Traditional Practices of Camel Husbandry and Management in Somalia

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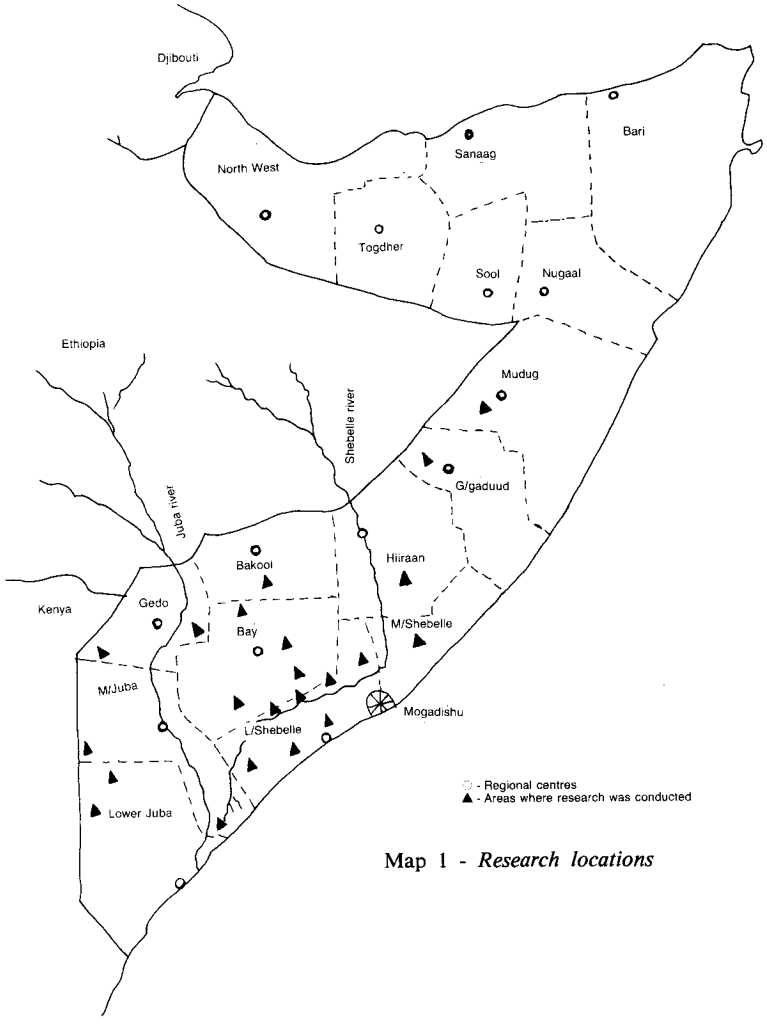
1. Introduction

The aim of this paper is to give a general view of the systems of management and the husbandry techniques practiced by Somali nomadic camel herding pastoralists. It is part of the reporting from a two and half year (Dec. 1982 - June 1985) research work carried out in central and southern Somalia (Map 1) under



Map 1 - *Research locations*

the auspices of the SOMAC/SAREC research cooperation agreement on the different aspects of the camel in Somalia (SOMAC/SAREC 1983).

Observation and information gathering were conducted within this subproject by living and moving with camel herders for periods of days and weeks. Occasional trips of several days duration were also made to different dry season water resources, where normally large concentrations of camel herds from different regions gather. The main method adopted in the data collection was formal and non formal interviewing of camel herders apart from regular observation of their camels.

2. Background: The Socio-economic Importance of Camels in Somalia

According to FAO (1978) estimates, there are approximately 15.0 million one-humped camels in the world. 65% of the total world camel population is in the N/E Africa states of Somalia, Sudan, Etiopia and Kenya. It is interesting to note that more than 30% of world camel population and 50% of Africa's is found in Somalia.

Because of seasonal migrations, crossing of national boundaries, and reluctance of herders to give exact herd sizes, it is difficult to estimate the exact camel population in Somalia. However, according to the national census of 1975, there are around 5.3 million camels in the country. There were earlier estimates which could be compared with the national census figures:

Table 1. - *Camel censuses (SOMAC/SAREC 1983) in millions.*

Hartley	1966	2.0
Pillai	1968	2.5
Harthley	1968	2.5
German Advisory Group	1973	3.0
IDA	1974	2.5

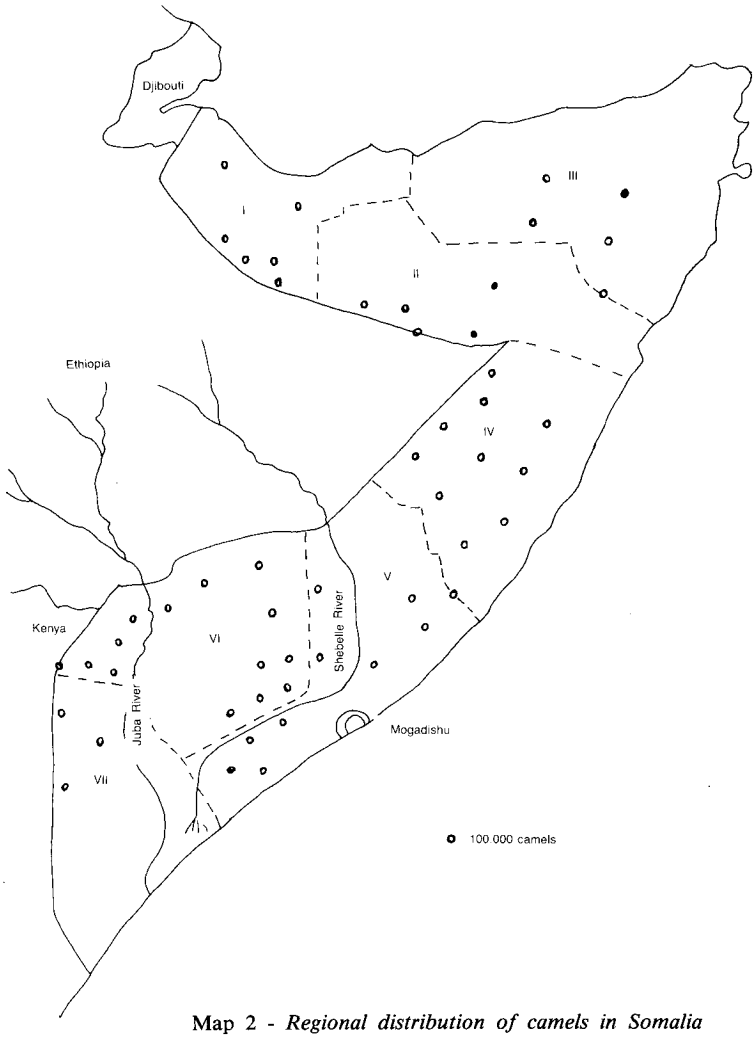
According to the census of 1975, camels are relatively evenly distributed throughout the country. The density of concentration is somewhat higher, however, in the central regions, the Shebelle Belt, and the western regions (Map 2 and Table 2).

Table 2. - *Distribution of Camels by Region in Somalia (in thousands)*

I - Northwest		606
II - North/Central		475
III- Northeast		445
IV - Central		1,146
V - Shebelle Belt		991
VI -West		1,338
VII - South/Juba Belt		300
	Total	5,300

2.1 *The use of Camels*

Camels play an important role in the national economy of Somalia. Apart from a relatively small agricultural area in the interriverine region, most of the country is devoted to an extensive form of nomadic pastoralism involving all the



Map 2 - *Regional distribution of camels in Somalia*

livestock of the country. Camels are essential to the subsistence of the Somali pastoralists. Since they do not compete with other types of livestock in their grazing behaviour, they can be kept in areas which are inaccessible to other types of livestock. They are very resistant to adverse climatic conditions and browse shortage. At the same time, they are very good milk producers.

The monetary importance of the camel dependes on the way it is used in the pastoral system. The export of camels accounts for approximately 10% of the total revenues from livestock exports (SOMAC/SAREC 1983) and some 8% of total export earnings. Moreover, there is a growing tendency towards monetarization of the traditional subsistence economy of pastoralists. Strong incentives and highly attractive market prices are forcing more and more pastoralists to enter the market. The importance of the camel arises primarily, however, from its pro-

vision of milk and meat within a subsistence economy and its use as a burden animal for transporting milk to the market, water from wells, and household belongings when families move to new areas.

Besides its economic importance, the camel has social and cultural importance for the Somalis. Of the domestic livestock they raise, camels are the most highly valued. Somalis have eloquently described the practical uses of the camel in their vast oral literature. Apart from their milk, meat, and transport uses, camels are valued for their role in traditional social relations, e.g, the payment of bridewealth and compensation of injured parties in tribal feuds.

2.2 *Ownership Patterns.*

The building of a man's herd usually starts at birth, when he is given a she-camel by his father. With subsequent increases through biological reproduction, purchases, and wise management, his herd multiplies, and by the time he reaches the age of marriage he may have 8-12 animals. Upon his marriage he may be given more milk and burden camels by his father or close relatives. After this his herd grows through reproduction and purchases and may be reduced by sales, consumption, and, most notably, environmental hazards.

While camels are individually owned, they are at the same time the collective property of the members of a particular lineage. All the members of that lineage, persons related to them through marriage, and individuals outside the lineage who have contractual relations with the lineage members may benefit from the economic and social uses of the camel.

Camels can also be seen as a sort of banking system or security against drought, disease, and the other natural calamities that affect smaller stock. For example, the other disastrous 1974-75 drought in Somalia killed 60% of the smaller livestock but only 10% of the camel population. Households that lost their livestock by the drought had a strong case to be provided with camels. In this respect camels helped the restocking after the drought. Camels hence became the linking factor for the lineage members and the bases of lineage or group solidarity.

Moreover, at times of tribal feuds, camels are the only means of payment of blood money to the lineage of the deceased, which is 100 camels for a man, 50 camels for a woman, and 10-15 camels for minor injuries etc. This is now prohibited by law, but in remote areas pastoralists still live in accordance with the traditional law that they call *heer*.

3. **Ecology and Management**

3.1 *Physical Environment*

Somalia has the following climatic zones:
1) semi-arid and arid, in the coastal area;
2) arid wooded savannah, covering most of the country;
3) mild sub-arid wooded savannah, in the northern mountain ranges.

There are two distinct rainy seasons: *guu*, extending from April through June, and *deyr*, extending from September through November. Light showers can be expected along a narrow coastal belt during July and August known as *hagaio*, and along the northern mountain ranges known as *hais*. Besides the two rainy

season there are two distinct dry seasons: *xagaa*, extending from July through September, and *jilaal*, extending from December through April.

Annual rainfall is 50 mm in the arid zones of the central and eastern plateaus and 600 mm in the southern interriverine and northern Golis Range area. Although the rains are confined to the two main seasons, they are likely to be sporadic and scattered.

Temperatures vary from 35° C during the hotter months in the coastal and central regions to 18° C and lower in the Golis Range area. Southern regions are uniformly hot, while in the north seasons are more sharply defined, with frost in November-February in some parts.

Somali camel herders divide their grazing habitat into four basic categories based on plant cover and soil type:

1) *harqaan/gabiib* — thick bush, clay soil;
2) *dhoobey/adable* — thick bush, black soil (agricultural);
3) *dooy* — low bush, red soil with good water conservation;
4) *bay* — a mixture of grey and red soil, open bush.

After the rains, the first green plants appear in the *dooy*; these are followed by the trees and shrubs of *harqaan, bay*, and *adable/dhoobey*. After the rains, the first plants to shed their leaves are those of the *adable/dhoobey*, followed by those of the *dooy* and *harqaan/gabiib* in that order.

The relative humidity declines with increasing distance from the sea (70-75%). In general, throughout the country evaporation exceeds rainfall, and soil moisture deficits are characteristic for much of the year. This makes availability of drinking water for livestock problematic. Vegetation growth is seasonal. The length of the growing seasons and the severity of the yearly water deficit are the main factors influencing the productivity of the natural rangelands and the pastoral production as a whole.

3.2 *Management System*

The management system is dictated by the harsh environment and the seasonality or rainfall and browse availability. The main system practiced is free pasture, but in the interriverine areas camel herders may bring in their animals after the harvest to utilize agricultural by-products.

During the *guu* and *deyr* seasons movement is less and watering infrequent because of the abundance of browse. Camels are kept in their enclosures until late in the morning. These are the season of calving and therefore of abundance, and families get together for social gatherings, weddings, and sacrifices for the saints and ancestors.

During the dry seasons of *hagaa* and *jilaal*, herds are divided into dry/pregnant and milk/burden. The dry/pregnant herd is sent far from the home settlement usually under the care of young unmarried men, rarely accompanied by their elders. The milk/burden camels, together with the small stock, stay with the family, usually not far from urban centres where milk can be easily marketed. Prior to this division of the herd the head of the family or one of the elders travels some 70-100 km over several days looking for a place with good browse, salt licks, and water where the herd and the family can be moved until the rains return (this journey is called *sahan*). Then a meeting of the elders is called and a final decision made as to when and how to move to the new place. A sacrifice

is made to the saints and ancestors in order to ask their blessing, and the following morning the herd and the family move to their new location.

Camels can go without water for as much as 19-30 days. During exceptionally hot seasons, depending on the vegetation available for browsing, they are watered every 6-7 days, and depending on the season, the available browse, the watering frequency, and many other factors, a camel may drink 80-200 litres of water at a time with two or three pauses. In dry periods of the year, watering is the most laborious of all the activities of the camel herders. Water is mostly drawn from wells 5-20 m deep, and therefore it is very difficult for one man to water a whole herd of 50-100 camels by himself. Watering thirsty camels leaves the herder exhausted at the end of the day. This is well expressed in Somali songs (Abokar 1984: 61):

> Until the skin comes off
> the palms of the hands;
> and the ligaments in man's ribs asunder break
> satisfied camels won't leave the well...

Herders normally help each other in the watering of their herds. Elders do not participate in the watering but usually supervise it from a distance.

Salt supplying is another important task. Salt is given to camels every six to eight months. If natural salt licks are not available nearby, either the camels are moved to a suitable area or salt is transported and distributed to them. When ordinary salt is given them, it goes in the first place to milk and burden camels. Wells with brackish water and therefore high salt content are used as an extra source of salt supply.

3.2.1. *Movement Patterns*

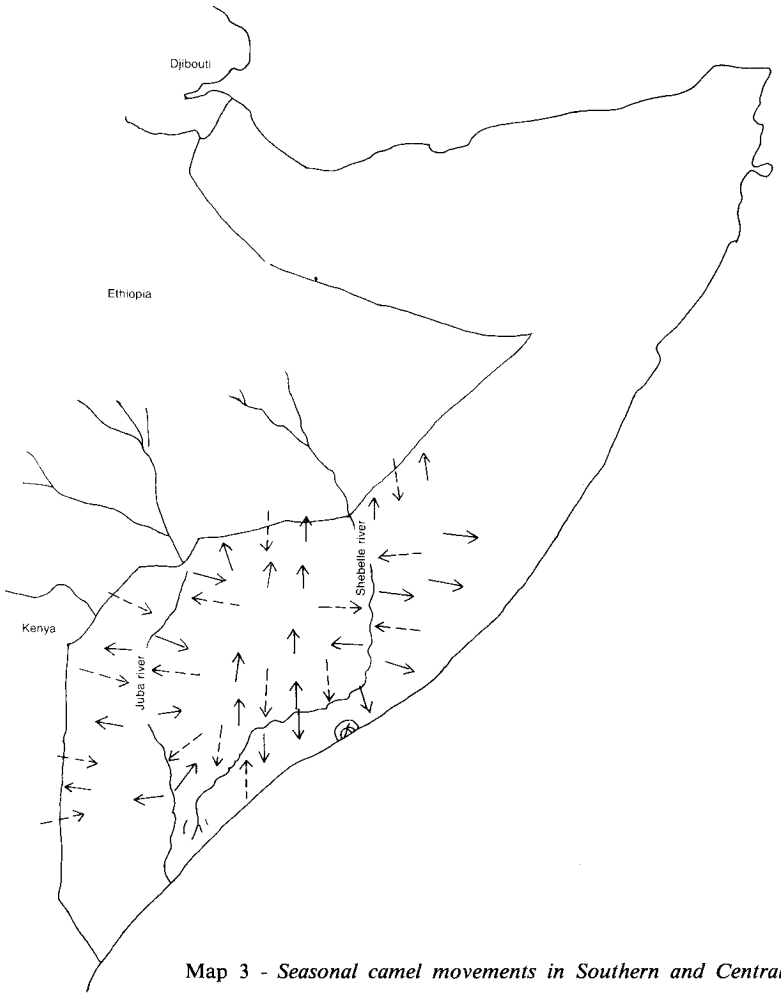
Annual rainfall, its distribution in time and space, the time of onset of effective rains after the dry season, the availability of browse, and salt licks, and the amount of effective manpower are the most important factors in camel herd management decisions.

The most difficult period is at the end of the dry *jilaal* season, when critical decisions have to be made about the sale or slaughter of animals to see the family through to the relative abundance of the *guu*.

In the *guu* and to a lesser extent in the *deyr* season, camels get their basic water needs from surface water and green vegetation. In the *hagaa* and *jilaal* seasons, camel herds are forced to drink regularly at home wells, and it is at this time that the herd is split.

Besides the limitations caused by forage, water, and salt shortages, movement patterns in southern and central Somalia are determined by the need to avoid biting insects such as the tse-tse fly. Movement is from permanent waters of the Juba and Shebelle Rivers into the dry interior after the *guu* rains, with a return tu the rivers in the *hagaa*, a movement away again in the *deyr*, and a final return in the *jilaal* (Map 3).

Camel pastoralists consider that the rainy seasons play a decisive role in their management decisions. They have an elaborate subdivision of these seasons, and on the basis of this scheme they have developed a system of rotational use of their browsing areas:



Map 3 - *Seasonal camel movements in Southern and Central Somalia*

Guu
hogo period — *dooy/harqaan*
sina period — *dooy/gabiib*
ragal period — *adable/dooy*
baldaaq period — *adable/dhoobey*

Hagaa — *dhoobey/adable*

Deyr
hogo period — *dooy/harqaan*
sina period — *dooy/adable/harqaan*
ragal period — *adable/gabiib/harqaan*
baldaaq period — *dhoobey*

Jilaal — mainly *dhoobey*.

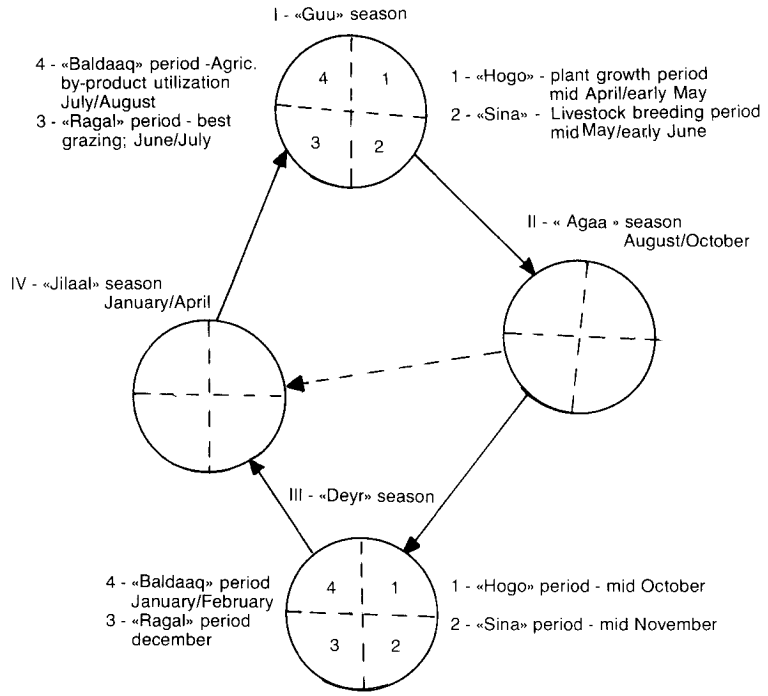


Fig. 1 - *Seasons and decision making*

The annual migration cycle of camel herds is as shown in table 3.

Table 3 - *Migration cycle of camel herds.*

Season	*Cycle*	*Period*	*Area of Stay*
guu	cool/rainy	April/July	Inland/scattered
hagaa	warm/dry	July/October	Home wells
deyr	hot/rainy	October/December	Inland/home wells
jilaal	hot/dry	December/April	Homo wells, riverzone

This system of rotation is in harmony with the harsh environmental conditions and unreliable rainfall.

3.2.2 *Herd Structure Management*

Herd structuring plays an important role in camel management. In southern and central Somalia, herd structuring depends on the season of the year and the area of grazing.

Over a period of two years the average structure of 35 herds varying in size from 80 to 100 camels was as shown in table 4.

Table 4 - *Structure of 35 observational herds (in %)*

	guu	*hagaa*	*deyr*	*jilaal*	*Average*
Milk camels	25	20	24	12	22
Pregnant camels	31	33	30	34	31
Dry camels	13	15	20	28	18
Castrates	8	10	9	10	8
Young males (less than 2 years)	10	9	7	6	9
Young females (less than 2 years)	12	12	9	9	11
Males for reproduction	1	1	1	1	1
	100	100	100	100	100
Mortality rate (%)	3	3	2	4	3

One reason that the structure of the herd varies with the season is that breeding is seasonal. Another is that camel herders plan the calving and breeding for seasons and years when there is enough browse and water available and movement is restricted. Balancing factors are the low reproductive rate of camels and the fact that herders keep old camels in the herd even when the camels have stopped reproducing. The sex ratio of males to females is 1:4.5 as a result of mortality differences, slaughter, sale and the consequences of hard management practices.

4. Husbandry Techniques

4.1 *Selection and Breeding*

Selection and breeding are the most important husbandry techniques. Selection is employed to maintain or improve productivity, endurance, drought resistance, etc. Managers pay great attention to the phenotypic and genotypic variations of their herd and practice strict selection of pairs.

Usually one male is kept for the purpose of reproduction. The rest of males are either castrated, sold, or slaughtered. Camel herders believe that the stud male is 90% of the herd and keep only «proven» males or males of outstanding genealogy for reproduction. If they do not have one, they borrow one from kins, hire one from others, or drive their female camels as much as 200-500 km to have them serviced by a prominent sire.

An outstanding male can service 150-200 female during a mating season. Such a male is treated well, and not required to bear burdens, and besides ordinary grazing it receives supplements such as ghee and sesame oil. During non-rutting seasons, it is kept separate from the females and given special treatment and exercise.

Camel breeding coincides with the rainy seasons. Most of the female camels breed during the *guu* season, while the remaining breed during the *deyr* season. This seasonality ties in with the browse situation and, accordingly, the general physical condition of the animal: *guu* is the period when there is a variety of green vegetation and temperatures are relatively mild and therefore body metabolism is high.

4.2 *Pregnancy and Calving*

The gestation period in camels extends up to 13 months. This means that camels which bread in the *guu* season will calve during the next *guu* season. Normally camels begin breeding when they are four to five years old. But camel herders rarely let then breed before they reach physical maturity at five to six years. A female camel accordingly has her first calf at six to seven years of age. Under normal conditions, a female camel, breeding every other year, will have eight to ten calves in her lifetime. A camel may live 25-30 years on the average.

Calving may occur at any time of the day, with a slight tendency towards the cocler part of it. Under normal conditions calving goes smoothly. In the case of a first calving or a complicated delivery, the herder will assist the camel. Women are forbidden to approach a camel in labour, lest the new born calf will die, and may only approach the new born calf by letting it smell her clothing or her swell. Several hours after delivery, the calf gets to its feet and suckles collostrum from its mother. This helps it to get rid of the first faeces and at the same time gives it antibodies against early infectious diseases. This fact is well recognized by the camel herders.

If the calf is male and the family's milk requirement is high, it is common practice to slaughter it. In such a case the dried skin of the calf is used to cause the camel to let down her milk. In some cases the herder makes himself the milk letting-down factor for the camel.

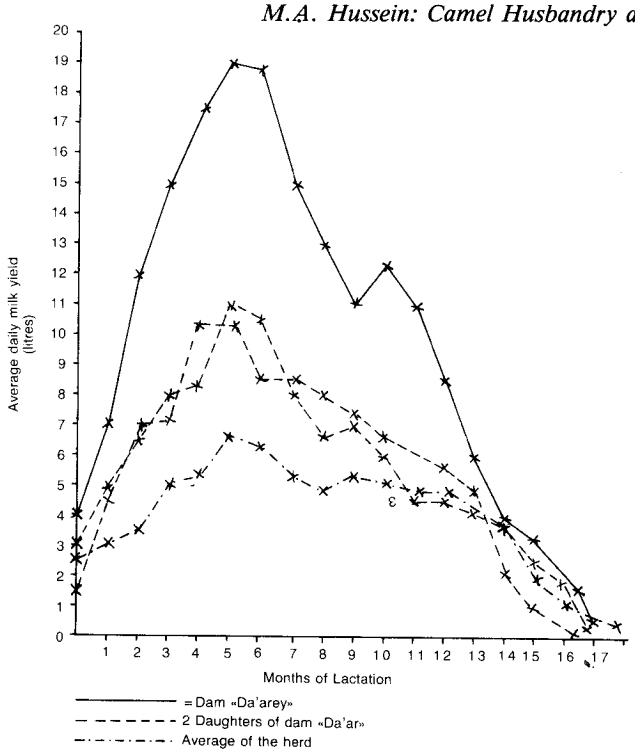
4.3 *Weaning*

Weaning is at 8-18 months, depending on the browse situation, the mild production of the dam, and the growth of the calf. Several different systems of weaning are practiced, of which the most common are tying the dam's teats with softened bark, making a small incision in the skin of the calf's nostril and inserting thorns that will pierce the dam if the calf tries to suckle it, and making a small incision at the tip of the calf's tongue and inserting a piece of wood that will hurt the calf itself when it tries to suckle. Whatever the method, the calf will stop suckling within three or four weeks. After weaning is complete, selection for future sires is done, and males rejected at this stage will be either castrated, sold or slanghtered. The objectives of castration are prevention of unwanted breeding and easy handling and training of future burden camels. The most common system of castration is opening the scrotum and either breaking the epideadimus or taking out the testes. The wound is then treated with traditional medicinal plants and normally heals in a matter of two to three weeks.

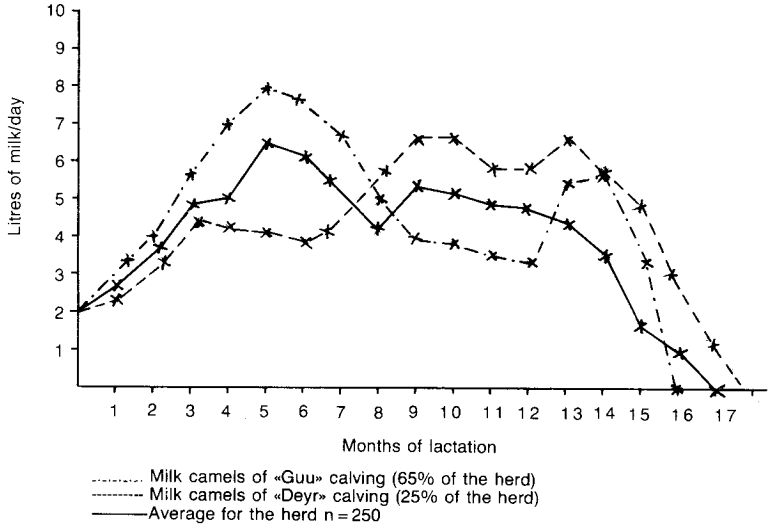
4.4 *Milking and Milk Production*

Milk is the most important herders food. The milking of camels occurs twice a day, morning and evening. Generally camels con be milked every two to three hours, depending on the needs of the herders. Milking is done exclusively by men except when there is a shortage of labour. It is very easy and is done with the fingers.

The average milk production of Somali camels is 5-6 litres a day. The amount depends on the type of the camel, its age, its lactation period, the season, the browse and water situation, etc. The lactation period also varies from six to eight months. Milk production is accordingly 600-2000 litres per lactation. It is highest



Graph 1 - *Milk production from a study herd and three exceptional individual camels*



Graph 2 - *Lactations of «Guu» and «Deyr» dams*

between fourth and sixth months of lactation and later drops sharply. An exceptional camel may continue to produce well for 12-15 months. The best producer I observed yielded 12-13 litres of milk a day on the average. Her highest recorded daily yield was 19 litres during her fifth month of lactation. Similarly, two daughters of this same camel in their third and first lactations were also producing higher than the herd average (graph 1). Camels which had calved during the *guu* season had a higher and more stable milk yield than those which had calved during the *deyr* season (graph 2). These facts are recognized by the camel herders, and they make use of them in their breeding and selection activities.

5. **Conclusion**

Somali camel herders are rational and goal-oriented in their husbandry and management. They are aware of the need to conserve their grazing herds and highly cognizant of the benefits to be gained from their camels. This is illustrated by the great attention paid to productivity, endurance, and drought, and disease resistance in selecting breeding stock. They clearly understand that the camel is and for the coming decades will remain their basic means of survival.

Because survival for the pastoralist depends largely on the survival of his animals, and in conceiving and implementing these goals camel herdsmen seek to manipulate the various characteristics of their environment to their best advantage by locating grazing areas and establishing appropriate patterns of movement. The search is for more productive and secure pastures to maintain livestock productivity.

Hence, basic patterns of management are influenced by social and economic factors as well as by the needs of the animals. Among these factor are social organization and the social relations arising from it as well as the composition and size of the herd and their relation to family size. Various forms of exchange of animals establish or reinstate social relations.

Because of the dominance of semi-arid and arid lands, and because of the seasonal concentration of water and grazing, nomadic camel pastoralism characterize the livestock husbandry patterns of most of Somalia. One can say that camel pastoralism represents a highly rational adaptation of human life to a severe and adverse environment. Camel pastoralism in other words, represents a dynamic response to environmental conditions.

In conclusion, it can be said that camel raising within a pastoral system is an arduous enterprise, the viability of which becomes fragile or is destroyed altogether as the system itself is subjected to increasig pressure from within and outside. However, it proves that traditional camel pastoralism constitutes the only efficient way of exploiting many areas where cultivation and small raising is impossible. It is therefore to be hoped that the more successful aspects of nomadic camel pastoralism can be identified and preserved to become the basis for future development. What is needed is , integrated research in which the customs, life styles, and internal logic, both social and economic, of the pastoralist system are taken into account.

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