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Economics of goat farming in tribal areas of Rajasthan

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Abstract

The aim of present study was to assess the feed intake and feeding management practices of tribal farmers in Rajasthan. A total of 120 tribal goat farmers were selected from 12 villages from 6 blocks in 3 tribal dominated districts viz., Banswara, Dungarpur and Udaipur. Ten farmers from each village were selected purposively based on the number of goats. The selected goat farmers were grouped into three categories based on flock size as small (<25 goats, N= 60), medium (26-50 goats, N = 36) and large (>50 goats, N = 24). The data on feed intake and feeding management practices were recorded on-field. A half of goat farmers (51.57%) were adopting partial grazing followed by complete grazing (48.33%) and none of the selected farmers was practicing complete stall feeding. About two-thirds of farmer (75%) sent their goats for grazing for more than 5 hours daily and the remaining 25 per cent farmer sent their animals for grazing for less than 5 hours. The proportion of goat farmers who sent their animals for more than 5 hours was 76.67, 66.67 and 83.33 per cent among small, medium and large farmers respectively. Most of goat farmers (77.5%) were feeding colostrum after the birth of the kids whereas some of the farmers (22.5%) were not feeding colostrums at all to kids at all due to the myth of spread of diseases. About a half of the farmers (49.17%) offered grasses, fodders (berseem, lucerne, bajra, jowar and oats) followed by 34.16 per cent goat farmers feeding tree leaves (ber, neem, babool, khejri) and 16.67 per cent farmers were feeding weeds and grass (stylo, cenchrus spp., crop weeds) and about the same number of farmers (16.66%) in small, medium and large flock size practiced feeding weeds and grass (stylo, cenchrus spp., crop weeds). It was observed that overall average amount of green fodder offered to milking goats, dry goats, goatlings, kids and breeding buck was 1.33 ± 0.07 , 0.85 ± 0.07 , 0.45 ± 0.03 , 0.37 ± 0.02 and 1.71 ± 0.10 kg/day respectively. The average amount of green fodder offered daily was significantly ($p < 0.05$) higher in case of small farmers as compared to medium and large goat farmers in case of milking as well as dry goats and significantly higher in case of breeding bucks in case of large farmers as compared to other categories of farmers. The overall available dry fodders fed to milking goats, dry goats, goatlings, kids and breeding buck was 0.95 ± 0.67 , 0.93 ± 0.07 , 0.87 ± 0.06 , 0.37 ± 0.02 and 1.72 ± 0.11 kg/day respectively. Being significantly ($p < 0.05$) higher in small farmers followed by medium and large goat farmers. Overall average amount of concentrate mixture offered to milking/pregnant goats, dry goats, goatlings, kids and breeding buck was 210.09 ± 14.26 , 85.37 ± 6.84 , 86.76 ± 5.83 , 85.65 ± 5.86 and 246.11 ± 16.89 g/day respectively. Being significantly ($p < 0.05$) higher in small farmers followed by medium and large farmers among milking goats and breeding bucks. A sizable majority of farmers (56%) were offering fattening ration to their male kids for their higher body weight gain so that they attain early market weight and on an overall average 255.79 ± 7923.12 g of concentrate mixture per buck/day was fed as fattening ration. The overall total DM intake through stall feeding in case of milking goats, dry, goatlings, kids and breeding bucks was 1.16, 0.90, 1.01, 0.52 and 1.38 kg respectively. The total DM intake in different categories of goats was similar among the three flock size categories. It was concluded that feeding management practices were mostly traditional without much regard to scientific recommendations. However, these management practices in general were better in case of small farmers as compared to medium and large farmers.

Keywords: Economics, tribal farmers, goat farming

Introduction

Goats are the world's oldest and among the first ruminants to be domesticated by human beings in South-Western Asia (Iran and Iraq) between 10000 and 6000 years BC. Around 80 per cent of global goat population is in the developing countries. Among them, India ranks second in the world population of goat. With the present population of 135.2 million, goats account for more than 25 per cent of the total livestock in the country and contribute Rs 106335 million annually to the national economy (19th Livestock Census, 2012) [3]. They provide food and nutritional security to the millions of marginal and small farmers and agricultural labourers by providing animal protein through meat and milk. There are about 34 well defined and recognized breeds of goats in India (NBAGR, 2018) [4].

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Goats are among the main meat-producing animals in India, whose meat (chevon) is one of the choicest meat having huge domestic demand. Besides meat, goats, a multi functional/purpose animal which provide other products like milk, skin, fibre and manure. Goat contributed 5.05 million tonnes of milk (3.67% of total milk production of 137.685 million tons) and 0.97 million tonnes of meat (15.56% of total production) during the year 2013-2014 (BAHS, 2015).

In India, Rajasthan is ranked first in goat population with a population of 21.66 millions, (37.53%) of total livestock population in the state. Sirohi goat is the most preferred goat breed over other breeds in Rajasthan (Marwari and Jhakhrana). Goats are the backbone of rural economy particularly, in the arid, semi-arid and mountainous regions of Rajasthan. Goat farming is a suitable option for revenue generation for the small scale farmers and tribal people as it require a very low investment and can efficiently survive and sustain sparse vegetation and extreme climatic conditions. Best known as the "poor man's cow" or "mini cow" these magnificent animals are the best alternative source of additional income and milk contributing immensely to the poor man's economy. In pastoral and agricultural subsistence societies in India, goats are kept as a source of an insurance against disaster. Goats are generally managed under extensive production system and semi intensive system, where only at night shelter is provided. A major part of their fodder requirement is met out through grazing at waste and other common community lands.

India is a conventional home for about 645 tribal communities (population census, 2011). They are dispersed in almost all the states and union territories. The areas populated by tribals are mostly underdeveloped. They mostly reside in secluded villages or hamlets. The population of tribal in the country is 104 millions, which is 8.2 per cent of the total population of the country whereas; the Scheduled Tribe (ST) population of Rajasthan State is 7,097,706 constituting 8.4 percent of the total ST population of India (Census, 2011) [2]. The Scheduled Tribes of the State constitute 12.6 percent of the total population (68548437) of the state. According to the 19th Livestock census, 2012 [3] goats population in the districts of Banswara, Dungarpur and Udaipur which have been categorized as tribal districts in Rajasthan state (study area) is 38.52% of the total livestock population in Rajasthan.

Economics of goat farming in tribal areas of Rajasthan Results and Discussion

The cost of rearing goats and net income from goat farming in the study area was worked out utilizing standard technique. The data on various cost components and income from goat farming with respect to 3 categories of goat keepers is

presented in the table⁻¹.

1. Cost of goat rearing

The overall total cost of rearing per goat per year was Rs. 790.45±14.18. In small, medium and large categories of farmers total cost of rearing per goat per year was Rs. 862.29±9.76, 813.03±27.93 and 576.99±15.26 respectively being significantly ($p<0.05$) higher in case of small group of farmers.

Based on overall data of all respondents the cost of labour was the major cost component as it accounted for 52.8% of the total cost of rearing followed by the cost of feeding which accounted for 31.9% of the total cost of goat raising. Normally cost of feeding is considered as the major cost component in all livestock species. However, in this case the feeding was primarily base on grazing on community land and the stall feeding was minimal lowering the cost of feeding. As a corollary the cost of labour became the major cost component in view of time spent on grazing of flock. The cost of feeding was almost similar in 3 categories of farmers whereas the cost of labour was the least (48.1%) in case of large farmers. This was due to the fact that minimum of one person was required for grazing the flock irrespective of the size of flock. The significantly higher cost of rearing per goat in case of small and medium farmers may be attributed to higher cost of labour in these categories of farmers.

2. Income from goat farming

The overall net income from goat farming per goat per year was Rs. 2549.30±143.77. In small, medium and large categories of farmers net income per goat per year was Rs. 2653.07±144.75, 2787.05±404.28 and 1933.28±76.88 respectively. The net income per goat per year was significantly ($p<0.05$) higher in medium and small group of farmers as compared to large group of farmers. The higher growth rate of kids and consequent earlier attaining of marketable weight and higher milk productivity of goats could probably be the reasons for higher net income /goat /year in case of farmers with small and medium sized goat flocks.

The income from sale of males and surplus and old goats was the major component of income from goat farming contributing 88.3% of the total income and this income was almost similar in all three categories of farmers. In overall the income from sale of milk contributed only 6.4% of the total income and the remaining income came from the sale of manure. The income from the sale of milk was again almost similar in the small (6.1%) medium (6.6%) and large farmers (6.5%).

Table 1: Economics of goat farming (per year per goat in Rs.)

Sr. No.	Particulars	Small sized flock	Medium sized flocks	Large sized flocks	Overall
	Average flock sizes	22.63 ± 0.21	33.72 ± 1.07	58.54 ± 1.32	33.14 ± 1.31
(1) Cost of goat farming					
(A)	Fixed cost (Depreciation cost+ Insurance)	694.16 ^a ± 8.15	909.72 ^b ± 9.09	1070.83 ^c ± 14.72	834.17 ± 14.93
(B)	Average variable cost				
1.	Feeding	5875 ^a ± 105.38	8416.67 ^b ± 120.35	11687.50 ^c ± 155.84	7800 ± 216.56
	Per cent of Feeding cost	30.16	31.80	34.81	31.91
2.	Health	491.6667 ^a ± 14.61	645.83 ^b ± 11.68b	1135.42 ^b ± 277.39	666.67 ± 59.48
3.	Labour	10825.00 ^a ± 287.16	15930.56 ^b ± 143.86	16166.67 ± 298.95	12915 ± 279.08
	Percent of labor cost	55.28	60.19	48.15	52.83
4.	Breeding	1343 ^a ± 24.88	1713.89 ^b ± 16.50a	2381.25 ^b ± 658.24	1662.08±135.02
5.	Miscellaneous expenditure	350 ^a ± 8.89	548.61 ^b ± 19.47b	1131.25 ^b ± 285.95	565.83±62.82
	(C) Total cost / year (A+B)	19579 ^a ± 1168.03	26465.27 ^b ± 308.53	33572.9 ^c ± 2895.94	24443.75±573
	(D) Total cost per goat/per year	862.29 ^b ± 9.76	813.03 ^b ± 27.93	576.99 ^a ± 15.26	790.45 ± 14.18

(E) Income from goat farming (Rs.)					
Sr. No.	Particulars	Small sized flock	Medium sized flocks	Large sized flocks	Overall
(a)	Income from sale of milk	4900 ^a ± 89.56	7652.78 ^b ± 181.29	9604.17 ^c ± 172.84	6666.67 ± 189.24
	Per cent of income from milk	6.1	6.6	6.5	6.4
(b)	Income from sale of buck	37216.67 ^a ± 3628.36	55652.78 ^b ± 10203.29	60000 ^b ± 2807.21	47304.17 ± 3676.24
(c)	Income from sale of manure	3535 ^a ± 536.37	6475.00 ^b ± 263.20	8520.83 ^c ± 301.68	5414.167 ± 337.47
	Per cent of income from bucks and goat sale	89.38	87.63	87.65	88.31
(d)	Income from sale of surplus goats	33800 ^a ± 362.66	44500.00 ^b ± 1429.56	68750 ^c ± 2196.22	44000 ± 1360.55
	(E) Gross income (a + b + c + d)	79451.67 ^a ± 3640.06	114280.56 ^b ± 9957.58	146875 ^c ± 5106.50	103385 ± 4332.27
	(F) Net income (E-C)	59797.5 ^a ± 3817.34	87815.27 ^b ± 9976.04	113302.1 ^c ± 5116.047	80607.92 ± 4163.69
	(G) Net income /goat/year	2653.07 ^{ab} ± 144.75	2787.05 ^b ± 404.28	1933.28 ^a ± 76.88	2549.30 ± 143.77

The tribal goat farmers in Rajasthan earned on an average a net income of about Rs. 2550 per goat per year. However, the small and medium farmers earned more (Rs. 2653 & 2787 per goat /year) than the large farmers (Rs. 1933 per goat /year). Similar results were found by Tyagi *et al.*, 2013^[5].

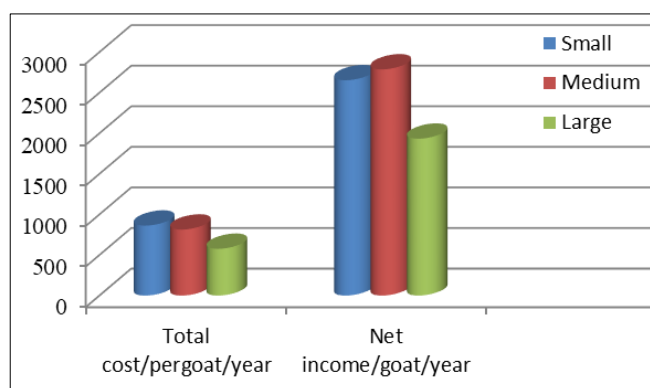


Fig 1: Economics of goat farming

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