Influence of camel management systems on the sustainability of small farmers in hot arid region of Thar desert

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ABSTRACT

Information on camel management and trading systems were collected from 104 camel keepers, representing different villages and bringing 262 camels at the Ramdev Animal fair (Nagour, Rajasthan) and a total of 32 complete transaction cases were recorded. Majority of the farmers present at the fair were from Rajasthan (90%). Ten different categories of farmers were recorded. Most of the camel keepers who were interviewed were farmers (91%). Nevertheless 9 % also claimed to be camel businessmen. The transaction of camel indicated higher number of male (52%) as compared to female camel (48%). Camel of above 7-year age group was the most representative with 57 % of all the camels. The distribution of camel among the various farmers (came with camel for sale) was not uniform. It ranged from 0 camel to 12 camel per farmer. The representation of Bikaneri breed (90%) was predominant. The average number of camel owned per farmer at the village level was 4.90 ± 2.67 . The average number of camel brought for sale was 2.54 ± 1.11 . The average cost of camel varied according to age and sex. The average expected cost prior to sale was Rs. 9654 ± 287 , whereas, the average actual cost of the transaction was Rs. 8768 ± 165 . The cost at sale was 90% of the expected cost, which shows that farmers achieved cost very nearer to their expectation.

Key words: Camel, trading, management, economics, sustainability.

INTRODUCTION

Camel rearing is considered as fairly constant resource for sustenance in the arid Eco-system. The livestock should be compatible with crop cultivation instead of competing with it for land and water resources. Camel rearing enterprise fits well with such requirements. The total world camel population is estimated to be 19.32 million, of which, India has

of 1.03 million (FAO, 2002). The animal husbandry nevertheless plays a vital role in the economy of arid region and contributes more than 60 % of the GDP of the region. The camel marketing through livestock fairs in western Rajasthan has opened new avenues for farmers (Kalla *et al.*, 1988). Marketing of camel is considered an important trade in the Rajasthan where

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it is widely used as draft animal. The camels are mostly marketed at big animal fairs such as Nagour, Pushkar, Tilwara, Phalodi and Gogameri (Khanna, 1997). The most important constraint in the camel husbandry in Rajasthan is the lack of organised marketing of camel and its products (Gupta *et al.*, 1998). Since, in our country, camel trade mostly takes place at livestock fair, a sample survey was conducted at Ram Dev Animal fair at Nagour distt. (Rajasthan), with a major objective to investigate the recent trends of camel management-marketing system and economic impact on sustainability of marginal farmers in hot arid region of Thar desert.

MATERIALS AND METHODS

The necessary data were collected in suitably developed and pretested proforma by survey method from Ram Dev Animal fair (Nagour) which may be considered as a predominantly camel fair.

Sampling procedure: The selection of respondents was made by using simple random sampling technique. In order to collect information regarding camel trade randomly, 104 camel keepers bringing 262 camels at the fair were interviewed and a total of 32 complete transaction cases were recorded. The data were classified pertaining to different aspects and analysis conducted according to standard statistical method (Snedecor and Cochran, 1981).

RESULTS AND DISCUSSION

The socio - economic status of camel keepers : The soils of Nagour district are low in nitrogen and organic matter content. It is naturally eroded by winds during summer and the crop yields are low and unstable. The socio-economic status of camel keepers as well as communication and transport infrastructure are very poor. Some of

Table 1. The percent distribution of different categories of camel among the farmers at livestock fair

Sex	Age (Year)			Overall
	<3	4-7	>7	
Male	4	19	29	52
Female	5	15	28	48
Over all	9	34	57	100

camel keepers follow a transmigratory system of animal management. Animal husbandry in this region depends, not only on the economic and social aspects of the migrating farmers, but also on the ecological and agrostological aspects of land use management.

Information from farmers were collected with respect to their inhabiting villages, district, state they came from, distance covered to reach the fair ground, their vocation and category they belong, etc. Many important problems in camel development impinge on the socio-economic conditions of poor dry land farmers.

Vocation: Most of the camel keepers who were interviewed were farmers (91%) belonging to different categories. Nevertheless, 9 % also claimed to be camel businessmen and therefore, to earn income from camel trade at fairs by purchasing (at a fair or in their village) camels and then selling them for a better price. They may be considered as a middlemen or mediators.

Inhabiting village: Major representation of the farmers at the fair were from Rajasthan (90%). Some of the farmers also represented from other states, viz, Haryana (8%), mainly from Hisar district and Punjab (2%). Within Rajasthan, two third were from Nagour district (60%) where the fair is being conducted and other farmers mainly from Bikaner (12%), Jodhpur district (11%). Small percentage was also from other districts like Churu (3%), Sikar (2%), Jhunjunu (2%).

Table 2. Number and cost wise transaction of camels within and outside state of Rajasthan

Within Rajasthan				Out of state			
No of camels	Total cost (Rs.)	Min. cost/ camels (Rs.)	Maxi. cost camels (Rs.)	No of camels	Total cost (Rs.)	Min. cost camels (Rs.)	Max. cost camels (Rs.)
708	2997800	1500	13500	11	57300	1250	10000

(Source – fair organizer /Authority)

Table 3. Age and sex wise average cost (Rs) of camels expected by seller at animal fair (Nagour)

SEX	AGE (Year)			Overall
	<3	4-7	>7	
Male	4980±18	8890±21	9980±30	7950±8
Female	4270±12	8180±16	8900±25	7116±7
Over all	4625±8	8535±9	9440±10	

Distance covered : The total distance covered by farmers to reach the fair ground ranged from 1 to 400 km. 20 % of the camel keepers came from less than 10 km away from the fair ground, 28 % from 11-20 km away, 40 % from 21-50 Km away, 7 % from 51 to 100 km and 5 % from over 100 km.

Category of camel keepers: Ten different categories of camel keepers were recorded. Maximum farmers belonged to Jat category (45 %), Rajput (12%), Muslim (9%), Yadav (8%), Kumbhars (5%) and remaining 21 % were of other category. The average family size of camel farmers ranged from 5.25 ± 1.33 to 8.54 ± 2.66 with overall average of 6.70 ± 0.59 individuals. The overall number of female members were 3.49 ± 0.26 , whereas, male members were 3.21 ± 0.36 . The literacy percentage varied from 26.22 to 32.11. Most of camel keepers were having maximum non-irrigated land. The overall average land holding was 29.90 ± 1.01 ha / farmer (Non irrigated) and $15.22 \pm$

1.02 ha / farmer (Irrigated). Among the different categories of farmers, marginal farmer formed the major group (92.50 to 96.14%) and few progressive farmers (3.86 to 7.50%) were also there. It was observed that under village conditions the female members of farmers family devoted maximum time (81.85%) as compared to male members (18.15%) with day to day management of camel (Bhakat *et al.*, 2001). The major crops of kharif season are guar, moth, bajra, mung, til, etc. whereas under irrigated belt, the rabi season's crops are mustard, chana, wheat etc.

The distribution of camel: The percent distribution of different categories of camels among the farmers, is given in the Table 1. Maximum camels came for transaction was male (52 %) as compared to female camel (48 %). Camels of over 7 year age group was the most representative with 57 % of all the camels followed by 4-7 years and less than 3 year age group. Number wise distribution trend of camel, among the farmers, is given in Fig 1. The distribution of camels among the various farmers (came with camel for sale) was not uniform. It ranged from 0 camel to 12 camel per farmer. More than half (54%) of them brought only one camel, followed by two camels (11%), 3 camels (10%). Two percent villagers came without any camel also involved in camel trade as a mediator

Fig. 1. Number wise distribution trend of camel among the farmers

between seller to purchaser. The two camel marketing channels were prevalent viz, 1. Livestock owner to users, 2. Livestock owner to trader to user (Purohit, 1999). The Bikaneri breed (90%) of camel was predominant, followed by Jaisalmeri breed (10%). The maximum Bikaneri breed of camels popularly used under carting in city (83%), as well as in villages (88%), because camel carting is a subsidiary source of income of camel keepers in the hot arid region of Rajasthan (Bhakat and Sahani 2000). The study indicated that 81% of the interviewed farmers usually attended one animal fair, whereas, 8% attended more than one fair and only 1% attended all fairs (up to 9). Maximum farmers (85%) displayed 100% of their camels at fair ground. These farmers included all of those owning either one camel or owning 2, 3, 4 to 5 and 6 to 8 camels. Among those owning from 9 to 12 camels displayed for sale a part of their herd (more than 80% of animals).

The trend of camel marketing and economic impact: Total 9171 camels were registered at Ram dev Animal fair ground. Number and cost wise transaction of camels, within and outside state of Rajasthan is given in Table 2. The maximum camel number was brought in Gogamedi, followed by Pushkar and Tilwara in 1996 (Tandon *et al.*, 1997). The camel keeping at farmer's household level varied in a wide proportion. It ranged from 0 to 80 camels per farmer. 70% of farmer owned only one camel, 20% owned 2-3 camels, 4% owned 4-10 camels, 3% owned more than 10 camels and only 1% owned 80 camels, whereas, 2% owned no camel. The average number of camel owned per farmer at the village / house level was 4.90 ± 2.67 out of which, 3.50 ± 1.22 were male and 1.40 ± 0.50 were female camel. The average number of camel brought for sale was 2.54 ± 1.11 . The average number of camels owned per farmers at village was 5.8, while on an average, 2.76 camels

were brought to the fair (Laval and Tandon, 1997).

Age and sex wise average cost (Rs.) of camels expected by seller at animal fairs given in Table 3. The average cost of camel varied according to age and sex. The camel of either sex and more than 7 year age group was costlier (Rs 9440 $\pm$ 10), followed by 4-7 year (Rs 8535 $\pm$ 9) and less than 3 year (Rs 4625 $\pm$ 8) age group. On the other hand, male camel was costlier (Rs 7950 $\pm$ 8) than female (Rs 7116 $\pm$ 7) in all age group cases. Three fourth of the marginal farmers (75%) attended the fair with desire to buy at least one camel. Among them, 60 % had planned to buy only one camel, 20 % planned to buy from 2 to 8 camels and 15 % marginal farmers were interested to exchange their camel. The remaining 5 % had not planned any number in advance because their purchase depended on sale of their camels at the fair. An economic analysis of drought camels as a source of livelihood at Bikaner (Rajasthan) reported that the average cost of a draft camel ranged between Rs 4000 to 10,000 (Khanna and Rai, 1996).

The cost of camel may be at variance with actual sale price at the transaction since traders always expect a higher price than what they actually get. In all 32 complete transaction cases, the average expected cost prior to sale was Rs. 9654 $\pm$ 287, whereas, the average actual cost of the transaction was Rs. 8768 $\pm$ 165. The cost, at sale was 90% of the expected cost which shows that farmers achieved cost very nearer to their expectation. The study can be concluded that the cost of camel appears to be going down, but still farmers get maximum of their expectation from this livestock in hot arid Thar region.

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