



Economics of Mechanized Paddy Farms in Rayalaseema Region of Andhra Pradesh

P Sharmila, B Pratapa Reddy, T V Neelakanta Sastry and G Mohan Naidu

Department of Agricultural Economics, S V Agricultural College, Tirupati 517 502 , Andhra Pradesh

ABSTRACT

A study on economics of mechanized paddy farms in Chittoor district of Andhra Pradesh was conducted during 2012-13. The study covered four villages of two mandals and data on costs- returns aspects of both traditional and mechanized paddy production were collected from 80 farmers. The total cost of cultivation per hectare for traditional and mechanized was Rs.78,605.55 and 80,544.73 respectively. The proportion of working costs accounted for 68.12 per cent and 66.79 per cent on traditional and mechanized paddy farms. The average yield obtained were 58.12 and 66.56 in traditional and mechanized paddy farms. The net returns per rupee of investment were estimated to be Rs. 0.35 and Rs 0.47.

Key words : Cost of cultivation, Mechanized paddy farms, Returns, Traditional paddy farms.

Rice is the important staple food for more than half of the world population. Rice is the most important crop of India and it occupies 23.30 per cent of gross cropped area of the country. Rice production in India during 2012-13 is 104.40 million tonnes. It contributes 43 per cent of total food grain production and 46 per cent of total cereal production.

Farm mechanization is one of the important inputs that play a significant role in increasing agricultural production and productivity. Timely agricultural operation is the key to increased productivity in agriculture. Traditional methods of field operations require huge labour and more time, ultimately lead to increase in cost of cultivation. Farmers get less time for sowing or planting of different crops due to introduction of multiple cropping systems. Delayed crop operation severely affects crop growth and yield. Human labour and animal power are the main source of energy for the farmers of the state. The wooden plough used by the farmers is insufficient. Acute shortage of animal power during early cultivation and human labour during transplanting and harvesting is being felt by the farmers. Timeliness of agricultural operations is one of the most important factors for successful crop production. The use of improved implements and machinery is important for completing the farm operations in time

To overcome the shortage of labour and to perform the field operations at right time and to take the advantage of favorable climatic conditions, the farmers can go for farm mechanization by the use of efficient and improved tools, equipment and machines suitable to the soil conditions.

MATERIAL AND METHODS

The study was carried out in Chittoor district of Andhra Pradesh. Two mandals viz., Sri Kalahasthi and B.N.Kandriga were selected purposively as the mandals have the highest area and mechanized paddy production in the district. For selecting rural respondents, four villages, two from each selected mandal were chosen based on the above criterion. All the farmers in selected village were listed out and divided into two categories viz., pure traditional paddy growers and pure mechanized paddy growers. From each village, 20 farmers consisting of 10 pure traditional paddy farmers and 10 pure mechanized paddy farmers were selected at random. Thus, the total sample constitutes 40 pure traditional paddy farmers and 40 pure mechanized paddy farmers. The total number of respondents selected for the purpose of the study was 80. The primary data were collected by the survey method through well designed questionnaire for the agricultural year 2012-2013. The study was conducted to examine costs and returns on traditional and mechanized paddy farms.

Table 1. Cost of cultivation of selected Paddy farms (In rupees per hectare).

S.No.	Particulars	Traditional	Mechanized
I	VARIABLE COSTS		
1.	Human labour	23,311.75(29.64)	12,946.50(16.07)
	Owned labour	9,152.50(11.64)	3,106.25(3.86)
	Hired labour	14,159.25(18.00)	9,840.25(12.21)
2.	Cattle labour	7,100.00(9.03)	-
	Owned labour	4,000.00(5.09)	-
	Hired labour	3,100.00(3.94)	-
3.	Tractor power	2,550.00(3.24)	6,975.00(8.66)
	Owned labour	475.00(0.60)	6,975.00(8.66)
	Hired labour	2,075(2.64)	-
4.	Paddy Transplanter	-	7,176.00 (8.91)
5.	Combined Harvester	-	4,875.00 (6.05)
6.	Seeds	2,000.00(2.54)	843.75(1.05)
7.	Manures and Fertilizers	13,409.00(17.05)	15,113.00(18.77)
	a. Manures	6,000.00(7.63)	7,400.00(9.19)
	b. Green Leaf Manures	750.00(0.95)	1000.00(1.24)
	c. Fertilizers	6,659.00(8.47)	6,713.60(8.34)
8.	Plant protection chemicals	3,730.50(4.74)	3,920.50(4.87)
9.	Interest on working capital	1953.80(2.48)	1944.38(2.41)
	TOTAL VARIABLE COSTS	54,055.05(68.72)	53,794.73(66.79)
II	FIXED COSTS		
1.	Land revenue	100.00(0.13)	100.00(0.12)
2.	Depreciation	950.00(1.21)	1175.00(1.46)
3.	Rent on owned land	22,325.00(28.39)	23,625.00(29.33)
4.	Interest on fixed capital	1220.50(1.55)	1850.00(2.30)
	TOTAL FIXED COSTS	24,595.50(31.28)	26,750.00(33.21)
	TOTAL COSTS	78,650.55(100)	80,544.73(100)

RESULTS AND DISCUSSION

Cost and Returns from selected Paddy Farms:

Simple percentage analysis was used to analyze the structural changes in the cost of cultivation of selected paddy farms. Cost structure of paddy farms analyzed by working out share of each item in the total cost of cultivation. The cost of production was also worked out. The cost of cultivation was computed for paddy farms separately for the two categories, viz. traditional and mechanized and are presented in Table 1.

It could be seen from the Table 1 that on an average the total cost of cultivation per hectare of traditional and mechanized paddy farms was Rs.78,650.55 and Rs.80,544.73 respectively.

Among the various operational costs in traditional paddy production, human labour, manures and fertilizers, and cattle-labour accounted for larger proportion of the total costs. Cost of human labour was higher than all other inputs amounting to Rs.23,311.75 per hectare and accounted for 29.64 per cent of total cost. Expenditure on manures and fertilizers was next important item of variable cost on traditional paddy farms. It was Rs.13,409 per hectare and accounted for 17.05 per cent of the total cost. The third important cost component was cattle labour. The expenditure towards this item was Rs.7,100 and per cent share to total cost was 9.03.

Where in case of mechanized paddy farms machine labour, manures and fertilizers and human

Table 2. Output and returns per hectare of selected Paddy farms.

S.No	Particulars	Units	Traditional	Mechanized
1.	Yield in Physical units			
a.	Main product	quintals	58.12	66.56
b.	By product	Tractor loads	3.75	1.75
2.	Yield in Monetary terms			
a.	Main product	Rs	92,992.00	1,13,152.00
b.	By product	Rs	13,125.00	5,250.00
3.	Gross income	Rs	106,117.00	118402.00
4.	Cost of cultivation	Rs	78,650.55	80,544.73
5.	Net income	Rs	27,466.45	37,857.27
6.	Net returns per rupee of investment	Rs	0.35	0.47

labour accounted for larger proportion of total costs. The farmers engaged in mechanized method of paddy production had spent Rs.19,026 per hectare on machine power which includes tractor for different field operations, paddy transplanter for transplanting and combined harvester for harvesting and threshing of paddy. Machine power accounting for 23.62 per cent of the total cost. The share of tractor power, transplanter and combined harvester was 8.66 per cent, 8.91 per cent and 6.05 per cent respectively. Next important component is cost on manures and fertilizers in mechanized paddy farms. Expenditure on manures and fertilizers accounting for Rs.15,113 and its share in total cost was 18.76 per cent. Of the total cost, human labour was the third important cost component in the cultivation of mechanized paddy. The per hectare expenditure incurred towards this resource service was Rs.12,946.50 and accounted for 16.07 per cent of the total cost.

Rental value of owned land was the major cost component under fixed costs in both traditional and mechanized paddy farms. The per hectare cost towards rental value of owned land in traditional and mechanized paddy farms were Rs.22,325 and Rs.23,625 respectively. It accounted for 28.39 per cent and 29.33 per cent respectively.

Further it could be seen from Table 2 that on, an average, the yield of traditional and mechanized paddy, was in the order of 58.12 and 66.12 quintals. The farmers of traditional and mechanized paddy realized gross income of Rs.1,

06, 117 and Rs.1, 18, 402 respectively. The net income from traditional and mechanized paddy farms was Rs.27, 466.45 and 37,857.27 respectively. The net returns per rupee of investment in traditional and mechanized paddy farms were 0.35 and 0.47 respectively.

From the foregoing analysis, it is clear that the mechanized paddy farmers realized increased productivity and there by the returns in it were comparatively high. Efficiency of production in mechanized paddy was high, which may be due to higher yield obtained by practicing improved technology.

The studies of Mwangiet *al* (2000), Vishwanath (2005) Mohanty and Mohanty (2010), Uprety (2010), Dixit and Khan (2011) and Rahman (2011), conveyed similar results.

SUMMARY AND CONCLUSIONS

The cost of cultivation was more on mechanized paddy farms than on traditional paddy farms.

The gross income and net income were higher on mechanized paddy farms than the traditional paddy farms.

Productivity was higher in mechanized paddy production than in traditional paddy production. All measures of income were higher in mechanized paddy over traditional paddy.

The returns per rupee of investment were estimated to be higher in mechanized paddy over traditional paddy.

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(Received on 01.07.2014 and revised on 19.06.2015)