



## COST OF CULTIVATION AND PRICE SPREAD OF RICE IN COASTAL ANDHRA PRADESH

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### ABSTRACT

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The total cost of cultivation of rice per ha in *Kharif* 2010-2011 worked out to ₹ 67,899 of which operational costs formed 70.20 per cent and the remaining fixed costs. Human labour was the major cost factor occupying 34.40 per cent of the total cost. Gross returns stood at ₹ 59,115, while the net returns were negative (₹ -8,784). Net returns over operational costs were ₹ 11,452. The total cost of cultivation in *rabi* was ₹ 66,905. Total operational costs were found to be ₹ 50,282 slightly higher as compared to *Kharif* season. Among fixed costs rental value of owned land was less than that of *Kharif* season. Gross returns were ₹ 69,263, while net returns stood at ₹ 2,358. Net returns over operational costs were ₹ 18,981. The retailer's margin ranged from 6.8 to 8.27 per cent of consumer's rupee. The share of producer in the consumer's rupee was 62.92 and 57.27 per unit respectively for old and new rice respectively.

**KEYWORDS:** Cost concepts, Cost of Cultivation, Net returns, Marketing Channels, Price spread

### INTRODUCTION

Rice is the most important and extensively grown food crop in the world. Rice is most important staple food of about 65 per cent of the population. It constitutes about 43 per cent of the total foodgrain production and 46 per cent of the total cereal production in the country. Green revolution has been most effective not only in expanding area under this crop but also in increasing its production and productivity. Contributing consistently to around 45 per cent of India's cereal production, rice continues to hold the key factor to sustained food security as well as food sufficiency in the country. It continues to play vital role in the country's export and contributes nearly 25 per cent of total agricultural export from the country (Singh *et al.*, 2005). The present study aims at studying the economics of rice cultivation and price spread in coastal Andhra Pradesh. The present study aims at studying the economics of rice cultivation and price spread in coastal Andhra Pradesh.

### MATERIALS AND METHODS

The study was conducted in southern coastal districts of Andhra Pradesh *viz.*, Krishna and Guntur districts. One mandal in each district with higher area under paddy was purposively selected. Following the same criterion two villages from each mandal were again purposively

selected, 100 paddy farmers were randomly selected for the study. For studying the price spread 5 wholesalers/processors and the same number of retailers were randomly selected.

In Krishna, Guntur and Prakasam, 60 farmers were randomly selected for the study. The data were collected for the year 2010-11 using a selected schedule.

The cost concepts include Cost A<sub>1</sub>, Cost A<sub>2</sub>, Cost B<sub>1</sub>, Cost B<sub>2</sub>, Cost C<sub>1</sub>, Cost C<sub>2</sub> and Cost C<sub>3</sub> have been worked out in the study.

Cost A<sub>1</sub> = All actual expenses in cash and kind incurred in production

Cost A<sub>2</sub> = Cost A<sub>1</sub> + Rent paid for leased in land

Cost B<sub>1</sub> = Cost A<sub>1</sub> + Interest on value of owned capital assets

Cost B<sub>2</sub> = Cost B<sub>1</sub> + Rental value of owned land and rent paid for leased in land

Cost C<sub>1</sub> = Cost B<sub>1</sub> + Imputed value of family labour

Cost C<sub>2</sub> = Cost B<sub>2</sub> + Imputed value of family labour

Cost C<sub>3</sub> = Cost C<sub>2</sub> + 10 per cent of Cost C<sub>2</sub>

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Costs of cultivation and price spread of rice in coastal A.P.

**Table 1. Cost of cultivation rice in Andhra Pradesh (2010-2011)**

		(₹ / ha)	
Particulars		Kharif	Rabi
Nursery Management Cost		3,000 (4.42)	3,625 (5.42)
Human labour	Mandays	160	175
	Charges (₹)	23,360 (34.40)	24,402 (36.46)
Tractor power (hrs)	Plough Cultivator	16	30
	Charges(₹)	6,000 (8.84)	6,500 (9.72)
Bullock labour	(Pairdays)	8	14
	Charges(₹)	2,900 (4.27)	3,500 (5.23)
Seed	Kg	55	60
	Value(₹)	1,190 (1.75)	1,680 (2.51)
FYM	Tonnes	3 .0	2.0
	Value	800 (1.18)	800 (1.19)
Fertilizers	Qty (kg) N	96	105
	P	109	132
	K	111	150
	Value (₹) N	900 (1.33)	1,200 (1.79)
	P	1,450 (2.14)	2,000 (2.98)
	K	1,280 (1.88)	1,350 (2.01)
	Others	1,170 (1.72)	1,560 (2.33)
Insecticides	₹	3,000 (4.42)	1,500 (2.24)
Irrigation charges	₹	1,225 (1.80)	700 (1.10)
Interest on working capital	₹	1,388 (2.05)	1,465 (2.18)
<b>Total operational costs</b>	₹	47,663 (70.20)	50,282 (75.16)
Land revenue	₹	310 (0.45)	310 (0.46)
Depreciation	₹	375 (0.55)	375 (0.56)
Rental value of owned land	₹	19,238 (28.33)	15,625 (23.35)
Interest on fixed capital	₹	313 (0.46)	313 (0.47)
<b>Total fixed costs</b>	₹	20,236 (29.80)	16,623 (24.84)
<b>Total costs</b>	₹	67,899 (100)	66,905 (100)

Figures in parentheses indicate percentages to total costs

Table 2. Costs and returns in rice production

		(₹ / ha)	
Particulars		<i>Kharif</i>	<i>Rabi</i>
<b>Cost concepts</b>			
Cost A <sub>1</sub>	₹	23,798	39,986
Cost A <sub>2</sub>	₹	23,798	39,986
Cost B <sub>1</sub>	₹	24,111	40,299
Cost B <sub>2</sub>	₹	42,726	55,301
Cost C <sub>1</sub>	₹	34,623.1	51,279.9
Cost C <sub>2</sub>	₹	53,238.1	66,281.9
		(78.40)	(99.06)
Cost C <sub>3</sub>	₹	67,899	66,905
		(100)	(100)
<b>Returns</b>			
Main Product	Qtls	55	65.75
Byproduct	₹	4,500	4,500
Value	Price/ctl	993	985
Gross returns	₹	59,115	69,263
Net returns	₹	-8,784	2,358
Net returns over operational costs	₹	11,452	18,981

Figures in parentheses indicate percentages to total costs

### Producer's share in consumer's rupee (PS)

It is the price received by the producer expressed as a percentage of the retail price.

$$Ps = (P_F/P_c) \times 100$$

whereas,

$P_F$  = Price received by the producer

$P_c$  = price paid by the consumer

To study the marketing aspects, 20 traders were randomly selected.

## RESULTS AND DISCUSSION

### Cost of Cultivation of Rice in Andhra Pradesh

The profitability of any enterprise depends upon costs and returns. Generally, in any economic study total costs are discussed under two heads *viz.*, variable costs and fixed costs. In general, variable costs alone are reckoned to be the cost of cultivation by the farming community ignoring the fixed costs. The profit and loss too are worked out accordingly.

But in economic analysis of any business enterprise, the fixed costs are also taken into account to arrive at total costs and thereby to compute the profits. Variable

costs include expenses on labour employed to perform different cultural practices and also expenses incurred on material inputs like seeds, FYM, fertilizers, plant protection chemicals etc. The fixed costs are depreciation on working assets, interest on fixed capital, rent on land and land revenue. The particulars of cost of cultivation of rice are presented in Table 1.

The cost of cultivation represents the average costs of rice farmers of Guntur and Krishna districts which is presented in Table-1.

**Kharif:** The total cost of cultivation of rice per ha in *Kharif* 2010-2011 was ₹ 67,899 of which operational costs formed 70.20 per cent and the remaining fixed costs. Human labour was the major cost factor occupying 34.40 per cent of the total cost.

**Rabi:** The total cost of cultivation in *rabi* was ₹ 66,905. Total operational costs were found be ₹ 50,282 slightly higher as compared to *Kharif* season. Among fixed costs rental value of owned land was less than that of *Kharif* season.

### Cost concepts and returns in rice production

The cost of cultivation of sugarcane also dealt by adopting the cost concepts used in farm management studies *viz.*, Cost A<sub>1</sub>, Cost A<sub>2</sub>, Cost B and Cost C. The

**Table 3. Price spread of rice in local market in Andhra Pradesh**

	(₹ / qtl)	
Particulars	Amount (Old)	Amount (New)
Producer's sale price/Processor's purchase price	1325 (62.92)	1060 (57.27)
Cost incurred by processor	141 (6.69)	141 (7.61)
Loading and Unloading	6.5 (0.31)	6.5 (0.35)
Transportation	25 (1.19)	25 (1.35)
Weighment	1.5 (0.07)	1.5 (0.08)
Processing charges	75 (3.56)	75 (4.05)
Packaging cost	3 (0.14)	3 (0.16)
Packing material	30 (1.42)	30 (1.62)
In the milling of 100 kg rice, 55 kg polished rice, 12 kg broken rice, 12 kg rice bran and 20 kg husk are obtained		
Returns from broken rice @ ₹ 10 per kg, rice bran @ ₹ 12 per kg, and husk @ ₹ 9 per kg.	453	453
Sale price of processor/ purchase price of rice by the retailer	1931 (₹ 35/kg)	1666 (₹ 30.2/kg)
Processor's margin	465 (22.08)	465 (25.12)
Transportation costs incurred by retailer	32 (1.52)	32 (1.73)
Retailer's margin	143 (6.8)	153 (8.27)
Retailer's sale price of rice <i>i.e.</i> , consumer's price	2106 (100) (₹ 38.30/kg)	1851 (100) (₹ 33.65 /kg)

Figures in parentheses indicate percentages to total costs

concept of Cost C is the most comprehensive one. It includes all costs, both fixed and variable and hence provides a basis for comparison between different types of operational holdings. The cost of cultivation of *kharif* and *rabi* rice according to cost concepts was worked out and presented in Table 2.

It is noticed that the commercial cost (Cost C3) was higher at ₹ 66,905 on *rabi* season compared to *kharif* season (₹ 67,899). Gross returns stood at ₹ 59,115, while the net returns were negative (- ₹ 8,784). Net returns over operational costs were ₹ 11,452. Gross returns were ₹ 69,263, while net returns stood at ₹ 2,358. Net returns over operational costs were ₹ 18,981.

### Price Spread of Rice

The price spread is the difference between the price paid by the consumer and price received by producer. The price spread analysis is carried out for old rice and newly harvested rice (Table-3). The channel that was selected was Producer ➤ Processor ➤ Retailer ➤ Consumer.

The processing costs for both old and new rice were ₹ 30 each per quintal of rice processed. The processor's margin was identical for both types of rice and between the processor and retailer, it was processor who netted a margin of ₹ 465/Q and his share in consumer's rupee stood at 22.08 and 25.12 for the said types. The retailer's margin ranged from 6.8 to 8.27 per cent of consumer's rupee for

the said types. When the share of producer in the consumer's rupee was estimated, it was 62.92 and 57.27 per unit for old and new rice respectively. Similar findings were reported by Kumar *et al.* (2015).

## CONCLUSION

The total cost of cultivation of rice per ha in *Kharif* 2010-2011 worked out ₹ 67,899 of which operational costs formed 70.20 per cent and the remaining fixed costs. Human labour was the major cost factor occupying 34.40 per cent of the total cost. Net income was found to be higher in *rabi* season. The total cost of cultivation in *rabi* was ₹ 66,905. Total operational costs were found to be ₹ 50,282 slightly higher as compared to *Kharif* season. Among fixed costs rental value of owned land was less than that of *Kharif* season. When the share of producer in the consumer's rupee was estimated, it was 62.92 and 57.27 per unit for old and new rice respectively.

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