Sahel and West Africa Club Forum, 26-27 October 2015, Expo Milano 2015, Italy

Climate-smart agriculture

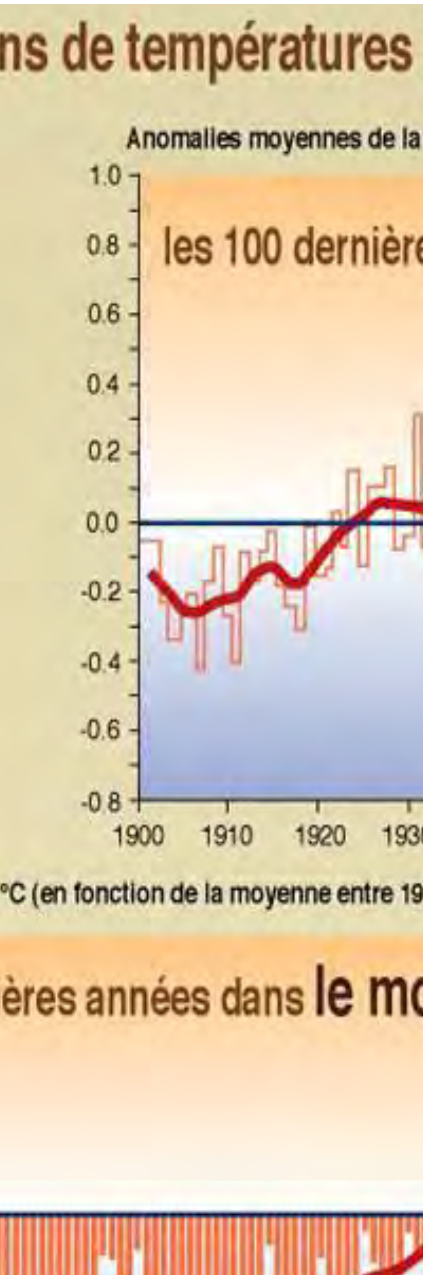
to face climate change and variability in West Africa

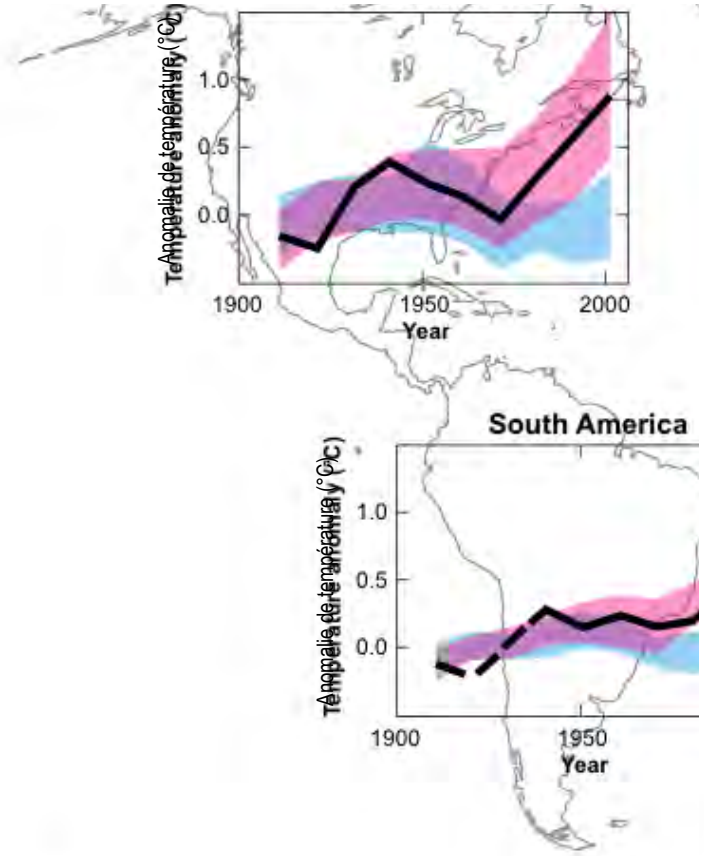
Led by CIAT International Center for Tropical Agriculture Since 1967 / Science to cultivate change

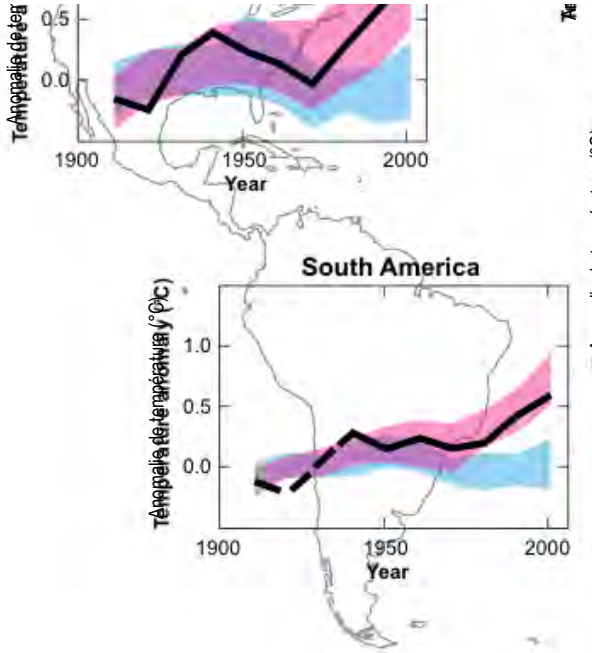
Strategic partner futureearth ICRISAT Science with a human face

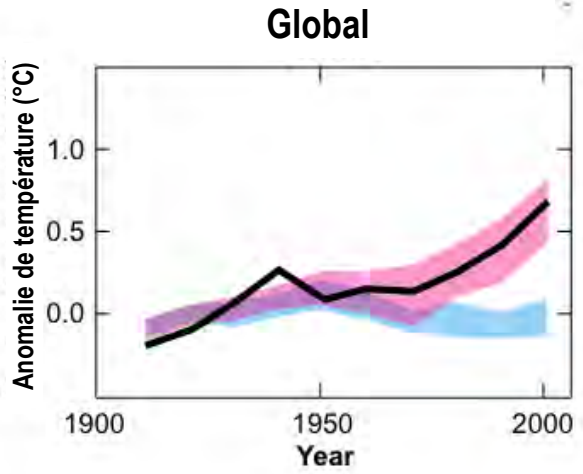
Dr Robert Zougmoré
Regional Program Leader West Africa

Climate variability & change : facts!









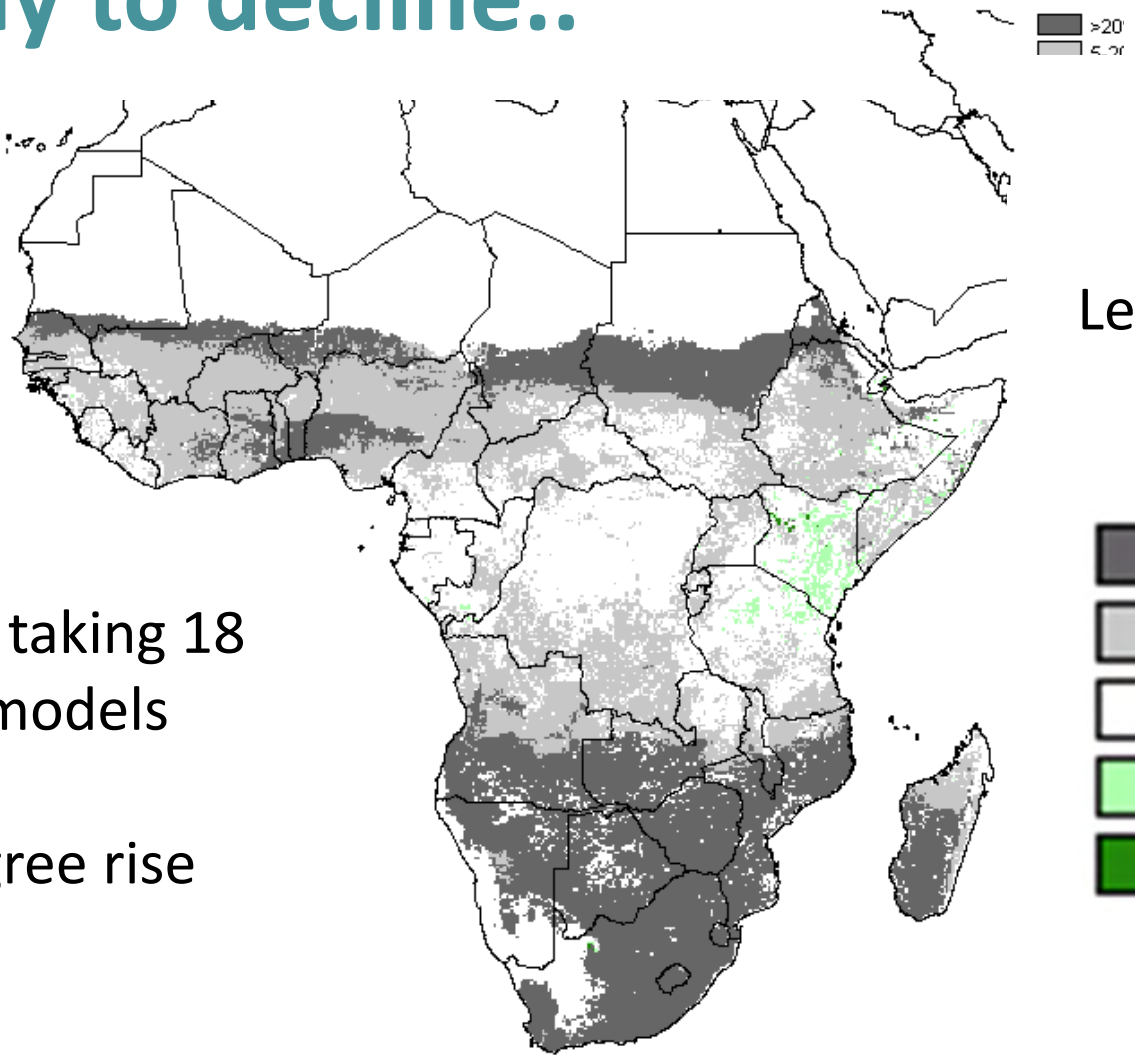
RESEARCH PROGRAM ON
Climate Change, Agriculture and Food Security

CGIAR

CCAFS

After Benoit SARR, Aghrymet

Length of growing season is likely to decline..



To 2090, taking 18 climate models

Four degree rise

Length of growing period (%)

- >20% loss
- 5-20% loss
- No change
- 5-20% gain
- >20% gain

Thornton et al. (2010) Proc. National Academy Science

How can farmers achieve food security under a variable and changing climate?

We need climate-smart agriculture actions at all levels !

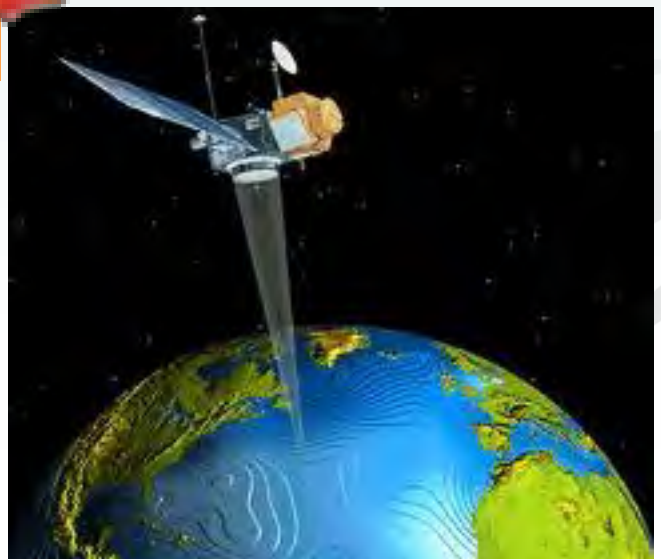
1. sustainably increases **productivity** and enhances the achievement of national food security and development goals
2. Increases **resilience** (adaptation)
3. reduces **greenhouse gases** where possible

Farm and community: climate-smart practices, institutions

National and regional: enabling policies, extension, support, research, finance

Climate-smart agriculture happens at multiple levels

Global: climate models, international agreements, finance



Climate information for better planning and management in Senegal

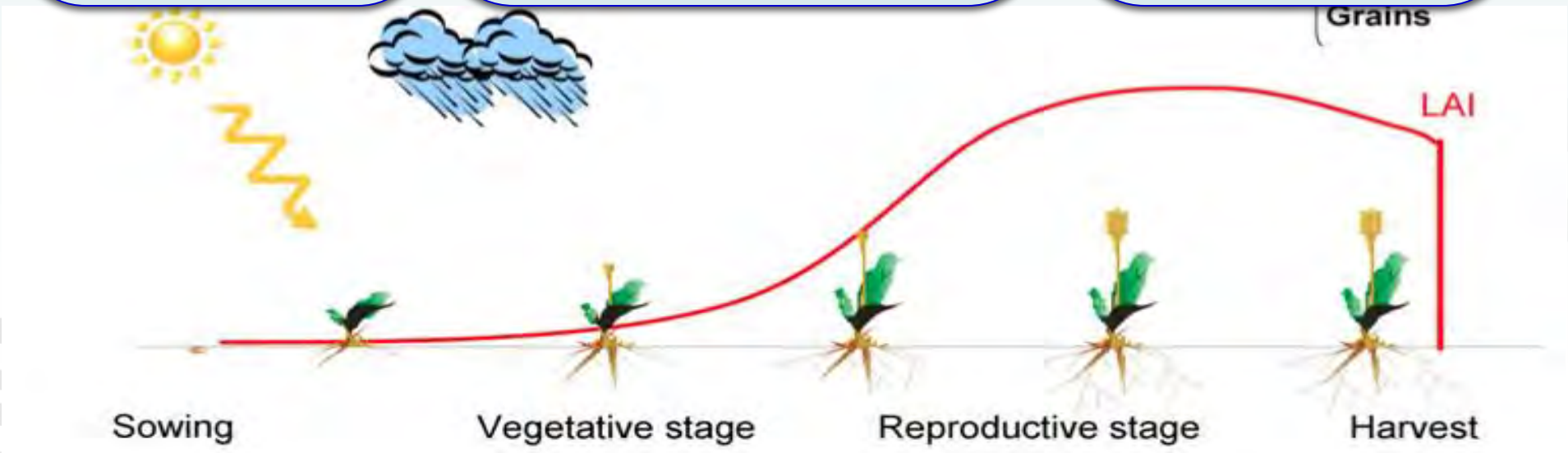
Climate information (indigenous & scientific) help to improve planning and management of farms by smallholder farmers

Climate risk management in Kaffrine : using probabilistic seasonal forecasting

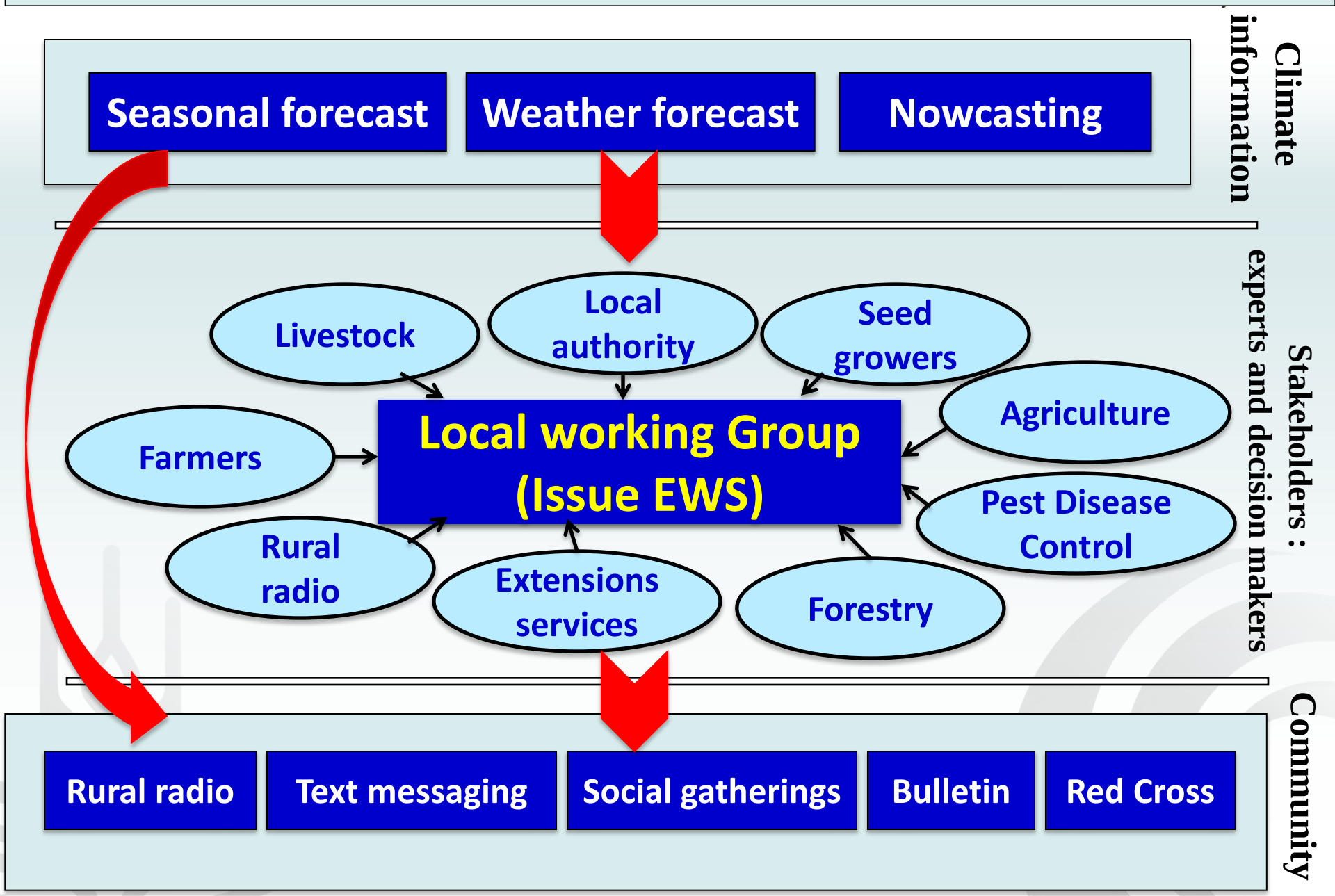
- **Since 2011:** piloting communication of downscaled seasonal forecasts and; evaluating impact on farmers' management and livelihoods (CIS design + GTP)
- **2013:** testing Kaffrine protocol in 3 more regions (Thies, Louga and Diourbel)

Using climate information for early warning

Before	During cropping season	Maturity/end season
Seasonal forecast ➢ crop variety ➢ varieties **Onset forecast** ➢ farm preparation ➢ optimum planting	**Nowcasting** ➢ flooding saving life (thunder) **Daily forecast** ➢ use of fertilizer / pesticide **Ten-day forecast** ➢ weeding, field work **Updating seasonal forecast** ➢ second cropping	**Ten-day forecast** ➢ optimum harvesting period ➢ rain during dry season



Partnership for Senegal Early warning system



COMMUNICATION & COMMUNICATION
partnership with union of rural radio (URAC)

- Présentation
- Oxyjeunes FM
- Afia FM
- Jokko FM
- Coorkat FM
- Voix du Jeguem
- Bamtaaré FM
- Gabou FM
- FM AWAGNA
- Mbour FM
- Ferlo FM
- Blouf FM
- Ndef Leng FM
- Penc mi FM
- Pkumel FM
- Kondafé FM
- Kassoumay FM
- Manooré FM
- Baol FM
- Tewdu FM
- Gassane FM
- CMC de Niodior
- Djolof FM

URAC
Union des Radios Associatives et Communautaires (Sénégal)

Target: 3 million farmers

Localisation des radios communautaires membres de l'URACS.

Climate information affects inputs use and farm productivity of cowpea and sesame sectors in Burkina Faso

Evaluation using With-and-Without Comparison

(i) 110 experimental farmers (11 villages) who are exposed to climate information
(ii) 60 controlled farmers (6 villages) who are not exposed to climate information.

Effect of climate information use on farm inputs

	Cowpea			Sesame		
	Exposed	Not exposed	Difference	Exposed	Not exposed	Difference
Number of farmers	56	32		55	29	
Local seed (kg/ha)	**17**	**45**	**-28****	**6**	**11**	**-5.23***
Improved seed (kg/ha)	**7**	**1**	**6****	8	7	1
Organic manure (kg/ha)	15	23	-8	**8**	**42**	**-34***
Fertilizers (kg/ha)	30	31	-0.40	**23**	**4**	**19.04***
Insecticides (l/ha)	2.45	3.03	-0.57	1.27	0.47	0.80
Area (ha)	0.26	0.22	0.04	0.34	0.29	0.05

** Significant at 10%; ** significant at 5% level.*

Climate information affects inputs use and farm productivity of cowpea and sesame sectors in Burkina Faso

Effect of climate information use on farm productivity

	Cowpea			Sesame		
	Exposed	Not exposed	Difference	Exposed	Not exposed	Difference
Number of farmers	56	32		55	29	
Area (ha)	0.26	0.22	0.04	0.34	0.29	0.05
Yield (kg/ha)	**875**	**683**	**193***	544	568	-23.59
Gross product (F CFA /ha)	102 613	108 585	-5 973	416 986	495 258	-78 272
Cost of inputs (F CFA /ha)	**40 169**	**55 669**	**-15 499**	33 599	32 521	1 077
Gross margin (F CFA /ha)	**62 443**	**52 916**	**9 527**	383 387	462 395	-79 008

** Significant at 10%; ** significant at 5% level.*

Farmers exposed to climate information have changed their farm practices based on the information they received. Changes in agricultural inputs used increase farm productivity including yield and gross margin.

To conclude:

- **Better preparedness**
  - Better climate science and understanding of climate
  - Forecast based planning and management (allocation of land, selection of crops, varieties and investments on inputs)

- **Better responses**
  - Planting primed seed/transplanting
  - Contingency plans
  - Water harvesting and Irrigation

- **Better recovery**
  - Safety nets/Insurance
  - Employment/migration

- **Developing good partnership to scale-up and achieve impact to benefit end-users**