



RESEARCH ARTICLE.....

# Economics of goat farming under traditional low input production system in Bikaner district

UPENDRA KUMAR, M.L. REAGER, RANVEER SINGH, GEETA BALWADA AND DEEPAK CHATURVEDI

**ABSTRACT.....** The study was conducted in four blocks of Bikaner district of Rajasthan. Three villages selected from each block and ten farmers selected from each village. Total 120 farmers selected for data collection on different flock sizes were undertaken to evaluate the economic performance of goats under traditional farming system. Study revealed that small flock size (5-10) was most profitable followed by 10-25 and 25-50. The net return worked out to be Rs. 6895, 6650 and 6492 per goat/annum, respectively. The net profit (per goat/annum) decreased linearly with the increase of flock sizes due to inadequate nutrition and management practices by larger goat keepers. Sell of goats was the major source of income (49.93%) followed by milk (41.85%) and manures (4.20%). Therefore, rearing of goat cannot sustain only on grazing resources, needs to switch over to semi-intensive/ intensive system of management.

Author for Corresponding -

**UPENDRA KUMAR**  
Krishi Vigyan Kendra (S.K.A.U.),  
BIKANER (RAJASTHAN) INDIA  
Email: ukmeel@gmail.com

See end of the article for  
**Coopted authors**

**KEY WORDS.....** Goat farming; Economics of goat farming

**HOW TO CITE THIS ARTICLE** - Kumar, Upendra, Reager, M.L., Singh, Ranveer, Balwada, Geeta and Chaturvedi, Deepak (2014). Economics of goat farming under traditional low input production system in Bikaner district. *Asian J. Animal Sci.*, 9(2) : 160-163.

**ARTICLE CHRONICLE** - Received : 28.08.2014; Revised : 05.11.2014; Accepted : 20.11.2014

## INTRODUCTION.....

Goat farming is significantly income generation and employment generation of rural masses. Rural population of the arid zone of Rajasthan depends on livestock for their milk and meat requirement. Goats have a sizable population of total livestock strength in the zone. Total population of goat in the zone was 35.80 lacs when compared with 31.07 lacs sheep and total livestock population of the zone is 92.32 lacs (17 livestock census, 2003-04). Most of the small ruminants in the village condition were kept on natural available feed resources *i.e.* tree leaves, grasses, residues of vegetable crops and food grain grasses, residues of vegetable crops and food grain crops. Goats mainly depend on grazing in common lands, village waste lands, irrigation canals and channels, *gocher* lands and agricultural land during the lean period of agriculture crops.

Goats contribute significantly to the India economy by

sustaining livelihood and supplementing Income of small farmers and rural poor's. The demand for goat meat is progressively increasing as Indian prefers goat meat (Chevon) among all other meats (Sen *et al.*, 2004 ).The value of the output from goat milk and meat was estimated as Rs. 44.3 billion and Rs. 71.66 billion, respectively during 2004-05 (GOI, 2006). India possesses 16.60 per cent (124.50 million) of the world goat population and rank first in world (Singh, 2004). Rajasthan ranked II after West Bengal. The important goat farming offers immense opportunities and potential for generating income and employment to land less, resource poor's in state. Keeping in view, a study was conducted on economics of goat farming under traditional low input production system in Bikaner District of Rajasthan.

## RESEARCH METHODS.....

The study was conducted in four blocks of Bikaner

Categories	Small(I)	Medium (II)	Large (III)
No. of goat keepers	50	40	20
Land holding	Small	Small/marginal	Marginal/ landless
Flock ranges (Nos.)	5-10	11-20	21-50
Av. flock size(Nos.)	8.60	17.25	36.80
Goat farming system	Intensive	Free Range	Free Range

district of Rajasthan. Three villages selected from each block and ten farmers selected from each village. Total 120 farmers selected for data collection. The data were collected on dynamics of goat production from primary as well as secondary sources using questionnaire. Door to door survey of 120 households was carried out to find out the flock sizes, breeds, goat farming system, etc. in 12 adopted villages by Krishi Vigyan Kendra. Participatory Rural Appraisal and farmers group discussions were recorded for assessing the situation related to goat farming. The information on feeding, breeding, health care and shelter management practices along with the productivity, profitability, etc., were recorded. The details of land holdings, flock ranges, average flock sizes, system of goat farming in different categories are given in Table A.

## RESEARCH FINDINGS AND ANALYSIS.....

Small owners mostly followed stall feeding with little bit grazing. While large goat keepers raise their goats solely on browsing and grazing stubble of field crops, natural pasture, etc. old men, women or children of family took care, time to time of their flocks. Hence, family labour was included in feeding expenditure.

Category wise flock status:- the initial, average flock size of goats, in the categories I, II and III were 8.60, 17.25 and 36.80 numbers, respectively. After one year, 77.91, 67.82 and

61.96 per cent goats were sold and the strength of flock consisted almost identical during the end of the year in respective categories. Proportionally, the highest sell of goat was in category I followed by II, and III with an overall average of 20.70 individuals or 65.28 per cent (Table 1).

The performance of Marwari goats of farmers were recorded on growth, milk yield, reproduction etc. for different stage of growth. The body weight at different stages of growth  $2.89 \pm 0.13$  kg at birth,  $14.43 \pm 2.58$  kg for 3 month,  $17.93 \pm 0.54$  kg for 6 month,  $20.86 \pm 0.69$  kg for 9 month,  $24.82 \pm 1.87$  kg for 12 month,  $31.92 \pm 0.87$  kg for 18 month and  $38.31 \pm 0.59$  kg for adult animals. Male kids were heavier than female kids. The birth weight was significantly ( $P < 0.05$ ) influenced by sex of kid and weight of dam at kidding. Analysis of variance revealed the significant ( $P < 0.05$ ) effect of location on body weights and body measurement at all the stages of growth. The influence of sex ( $P < 0.05$ ) on body weight and measurement were also observed after the attainment of sexual maturity due to sex hormone. The average milk yield was  $52.118 \pm 16.18$  kg for 30 days,  $98.22 \pm 24.18$  kg for 60 days and  $137.85 \pm 32.51$  kg for 90 days of lactation. The reproductive performance of Marwari goats  $288.45 \pm 11.16$  days kidding interval and 74.92 kidding percentage with 4.51 per cent twinning (Table 2).

Category wise flock investment: The average annual expenditure of 42932, 83507 and 173107 were incurred for categories I, II and III, respectively. The major investment

Category	Initial flock size (Nos)	Sold individuals (Nos)	Sold percentage
I	8.6	6.7	77.91
II	17.25	11.7	67.82
III	36.8	22.8	61.96
IV	64.21	41.6	64.79
Average	31.71	20.7	65.28

Birth	Weight at					
	3 Month	6 Month	9 Month	12 Month	18 Month	Adult
$2.89 \pm 0.13$	$14.43 \pm 2.58$	$17.93 \pm 0.54$	$20.86 \pm 0.69$	$24.82 \pm 1.87$	$31.92 \pm 0.87$	$38.31 \pm 0.59$
<b>Average milk yield</b>						
30 days	60 days		90 days			
$52.118 \pm 16.18$ kg	$98.22 \pm 24.18$ kg		$137.85 \pm 32.51$ kg			

\* indicates of significance of values at  $P=0.05$ , respectively

was found on the value of initial stock, which accounted alone for an average of 87.96 per cent of the total expenditure. The maintenance cost per goat was worked out to be highest in category I (Rs. 790) and lowest in III (Rs. 503) with an overall average of Rs. 580 per year without considering the family labours. Comparatively, higher investment of Rs. 810 and 524.70 per goat / annum was reported by Singh *et al.* (2009) for Mathura district and north Gujarat, respectively with inclusion of family labour which alone shared from 65 to 80 per cent. However, without considering the family labour, a finding (Rs. 408 per goat/ annum) was reported by Maity and Das (2000) for Bundelkhand region. Among maintenance, highest expenditure was on feeding (65%) followed by shelter (21.67%) and veterinary medicines (13.31%).

Category wise return: The gross and net profit worked out to be Rs. 102232 and 59300 for category I, 198227 and 114720 for category II, 411998 and 238891 for category III, respectively. Other than existing stock value, major source of income was from the sell of goat (49.93%) followed milk (41.85%) and manure (4.20%). Almost similar findings were consisted by Singh *et al.* (2009). The overall average value of existing stock over a year has enhanced to 19.99 per cent as compared

to the initial stock value, after the selling of 21.66 per cent individuals. The annual net profit per goat was highest in category I (Rs. 6895) followed by II (Rs. 6650) and III (Rs. 6492) with overall average of Rs. 6679. Kumar *et al.* (2003 and 2006) report similar findings to present. The annual gross and net return per house hold appreciably increased with the increase of flock sizes but net return per goat decreased inversely. It happened because; adequate feeding and health care were not provided by large owners. They kept the goat solely on grazing resources, which are also shrinking vigorously. On the other hand, small owner fed concentrate, kitchen waste, cultivated fodder and took better care of their flock and achieved higher net return.

The socio-economic indicators of selected respondent's goat farmers were selected, tabulated and presented in Table 4. It is clear from Table 4 that majority of the selected respondents goat farmers (92.77%) reported that goat has been a ready cash riding dependence on high cost private credit followed by increased share of income from goat to family's total income (74.70%), increase profit/goat/ annum (72.29%), increased awareness about commercial goat farming and its advantage (59.04%), increased access to goat milk for

**Table 3 : Category wise economics (Rs.) of different flock sizes**

Category/ annual expenditure	Small	Medium	Large	Average
Average flock sizes (Nos.)	8.6	17.25	36.8	20.9
Value of initial stock	36120	72450	154560	87710.0
Investment on feeding	3870	6037	8280	6062.3
Depreciation on shed	2150	3605	7360	4371.7
Veterinary aid	792	1415	2907	1704.7
Total variable cost (i to iii)	6812	11057	18547	12138.7
Gross expenditure	42932	83507	173107	99848.7
Annual Income				
Value of existing stock	43344	86940	185472	105252.0
Sell of goat*	33768	58968	114912	69216.0
Sale of milk	22850	47558	101457	57288.3
Sale of manure	2270	4761	10157	5729.3
Annual return (I to iii)	58888	111287	226526	132233.7
Gross income	102232	198227	411998	237485.7
Net income	59300	114720	238891	137637.0
Net profit/goat	6895	6650	6492	6679.0

\*(sale of goats included all e.g. kid, buck, doe and spent)

**Table 4 : Distribution of selected goat farmers with respect to socio-economic indicators**

Sr. No.	Particulars	(n= 120)	
		F	%
1.	Goat has been a ready case riding dependence on high cost private credit	111	92.77
2.	Increased share of income from goat to families total income	90	74.7
3.	Increase profit/goat/annum	87	72.29
4.	Increased awareness about commercial goat farming and its advantages	71	59.04
5.	Increased access to goat milk for family consumption	51	42.17
6.	Increased in employment generation through goats	45	37.35

family consumption (42.17%) and increased in employment generation through goats (37.35%). Kumar and Singh (2005) also observed that the goat have become steadily important rural economy particularly in the arid, semi-arid and mountainous regions of the country. Similarly, goat provided an opportunity for efficient utilization of family labour (Kumar and Deoghare, 2003).

The quantity of manure produced should represent the maximum quantity produced by grazing goats. Unsupplemented goats would be expected to produce less. N, P and K are the major elements in commercial inorganic fertilizers presently in use. In addition to these macro-nutrients, goat faeces provide micro-elements such as Mn, Zn and Cu which are required by plants (Kallah and Adamn, 1988). However, the goat manure would also supply organic matter to the system to improve soil structure. Some farmers continued to use animal manure even when inorganic fertilizer was relatively inexpensive during the fertilizer-subsidy era.

This tenacious adherence to tradition appears justified considering that the world is currently preaching organic farming on the basis that it is less hazardous to health and better for the environment than inorganic farming. Bulkiness notwithstanding, the use of goat manure can help to reduce the cost of fertilizer for crop production. The goat farming offers immense opportunity for income and employment generation of land less, poor and weaker section of society. Similar work related to the present investigation was also carried out by Prasad *et al.* (2013) and Singh *et al.* (2011).

---

#### COOPTED AUTHORS' –

**M.L. REAGER AND DEEPAK CHATURVEDI**, Krishi Vigyan Kendra (S.K.A.U.), Beechwal, BIKANER (RAJASTHAN) INDIA

**RANVEER SINGH**, College of Agriculture, Swami Keshwanand Agriculture University, BIKANER (RAJASTHAN) INDIA

**GEETA BALWADA**, Department of Home Science, Government Girls Senior Secondary School, BIKANER (RAJASTHAN) INDIA

---

#### LITERATURE CITED.....

GOI (2006). Basic Animal Husbandry Statistics (AHS-10). Ministry of Agriculture, Govt. of India.

**Kallah, M.S.** and Adamu, A.M. (1988). The importance of animal faeces as fertilizer. In: Gefu, J.O, Adu, I.F, Lefadeju, E.A., Kallah, M.S. and Awogbade, M.O. (Ed). Pastoralism in Nigeria: Past, present and future. Proceeding of the National Conference on Pastoralism in Nigeria held at NAPRI Shika-Zaria. 118-126pp.

**Kumar, S.** and Deoghare, P.R. (2003). Goat production system and livelihood security of rural landless household. *Indian J. Small Ruminants*, **9**(1): 19-24.

**Kumar, S.** and Singh, N.P. (2005). Economics of small ruminant production in dry regions. National symposium of RMSI on "Augmenting forage resources in arid and semi-arid region: Long term strategies" at jaipur, 489-498pp.

**Kumar, S.**, Vaid, R.K. and Sagar, R.L.(2006).Contribution of goat to livelihood security of small ruminant's farmers in semi-arid region. *Indian J. Small Ruminants*, **12**: 61-66.

**Kumar, S.**, Vihan, V.S. and Deoghare, P.R. (2003). Economic implication of diseases in goats in India with reference to implementation of a health plan calendar. *Small Ruminant Res.*, **47** (2) : 159-164.

**Maity, S.B.** and Das, M.M. (2000). Goat farming-a profitable enterprise at Bundelkhand region. *Indian Farming*, **50** (8) : 28-29.

**Prasad, R.**, Singh, A.K., Singh, Lakhan and Singh, Atar (2013). Economics of goat farming under traditional low input production system in Uttar Pradesh. *Indian Res. J. Extn. Edu.*, **13** (2): 62:66.

**Sen, A.R.**, Santra, A. and Karim, S.A. (2004). Carcass yield, composition and meat quality attributes of sheep and goat under semi arid conditions. *Meat Sci.*, **66** (4) : 757-763.

**Singh, K.P.**, Dixit, S.P., Singh, P.K., Taneja, K.R., Singh, G. and Ahlawat, S.P.S. (2009). Economics of goat farming under traditional low input production system in North Gujarat of India. *Indian J. Ani. Sci.*, **79**(9) : 948-951.

**Singh, S.K.** (2004). Security system for goat germ plasm in India. Proceeding of Seminar on Goat Genome. CIRG, Mathura. 87pp.

**Singh, S.P.**, Singh, A.K. and Prasad, R. (2011). Economics of goat farming in Agra district of Uttar Pradesh. *Indian Res. J. Extn. Edu.*, **11** (3) : 37-40.

9<sup>th</sup>  
Year  
★★★★★ of Excellence ★★★★★