



**ACCELERATING AGRICULTURAL  
INTENSIFICATION IN THE RISKIER  
ENVIRONMENTS OF SUB-SAHARAN  
AFRICA:**

**A Case Study of the Sasakawa Global  
2000 Program in Mali**

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**The context:**

**A UN study released on World Food Day  
in October 1999 predicted that....**

**Continuing soil degradation in Sub-  
Saharan Africa will bring about  
starvation and poverty on an  
unprecedented level with up to 60% of  
Africans going hungry by 2025.**



## Organization of the presentation

- **Description of SG 2000**
- **Malian context**
- **Program results and impacts**
- **Lessons**



## SG 2000 approach

- Exclusive attention to food crops
- Searching for Green Revolution magnitude of changes in productivity
- Direct farmer participation in technology transfer using test and control plots



## Critiques of SG approach

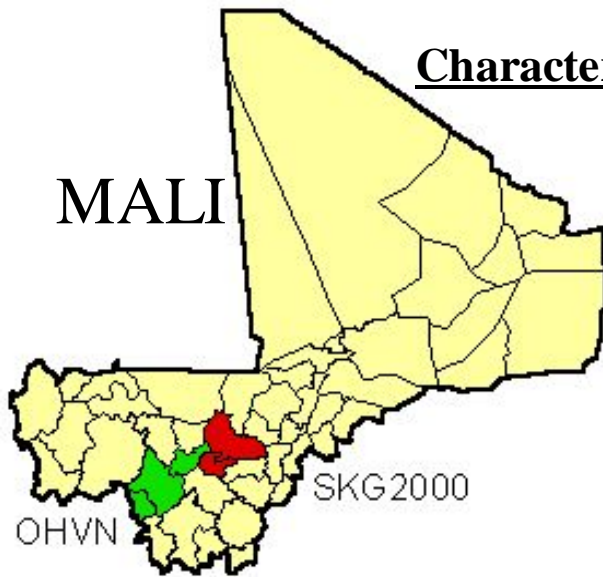
- Too much attention to yield and not enough to profitability
- Adoption frequently not sustainable
- Too much dependence on external inputs vs. alternatives



## Mali:

A conducive environment for agricultural intensification and transformation:

- Market reforms began in early 1980s
- Democratization movement began in early 1990s
- Devaluation of CFA franc in 1994
- Agricultural value added grew at 4%/yr 1985-99
- Growth even faster since 1994.



### Characteristics of SG2000 Segou Zone

- Sudanian climate
- Rain 700-800 mm
- Soils moderately productive
- 120-150 day season
- Millet, sorghum + pulses
- Animal traction used

### Characteristics of SG 2000 participants

- Among better endowed farmers
- Heavy reliance on millet self-sufficiency
- Millet production for home consumption is principal source of income for 88% of farmers
- market considerations (prices) have little influence on millet production decisions for about 55% of participants
- Few farmers have diversified incomes



## SG 2000 Mali approach

- ❑ Incremental introduction of technologies from low to high costs, risks, and productivity
- ❑ Research on farmers' risk perceptions and profitability
- ❑ Promotion of savings and loan associations to ensure input purchasing power after SG program ends



## SG 2000 – Profitability Packages recommended:

- ❑ Level A - improved seed and fungicide
- ❑ Level B – Level A + light fertilization
- ❑ Level C – Level A + heavy fertilization

## Crop budget results

(per ¼ hectare)

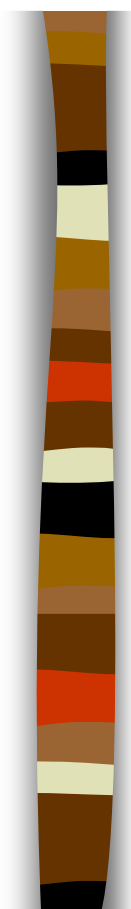
	Level A	Level C
Cases	40	47
Yield change (kg)	133	122
Value change (FCFA)	10640	9760
Pkg cost	2050	16500
Benefit A	8590	-6740
Benefit B	n.a.	-1931

45% of Level C farmers realized positive returns; others suffered losses (750-16500 CFA).

Many Farmers suggested elimination of phosphate rock from Level C package.

## Perceptions of profitability

- ❑ **Level A** – all farmers unanimous that it was highly profitable
- ❑ **Level C** –
  - only 11 of 47 farmers (23%) thought the package was **NOT** profitable
  - Most with losses <5000 CFA thought package was profitable
- ❑ **Why?**
  - Maximizing cereal production rather than income??
  - Doing a whole farm analysis rather than a partial budget??



## SG farmers' risk perceptions (determinants of production risk)

<u>Risk factors</u>	<u>Score</u>
poor access to inputs	132
poor rains	116
bird damage	92
declining soil fertility	64



## Impact of SG technology on risks

- ❑ **96% claimed SG technologies reduced the risk of crop loss associated with the above mentioned problems**
  - Combination of all inputs worked together to keep yields above normal levels (62%)
  - Fungicide reduced pest attacks (16%)
  - Reduced risk of land access because yields could be increased on existing land (8%)
  - Reduced risk of poor rains (5%)
- ❑ **3% claimed risk increased  
(All were Level C farmers)**



## What do we conclude?

- Farmers are much happier than the rest of us.....
  - Concern about declining effect of fungicide and low absolute yield increase
  - Concern about credit reimbursement capacity if Level C is not profitable but farmers think it is
  - Can greater attention to NRM provide better results?



## Agroeconomic lessons

- The challenge of identifying profitable technologies for low-productivity, high-risk areas remains.
  - ✓ **Level A** technologies profitable but inadequate in terms of production and marketable surplus
  - ✓ **Level C** technologies not profitable
- More agronomic research is needed to identify productive combinations of inputs (NPK, TPR, OM, NRM)
- More financial analysis is needed to evaluate profitability and ways of reducing input costs





## Socio-economic lessons

- ❑ Need to move from production strategies based on food self-sufficiency to ones based on increasing farm and household incomes (nonfarm activities, commercial crops)
- ❑ Requires attention to developing farmers knowledge and skills in areas other than technology use :
  - marketing
  - financial analysis
  - evaluation of debt carrying capacity



**The end**

**Thanks for your attention.....**