

# Profitability of farm productions: A study in a semi-arid watershed

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## ABSTRACT

Small and marginal farmers having very small holding size, are ignorant of the economic aspects of production process, especially, returns & costs concepts. An investigation was carried out in order to assess the various types of costs and returns from farm productions and comparison was made with the outside of the watershed area. Among various crops grown on the sampled farms, the highest per hectare gross return was found to be from Groundnut (Rs.11,335) but the return over Cost C was found to be highest in the case of Bengalgram (Rs.2791). Annual maintenance cost and gross income from buffalo was more than cow. The results showed much difference on account of cost and returns in crop enterprises with the control area, which is a direct reflection of higher yields due to implementation of watershed development programme but the effect was less visible in case of livestock rearing.

**Key words :** Watershed, Crops, Livestock, Cost, Income.

## INTRODUCTION

The bulk of the agricultural production is in the hands of millions of small and marginal farmers having very small holding size, whether it is land or animal. Most of the farmer-producers are ignorant of the economic aspects of production process, especially, returns & costs concepts. Hence, the studies on economics of farming production covering the same will be helpful in taking rational economic decisions while selecting the appropriate crop, their variety, the type and breed of animals & allocation of their meager resources (Singh *et al.*, 1987; Singh *et al.*, 1985; Rastogi and Reddy, 1985). Therefore, in this study, an attempt has been made to estimate and compare the costs and income from various crops and dairy enterprises using different costs and income bases in a semi-arid watershed

## MATERIALS AND METHODS

### Sampling and data collection :

In order to assess the various types of costs and returns from farm productions, a watershed namely, P.C. Pyapili – B in Vajrakarur Mandal of Anantapur district (A.P.) was taken up. From the same Mandal one village (Kamalpadu) was selected as control area which has not been covered under any watershed based programme or activities for examining differential impact of watershed development programme on crop & livestock production system, if any. A family or household was adopted as the unit of investigation in this study. The primary data were collected on pre-tested schedule by personal interview and observation technique.

### Method of analysis :

The data collected during the period of enquiry was coded, tabulated and compiled systematically, commensurate with the objectives of the study. Tabular analysis was used to analyse the data, wherein, simple statistical tools like average, percentage and ratios were employed to summarize and compare the various items in the study.

### Estimation of Costs :

*For estimation of different kinds of costs in crop production the concepts used as follows (Shah, D., 2003):*

**Cost A:** Cost of inputs such as seed (both farm produced and purchased), manure (owned and purchased), fertilizers, insecticides and pesticides + value of hired labour + value of hired as well as owned bullock labour + hired machinery charges + value of owned machine labour + depreciation on implements and farm buildings + irrigation charges + land revenue and other taxes + interest on working capital + miscellaneous expenses.

**Cost B:** Cost A + rental value (imputed) of owned land + interest on owned fixed capital excluding land.

**Cost C:** Cost B + imputed value of family labour.

### In case of livestock enterprise the concepts used (Acharya, et al., 1987) as:

**Cost A:** Expenses on feed & fodder + value of hired upkeep labour + veterinary expenses + maintenance & miscellaneous recurring expenses + depreciation on the value of milch cattle & their sheds.

**Cost B :** Cost A + interest on the value of milch cattle & their sheds.

**Cost C :** Cost B + imputed value of family labour.

### Bulk line cost:

The bulk line cost which fairly represents the cost of bulk of producers is usually defined as the cost covering 85 percent of production of that commodity (Panse, 1958).

### Operational cost:

In both the sector it was considered for the items which were being purchased by the farmer producers.

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**Estimation of income :**

Gross income was arrived at by multiplying the quantity of produce by the average price of that commodity plus value of by-products. Income on other bases was worked out as follows:

Operational Income = Gross income – Operational cost

Business Income = Gross income – Cost A

Family Labour Income = Gross income – Cost B

Net Income = Gross Income – Cost C

Output-input Ratio = Gross income / Cost C

**RESULTS AND DISCUSSION****Costs and returns from major crops :**

Various concepts of costs of crop cultivation such as Cost A, B, and C have been used to assess the structure of various components of costs (Table 1).

Table 1: Cost & income from major crops on different bases

Particulars	Inside watershed			Outside watershed
	Groundnut	Bengalgram	Jowar	Groundnut
<b>A. Cost bases (Rs./ha)</b>				
Operational cost	4949.01	4390.89	2685.85	4997.19
Cost A	6148.79	5858.17	3489.81	5774.52
Cost B	8231.85	7691.23	5223.96	7307.79
Cost C	9505.48	8375.34	5723.96	8840.20
<b>B. Income bases (Rs./ha)</b>				
Gross income	11335.42	11166.67	5940.00	9536.22
Operational income	6386.41	6775.78	3254.15	4539.03
Business income	5186.63	6308.50	2450.19	3761.70
Family labour income	3103.57	3475.44	716.04	2228.43
Net income	1829.94	2791.33	216.04	696.02
<b>C. Output-input ratio</b>				
	1.19	1.33	1.04	1.08

Among various crops grown on the sampled farms, the highest per hectare gross return was found to be from Groundnut (Rs.11,335) followed by Bengalgram (Rs.11,167) and Jowar (Rs.5,940). But, Groundnut happened to be highly physical inputs intensive and labour intensive, operational income and family labour income was less than Bengalgram. The return over Cost C was found to be highest in the case of Bengalgram (Rs.2791) followed by Groundnut (Rs.1830) and Jowar (Rs.216). The output-input ratios also exhibited the same trend. The returns from Jowar were not seen to be lucrative proposition. But Jowar was grown on the sampled farms for the farmers own family consumption requirements. Lower profitability is mainly due to the fact that farmer's attention was concentrated more towards growing high value crops. Obviously, other field crops received less attention with respect to application of inputs and other related aspects.

Farmers outside watershed received a net return of only Rs.696.02 over Cost C from groundnut cultivation per hectare. However, business income and family labour income were impressive which explains the reason of cultivation of this crop in the area.

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**Costs and returns from milch animals :**

The maintenance cost of milch animal per annum, the average cost and returns from milk production on different costs and income bases have been investigated and summarized in the Table 2.

It may be seen from Table 2 that the average annual net maintenance cost of cow and buffalo worked out at about Rs.3733.61 and Rs.5466.55 inside watershed and Rs.4946.54 and Rs.6029.62 outside watershed. Expenses on account of feed and fodder, veterinary expenses and other recurring expenses which forms the part of Cost A was more inside the watershed (Rs.2370.12 and Rs.2959.85) than the farms outside the watershed (Rs.1931.98 and Rs.2209.35) for cows and buffalos. The upkeep family labour put to livestock rearing was more outside the watershed which was responsible for highest

maintenance cost of animals for them.

The average cost of production per litre of milk on different cost bases were worked out separately for cows and buffalos. The Cost C for per litre of milk production was calculated at 8.82 and Rs.11.65 for cow milk and Rs.8.54 and Rs.9.03 for buffalo milk, inside and outside the watershed, respectively. The bulk line cost of production per litre of milk both in case of buffalos and cows has been calculated. The cost of production of the cow's milk for 85 percent level of milk production worked out at Rs.11.14 and Rs.13.63 for cow and Rs.12.37 and Rs.10.62 for buffalo, inside and outside the watershed, respectively. The price offered per litre of milk (Rs.9 per litre for cow as well as buffalo milk) neither covered the bulk line cost for cow milk nor buffalo milk production, which indicated a necessity of price revision for the said commodity.

Like costs, income per milch animal per annum has been worked out on different income bases. It was observed that on an average, a farm gained a net profit of Rs.461.70 from a milch cow and Rs.810.12 from a milch buffalo inside watershed, whereas, a farm outside watershed incurred a net loss of Rs.717.04 per cow and gained only Rs.382.38 per buffalo per annum. A farmer from outside the watershed

Table 2: Cost and income from milk production

Items	Inside watershed		Outside watershed	
	Cow	Buffalo	Cow	Buffalo
A. Maintenance cost/year (Rs.)				
Operating expenses	2370.12	2959.85	1931.98	2209.35
Cost A	2596.77	3558.08	2192.26	2826.06
Cost B	3046.09	4611.51	2554.81	3456.14
Cost C	3733.61	5466.55	4946.54	6029.62
B. Milk yield (litre/annum)	423.44	640.00	424.67	668.00
C. Cost of milk production (Rs./litre)				
Operating expenses	5.60	4.62	4.55	3.31
Cost A	6.13	5.56	5.16	4.23
Cost B	7.19	7.21	6.02	5.17
Cost C	8.82	8.54	11.65	9.03
Bulk line cost	11.14	12.37	13.63	10.62
D. Returns (Rs./annum)				
Gross income	4195.31	6276.67	4229.50	6412.00
Operational income	1825.19	3316.82	2297.52	4202.65
Business income	1598.54	2718.59	2037.24	3585.94
Family labour income	1149.22	1665.16	1674.69	2955.86
Net income	461.70	810.12	(-) 717.04	382.38

earned more business income and family labour income because they invest less on account of the milch animals and put more family labour to milk production enterprise, which, would have been wasted on the households not involved in milk production due to lack of other employment opportunities in the area.

### CONCLUSION

The findings of the study explored that in crop enterprises though net returns were not so impressive but considering the farm business income and family labour income the cultivation of these crops can be justified on the ground that it yielded a good remuneration to the idle land resources and family labour.

In case of livestock enterprises also households put more family labour than the required. Besides, milch animals were maintained in the area more for domestic consumption of milk rather than for sale. The yield of milk per milch animal was very low and there was a scope for further increasing the yield by following suitable cross breeding and feeding programme and other improved management practices.

The results showed much difference on account of cost and returns in crop enterprises with the control area, which is a direct reflection of higher yields due to implementation of watershed development programme. However, in case of livestock enterprises, no such effect has been noticed which indicated that only with higher productivity; the animal rearing could become viable and would generate reasonably good income in the area.

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