

ECONOMICS OF LIVESTOCK ENTERPRISES IN DIFFERENT FARMING SYSTEMS – A CASE STUDY

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ABSTRACT

This study was conducted to explore the contribution of livestock to income generation in different farming systems. Orathanadu block of Thanjavur district (Tamilnadu) was selected. Of 57 villages in the block, 6 were randomly selected. A sample of 150 livestock farmers was selected at random from these villages. Seven farming systems were identified, viz. I). Crop+dairy, II). Crop+dairy+goat, III). Crop+dairy+sheep, IV). Crop+goat+sheep, V). Dairy, VI). Dairy+goat and VII). Dairy+sheep. Cost of production per cattle unit was the highest in farming system I (Rs. 3401.55), while it was less in farming systems in which sheep and / or goat were the components. Farming system VII obtained highest contribution from dairy animals (45.3 per cent). The contribution from goats under farming system VI (26.1 per cent) was found to be highest, while farming system VII received maximum contribution (23.3 per cent) from sheep.

Key words: Farming Systems, Livestock Enterprises, Economics

Livestock play a key role in mitigating the risks and uncertainties involved in income generation through crop production. There had been a considerable scope for increasing income generation in agricultural sector through livestock and forestry (Ghayur, 1987). Livestock enterprises had become an alternative to obtain more stable and continuous income, especially in smaller farms (Saini and Singh, 1985). Even in landed households, it was the livestock that gave stability to the households rather than land (Sastry *et al.*, 1993). As only few studies had focused attention to study the income under different livestock farming systems, the present study aims to explore the contribution of livestock enterprises to income in different farming systems.

MATERIALS AND METHODS

Orathanadu block of Thanjavur district (Tamilnadu) was purposively selected for the study, as this block had a typical crop based farming system, resulting in uncertain income due to monsoon failures and showed increasing possibilities of diversification of crop system with livestock. Out of 57 village panchayats in the block, 6 villages were randomly selected. A sample of 150 livestock farmers was selected at random from the chosen villages. The data on landholdings, size and kind of livestock and expenditure for and income from crop and livestock farm activities were gathered through structured, pretested interview schedules. The data were analysed and reported.

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Table 1
Distribution of sample households in different farming systems

No.	Farming system	No. of sample households
I	Crop + dairy	53 (35.33)
II	Crop + dairy + goat	34 (22.67)
III	Crop + dairy + sheep	20 (13.33)
IV	Crop + goat + sheep	7 (4.67)
V	Dairy	10 (6.67)
VI	Dairy + goat	20 (13.33)
VII	Dairy + sheep	6 (4.00)
	Total	150 (100.00)

RESULTS AND DISCUSSION

Based on the combination of enterprises, seven different farming systems were identified, viz. I). Crop+dairy, II). Crop+dairy+goat, III). Crop+dairy+sheep, IV). Crop+goat+sheep, V). Dairy, VI). Dairy+goat and VII). Dairy+sheep (Table 1).

Costs and returns from crop farming

The expenditure, annual gross income and net returns per acre under different farming systems are presented in Table 2. Crop farming expenditure per acre seemed to be similar in farming systems where dairy and any one of the small ruminants were one of the components, for e.g., farming systems I (Rs.3914.55) and III (Rs.3864.18). However, in other farming systems, it was little lesser. Gross income per acre in case of farming system I was Rs. 7754.96,

whereas on II, III and IV, it was Rs. 8221.76, Rs. 8038.66 and Rs. 7566.19, respectively.

Cost and returns from livestock farming

There being no forests and grasslands in the study area, livestock were usually maintained with home grown / purchased paddy straw and concentrate feeds, in addition to grazing in the harvested paddy fields. The expenditure in livestock farming and annual gross and net returns under different farming systems are presented in Table 3.

The total expenditure per cattle unit was the highest in farming system I (Rs. 3401.55), followed by farming systems V (Rs.3091.11), II (Rs. 2553.56), III (Rs. 2149.29), IV (Rs.2096.47), VI (Rs. 1994.35) and VII (Rs. 1872.92). The cost per cattle unit was found to be less in farming systems in which sheep and / or goat were the components, which could be probably because there were little production expenditure in sheep and goat units,

Table 2**Costs and returns of crop farming / acre under different farming systems****(in Rs.)**

Particulars	Crop farming systems			
	I	II	III	IV
Cost of crop production				
Cost/ acre/year	3667.57	3914.55	3864.18	3476.51
Value of crop produce				
Gross return/ acre/ year	7754.96	8221.76	8038.36	7566.19
Net return/ acre/ year	4080.39	4307.21	4174.48	4089.68

Table 3**Costs and returns of livestock enterprises under different farming systems****(in Rs)**

Particulars	Farming systems						
	I	II	III	IV	V	VI	VII
Cost of livestock production / cattle unit							
Feed cost	1910.25	1235.00	1343.04	-	1009.17	510.94	301.73
Labour cost	1460.00	1270.74	756.07	2092.67	2068.33	1353.54	1684.62
Veterinary expenses	31.30	47.81	50.18	3.80	13.61	8.44	8.00
Total cost	3401.55	2553.56	2149.29	2096.47	3091.11	1872.92	1994.35
Income from livestock component / cattle unit							
Milk	3945.74	1487.53	3127.99	-	3341.56	1367.04	2124.69
Manure	550.47	294.67	434.82	369.05	105.56	55.75	96.15
Sale of Young ones	544.35	749.19	638.39	542.87	469.44	512.50	493.58
Culling	-	793.57	962.50	2914.33	-	1752.08	820.50
Imputed family labour	1460.00	1270.54	756.07	2092.67	2068.33	1353.54	1684.625
Gross returns	6500.55	4595.70	5919.79	5918.93	5984.89	5040.92	5219.54
Net returns	3099.00	2042.14	3770.80	3821.47	2893.78	3168.00	3225.19

except the labour cost. The feed cost was much higher in farming systems where dairying was the only livestock component, whereas in case of small ruminant keeping households, it was lower, as they resorted to grazing and the family labour was the only cost.

Income obtained from livestock per cattle

unit was worked out for each type of farming system and presented in Table 4. Among the six farming systems in which dairying was a component, farming system VII obtained highest contribution from dairy (45.3 per cent), followed by farming systems V (45.1 per cent), I (30.7 per cent), III (25.9 per cent), II (15.3 per cent) and VI (15.7 per cent).

The higher proportion of low productive

dairy animals and less intensive support to dairying as a result of presence of goats under farming systems II (15.3 per cent) and VI (15.7 per cent) reflected the lower contribution from dairying to the annual net family income. However, in all the other farming systems, the percentage contribution from dairying signified the pivotal role played by the dairy component in the study area. It could further be observed that the fact of livestock components of landless farming systems contributing higher per cent to the total income than in the farming systems involving crop indicated the importance of livestock component to the poorer categories of households.

The extent of contribution from goats under farming system VI (26.1 per cent) was found to be highest, followed by farming systems IV (15.5 per cent) and II (13.5 per cent). Among the farming

systems in which sheep was the component, farming system VII received maximum contribution (23.3 per cent) from sheep as against 15.6 per cent and 11.6 per cent to farming systems IV and III, respectively. Under farming system IV, small ruminants yielded almost equal contribution to the total net income. Also, farming systems adopted by landed households received almost equal contribution from their respective small ruminants with 13.5 per cent from goats under II and 11.6 per cent from sheep under III. In landless farming systems, small ruminants' contribution to their respective farming was almost equal. In addition, the percent contribution from dairy was found to be less when reared with goat in the farming system.

Contribution from off-farm income

Table 4
Contribution of livestock to household income

Farming systems	Income from					(in Rs.)
	Crop	Dairy	Goat	Sheep	Off-farm	Annual household income
I	13079.66 (64.7)	6198.00 (30.7)	-	-	930.20 (4.6)	20207.86 (100.0)
II	11112.01 (57.9)	2927.70 (15.3)	2586.00 (13.5)	-	2555.90 (13.3)	19181.71 (100.0)
III	16698.00 (59.3)	7290.40 (25.9)	-	3267.00 (11.6)	900.00 (3.2)	28155.40 (100.0)
IV	9242.68 (50.0)	-	2855.10 (15.5)	2878.60 (15.6)	3500.00 (18.9)	18476.38 (100.0)
V	-	5208.80 (45.1)	-	-	6350.00 (54.9)	11558.80 (100.0)
VI	-	2858.20 (15.7)	4745.00 (26.1)	-	10600.00 (58.2)	18203.20 (100.0)
VII	-	5502.20 (45.3)	-	2883.30 (23.8)	3750.00 (30.9)	12135.50 (100.0)

(Figures in parentheses indicate percentages to total)

Considerable contribution from off-farm income to the total family income was found in farming systems where crop was not a component. In other words, the farming systems practiced by landless households obtained major contribution from off-farm income. Farming system VI obtained the highest contribution of off-farm income (58.2 per cent), followed by farming systems V (54.9 per cent) and VII (30.9 per cent). The higher contribution of off – farm income under farming systems II and IV of landed households could be attributed to the fact that maximum number of sample households in these farming systems belonged to marginal farmers category who relied mostly on off-farm wages.

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