

Studies on Camel's Feeding and Utilization of Camel's Milk in Buttana Area, Gaderif State, Sudan

Osman AM¹, Abdelkreim M^{1*}, Abukashawa SMA² and Ibrahim MT³

¹Department of Range Science, College of Forestry and Range science, Sudan University of Science and Technology (SUST), Sudan

²Department of Zoology, Faculty of Science, University of Khartoum, Sudan

³College of Animal Production Science and Technology, Sudan University of Science and Technology (SUST), Khartoum, Sudan

*Corresponding author: Abdelkreim M, Department of Range Science, College of Forestry and Range science, Sudan University of Science and Technology (SUST), Sudan, E-mail: abudoaa7@yahoo.com

Rec date: May 04, 2015; Acc date: July 09, 2015; Pub date: July 12, 2015

Copyright: © 2015 Osman AM, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

The study was conducted in different locations in Butana area (Gadarif, Showak (Sharif Hassab Allah, Um-gargoor, Alsobagh). a set of detailed structured questionnaires were used to collect information from a total of sixty camel owners in different locations in Butana area. The interviews were conducted over single visits to each owner. The objective of this study is to assess the uses of camel milk and their feeding in Buttana area, Gaderif State, Sudan. The results showed that most of she-camels produced from 2 to 3 litre milk/day during the lactation period of 10 months. The majority of camel owners used calves to stimulate milk let-down and they milked she-camels twice a day. The milk let-down in the presence of the calf is the main method adopted by camel owners (96.7%). The majority of owners consumed the produced milk, while few of them sold the produced milk and took the milk for calves. The study showed that the main source of camels feed was the pastures and the camels preferred to consume trees, bushes and grasses. The main source of water is river, wells and natural water net. The results showed that most of camel owners (85%) reared their camels in the pastures and animals preferred trees and shrubs (81.7%). The milking frequency in the present study ranged between 2 to 3 times in a day. The results revealed that the first serious constrain was the presence of camel diseases, followed by lack of feed, lack of water, financial problems and lack of security. The study concluded that the mean values of camel milk yield and component were affected by feeding.

Keywords: She-camel; Lactation; Calf; Trees; Watering

Introduction

Camels can produce more milk and for a longer period of time than any other dairy animal reared under the same harsh conditions [1]. Many factors affect camel milk yield such as genetic origin, environmental conditions, feeding management conditions [2], number of lactations and stage of lactation [3]. Camel's size helps in browsing at higher levels above the ground than cattle, sheep and goats [4]. They usually browse on multi plants by taking a few bites then move to another. Dereje and Uden [5] noted that camels do not graze for a long time from one plant, but they move continuously, taking small bites of each plant. During summer, camels feed mainly at night especially during moonlight nights, and then rest from morning until afternoon wherever they have to bed down. The highest food consumption of 30-40 kg fresh forage (8-12 kg dry matter) is found on salty pastures, and the lowest food intakes (5 kg/day) is noted from dried grass pastures [6]. During the six or seven cool months in Sahara regions camels do not drink even if water is offered to them. Where green forage is available in mid climates, the camel may go several months without drinking [7]. Camels under very hot conditions may drink only once every eight to ten days and lose up to 30 percent of body weight through dehydration [8]. The objective of this study is to assess the feeding system of camels and the uses of camel's milk in Buttana area, Gaderif State, Sudan.

Material and Methods

The study was conducted in different locations in Butana area (Gadarif, Showak (Sharif Hassab Allah, Um-gargoor and Alsobagh). The Butana plain is a semiarid clay region that covers most of the present Kassala and Gedaref States in Eastern Sudan. It lies between latitude 13° 40' and 17° 50' North and longitude 32° 40' and 36° 00' East. A set of detailed structured questionnaire was used to collect information from a total of 60 camel owners in different locations in Butana area. The questionnaire was designed to obtain information on general household information, relation with camels and life mode of camel owners, purposes of keeping and rearing camels, breeding practices, milk production and milking practices, feeding and watering, constrains of camel production and veterinary services.

The collected household data was summarized and analyzed using Statistical Package for Social Sciences, (SPSS, and version 16.0). Descriptive statistics such as percentage and frequency were used to present the results.

Results

Milk production and milking practices

The result in Table 1 (10, show that most of she-camels (60%) produced from 2 to 3 litres milk/day followed by 38.3% that produced 3-5 litres milk/day and about 2% that produced more than 5 litres milk/day.

Camel's Milk Production litre/per day	Percentage of she-camels
2-3	60%
3-5	38%
More than 5	2%
overall	100%

Table 1: Camel's milk production litre/per day.

The lactation period varied between camels of different owners. 5% of camel owners left a period of 8 months lactation for a period of 10 months was practiced by about 53% of camel owners, lactation for 14 months was practiced by 42% of the camel owners and (Table 2).

Lactation period	No. of respondents	%
8 months	3	5.0
10 months	32	55.3
14 months	25	41.7
Overall	60	100

Table 2: lactation period of she-camels.

The results revealed that about 97% of the 60 camel owners used calves in milk let-down stimulation while the rest milked their animals without calves (Table 3).

Methods	No. of respondents	%
With calf	58	96.7
Without calf	2	3.3
Overall	60	100

Table 3: Methods of milk let down.

The majority of owners (61.7%) milked she-camels twice a day, while about 37% milked their animals three times a day and only 1.7% milked their animals once a day (Table 4).

Milking frequency/day	No. of respondents	%
Once	1	1.7
Twice	37	61.7
Three times	22	36.6
Overall	60	100

Table 4: Milking frequency (day).

The majority of camel owners families (95%) consumed the produced milk, while 3.3% sold the produced milk and 1.7% took the milk for calves (Table 5).

Feeding and watering

The results (Table 6), indicated that the main source of feeding is rangelands (85%) while rangelands combined with green fodder represent only 15%.

Uses of milk	No. of respondents	%
For calves	1	1.7
For family consumption	57	95
For sale	2	3.3
Overall	60	100

Table 5: Uses of camel milk.

Source of feed	No. of respondents	%
Rangelands	51	85
Rangelands and green fodder	9	15
Overall	60	100

Table 6: Source of feed.

The majority of plant coverage in the area of the study is trees (60%), while grasses showed only (18.3%), (Table 7).

Plant	No. of respondents	%
Trees	36	60
Bushes	13	21.7
Grasses	11	18.3
Overall	60	100

Table 7: Plant coverage in studied area.

The data in Table 8 shows that the main source of water for camels watering is river (41.7%) in addition to wells (30%) and natural water net (ponds).

Water source	No. of respondents	%
River	25	41.7
Well	18	30.0
Natural water net	17	28.3
Over all	60	100.0

Table 8: Water sources in the studied area.

Table 9 shows that the majority of camel owners (71.7 %) watered their camels in summer every three days than 20% of owners watered their camels every two days and about (8%) of owners watered their camels daily. However, in winter more than 50% of camel owners watered their camels every six days followed by 40% owners watering their camels every four days and 5% of camel owners watering their camels every three days.

Veterinary services

Most of camel owners (70%) responded that there is no veterinary service and the majority of them (80%) mentioned that the veterinary service was provided by the private sector while 20% mentioned that the veterinary service is provided by the government (Table 10).

Watering frequency					
Winter			Summer		
Frequency (Days)	No.	%	Frequency (Days)	No.	%
Three	3	5.0	One	5	8.3
Four	24	40.0	Two	12	20.0
Six	33	55.0	Three	43	71.7
Over all	60	100.0	Over all	60	100.0

Table 9: Watering interval.

Source veterinary services			Availability of veterinary services		
	No.	%	Availability	No.	%
Government	12	20	Yes	18	30
Private	48	80	No	42	70
Total	60	100	Overall	60	100

Table 10: Sources and availability of veterinary services according to respondents.

Discussion

The study shows that there are different modes of behaviour of camel owners in Butana area milking practices, lactation period, milk let-down stimulation, milking frequency The milk production is within the estimated range of east african camels. The milk yield of 2-5 litres per day increasing with one to 3 times of milking per day is low compared to other studies Wernery reported production of 20 to 30 litres daily for good milkers while Schwartz and Walsh estimated lactation yield for East African camels at between 1,500 and 2,500

litres. The low yield can be explained by the lack of marketing (95%) is used for family consumption

Full tree grazing is the main mode of feeding. The majority of owners brought their animals to the river or the nearby wells for watering

Challenges facing camel owners in Butana area include scarcity of veterinary services, and marketing of camel's milk, most of the milk produced is consumed by the owners.

The data generated from the study is useful for owners, government and researchers.

Conclusion

The study concluded that the mean values of camel milk yield and component that were affected by feeding. Camel in the pastures and animals preferred trees and shrubs. The main constrain can face the camel production such the veterinary services.

References

1. Farah Z, Mollet M, Younan M, Dahir R (2007) Camel dairy in Somalia: limiting factors and development potential. *Livestock Science* 110: 187-191.
2. Abdelgadir M, Faye B, AbuNikhala A (2013) Lactation curves of dairy camels in an intensive system. *Trop animal health production* 10.1007/s11250.0121.0331.
3. Al haj OA, Al Kanhal HA (2010) Compositional, technological and milk composition of traditionally managed camels (*Camelus dromedarius*) in Eastern Ethiopia, *Livestock Research for Rural Development*, 19: 85.
4. Mouna Mohamed Elhag (2006) Causes and Impact of Desertification in the Butana Area of Sudan Ph .D. University of Bloemfontein, South Africa.
5. Dereje M, Uden P (2005) The browsing dromedary Camel I. Behavior, plant preference and quality of forage selected. *Anim Feed Sci Tech* 121: 297-308.
6. Grenot CJ (1992) Ecophysiological characteristics of large herbivorous mammals in arid Africa and Middle East. *Journal Arid Environment* 23: 125-155.
7. Ramet JP (2001) Technology of making cheese from camel milk. FAO, Italy, Rome.
8. Yagil R, Etzion Z (1980) Effect of drought condition on the quality of camel milk. *J of Dairy Res* 47: 159-166.