

System of Rice Intensification in Timbuktu, Mali

Economic calculations on costs, receipts and income of rice production in the Goundam and Dire circle of Timbuktu:

Comparison between conventional cropping and different SRI scenarios

Erika Styger and Ed Baxter

1. Rice production costs

Estimates on costing include the costs for seeds, diesel to run the motor pump, amortization of the motor pump, fertilizer costs, transportation costs for manure, and labor costs. Currently these costs reach 214,300 FCFA/ha. When practicing SRI, a reduction in water use (25-50%), the non-use of fertilizer, a reduction of seeds by 80%, and some additional transport costs for manure can be expected. For the scenario of 25% water savings, the costs would be reduced to 149,550 CFA/ha (or 70% of conventional costs). If water requirements are reduced by 50%, the costs would diminish to 115,970 FCFA/ha (or only 54% of the conventional costs).

Table 1: Costs (FCFA/ha) for Conventional Rice Cropping, SRI with a reduction of 25% of water use (SRI 25), and a reduction of 50% of water use (SRI 50); (1 USD = 440 FCFA)

	Conventional	SRI 25	SRI 50
	CFA/ha	CFA/ha	CFA/ha
Seeds	14000	2800	2800
Diesel	84300	63250	42170
Amortization	50000	37500	25000
Fertilizer	36000		
Transport Manure		16000	16000
Labor	30000	30000	30000
Total costs	214300	149550	115970
%	100	70	54

Calculations (1 USD = 440 FCFA): Seeds: Conventional: 40 kg at 350CFA/kg improved seeds; SRI: 8 kg at 350 CFA/kg; Diesel: Conventional: 23 barrels at 110,000 CFA = 2,530,000 FCFA/30 ha; Yearly amortization of motor pump: Conventional 1,500,000/30ha; Fertilizer: 100 kg/ha Urea; Transport of manure: 80 bags at 200 CFA; Labor: 30 days at 1000 CFA/day (Based on GFSI project M&E data and secondary information)

2. Receipts from rice production

We compare the yield levels of 4, 5 and 6 tons/ha of conventional yields, with the SRI scenarios of 40% yield increase, and 60% yield increase. The prices for rice vary between 110 FCFA and 150 FCFA per kilo depending on the season. For this calculation, an average price of 130 FCFA was used. Increased receipts from SRI range, therefore, between 208,000 CFA (for SRI +40% at 4 t/ha conventional yield level) and 468,000

CFA (for SRI +60% at 6t/ha of conventional yield level).

Table 2: Receipts (at 130 FCFA/kg) from conventional cropping, SRI with 40 % yield increase, and SRI with 60% yield increase at three levels of yield; (1 USD = 440 FCFA)

Conventional		SRI +40%		SRI +60%	
Yield Kg/ha	Receipt FCFA/ha	Yield Kg/ha	Receipt FCFA/ha	Yield Kg/ha	Receipt FCFA/ha
4000	520,000	5600	728,000	6400	832,000
5000	650,000	7000	910,000	8000	1,040,000
6000	780,000	8400	1,092,000	9600	1,248,000

3. Income from rice production

The income (receipts minus costs) for the SRI+40% is between 70-100% higher, and for SRI +60% more than double (100-134% increase) compared to farmers' income from conventional cropping methods. This is the case for both water-saving techniques, although water saving 50% provided the highest income increases. Additional income per hectare will range from 272,750 FCFA/ha (smallest increase with SRI) to 566,330 FCFA (highest increase with SRI), or in dollars between USD 620 to 1290 USD/ha (1 USD = 440 FCFA).

Table 3: Income from rice production (in CFA/ha) with conventional cropping, compared to 4 SRI scenarios (cost reduction through 25% and 50% water savings, and yield increased by 40% and 60%).

Income	Additional Income					
	Yield kg/ha	Conventional CFA/ha	SRI + 40% CFA/ha	SRI + 60% CFA/ha	SRI + 40% CFA/ha	SRI + 60% CFA/ha
Income after cost deduction Scenario SRI 25% water-saving						
<i>Costs</i>		214,300	149,550	149,550		
4000		305,700	578,450	682,450	272,750	376,750
5000		435,700	760,450	890,450	324,750	454,750
6000		565,700	942,450	1,098,450	376,750	532,750
Income after cost deduction Scenario SRI 50% water-saving						
<i>Costs</i>		214,300	115,970	115,970		
4000		305,700	612,030	716,030	306,330	410,330
5000		435,700	794,030	924,030	358,330	488,330
6000		565,700	976,030	1,132,030	410,330	566,330