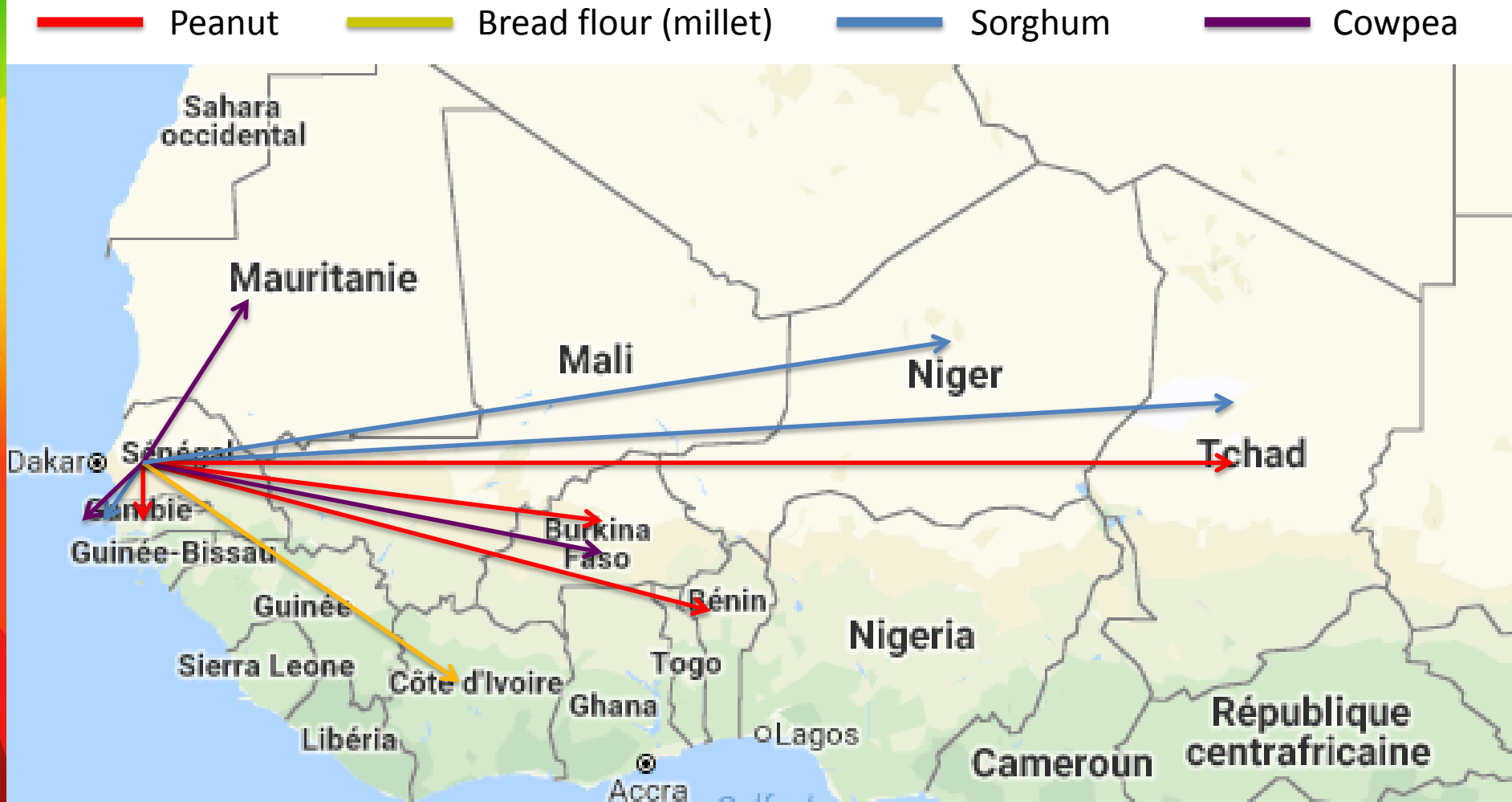
WE ARE HARNESSING BIODIVERSITY DATA AND PRACTICES FOR SUSTAINALBLE PRODUCTIVITY ENHANCEMENT

Crops	Technologies	Impact
Maize, millet	Technical solution for manure conservation	50% yield increase compared to the traditional methods
Sorghum	Technical solution for cowpea and sorghum intercropping in recession conditions	17% increase in grain and haulm yield
Millet, fonio, cowpea	Wide collection of genetic ressources	Mining interesting alleles

WE HELP DEVELOP PROTOTYPES

- A 18-hole disc mechanized distribution system for sowing sesame
- An oil press to improved oil extraction for sesame
- 2 multifunctional prototypes of granulator (arraw, thiackry, couscous) for millet
- Threshing prototype for fonio

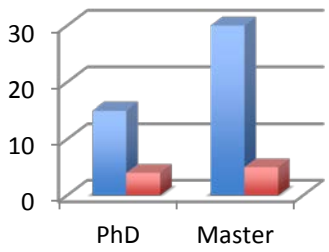
OPENED AND SHARED TECHNOLOGIES

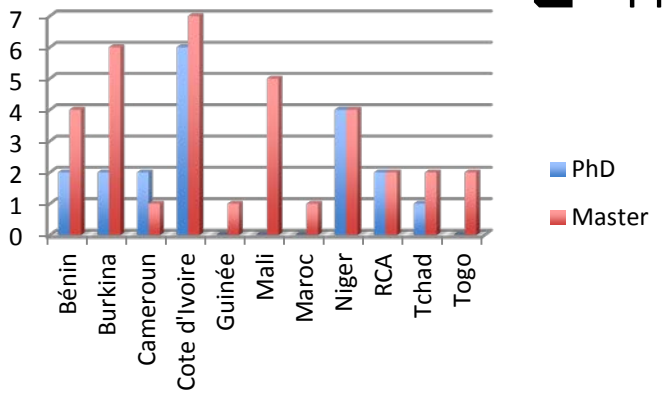


WE TRAINED/EMPOWERED NEXT GENERATION OF SCIENTISTS

DEGREE

- 107 PhD, 135 masters
- 43% Women
- DAAD Coorporation since 2002:
  - 29 PhD
  - 57 Master students
  - 12 African countries trained





SHORT-TERM REGIONAL TRAINING

- Molecular marker and their use in diversity analysis and breeding
- Physiology and crop modelling

2 MASTERS

- Seed technology
- Plant Health and protection

… and leaders - ALUMNI PhD

F. Hamidou
ICRISAT Niamey

N. Belko
U.Bobo Dioulasso

S. Bourou
Dir. Reg. IRAD

S. Salack
WASCAL, Ouaga

L. Tomnou
U. de Bangui

B. Ouattara
U. Ouaga

C. Dolou
U. JLOG
Cote d'Ivoire

S. Boureima
U. Maradi

P. Kouakou
CIRAD, Bobo
Dioulasso

A. Siene
U. Korogo

H. Hissein
Dir. Agri. Tchad

P.M. Kouakou
INP-HB,
Yamoussoukro

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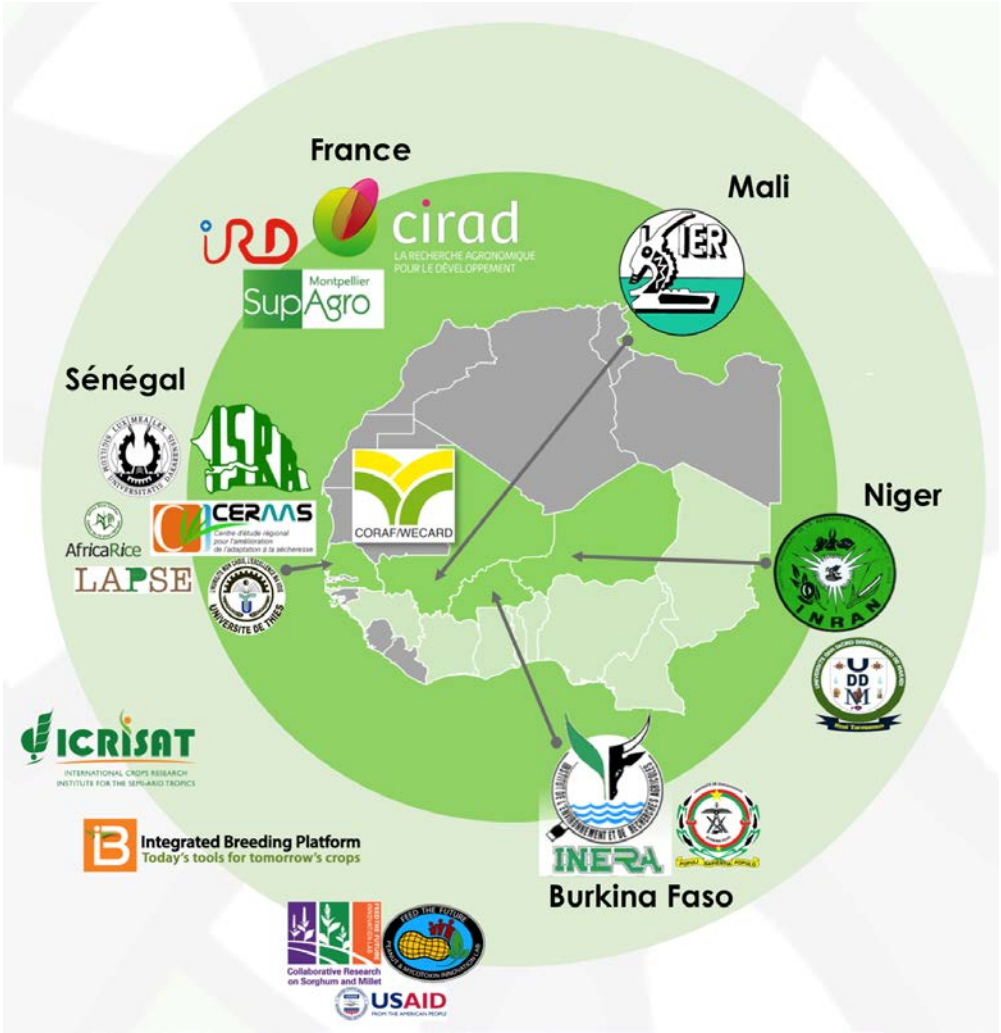
LAPSE
LMI Adaptation des Plantes et microorganismes associés aux Stress Environnementaux

iavao
Innovation et amélioration variétale en Afrique de l'Ouest

WE PARTNER WITH NARS, IRD AND CIRAD



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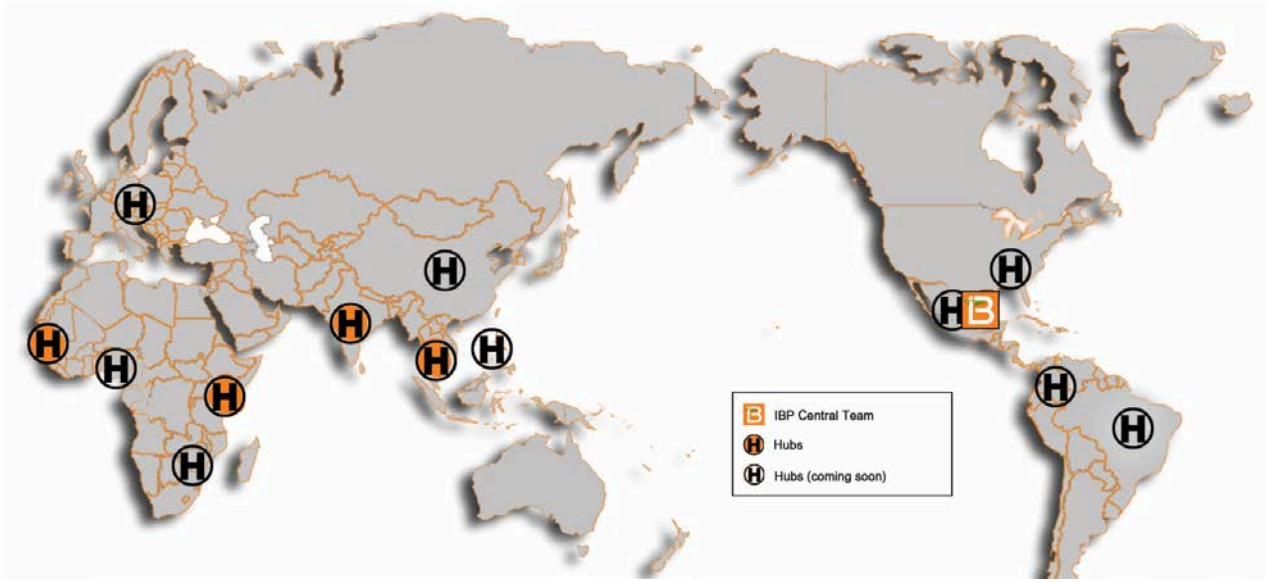
WE HOST THE Integrated Breeding Platform

Today's tools for tomorrow's crops

- CORAF hub for the IBP-CIMMYT
- Training on the use of the BMS to support breeding of dryland cereals and associated crops



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WE PARTNER WITH USAID – FEED THE FUTURE

Collaborative Research on Sorghum and Millet

Legume Innovation Lab

FEED THE FUTURE PEANUT & MYCOTOXIN INNOVATION LAB

Collaborative Research on Sustainable Intensification

WE PARTNER WITH CHINA and WITH S. KOREA

Memorandum of Understanding

- ❑ CAAS.: 2 PhD hosted at OCRI
- ❑ HENAN Sesame Research Institute

Genomics Data 11 (2017) 122–124

Contents lists available at ScienceDirect

Genomics Data

journal homepage: www.elsevier.com/locate/gdata

Dynamic transcriptome landscape of sesa
progressive drought and after rewaterin

Komivi Dossa [a,b,c], Donghua Li [a], Linhai Wang [a], Xiao
Diaga Diouf [c], Boshou Liao [a], Ndiaga Cisse [b], Xiurong

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[c] Laboratoire Campus de Biotechnologies Végétales, Département de Biologie Végétale, Fac
107000, Dakar, Senegal
[d] BGI, Shenzhen, China
[e] Centre de coopération internationale en recherche agronomique pour le développement

RESEARCH ARTICLE Open Access

Insight into the AP2/ERF transcription factor superfamily in sesame and expression profiling of DREB subfamily under drought stress

Komivi Dossa[1,2,3], Xin Wei[1], Donghua Li[1], Daniel Fonceka[2,4], Yanxin Zhang[1], Linhai Wang[1], Jingyin Yu[1], Liao Boshou[1], Diaga Diouf[3], Ndiaga Cissé[2] and Xiurong Zhang[1*]

WE PUBLISH OPEN

CSIRO PUBLISHING

Functional Plant Biology
http://dx.doi.org/10.1071/FP11282

Lower soil moisture threshold for transpiration decline under water deficit correlates with lower canopy conductance and higher transpiration efficiency in drought-tolerant cowpea

Nouhoun Belko[A,D], *Mainassara Zaman-Allah*[B], *Ndiaga Cisse*[A], *Ndeye Ndack Diop*[A,C], *Gerard Zombre*[D], *Jeffrey D. Ehlers*[C] *and Vincent Vadez*[B,E]

OPEN ACCESS Freely available online

PLoS one

An International Reference Consensus Genetic Map with 897 Marker Loci Based on 11 Mapping Populations for Tetraploid Groun

Bhimana Gautami[1,5], Daniel Fo
Venkataswamy Sujay[1,6], Hong
Amindala BhanuPrakash[1], Trus
Xuanqiang Liang[8], Dave A. Ho
Rajeev K. Varshney[1,8,11]*

nature biotechnology

OPEN

Pearl millet genome sequence provides a resource to improve agronomic traits in arid environments

Rajeev K Varshney[1,35], Chengcheng Shi[2,35], Mahendar Thudi[1], Cedric Mariac[3], Jason Wallace[4], Peng Qi[4], He Zhang[2], Yusheng Zhao[5], Xiyin Wang[4], Abhishek Rathore[1], Rakesh K Srivastava[1], Annapurna Chitikineni[1], Guangyi Fan[2], Prasad Bajaj[1], Somashekhar Punnuri[6], S K Gupta[1], Hao Wang[7], Yong Jiang[5], Marie Couderc[3], Mohan A V S K Katta[1], Dev R Paudel[8], K D Mungra[9], Wenbin Chen[2], Karen R Harris-Shultz[10], Vanika Garg[1], Neetin Desai[11,12], Dadakhalandar Doddamani[1], Ndjido Ardo Kane[13], Joann A Conner[14], Arindam Ghatak[11,15], Palak Chaturvedi[11], Sabarinath Subramaniam[16,17], Om Parkash Yadav[18], Cécile Berthouly-Salazar[3,19], Falalou Hamidou[20,21], Jianping Wang[8], Xinming Liang[2], Jérémy Clotault[3,22], Hari D Upadhyaya[1], Philippe Cubry[3], Bénédicte Rhoné[3,23], Mame Codou Gueye[13], Ramanjulu Sunkar[24], Christian Dupuy[25], Francesca Sparvoli[26], Shifeng Cheng[2], R S Mahala[27], Bharat Singh[6], Rattan S Yadav[28], Eric Lyons[16],

frontiers in Plant Science

ORIGINAL RESEARCH
published: 17 May 2017
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New Genetic Insights into Pearl Millet Diversity As Revealed by Characterization of Early- and Late-Flowering Landraces from Senegal

Oumar Diack[1,2], Ndjido A. Kane[2,3], Cecile Berthouly-Salazar[2,4], Mame C. Gueye[5], Baye M. Diop[5], Amadou Fofana[6], Ousmane Sy[6], Hamidou Tall[7], Leila Zekraoui[2,4], Marie Piquet[2,4], Marie Couderc[2,4], Yves Vigouroux[2,4], Diaga Diouf[1,2] and Adeline Barnaud[2,4]*

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PLOS ONE

RESEARCH ARTICLE

Structure of sweet potato (*Ipomoea batatas*) diversity in West Africa covaries with a climatic gradient

Kodjo Glato[1,2,3,4]*, Atsou Aidam[1], Ndjido Ardo Kane[2,3], Diallo Bassirou[2,3], Marie Couderc[4], Leila Zekraoui[2,4], Nora Scarcelli[4], Adeline Barnaud[2,3], Yves Vigouroux[4]

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Abstract

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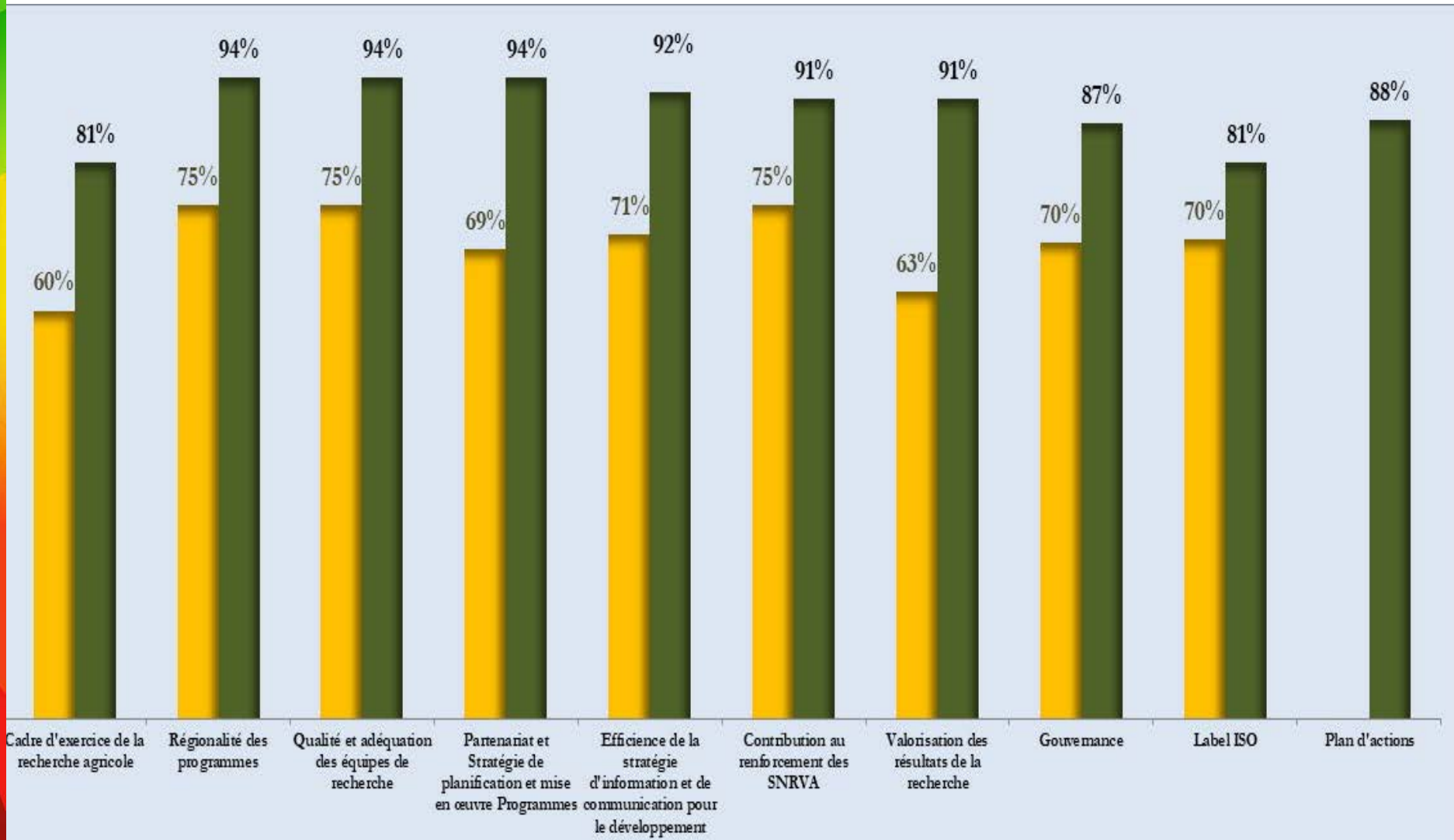
CRITERIA OF EXCELLENCE



TAKE HOME MESSAGES

- ❑CRE, Open Science Model in WCA
- ❑NARS are public, non-profit, is there any is (need of) policy for open science/open data?
- ❑Need to overcome challenges as:
  - Internet (speed)
  - Language barrier
  - Standardization of platforms/services
  - Policy/political governance
- ❑Advocacy
- ❑Add value to data

WE ENVISION TO FAIR*ly* OPEN OUR SCIENCE

OFFRE:
Stage de 6 mois documentation
Participer à l'organisation des résultats/données scientifiques pour les rendre libres et accessibles

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THANKS FOR YOUR ATTENTION

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