RESEARCH NOTE

An Economic Analysis of Goat Rearing in Mahoba District of Bundelkhand Region

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ABSTRACT

The present study has explored goat production economics in Bundelkhand region.Family size has positive correlation with flock size whereas land holding size has negative correlation.Goats were reared mostly as a secondary source of income and flocks were largely medium in size. Major investment was made on purchase of goats followed by shed and equipment. The average investment per goat was Rs.3427. Expenditure on feed- fodder and hired grazing charges were main items of variable cost group. Average gross cost per goat was Rs.1337. The overall net return over variable cost per goat was Rs.1711. Margins in large size flock were higher than the small and medium flock size.

Key words: *Flock size goat economics; Livelihood security; Bundelkhand region;*

Livelihood security is vulnerable in Bundelkhand region due to recurring droughts and scarcity of irrigation resources resulted in low crop productivity and income. Goat is most common livestock species reared by more than 75 per cent households. Goats were reared predominately as secondary source of income and looked by aged person women and children.Itis an assured source of income and as acts buffer to supports crop production by providing cash for the purchase of critical inputs in economic distress and risk aversion in case of crop failure (*Singh et al., 2013*). Under present study, economics of goat rearing under farmer's flock in Mahoba district of Bundelkhand region was assessed. Available information could be utilized to frame suitable strategies for goat based livelihood models, nutritional security and employment generation programmes in the region as well as in other disadvantageous regions in the country.

METHODOLOGY

The study was conducted on 105 goat keeping households under the National Agriculture Innovation Project Comp-3. The baseline data on socio-economic profile, inputs and outputs in goat keeping households were collected from 8 villages of 3 blocks of Mahoba district through personal interview during 2010-11. The goat keeping households were stratified into small (upto 2 goats), medium (3-14 goats) and large-size flocks (>14 goats) by using flock size mean and SD. There were 22 small, 70 medium and 13 large goat flocks. The economics of goat rearing was worked out using standard procedure. The value of stock, cost of goat shed, equipment were grouped under fixed investment. It also includes depreciation on shed, equipment's and interest on fixed investment.The imputed value of family labour was not included in the analysis. Annual net return was worked out over fixed as well as variable costs separately.

RESULTS AND DISCUSSION

Small, medium and large categories of goat farmers accounted for 21, 67 and 12 per cent to the total goat farmers, respectively. The average flock size was 2, 6 and 22 for small, medium and large goat farmers, with an overall average of 9 goats; corresponding land holding wise categorieswas 1.87,1.52 and 0.83 hectare, respectively with an average of 1.51 hectare. The average family size of goat keeping households was 6.

Seventy-four per centgoat keepers were literate however, though possess low working knowledge. The average annual income of goat keepers per household was Rs 39000 per annum. Lower income in spiteof higherland holding size over state and national averagemight be due to recurring droughts andpoor irrigation access.Goat production in this region is well integrated with other livestock species and crops. Majority of goat keepers (>67%) rears goat with cattle and buffaloes. Goats with medium to large flocks were exclusivelyreared under extensive feeding system on common property resources and fallow land.The farmers, who keep large flocks grazed their goats by own, whereas, those who keep small flocks, rear goats on contract grazing. The rate of contract grazing was varied from Rs. 75 to Rs 100 per goat per month.Use of concentrate ration was limitedonly to lactating goats at the rate of 100-150 grams/goat/day for the period of 60 to 80 days in a year.

Major investment (92.5%) was made on purchase of goats followed by construction of shed (6%) and equipment(2%).The investment per goat was highest in small and lowest in medium flock (Table 1). Under variable costs, expenditure on feed and fodder decreased

Table 1. Investment and expenditure on goat farming (household per year in Rs.)

Particulars	Small	Medium	Large	Overall
Investment on goat farming				
Goats	6195.0(91.5)	16609.8(91.9)	68172.0(95.3)	22190.0(92.0)
Shed/structure	450.0(6.6)	1148.0(6.3)	2425.0(3.4)	1341.0(5.6)
Equipment*	125.0(1.8)	310.0(1.7)	940.0(1.3)	458.3(1.9)
Total	6770.0(100)	18067.8(100)	71537.0(100)	23989.3(100)
Investment/goat	3824.9	3067.5	3274.0	3427.0
Expenditure:				
Variable Cost				
Dry fodder and concentrates	860.6 (40.1)	978.8 (21.9)	1219.9 (8.6)	1019.8 (15.2)
Charges for hired grazing	1194.7 (55.7)	3180.6 (71.4)	11799.0 (83.6)	5391.5(80.2)
Vet expenses	53.1 (2.5)	206.2 (4.6)	874.0 (6.2)	210.0 (3.1)
Miscellaneous expenses	35.4 (1.7)	88.5 (1.9)	218.5 (1.5)	105.0 (1.6)
Total variable cost (Rs./HH)	2143.9 (100)	4453.9 (100)	14111.4 (100)	6726.2 (100)
Fixed Cost				
Interest on fixed capital[1]	710.8 (95.3)	1897.1(95.5)	7511.4 (97.2)	2518.9 (95.7)
Depreciation on shed[2]	22.5 (3.02)	57.4 (2.9)	121.2 (1.6)	67.1 (2.5)
Depreciation on equipment[3]	12.5 (1.7)	31.0 (1.6)	94.0 (1.2)	45.8 (1.7)
Total Fixed cost (Rs./HH)	745.8 (100)	1985.5 (100)	7726.6 (100)	2631.8 (100)
Total cost (Rs./HH)	2889.7	6439.5	21838.0	9358.0
Cost per goat	1632.6	1093.3	999.4	1336.9

[1]Interest on fixed capital @ 10.5 per cent interest rate [2] Depreciation on shed @ 5 per cent [3] Depreciation on equipment @ 10%
Figures in parenthesis are percent to total. Figures in parenthesis are per cent to total

Table 2. Total returns and net return from goat farming

Particulars	Small	Medium	Large	Overall
Sale of kids	3964.80(90.9)	15461.2(92.2)	61180.0(92.6)	17150.0(91.7)
Sale of milk/consumed	215.59(4.9)	717.4(4.3)	2661.3(4.0)	852.6(4.6)
Sale of manure/used	177.00(4.0)	589.0(3.5)	2185.0(3.3)	700.0(3.7)
Total return (Rs. /HH)	4357.39(100)	16767.6(100)	66026.3(100)	18702.6(100)
Net return over total cost	1467.6	10328.2	44188.3	9344.6
Net return over variable cost	2213.5	12313.7	51914.9	11976.4
Net return per goat (Total cost)	829.2	1753.5	2022.3	1334.9
Net return per goat(Variable cost)	1250.6	2090.6	2375.9	1710.9

with the increase in flock sizedue to extensive management system.Charges for hired grazing increased with the increase in flock size. Veterinary expenses were only 3 per cent of total variable cost. Interest on fixed capital accounted for the most of expenses among fixed costs. Cost per goat in small, medium and large flock was Rs. 1633, 1093 and 999 with an overall average of Rs. 1337 (Table 1). Net return increased by 34 per cent across the flock size by excluding hired grazing charges from the variable cost. However, this increase was 56 per cent in small, 27 per cent in medium and 23 per cent in large flocks.

The maximum return was observed from the sale of kids of goats (91.7%) followed by sale of milk (4.6%) and manure (3.7%). The total return from goat farming in different flock size was Rs.4357 in small, Rs.16768 in medium and Rs. 66026 in large flock. Overall, net return over gross cost was Rs.9345 per household and Rs.1335 per goat (Table 2). However, net return over variable cost was Rs.11976 per household and Rs.1711 per goat. These findings are in agreement with *Tanwarand Chnad (2013)* and *Singh et al. (2009)*. Net return over variable cost per Rs. 100 of investment was 32.69 per cent in small flock, 68.15 per cent in medium flock and 72.57 per cent in large flock. Most of goats were sold at goat keeper's residence through middlemen. Lack of market intelligence and involvement of middlemen were major reasons for less producer's share in consumer's rupee. Study observed that improvement of common property resources (pastures and water bodies), value-addition of feed and fodder, bridging knowledge gap and veterinary support are the key aspects for sustainable goat production in the Bundelkhand region.

CONCLUSION

Goats in Bundelkhand are reared primarily on community resources with limited input support. Purchase of goats accounted for major item of expenditure under non-recurring head whereas feeding material and labour cost were major source of expenditure under recurring head. Goat farming has potential to provide financial and nutritional security to millions of poor households of Bundelkhand region. Value additions of goats through selective breeding, goat milk and goat manure are fully underutilized and unexplored area of goat production. However, there is a strong need to bridge the knowledge gap through capacity building on improved goat management practices and support services such as prophylactic health coverage, breeding bucks and finance.

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