

CONSTRAINTS EXPERIENCED IN THE INTRODUCTION OF CAMELS IN TSETSE FLY INFESTED AREAS: THE CASE OF KAJIADO DISTRICT, KENYA

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ABSTRACT

Camels had been introduced since 1989 in the Kajiado district of Kenya, a non-traditional camel keeping area and it has presented new challenges and opportunities to their production. In a study to establish and document these challenges and opportunities, questionnaire surveys and participatory research techniques were used to gather information. The study indicated that lack of experience on camel husbandry and animal diseases were the major challenges faced by the Maasai pastoralists. Camel trypanosomosis was cited as the most common disease affecting these animals and was most prevalent in Magadi and Namanga divisions of the district. Other important constraints affecting camel production in the district included lack of markets for camel products, lack of pasture and inadequate veterinary services. The study identifies the need to address such constraints through farmer training involving camel handling skills, disease identification and management.

Key words: Camel, Kajiado district of Kenya, production constraints, trypanosomosis

In Kenya, camels were only kept by the pastoralists in the arid northern parts of the country. However, in recent years camels have been introduced to other pastoralist areas in southern Kenya, particularly in Kajiado district. Their introduction in new areas has presented new challenges and opportunities to camel pastoralism.

Over 90% of Kajiado district is classified as arid and semi-arid lands (ASALs) making it prone to frequent and prolonged droughts. The effects of such droughts have sometimes been catastrophic, as they have led to major losses in livestock and successive crop failures, yet livestock production is the main economic activity for the communities in the district. These effects have impacted negatively on the community's food security, causing thousands of livestock and scores of people to succumb to hunger (Anon, 2001). As a result of the frequent droughts and in recognition of the role camels play in drought mitigation, the Kenya government under an ASALs programme introduced camels to Kajiado district in 1990. This was done on an experimental basis to help the community expand and diversify their livestock production, thus ensuring household

and community food security, especially during drought (Pelant *et al*, 1998).

Initially, 110 camels were introduced and subsequently, other pastoralists started purchasing them from various sources. In the year 2000, the semi-arid rural development program (SARDEP) introduced camels in Central Kajiado through women groups (SARDEP, 2000). This was in response to the devastating effects of the 1998-1999 drought in this area.

Fazil and Fink (1979) and Wilson *et al* (1981) have reported the existence of tsetse-transmitted trypanosomosis in camels in Coast and Rift Valley provinces of Kenya. Tsetse-transmitted trypanosomosis in camels presents itself as an acute syndrome in camels in Kenya and Ethiopia (Demeke, 1997; Njiru *et al*, 2002). Thus, the introduction of camels in a non-traditional camel keeping environment, which is tsetse-infested, has presented new challenges to the Maasai pastoralists. In order to enhance food security, these challenges need to be identified, documented and addressed. This study was therefore undertaken to establish and document the camel population, perceived challenges and constraints

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to camel rearing in Kajiado district, and make appropriate recommendations. This study was part of a larger study on the epidemiology of tsetse-transmitted trypanosomosis and other health conditions in camels in Kajiado district.

Materials and Methods

Study Area : Kajiado district lies between longitudes 36°5' and 37°5' east and between latitudes 1° and 3° south. It covers approximately 21,903 km² and is divided into seven administrative divisions namely, Ngong, Magadi, Isinya, Central, Namanga, Mashuru and Loitokitok. The altitude of the district varies from 500 m to 2500 m while the temperatures range between 10°C and 34°C and average rainfall varies between 500 mm and 1250 mm. The district is inhabited predominantly by the Maasai people, a pastoral community whose main source of livelihood is livestock (Anon, 2001).

Sampling Methods : A reconnaissance visit was made to four divisions (Namanga, Magadi, Central and Loitokitok) of Kajiado district, which are endemic for tsetse transmitted trypanosomosis in livestock, to establish the presence and numbers of camels. This information was collected by informal discussions and perusal of records and documents. Such documents were obtained from the district and divisional government representatives of the livestock department. Due to logistical reasons, Loitokitok division was excluded from the study.

After establishing the population of camels and their distribution, participatory research (PR) techniques were then used to determine the prevalent camel diseases/conditions and problems faced in camel rearing. Information collected by PR techniques was quantified by a formal questionnaire survey. All the 23 individual camel owners were included in the study while five out of eight women groups were randomly sampled and interviewed. The questions asked related to socio-demographic issues, experience in camel keeping, animal health problems and other general camel rearing constraints. Respondents were further asked to score and rank the animal health problems/conditions and the general constraints they face in rearing camels. Non-parametric statistics were used to calculate the proportions and frequencies of the various responses. The data collected from PRAs were described and used in the discussions

of the findings. Additionally, clinical examination of blood for trypanosomes by buffy coat technique (Murray *et al*, 1977) was done as part of a larger epidemiological survey reported elsewhere.

Results

The reconnaissance visit revealed that camels were introduced in Kajiado district in 1990. There were a total of 23 individual camel owners and eight women groups rearing camels in the three divisions. In the year 2000, a livestock production report of Kajiado district indicated that there were a total of 776 camels spread out in all but two divisions of the district (Table 1).

Table 1. Camel population and distribution in Kajiado district in year 2000.

Division	Camel population
Central	257 (33.1%)
Isinya	0 (0%)
Loitokitok	35 (4.5%)
Magadi	113 (14.6%)
Mashuru	0 (0%)
Namanga	297 (38.3%)
Ngong	74 (9.5)
Total	776 (100%)

Source: Ministry of Agriculture and Rural Development, 2000.

Out of the 23 individual camel owners, 17 were of Maasai origin while six were of Somali origin. All the members of the five women groups interviewed were of Maasai origin. Majority of the pastoralists depend on livestock keeping as their main source of livelihood while only six camel owners, mainly of Somali origin, rely on other businesses for their livelihood. The pioneer camel owners in Kajiado district started keeping the animals as early as 1989 with assistance from the ASALs programme. At that time, the farmers purchased the animals at a subsidised price of between \$ 26 and 40 per animal, on a cost-sharing basis. Subsequently, other farmers also developed interest in camel keeping and started purchasing them from various sources at much higher prices. The process of the camels have tended to increase over time. After the devastating drought of year 1998-2000, SARDEP assisted eight women groups, in Central division, to acquire 40 camels as a food security measure and to empower the women (SARDEP, 2000).

Tsetse transmitted trypanosomosis was found to be prevalent in all the four divisions that were

visited, but due to logistical reasons, the study was conducted in Magadi, Central and Namanga divisions only. Regarding animal diseases/conditions, tsetse-transmitted trypanosomosis was ranked as very common in Magadi and Namanga (Table 2), while abscesses and plant poisoning were ranked as very common in Central and Magadi divisions, respectively. Plant poisoning was reported to be caused by a plant known as *Laturdia* (*Carparis tomentosa*) in the Maasai language. Abortions were also cited as common in all the divisions, although most cases were reported in Namanga and Magadi divisions.

Table 2. Ranking of camel diseases/conditions in Kajiado district, 2001.

Diseases/conditions	Magadi	Namanga	Central
Trypanosomosis	+++	+++	+
Abscess	+	++	+++
Abortions	++	++	+
Worms	+	+	+
Mange	+	+	+
Plant poisoning	+++	+	+

Code: +++ Very Common, ++ Common, + Uncommon

Source: Survey data, 2001

The epidemiological survey revealed that Magadi division had the highest number of positive cases of camel trypanosomosis in the camels sampled (Table 3). The trypanosomosis problem has caused a few farmers in Magadi division to abandon camel keeping. For example, most of the camels that were introduced in Shompole group ranch of the Magadi division succumbed to trypanosomosis and died (Personal communication; Magadi Division Livestock Production Officer, 2001). However, some were intentionally sold out on feelings that camels were very ugly and were associated with bad omen.

In Magadi division, diseases and lack of skills on camel husbandry were the main camel rearing constraints cited and were ranked first and second, respectively (Table 4). Lack of pasture, diseases and poor marketing were reported to be the most severe constraints affecting camel rearing in Namanga division. Meanwhile, Central division had a myriad of constraints namely, lack of skills on camel husbandry, animal diseases, marketing, pasture, vandalism and poor veterinary services. On rejection of camels, the pastoralists claimed that some people who are anti-camels had tried

Table 3. Point prevalence for circulating trypanosomes and mean packed cell volume (PCV) values in 24 camel herds in the 3 divisions in Kajiado district.

Division	Number of samples	Mean PCV (%)	Number of positive	Point prevalence
Magadi	72	23.9	19	26.4%
Central	152	29.3	2	1.3%
Namanga	124	25	4	3.2%
Total	348	26.1	25	7.2%

Source: Chemuliti *et al*, 2002

Table 4. Ranking and scoring of camel rearing constraints in Kajiado District, 2001.

Constraints	Number of counters allocated per division		
	Magadi	Namanga	Central
	Score (Rank)	Score (Rank)	Score (Rank)
Lack of skills on camel husbandry	8 (2)	0	7 (1)
Animal diseases/conditions	12 (1)	7 (2)	5 (2)
Poor Marketing	0	3 (3)	3 (3)
Inadequate grazing pasture	0	10 (1)	3 (3)
Poor veterinary services	0	0	1 (4)
Rejection of camels	0	0	1 (5)
Total	20	20	20

Source: Survey data, 2001

to kill the camels by trapping them with barbed wires to the extent of sometimes fatally wounding them. This resulted from myths that have been woven about the association of camels with bad omen and drought.

Discussion

Camels were introduced in Kajiado district of Kenya in the 1990s as an intervention to mitigate against the frequent spells of drought that had devastating effects on the community. Since then, their numbers have dramatically increased in some of the areas. However, these camels are exposed to a variety of diseases and conditions namely, trypanosomosis, helminthosis, abscesses, mange, abortions and plant poisoning. Plant poisoning was cited as a common problem in Magadi and Central divisions. This finding concurs with those reported among the Gabbra pastoralists in Kenya (Namanda, 1998). The plant locally known to the Maasai as *Laturdia* (*Carparis tormentosa*) is said to cause quick death in camels.

The farmers reported that other livestock tend to avoid it. Schwartz and Dioli (1992) had reported that without previous experience, camels readily eat the palatable plant.

Much as abscesses and infestations with mange were observed as common conditions occurring in many herds, the farmers did not consider them, and especially abscesses, as important. This is because apart from skin problems and swollen lymph nodes, they do not affect the animals in any major way, such as causing loss of appetite or hindering the animals from grazing. As a result, many farmers do not treat mange and abscesses. However, a few pastoralists apply grease on mange and/or inject the affected animal with terramycin[®] (oxytetracycline) (Pfizer) or adamycin[®] (Teva) for open abscesses.

Pastoralists are traditionally known to make diagnoses and treat their animals by virtue of having gained hands-on experience (Kariuki and Letitiya, 1996). However, since the camel is a relatively new animal among the Maasai, they expressed lack of skills on camel husbandry and diagnosis of camel diseases. This problem would lead to increased morbidity and mortality in herds, which would in turn restrict herd growth and productivity (Schwartz and Dioli, 1992). Namanda (1998) had stated that knowledge in camel disease identification is an important tool in traditional local animal health provision, highlighting the need for the Maasai pastoralists to be trained on the same. However, lack of skills on camel husbandry was not a problem in Namanga because all the camel owners interviewed in the division were Somalis who are known to have a wealth of experience in handling camels and diagnosis of diseases. This is because they have been keeping camels for a long time in the Northern parts of Kenya (Schwartz and Dioli, 1992).

When the first camels arrived in the district from Wajir and Isiolo districts, myths were woven. Many Maasai pastoralists initially refused to accept the camels on false beliefs that camels caused desertification, while others said they would cause drying of water sources and cause drought, as well as cause other livestock to die (Wangulu, 2001). Similar negative attitudes were noted in Tanzania and Kenya (Pelant *et al*, 1998; Field and Simpkin, 1999). Such negative attitudes are quickly fading and the camel numbers have increased and they

are now a popular livestock species being sought out by many pastoralists in this area. This is attested to by the rise in their demand, numbers and prices in the district through the years. The Maasai are slowly beginning to appreciate the camels as they learn from others who are keeping them about their benefits. This was depicted in the words of a Maasai elder, when he said, "Many Maasai pastoralists are beginning to appreciate the camel although it is still a relatively new animal to them. Many of us do not know how to handle camels or how to make a correct diagnosis for their diseases. With time and education, we will become wiser."

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