

Bringing technological innovations for Sorghum and Millet to farmers in Mali, highlights and lessons from the HOPE project



HOPE

Improving sorghum and millets for dryland farmers



***30 ANS DE PARTENARIAT MALI-FONDATION SYNGENTA,
QUELS IMPACTS POUR L'AGRICULTURE MALIENNE?***

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HOPE....

Harnessing Opportunities for Productivity Enhancement of Sorghum and Millets in Sub- Saharan Africa and South Asia



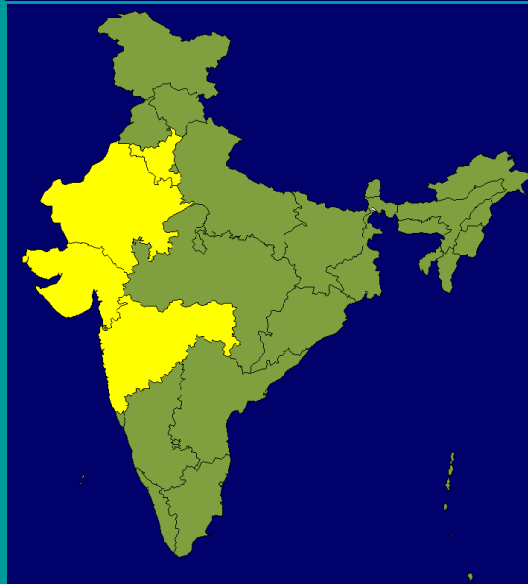
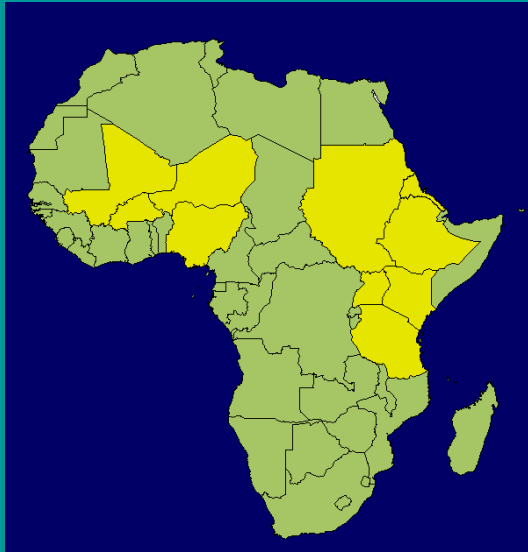
HOPE

Improving sorghum and millets for dryland farmers



**Exploiter les Opportunités pour Renforcement de la
Productivité du Sorgho et des Mils en Afrique Sub-
saharienne et en Asie du Sud**

Global Coverage and Partners



- 3 regions (West Africa, East Africa and South Asia)
- 11 countries
- 12 International / regional organizations
- 18 NARS / Universities
- Several FOs / NGOs / seed and processing businesses
- 200,000 households

Why HOPE project?

- **Poor harvests, food insecurity, malnutrition, and poverty reality for > 50% of households in drylands of SSA and SA**
- **Technologies available can double the yields of sorghum and millet, but dryland farmers have failed to realise this**
- **Farmers not aware of technologies and/or can't access inputs and markets to sell products**
- **Need for innovative approaches to increase yield, profitability, marketability and competitiveness of dryland cereal crops**

The HOPE approach to impact

- **Use and adapt existing technologies and work through partnerships**
- **Integrated value-chain approach, link market “pull” to technology driven production**
- **Enable and motivate farmers to access and use inputs and technologies efficiently**
- **Add value to dryland cereals by stimulating processing and marketing activities**
- **Capitalize on inter-regional knowledge sharing and learning**

The HOPE Vision

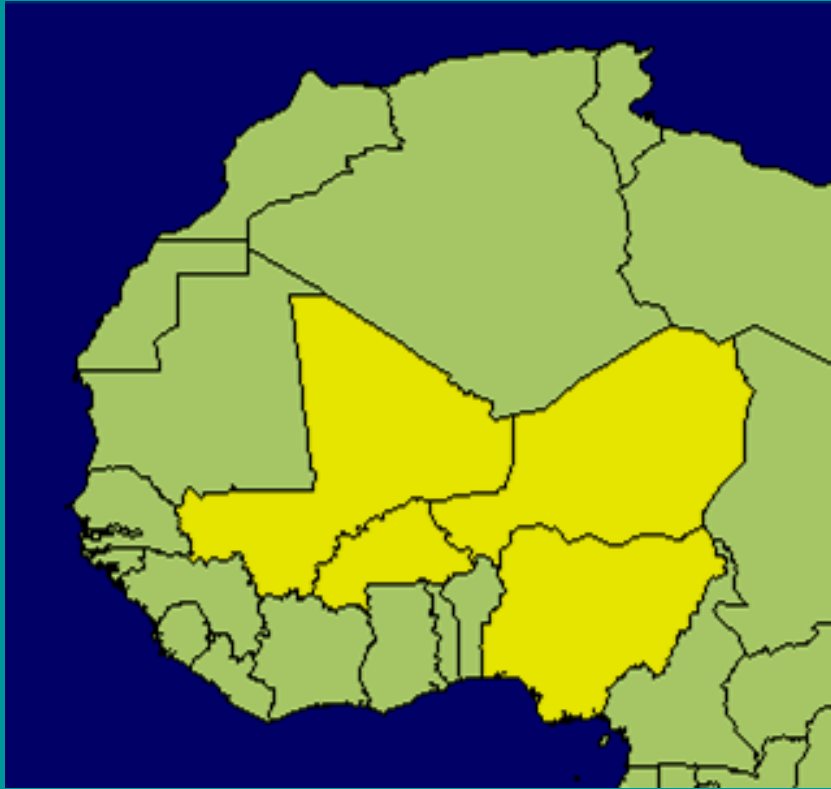
- Increase sorghum and millet yields in SSA and SA by 35-40% through adoption of improved cultivars and crop management
- **Enable adoption of technologies through development of markets**
- Reach 200,000 households in the project intervention areas (SSA and SA)



Objectives of the Project

1. Target opportunities for technology development and delivery - WCA, ESA & SA
2. Improve sorghum cultivars and management options - WCA, ESA & SA
3. Improve pearl millet cultivars and management options - WCA & SA
4. Improve finger millet cultivars and management options - ESA
5. Discover and develop improved market strategies -WCA, ESA & SA
6. Enable technology adoption - WCA, ESA & SA

HOPE Coverage in West Africa



4 Countries:

- Mali
- Niger
- Burkina Faso
- Nigeria

At least 60.000 households in West Africa,
~15.000 per country, experience 30-45%
sorghum/millet yield increase at project sites

HOPE Activities in Mali

Per Objective

1. Spatially explicit baseline studies and monitoring of intervention villages, diffusion villages and control villages
- 2-3. Improvement of sorghum and pearl millet cultivars and crop management
4. Develop and stimulate markets for inputs and cereal products
5. Develop and stimulate markets for inputs and cereal products
6. Enable technology adoption of existing technologies in Mali

Collaborating Partners in Mali

Government institutions:

Institute d'Economie Rurale, extension services

Farmer organizations and processors:

AOPP, ULPC, UACT, COOPROSEM, UAPAD, UCD

NGO's:

AMEDD, CNFA, EUCORD, ACF, ADAF-GALLE, Mobiom, Farm Radio International, CRS, World Vision, Aga Khan Foundation etc.

Private sector:

Faso-Kaba, Farmer Cooperatives, Agro-dealers, Agro-insight, Banks, micro-finance institutions

Other projects:

PROMISO2, AGRA-microdose, WASA, McKnight Funded projects

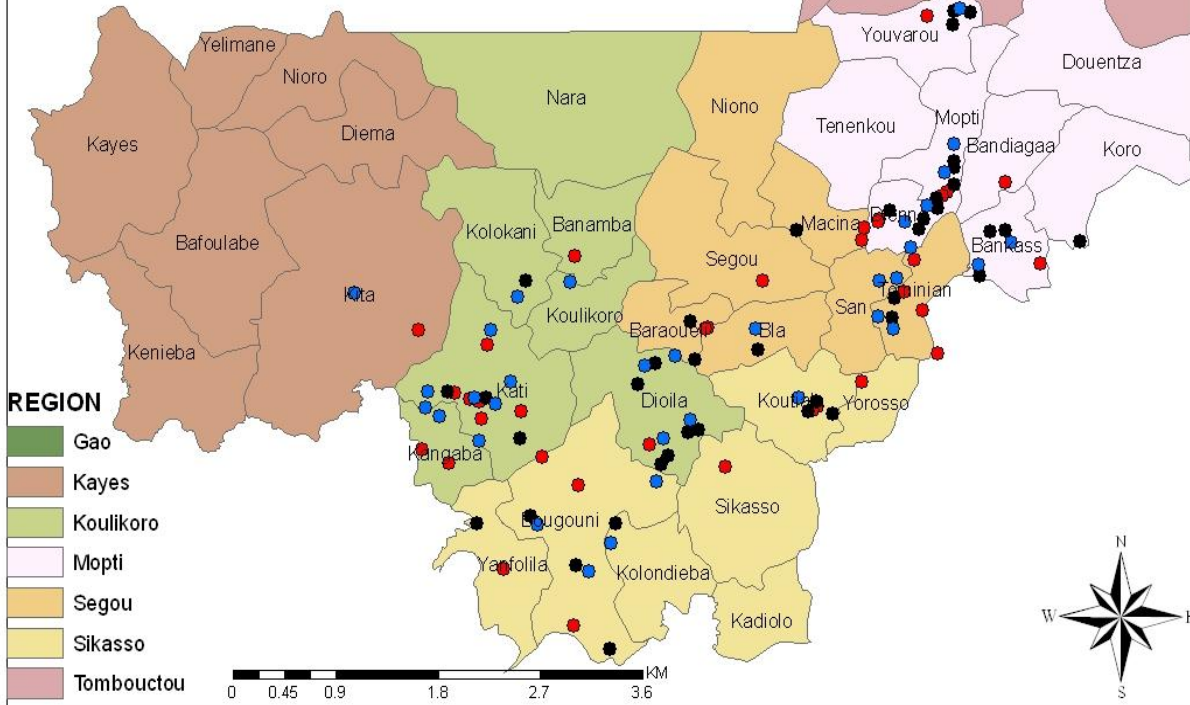
Base-line study executed

Structured sampling of about 40 project, diffusion and control villages

HOPE Project, Diffusion and Control Villages in Mali

LEGEND

- DIFFUSION VILLAGES (10-20 KM)
- PROJECTS VILLAGES
- CONTROL VILLAGES (40-60 KM)



Project village
physically
present

Diffusion village
10-20 km, expect
some effect of
project

Control village
40-60 km

HOPE Highlights in Mali (1)

Wide range of activities have been executed in several research stations (ICRISAT/IER) and over 185 villages since June 2009

Objective 2, 3 (sorghum and pearl millet improvement)

- On-station variety and hybrid generation
- Training of NARS scientists / technicians in participatory research, variety screening and hybrid development
- On-farm variety / hybrid trials, agronomy trials
- FFS activities on ISSFM in sorghum and pearl millet (8 clusters, ~50 FFS trials, ~1600 farmers)

Hybrid sorghum yields ~40% more than best adapted local variety on-farm

Results from 31 on-farm replicated tests 2009-2010

	Name	Yield (t/ha)	Superiority over local check (%)
Local Variety	Tieble	1.4	
Top Four Hybrids	Sewa	2.3	56
	Fadda	2.2	49
	Yougo	2.0	39
	Mona	2.0	35
Mean All Hybrids (8)		2.0	37



Integrated Striga and soil fertility management for sorghum and millet in Mali

Cluster based FFS approach, involving communities in planning, development of experiments and observation

ISSFM: combination of:

(1) organic and (2) mineral fertilizers in moderate doses, (3) cereal-legume intercropping, (4) resistant or tolerant cereal variety and (5) handpulling of Striga at flowering

ISSFM tested against farmer practice in large (600m²) plots

Farmers participating in field observations and agronomical and economical analyses (partial cost benefit analyses)

ISSFM in farmers' fields in Mali

Siby, Guinean zone, Mali (sorghum)

Farmer practice



ISSFM



ISSFM in farmers' fields in Mali

Dioila, Sudanian zone, Mali (sorghum)

Farmer practice

ISSFM



ISSFM in farmers' fields in Mali

Madiama, Sahelian zone, Mali (millet)

Farmer practice



ISSFM



Agro-economical analyses comparing farmer practice (FP) and ISSFM (Mali, 2010)

Host crop system Parameter	Sorghum (2 clusters, 13 reps)		Pearl millet (3 clusters, 15 reps)	
	FP	ISSFM	FP	ISSFM
Cereal grain yield (t/ha)	0.69	0.84	0.82	0.8
Legume grain yield (t/ha)	-	0.08	-	0.28
Legume fodder yield (bundles/ha)	-	1575	-	1175
Investment (CFA/ha)	43000	96700	46400	128000
Gain (CFA/ha)	32300	223300	51200	206400
Marginal rate of return	0.7	2.3	1.1	1.5

HOPE highlights in Mali (2)

Objective 6. Enable technology adoption

- Installed >500 variety test kits >50 demonstration plots with partners in Mali
- Produced foundation (5t) and certified seed (11t, 23 varieties) of improved varieties of sorghum and pearl millet
- Distributed and sold >3800 mini-packs of seeds of improved varieties of pearl millet and sorghum
- distributed and sold >350 Striga control packs

Farmer Seed Initiatives:

How does the collaboration develop?

- Contact between plant breeder and farmer groups: mutual interest for sorghum or pearl millet improvement
- Test-kit trials of 2-5 varieties evaluated by farmers
- Training seed producers for certified quality seed production
- Training for seed enterprise management, marketing

Reaching more farmers with seeds of new preferred varieties – the mini-pack strategy

The strategy...

- diffusing small quantities of improved variety seed
- uniform packaging with labels and technical information in local languages
- Seed quantities generally between 100 and 200g per pack.
- The price for one pack of 100g between 50 and 100 Fcfa

The aims...

- Increasing visibility and awareness and improving access to improved varieties
- Large numbers of farmers can try out new varieties on their own, including women and poor farmers.
- To encourage experiences with the sale and purchase of seed of traditional crops



Striga control packs 1st year trial in millet zones

Offer possibility for farmers to access inputs and knowledge (instruction leaflet) to apply integrated Striga management

Contents

250g millet seeds, (Toronion)

1 kg of legume seed for intercropping

1 kg of DAP

1 kg of Urea

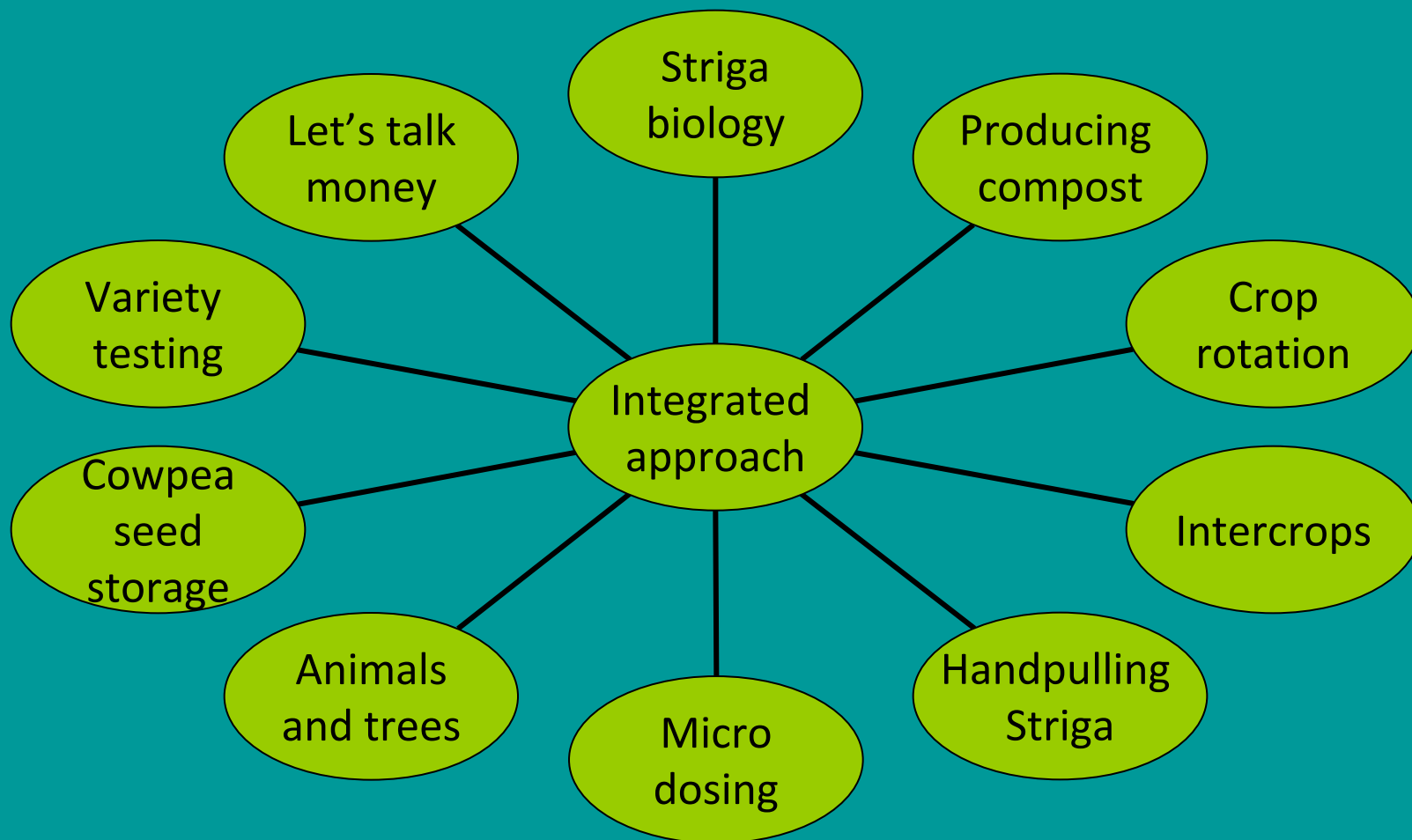
1500 CFA



HOPE highlights in Mali (3)

- Produced manuals and leaflets for training on participatory research/FFS, seed production, crop management
- Produced and broadcast radio and video messages for farmer training on a varieties and crop management
- Trained FO's/farmers seed production of OPVs and Hybrids
- Trained FO's/farmers, processors and agro-dealers in accounting and marketing

Farmer-to-farmer video messages related to ISSFM (Modules)



<http://www.agroinsight.com/video/video16.php>

<http://www.youtube.com/user/icrisathope/#p/a/u/0/hlpN-aVYsgY>

HOPE Lessons learnt

- Combine several technologies for convincing results (variety + fertilizer + crop management)
- Produce and use radio and video messages to improve awareness about activities and technologies available (messages about important constraints, trials, field days, mini-packs)
- Show/proof to farmers the quality of products available (physical and visual presentation of seeds)
- Evaluate agro-economical (dis)advantages of technologies with farmers (participatory cost-benefit analysis)

Future Plans for HOPE in Mali

- Increase of diffusion of mini-packs (>10.000) and Striga control packs (>1000)
- Increase seed production of sorghum hybrids and promising improved varieties
- Translation and adaptation of printed, radio and video messages for use on a large scale
- Improve focus on women who are growing and processing sorghum and pearl millet
- Focus on marketing of products
- Monitoring and reporting impact and more visibility of project

For discussion

- How can we find more and better synergies between individual projects, government initiatives and the private sector?
- What can HOPE and ICRISAT do for the Syngenta Foundation and its partners and vice versa?

Merci beaucoup!



29/09/2011