

CAMEL MARKET CHANNELS IN THE JAISALMER DISTRICT OF RAJASTHAN, INDIA

B. Faye¹, C. Bénard¹, I. Köhler-Rollefson² and J.P. Boutonnet³

¹CIRAD-ES TA C/Dir B, Campus International de Baillarguet, 34398 Montpellier, France

²Plot 760, Anchawanchi Colony, Jaisalmer, Rajasthan, India

³Supagro-Montpellier, 2 place Viala, 34000 Montpellier, France

ABSTRACT

In a survey focused on Jaisalmer district (India), 136 camel farmers living in 64 villages were interviewed on their market practices. Milk market and camel slaughtering were not developed in the Jaisalmer district and the most common source of income was the sale of living young male camels. According to the birth rate (17%), the insignificant purchasing rate, the selling rate (7%), the loss (2%) and the mortality rate (4%), the in-flow of animals was higher than the total out-flow, leading to a camel population growth rate of 3.34%. The final use of the sold animals was not known in most of the cases. 52% of the animals were purchased by merchant coming from (out of the district), 7% by local merchants, 30% by other camel farmers and 7% by tourist guides. The camel marketing out of the Jaisalmer district did not seem to contribute to the announced decline of the camel population for the whole Rajasthan, and could be an opportunity for the development of the camel farming in this area.

Key words: Camel, camel economy, market channels, Rajasthan - India

Camel farming is an important component of rural economy in arid areas (Khanna *et al*, 2004a, Benard *et al*, 2008). In Thar Desert where rainfall varies between 50 mm and 585 mm, natural feeding resources are scarce (Khanna *et al*, 2004b). However, camels have good skills to produce in this arid environment (Monod and Durou, 1988) contrary to other species. They allow exploiting rationally the pastoral resources by keeping a good productivity in the same (Köhler-Rollefson, 2004).

Camel is also a very versatile work animal suitable for draught, riding, load carrying in the desert ecosystem (Gahlot, 2004). It may be used to produce milk and meat by the people residing in remote deserts areas. For example, nomads consume fresh raw or savoured milk (Albrecht, 2006) that could give for their owner a rich source of incomes (Gahlot, 2007). This market is for the moment very limited, even lacking in spite of the good potentialities of milk production with Rajasthan's local breeds (Gandega, 1999).

The state of Rajasthan is the first producer of camel in India with 498,000 heads in the 2003 census (Köhler-Rollefson, 2004), that represent 70% of total Indian Camel population (Khanna *et al*, 2004a). The highest camel density was present in eleven arid districts of western Rajasthan which accounted for

almost 60% of total Indian camel population (Khanna *et al*, 1993). The animal flows between farms and the marketing practices of the farmers were not studied and on the role of the different stakeholders in the camel market was not clearly identified although different suppositions were forwarded as the massive exportation of young females for the informal meat market, or the negative balance between in-flow and out-flow within and between camel farms. Those supposed factors would contribute to the decline of the number of camels in India as the whole and particularly in Jaisalmer district. So, the present study focused on the assessment of the true exploitation rate in the camel farms of Jaisalmer district and in the market systems. It aims to present the data on the camel market channels in the Jaisalmer district of Rajasthan.

Materials and Methods

Data collection

Some interviews were organised from April to August 2007 in 64 villages of Jaisalmer district including 136 camel farmers. The questionnaire was applied to all the farmers in order to get data on the animal flows and the marketing practices of the camel farmers. The questionnaire was divided into 4 headings: (i) general informations concerning the

SEND REPRINT REQUEST TO B. FAYE [email: bernard.faye@cirad.fr](mailto:bernard.faye@cirad.fr)

farmer, his activities, the place of camel rearing in the farming system, its demographic structure and recent changes, (ii) quantitative animal in-flow: birth, purchasing, reasons of purchasing, (iii) quantitative animal out-flow: marketing practices, place, time and stakeholders for animal selling, types of involved animals, (iv) the objectives of the farmers and their main constraints.

Each interview needed 30 ± 10 minutes per person. In order to randomise the farmers sample, the survey was applied in all the farmers communities in the district in a wide number of villages. However a part of the district was forbidden for military reasons. So, the survey's area was slightly reduced compared to the whole district. The main criteria for choosing the farms were (i) to have at least one camel used for rearing, (ii) to live in the Jaisalmer district, (iii), to be accessible. The number of interviews per villages was limited to 4 in order to cover a wide part of the district rather to concentrate the survey into few villages. Finally the sample included 136 camel farmers that represented 5,881 dromedary camels for an estimated population of 21,164 heads according to Lokhit Pashu-Palak Sansthan (LPPS) census.

Data analysis

All the data collected were managed with the Access® software. Quantitative data were analysed under Excel®. Qualitative data were treated by using cross-table for descriptive analysis.

Results

Herd composition

The camel herd in Jaisalmer district included more than 22% males and 88% females (Table 1), but differences occurred between communities. For example, the Dewasi camel herd included 74% of adult females, the Muslim 75% and the Rajput, 54% only. The adult males represented 6.7% in Dewasi community, 3.2% for Muslim and 30.6% in Rajput, showing different camel farming purposes.

Animal in-flow in camel farms

Animal purchasing: the camel farmers bought few animals. All over farmers sample, 14% only bought camels occasionally, 4% bought camels yearly. The others did not buy any

camels for the last 10 years. In sample, 124 camels were bought for the last ten years, mainly to be resold (87%).

Birth: the birth into the herd is the main way for herd renewal. For the whole herds of the survey, 90% had calving within the last year. The reproduction rate (number of calving in the year per adult she-camel) was on average 30.6%. For all the farmers, the young females were kept for herd renewal, and the males were almost all exported out of the herd.

Animal out-flow in camel farms

The out-flow included the sale, the donations and the losses.

Animal selling: 86% of the farmers sold camels for the last 2 years. They are males for 98.4% of the animals. So, the females are kept all along their life and the selling of females was very rare, even at the end of their reproductive life.

Table 1. Mean camel herd composition in Jaisalmer district.

	Adult males	Adult females	Young males	Young females
Mean	4.73	24.97	3.69	3.96
S.D	5.13	28.73	4.09	4.45
Sum	648	3421	506	543
%	12,66	66,84	9,88	10,60

*The means are significant ($P < 0.05$)

Animal donation: At least, 21% of the camel farmers achieved donations, notably during the traditional ceremonies as wedding. Thus, 57

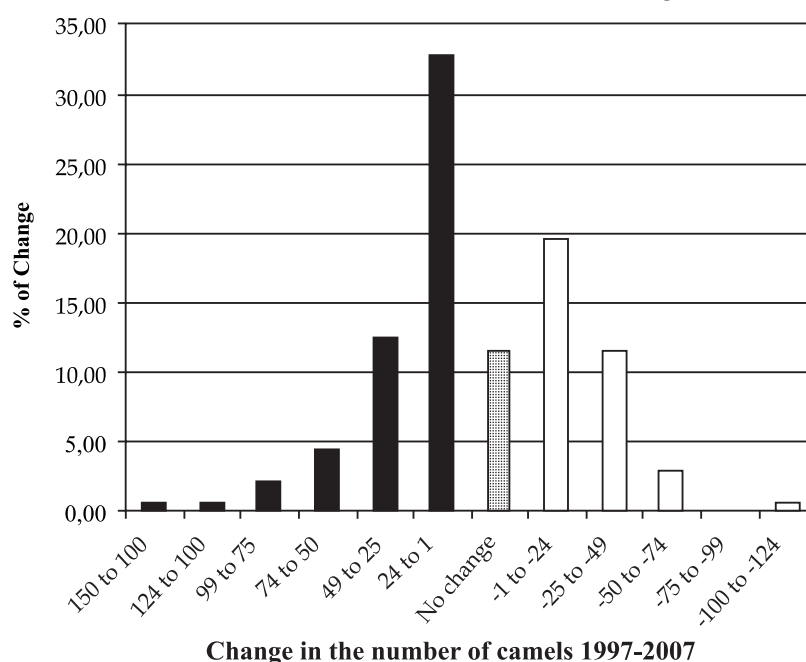


Fig 1. Change in the number of camels in 136 herds from Jaisalmer district for the year 1997-2007.

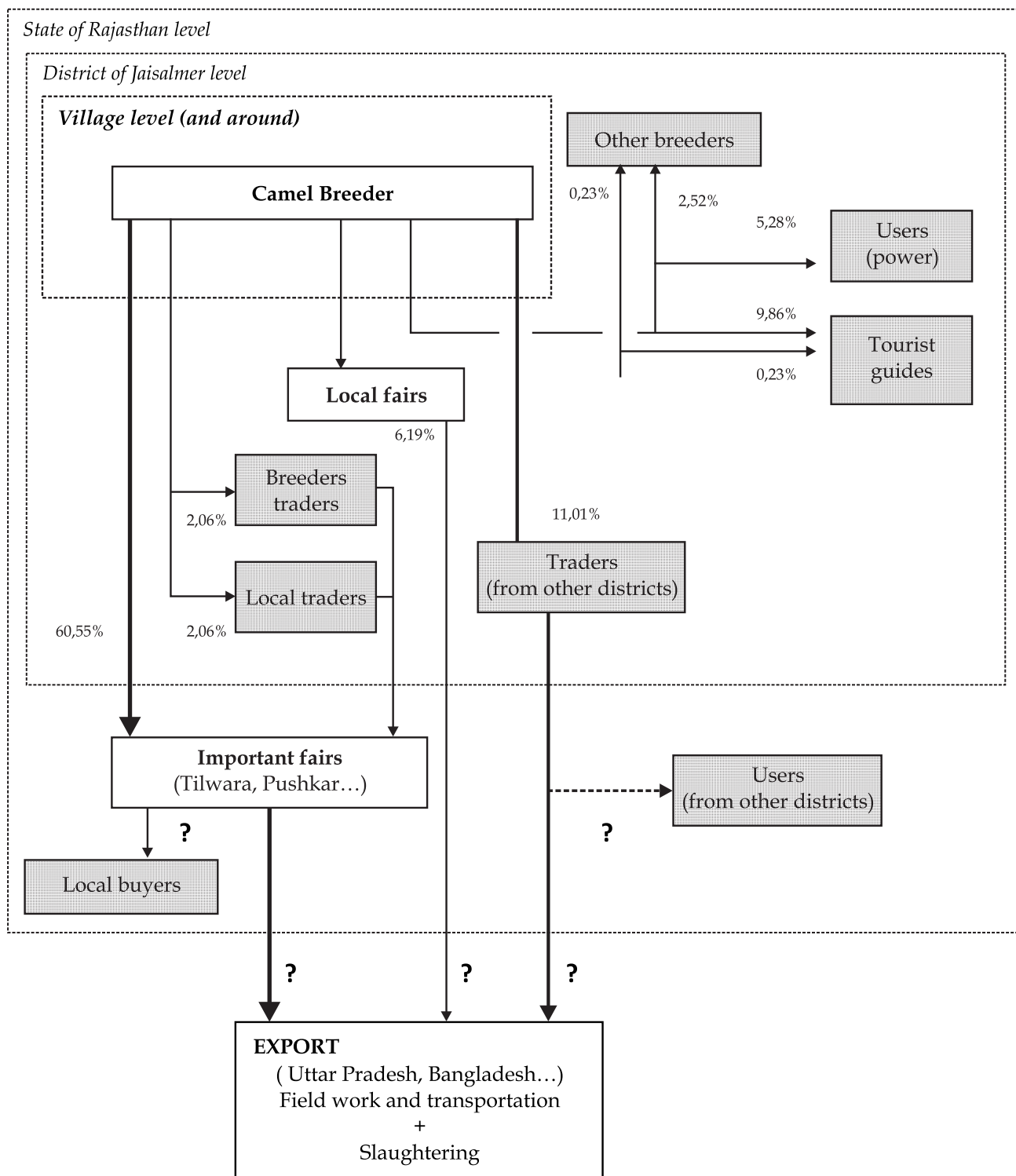


Fig 2. Global market channels in the Jaisalmer district with the importance of camel flows.

dromedaries were given in 2006-2007 by 29 camel farmers.

Loss: the main causes of losses were death, theft and disappearance. They contribute to the out-flow without enhancing. As the whole, 53% of the camel farmers declared mortalities and 41% reported

disappearance in 2006-2007. The losses were more common at the hot season when camels were grazing freely without shepherd's control. However, it was difficult to get the true number of loss animals. Only a regular monitoring for over 2-years will allow getting such information.

Balance sheet of the animal flow

According to the whole camel population of the district, and to the estimated birth rate, purchasing and selling rates, mortality rate and other loss rates in our survey, the animal flow for the campaign 2006-2007 was the following:

Birth rate: 17%, i.e. 3598 young camels were added in the camel population

Purchasing rate: insignificant

Selling rate: 7%, i.e. 1536 animals, mainly young males

Mortality rate: 4%, i.e. 847 animals (the mortality rate was estimated compared with the total number of camel present in the herd).

Loss rate: 2%, i.e. 508 animals

The total number of in-flow animals (3598) was higher than the total number of out-flow (selling + mortality + loss), i.e. 2891 animals, giving of positive balance of 707 animals. The growth rate of the camel herd in Jaisalmer district, based on data for the campaign 2006-2007, could be estimated to be 3.34%. However, a high variability was observed between herds. In 53.6% of the camel herds, the camel population increased for the last ten years, but decreased in 35.3% and did not change in the others (figure 1).

Marketing channels

Among the selling animals, 82% were used for market purpose and were sold again. The others (18%) were used by farmers, for reproduction (2.7%), for work –ploughing or carting (5.3%) or for tourist activities (10%).

The buyers were merchants coming from outside of the district in 52% of the cases (79% of the sold camels). The local merchants (7%) managed 6% of the sold camels only. The others were farmers representing 30% of the buyers for 8% of the sold camels only, and the tourist guides (7% of the buyers) which bought 8% of the sold camels. So, the sold animals went mainly out of the district.

Three main ways for selling the animals were identified (Fig 2):

- The big fairs in neighbouring districts where 61% of the animals were sold. Those fairs are highly visited by the merchants but the participation to these events is costly because most of them are far away from Jaisalmer.
- The village channel: the buyers came directly in the villages to visit the camel farmers. As the whole,

33% of the animals were sold by this way and most of them could be sold again in big fairs.

- The local market: only 8% of the sold camels were involved by this way. Those fairs are close to the villages and the owners come themselves to bring the animals but few merchants were present.

Most of the transactions were achieved directly between the farmer and the merchant by oral agreement, especially in the villages and in local markets. Some farmers (4.4%) could play the role of middleman by purchasing directly the camels in the villages and by selling again in the big fairs after few months. When the farmers moved themselves to the big fairs, they sold their camels directly to a gross merchant for exportation, or to a middleman which will sell again the animals in a more important market as Pushkar fair. The middleman could win a wide margin in the transaction up to 1000 INR for one adult animal.

Discussion

In-flow/out-flow

The camel purchasing was done for the resale of animals by the farmers having marketing activities, for increasing the herd size, for special event as wedding and when camel rearing by relatives or other farmer was stopped.

In all the cases, the farmers bought the camel within the district. So the camel births were the main source for increasing the camel population in the district.

The main source of out-flow was the sale of young males out of the district (82%), in other districts of India but also to Bangladesh and Saudi Arabia. But the quantification of the camel export is quite difficult to assess. In present survey, the mortality rate was low and probably underestimated. For example, in Morocco, the mortality rate on the less than 1-yr camel, the mortality rate varied between 16.4 to 22.9% between years according to the importance of rainfall (Gandega, 1999). In India, Khanna *et al* (1993) reported 6.4% for the mortality rate between birth and 3 months old, but with a high variability between farms.

However, in spite of the export (loss, death and sale), the mean growth rate of the camel population in the district (3.34%) was close to the growth rate observed at the world level (4%).

The market channel

The market channel described here, involved live animals only in Jaisalmer district. Camel milk and

meat market was not concerned in the present study. Only young males were sold. The farmers kept the females for two main reasons: first, for socio-cultural reason, the farmers having hesitation to sell females, and second for the herd renewal, the females being the reproductive potential of the herds in a context where the out-flow could be important.

The sale of live young males out of the district and even out of Rajasthan is an important source of incomes for the camel farmers as the other products (milk, meat, manure) are not highly valorised. The sale strategy seemed linked to the herd size. The camel farmers with a small herd negotiated usually the sale in the village where the merchants choose the animals with a good body condition and conformation, after the calving season when there are a wide choice. The farmers having a big herd size or a wide amount of young male camels preferred to come to markets or fairs where they could sell all their animals whatever their body condition. Sometimes, the farmers with small herd size can join big farmers to organise the sale in markets. Usually, the sale price was more advantageous in the village (12 000 to 15 000 Rs) than in markets and fairs where the competition decreased the prices. Those could vary between 8000 Rs for young animals to 15000 Rs for exceptional camels. According to the interviewed farmers, the sale prices increased for the last five years.

There was no camel meat market in Jaisalmer district and the farmers were not willing to sell animals for butchery. The camel meat consumption in most of the Indian communities is taboo. However, the final use of the young camel male out of the district or overall out of Rajasthan was not clearly known even if the farmers considered that the main destination of sold camel was for carting and ploughing (Benard *et al*, 2008).

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