

Economics of Goat Farming Under Traditional Low Input Production System in Uttar Pradesh

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ABSTRACT

A study on goats consisting 227 flocks, 150 villages in 40 districts of Uttar Pradesh on different flock sizes and breeds were undertaken to evaluate the economic performance of goats under traditional farming system. Study revealed that small flock size (<15) was most profitable followed by flock sizes 16-30, 31-45 and >45. The net return worked out to be Rs 1348, 1148, 974 and 865 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 (69.90%) followed by milk (31.90%) and manures (8.20%). Among breeds, Barbary gave highest return, due to its higher prolificacy followed by Jamunapari, Jaunpuri and non-descript. The net return per goat/annum worked out to be Rs 1207, 1022, 966 and 916, respectively. The flock of Barbary and Jamunapari gave 31.9 and 11.9% higher net return per goat/annum over non-descript, respectively. In present study, the shrinking of grazing resources and large population of non-descript goats (79.20%) were found the major constraints in making the goat farming more remunerative. Therefore, rearing of goat can not sustain only on grazing resources, needs to switch over to semi-intensive/ intensive system of management. Similarly, the local breed needs to improve by massive cross breeding programme to take the advantage of heterosis.

Key Words: Goat farming; Economics of goat farming; Goat breeds;

Goats contribute significantly to the Indian economy by sustaining livelihood and supplementing income of small farmers and rural poor's. The share of goats to the total milk yield and meat production of India was recorded as 3.82% and 69.35%, respectively. 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). The demand for goat meat is progressively increasing as Indian prefers goat meat (*Chevon*) among all other meats (*Sen, et al. 2004*). India possesses 16.60% (124.50 million) of the world goat population and rank first in world (*Singh, 2004*). Uttar Pradesh has 12.94 million goats and ranked III after West Bengal and Rajasthan. The important native breeds of Uttar Pradesh are Barbary (15.50%), Jamunapari (3.33%) and Jaunpuri (1.89%) as per 17th livestock census, 2003. Being the 3rd largest goat populated state, 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 Uttar Pradesh'.

METHODOLOGY

The study was conducted in 40 districts, covering each 9 agro-climatic zones of Uttar Pradesh during 2009-10. The data were collected on dynamics of goat production from primary as well as secondary sources using questionnaire. Door to door survey of 217 households was carried out to find out the flock sizes, breeds, goat farming system, etc. in 150 adopted villages by Krishi Vigyan Kendras. 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.

Table 1. Categorization of goat keepers based on flock sizes and breeds

Categories	Small (I)	Medium (II)	Semi-medium (III)	Large (IV)
No. of goat keepers	100	50	36	31
Land holding	Small	Small/marginal	Marginal/ landless	Landless
Flock ranges (Nos.)	5- 15	16-30	31-45	45-110
Av. flock size (Nos.)	9.30	20.60	36.80	77.80
Goat farming system	Intensive	Semi-intensive	Extensive	Free range
Categorization based on breeds or its types				
Breeds or its type	Barbary	Jamunapari	Jaunpuri	Non-descript
No. of goat keepers	68	40	09	100
Flock ranges(Nos.)	5-35	25-40	20-32	5-110
Av. flock size (Nos.)	21.00	32.20	25.20	28.10

The selected goat keepers were classified in two ways, according to (i) flock sizes and (ii) breeds or its types. The details of land holdings, flock ranges, average flock sizes, system of goat farming in different categories as well as breeds are given in Table 1.

RESULTS AND DISCUSSION

Small owners mostly followed stall feeding with little bit grazing. While large goat keepers raised their goats solely on browsing and grazing stubbles 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.

Economics of different flock sizes of goat farming:

Category wise flock status: The initial, average flock size of goats, in the categories I, II, III and IV were 9.30, 20.60, 36.80 and 77.80 numbers, respectively. After one year, 72.20, 66.60, 62.20 and 53.40% goats were sold and the strength of flock consisted almost identical during the end of year in respective categories. Proportionally, the highest sell of goats was in category I followed by II, III and IV with an overall average of 16.50 individuals or 62.30%.

Category wise Investment: The average annual expenditure of Rs 19,142, 34,908, 59,452 and 1, 32,982 was incurred for categories I, II, III and IV, respectively.

The major investment was found on the value of initial stock, which accounted alone for an average of 78.80% of the total expenditure. The maintenance cost per goat was worked out to be highest in category I (Rs 566) followed by II (Rs 402), III (Rs 327) and lowest in IV (Rs 232) with an overall average of Rs 280 per year without considering the family labours. Comparatively, higher investment of Rs 810 and Rs 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%. However, without considering the family labour, a similar finding (Rs 408 per goat/annum) was reported by Maity and Das (2000) for Bundelkhand region. Among maintenance, highest expenditure was on feeding (67.20%) followed by shelter (22.80%) and veterinary medicines (10.00%). It is evident from the Table 3 that as the flock size increased the recurring expenditure decreased, because the large goat keepers were mostly below the poverty line and unable to feed concentrate except grazing.

Category wise return: The gross and net profit worked out to be Rs 31,675 and 12,553 for category I, Rs 58,565 and 23,657 for category II, Rs 95,292 and 35,480 for category III and Rs 20,03,12 and 67,330 for category VI, respectively. Other than existing stock value, major

Table 2. Category wise average flock status

Category	Initial Flock Size (Nos.)	Sold Individuals (Nos.)	Sold Percentage	Current Flock Size (Nos.)
I	9.28	6.70	72.20	10.20
II	20.57	13.70	66.60	20.80
III	36.80	22.80	62.00	37.50
IV	77.80	41.50	53.40	78.00
Average	26.50	16.50	62.30	27.20

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

Category/Annual expenditure	Small	Medium	Semi-medium	Large	Average
Average flock sizes (Nos.)	9.30	20.60	36.80	77.80	36.20
Value of initial stock	13,869	26,614	47,412	1,14,906	37,879
Investment on feeding	3,450	5,280	6,120	12,280	6,783
Depreciation on shed	1,333	2,247	3,685	4,023	2,310
Veterinary aids	490	767	2,235	1,773	1,005
Total variable cost (I to iii)	5,273	8,294	12,040	18,076	10,098
Gross expenditure	19,142	34,908	59,452	1,32,982	47,977
<i>Annual Income</i>					
Value of existing stock	16,825	28,745	48,522	1,24,206	41,412
Sell of goats*	8,910	17,880	28,060	45,620	25,118
Sale of milk	4,760	9,542	14,960	24,331	13,398
Sale of manure	1,180	2,398	3,750	6,084	3,353
Annual return (i to iii)	14,850	29,820	46,770	76,035	41,869
Gross income	31,675	58,565	95,292	20,0,241	83,281
Net income	12,553	23,657	35,840	67,330	35,305
Net profit/goat	1,348	1,148	974	865	1,014

*(Sale of goats includes all e.g. kid, buck, doe and spent)

source of income was from the sell of goats (59.90%) followed by milk (31.90%) and manure (8.20%). Almost similar findings were consisted by Singh *et al* (2009). The overall average value of existing stock over a year has enhanced to 9.32% as compared to the initial stock value, after the selling of 62.30% individuals. The annual net profit per goat was highest in category I (Rs.1, 348) followed by II (Rs 1,148), III (Rs.974) and IV (Rs 865) with overall average of Rs 1,084. Kumar, *et al* (2003, 2006) reported similar income (Rs 884 to 1,302 per goat/year) to present finding. The net return per goat/annum was 24.60 and 6.90% higher in category I and II while 9.90 and 15.70% lower in III and IV than the overall average. 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 goats, 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.

Economics of different breed of goat farming :

Breed wise flock status: The breed wise, initial flock size of Barbary, Jamunapari, Jaunpuri and non-descript were 21.00, 32.30, 25.20 and 27.10 individuals, respectively (Table 4). After one year, the respective breeds were maintained constantly at 22.50, 32.00, 25.50, and 28.40 individuals with an over all average of 26.8. The sell percentage was highest in Barbary (73.30) followed by Jaunpuri (65.10), non-descript (62.70) and lowest in Jamunapari (48.00). It was due to genetic traits of prolificacy (litter size, kidding interval, etc.) of individual breeds.

Breed wise Investment: The average annual investment per house hold of goat breed; like Barbary, Jamunapari, Jaunpuri and non-descript were Rs 36,066, 57,178, 44,187 and 47,171 respectively with an overall average

Table 4. Breed wise average flock status

Breeds	Initial Flock Size (Nos.)	Sold Individuals (Nos.)	Sold Percentage	Current Flock Size (Nos.)
Barbary	21.00	15.40	73.30	22.50
Jamunapari	32.30	16.50	48.00	32.00
Jaunpuri	25.20	16.40	65.10	25.50
Non-Descript	27.10	17.00	62.70	28.40
Average	26.50	16.50	62.30	26.80

Table 5. Economics of different goat breed (Rs)

Breeds/Annual Expenditure	Barbary	Jamunapari	Jaunpuri	Non-descript	Average
Av. Flock Sizes (Nos.)	21.00	32.20	25.20	27.10	26.50
Value of initial stock	27,639	46,220	35,850	39,204	37,879
Investment on feeding	4,860	6,638	5,295	5,440	5,558
Depreciation on shed	2,769	2,807	2,185	1,714	2,310
Veterinary aids	798	1,513	857	813	1,005
Total (i to iii)	8,427	10,958	8,337	7,967	8,873
Gross expenditure	36,066	57,178	44,187	47,171	46,752
<i>Annual Income</i>					
Value of existing stock	33,711	48,852	38,000	41,605	41,412
Sell of goats	15,280	20,093	17,038	17,520	17,483
Sale of milk	9,624	17,270	10,800	10,398	11,477
Sale of manure	2,793	3,880	2,700	2,482	2,945
Total (i to iii)	27,697	41,243	30,538	30,400	31,905
Gross Income	61,408	90,095	68,538	72,005	73,317
Net Income	25,342	32,917	24,351	24,834	26,565
Net profit/ goat	1,207	1,022	966	916	1,012
B:C Ratio	1.72	1.57	1.55	1.52	1.57

*(Sale of goats includes all e.g. kid, buck, doe and spent)

of Rs 46,752. The capital investment was 81.02% on initial stock. The annual maintenance cost per goat worked out to be highest in Barbary (Rs 401) followed by Jamunapari (Rs 340), Jaunpuri (Rs 307) and lowest in non-descript (Rs 293) with an overall average of Rs 335. The average expenditure on feeding per goat was only Rs 231, 206, 210 and 201 for respective breeds. The annual expenditure on veterinary aids per goat was highest in Jamunapari (Rs 47) followed by Barbary (Rs 38), Jaunpuri (Rs 34) and the lowest in non-descript (Rs 30).

Breed wise return: The gross return per house hold from different breeds was Rs 61,408, 90,095, 68,538 and 72,005 in case of Barbary, Jamunapari, Jaunpuri and non-descript, respectively with an overall average of Rs 73,317. The net return per unit over variable cost worked out to be Rs 25,342 from Barbary, Rs 32,917 from Jamunapari, Rs 24,351 from Jaunpuri and Rs 24,834 from non-descript with an overall average of Rs. 26,565. The income was the highest from sell of goats (54.80%), followed by milk (35.90%) and manure (9.30%). There was no considerable variation, among the sell percentage of different commodities in breeds except proportionally, higher sell value of milk in Jamunapari. The net return per goat/annum was highest

in Barbary (Rs 1,203) followed by Jamunapari (Rs 1,022), Jaunpuri (Rs 966) and non-descript (Rs 916) with an overall average of Rs 1,013. The B: C ratio was highest in Barbary (1.72) followed by jamunapari, jaunpuri and local goats respectively. Comparatively, higher B: C ratio in Barbary (2.00) was reported by Singh *et al.* (2009). The Barbary and Jamunapari or its type gave 31.9 and 11.60% higher net return due to their higher litter size and milk production respectively, over local breed.

CONCLUSION

The economics of goat rearing on prevailing traditional system worked out covering 217 goat flocks of different sizes and breeds in 40 districts of Uttar Pradesh. The net profit per goat/annum was highest in flock size 9.30 (Rs 1348) followed by 20.60 (Rs 1148), 38.80 (Rs 974) and lowest in 77.80 (Rs 865). Among breeds, maximum net receipt of Rs 1,207 per goat/annum was obtained from Barbary followed by Rs 1,022 in Jamunapari, Rs 966 in Jaunpuri and lowest Rs 916 in *desi* goats. Larger flock could not fully express to their genetic traits due to poor nutrition i.e. declining of grazing resources. Lack of quality breeding bucks was felt another constraint to improve the large populous poor productive *desi* goats. The rearing of goats under free

range grazing/ extensive management may not sustain more due to shrinking grazing land; need to switch over to intensive system. Thus, the success in overcoming on these two obstacles, goat farming offers immense

opportunity for income and employment generation of land less, poor and weaker section of society.

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