SEASONAL MANAGEMENT PRACTICES OF SOME SELECTED CAMEL PASTORALIST HERDS AT KATSINA STATE COMPONENT OF NIGERIA – NIGER CORRIDOR

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ABSTRACT

This report is aimed at providing an information on the management practices of migrant pastoralists that inhabit the Nigeria–Niger Corridor. The pastoralists' domain are located within the two Local Government Areas (LGAs) – Mashi and Mani of Katsina State. However, the vast grazing area they migrated to during the rainfed season is Dan Aunai Grazing Area located at Dutsi LGA of Katsina State respectively. Due to the seasonal variations, the management practices varied between dry and wet/rainfed seasons. The pastoralists are adapted to all seasonal changes and the camels too are adapted simultaneously. Among the variations in the management practices included the availability of feeds in the wet/rainfed season, increased in milk production, sufficient water due to running streams and manifestation of parasites. Meanwhile, during dry season it included the shortage of feed and water, less infestation of parasites and most importantly it's the breeding season which falls between November to February. The report revealed the routine practices experienced by the herders under pastoral production system in which the camel herders in the area are fully adopted to

INTRODUCTION

From the historical records, the domestication of camels started in the Arabian Peninsula about 3000 years ago as a means of transportation and from where they spread to other parts of the world (Mohammad and Eliman, 1998). One humped Camel is an important animal that adapted to the harsh environmental conditions of the Arid and Semi-Arid Lands (ASALs). Majority of one humped camels are owned by pastoralists who primarily depended on the animal for transportation and supply of food (milk and meat). In some areas, camels are considered multipurpose animal with versatility of function as drought animal, socio-cultural activities, racing, trading and supply of blood (Hammadi *et al.,* 2010). Camel famers are not familiar with camel production and improvement strategy as employed for many years by developed nations. During this study, when camel herders were sensitized on the importance and benefits of camel improvement programs, majority of the farmers indicated interest of having improved breeding stocks to develop their herds. Camel producers considered the quantity rather than quality of the animals as being more important (Ghude, 2017) and Kuria *et al.,* (2005).

MATERIALS AND METHODS

Pastoralist herds' selected and location

The study was conducted along Nigeria-Niger Corridor – Katsina State of Nigeria. One herd each were selected from the following locations: Sharawar Bugaje and Jarcan in Daura Local Government Area, Gana Jigawa in Mashi Local Government Area and Shirinya in Mani Local Government Area

Management practices during wet season

Migration

Grazing land is a problem militating against livestock production in the tropics. In both wet and dry seasons (as the case may be) when both rainfed and irrigation cultivation are practice, pastoralists are challenged with problems of grazing land Quatro *et al.,* (2003).

The pastoralists from Gana Jigawa in Mashi Local Government Area and Shirinya in Mani Local Government Area moved East-Northwards to a vast grazing area called Dan Aunai Grazing Area located in Dutsi Local Government Area of Katsina State. The migration begins in late May and early June as soon the rains start. There is no Grazing Area at Gana Jigawa and Shirinya where the pastoralists are domiciled and it became imperative for the pastoralists to move out so that the conflicts as a result of damaging crops may be prevented.

Feeds and feeding

During wet season, pastoralists are faced with problem of grazing area because of crop cultivation on most of the available farm land in the selected area. This necessitated the camel owners to migrate to an area where there is grazing land suitable for camels and not cultivable. The green plants grown during the season attract the camels to graze on and this encompasses the destruction of the fence, hence damaging the crops. However, the normal tradition of allowing camels to go for grazing on their own is not possible. A herder must follow the camels throughout the day to control them from damaging rainfed crops.

Water

Water consumption in camels is an interesting aspect because of its natural water economy and physiological management of dehydration and thirst. Camels spend days without water depending on season, type of work, feed availability, temperature and physiological status. On that ground, lactating camel cows produce milk with relatively adequate quantity of fluid even at the time of thirst and dehydration (Gihad *et al.,* 1988). Pastoralists scheduled time of watering camels based on seasons, availability and closeness to the source of water. In wet and early cold dry seasons, camels spend more days without water while at the end of cold dry and hot dry seasons camels require more water because of the rise in temperature and insufficient succulent feeds (Hashi *et al.,* 1995).

Milk production

One of the most important products from camel is milk. It hass been characterized as a valuable food for people living in marginal land of both Asia and Africa. Pastoralists from around the world cherish and utilize camel milk as a staple food. However, camels have an outstanding milk production in harsh environmental conditions in which they are kept. Also, pastoralists who kept livestock prefers camel milk to milk of other livestock species because of its taste, nutritional value, health reasons and it is perceived that camel milk prevents thirst even when walking for a long distances in the deserts. During wet season, the quantity of milk produced is higher than that of dry season. An average of 3 – 5 liters of milk is produced by camel cow under Once Daily Milking (ODM) within the corridor (Guinard–Flament and Rulquin, 2000).

Diseases

Pests/Ectoparasites/Endoparasites infestation such as ticks and worms in wet season is identifiable. Although, disease infestation in wet season does not affect the productivity but the appearance of ticks and some little flies around the herds constitute some disturbances to the camels. From the study area, disease problem in camels is compounded by severe shortage of qualified Animal Health Workers (AHW) and Veterinarians and the inability of most available workers to provide reliable treatment services because of their limited understanding of camel diseases (Ghude *et al.,* 2020).

Management practices during dry season

Migration

As soon as dry season sets-in around November, the pastoralists moved back to their location and spend the rest of the months. However, during dry season, camels are followed and offered a control grazing by a herder to avoid damaging of irrigated crops especially at Sharawar Bugaje and Jarcan in Daura Local Government Area where irrigation is practised at Daberan dam irrigation site.

Feed

Feed is one of the major components in livestock production. The quality of feed determines the productivity. In a pastoral production system where there are no guaranteed and secured feed resources for livestock, milk yield and composition will be affected. On the other hand, feed

conversion efficiency from the older animals could affect the yield and composition. There is a general belief that dromedary camels are herbivores. They eat primarily thorny plants species that grows in the arid regions and deserts dry grasses (Zeleke, 2007).

Water

Water conservation by means of physiological mechanisms alone is not; however, the only adaptive feature of the camel which also possesses behavioral and anatomical adaptations as well as additional-physiological ones (Yagil *et al.,* 1974). However, at the end of cold dry and throughout hot dry seasons camels require more water because of the rise in temperature and insufficient succulent feeds. During hot dry season, most water sources such as streams are dried up and tube-wells are short in providing sufficient water (Ghude, 2017).

Reproduction

Cold dry (November–February) season is the appropriate time of camels' breeding in the area. Female camels can reach puberty as early as three years and in some cases can be delayed for up to five years. The gestation length ranges from 12–13 months with average length of 12 months. Since there is no organized breeding policy, as identified from this study, the pastoralists are in the practice of keeping both males and females together in the herd due to lack of knowledge or interest in selective breeding. However, camel-cows calve regularly within an interval of 2–3 years (Rota, 2009 and Ghude, 2017).

Camel-cow can remain fertile up to more than 21 years (Yesihak and Bekele, 2004) which is in line with the present findings as the pastoralists revealed a range of 21–30 years and could produce up to 10 calves in their life time. However, under pastoral production system, only small number of breeding females reaches this age and the average number of calves produce in their life time were between 8 to 11 calves (Ghude, 2017).

Milk production

Camel milk production drops at this period due to insufficient feed characterized by drying of pastures, shrubs and wilting of browse plants utilized by the camels. Camel sustains its productivity in difficult conditions and comparatively not affected by feed shortage and quality, water deficit and high ambient temperature. However, despite the insufficiencies, camel cows still produce milk daily on average of 1 – 3 liters per day under Once Milking Daily (ODM). Despite the drop in milk production, camel-cows still produce milk for the sustainable nourishment of the pastoralists (Ghude, 2017; and Guinard–Flament and Rulquin., 2000). Despite the fact that camels are hardy in nature and the need to fully utilize the milk production potentials and utilization could only be achieved through better management practices.

Diseases

Disease infestations were identified as major challenges to livestock production in rural areas because of the limited access to veterinary services. There is no much infestation of diseases in cold dry and hot dry seasons respectively. Although some skin diseases like *Dermatophilosis congolense* may occur within an interval basis (Ghude *et al.,* 2017).

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