Paper ID: 1412
Theme: 2. Grassland production and utilization
Sub-theme: 2.8. Grassland-market linkage

Economics of Camel rearing on grasslands in Gujarat

Khem chand[1*], B. L. Jangid[2], Subhash Kachhawa[2]
[1*]IGFRI, Indian Grassland Fodder Research Institute, Jhansi, India
[2]CAZRI, KVK, Central Arid Zone Research Institute, Krishi Vigyan Kendra, Pali 306401, Rajasthan, India
[*]Corresponding author e-mail : kcmamnani@gmail.com

Keywords: Camel, Economics, Forest, Grasslands, Kachchh

Introduction

Camel in India is primarily reared for carting/draft, agricultural operation, transportation in addition to the secondary utility of milk and hair production (Saini *et al* 2006). The One humped or Dromedary camel (*Camelus dromedarius*) is an important livestock species uniquely adapted to hot and arid environments (Schwartz, 1992). It is important livestock specie contributing significantly in rural economy and livelihood of desert dwellers in Kachchh region of Gujarat. It still plays a very distinctive role in various agricultural operations and rural transportation in dry land farming (Rajput and Tripathi, 2005). The Kachchh region of Gujarat has large camel herders' population mainly reared on common grasslands. These herders not only move in different parts of this region for grazing but also visit adjoining area of Gujarat every year in search of better fodder resources. The present study highlights the socio-economics of camel herds of Kachchh, Gujarat.

Materials and Methods

A total of 75 respondents owning camel herds and dependent on common grasslands were randomly selected from Kachchh district of Gujarat. The quantitative and qualitative data were collected through structured interview schedule, observation and discussion. The financial viability of camel herders worked out using both undiscounted and discounted measures.

Results and Discussion

Primary survey of camel breeders (n=75) revealed that for 99 percent of sample households camel breeding was the main occupation with average herd size of 40.39 units of camel. The breeders did not have any housing structure for camel and kept them in open. The camel breeders in Kachchh district of Gujarat reared two different breeds of camel i) Kachchhi camel and ii) Kharai camel. The camel herds were managed on extensive system of grazing/browsing and there were major three types of management system for camel rearing in Arid Gujarat. In first system camels were reared in Banni grasslands area near and around the Chari-Dhand wetland conservation reserve located on the edge of arid Banni grasslands. Chari-Dhand is a seasonal desert wetland and only gets swampy during a good monsoon. The camel herds in this system were mainly the kachchi breed of camel; however few herds of Kharai camel were also exist.

In second system of management major source of forage was mangroves in the sea and trees/ bushes in the common lands. The camel herds of this system exclusively constituted by kharai breed of camel, it can swim in sea water for 2-3 kms. In third management system animals for fodder were depended on trees/ bushes in fallow farmers' field, forest area and common lands. The animals in these herds were mix of some animals of Kachhi breed and other was of Kharai breed. The major sources of feed/fodder in all the systems were Salvadora persica Wall. (Khara Jaal), Salvadora oleiodes (Meethijar), Vekado (*Maytenus semerginata*) *Acacia nilotica* (Desi babool), *Ziziphus nummularia* (Jharbei) and *Ziziphus mauoritiana* (Ber), Arni (*Clerodendron phlomidis*), Chekudi (*Launea* spp.), Oin (*Cressa cretica*), Lano (*Suaeda species*), Kumat (*Acacia senegal*), Neem (*Azadiachta indica)* and Mangroves etc. The major sources of water for animals was sweet water lake, rainwater collected in mangroves, village water ponds, tube wells, village cattle water troughs etc. Average fixed investment per household was found to be Rs 5.89 lakh of which animals alone accounted for 99.00 percent. The average cost of maintaining a camel unit (40.39 animals) was Rs 1.19 lakh (Table 1). The proportion of fixed cost and variable cost in total cost of maintaining a camel unit accounted for about 63 percent and 37 percent, respectively. Average net return worked out per camel household per year was Rs 62, 687 with B: C ratio of 1.52. The analysis indicated a payback period of 06 years. Camel production was financially viable at 12 per cent discount rate in terms of both NPV and BCR criteria, as NPV was positive and BCR greater than one. The IRR estimated was 41.31 per

cent (Table 2), which implies that this enterprise though run under traditional management is financially viable as rate of interest is far below the IRR estimated. The major constraint faced by the breeders was grazing in forest areas as forest department have almost banned their entry.

Table 1: Maintenance cost per camel herd (size 40.39 animals) per year (Rs)

n = 75

Particulars	**Amount (Rs)**	**Percent**
1. Variable cost		
A. Grazing charges to forest dept	2139.00	1.79
B. Material cost	5,967.81	4.99
o Fodder (Neem)	0.00	0.00
o Concentrate & oil	5967.81	4.99
C. Veterinary Expenditure	5433.06	4.55
D. Labour cost	30,641.76	25.63
o Labour for grazing & Gen Mgt.	30,000.00	25.10
o Wool shearing	641.76	0.54
Total variable cost (A+B+C+D)	44,181.63	36.96
2. Fixed cost		
A. Interest	51639.33	43.20
B. Depreciation	23710.63	19.84
o Total fixed cost (A+B)	75349.97	63.04
o Total cost (1 + 2)	1,19,531.59	100.00
o Family labour cost	24513.40	

Table 2: Measures of investment worth per camel herd

Particulars	**Values**
1. Pay-back period (years)	6.00
2. Net present value at discount rate of 12 percent (Rupees)	20,21,221
3. Internal rate of return (IRR) (%)	41.31
4. Annuity value at 12 percent discount rate	2,83,894
5. Gross benefit-cost ratio at 12 percent discount rate	2.80

Conclusion

Camel rearing despite lot of difficulties is a profitable enterprise. The overall returns can further be increased if cooperative dairy ensures milk collection from these communities using mobile milk collection vans. For long term sustainability of the enterprise, instead of restricting breeders from taking their animals for browsing in the forest area, these communities must be actively involved for the overall development and use of forest in participatory mode for the benefit of the society.

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