

A STUDY OF MANAGEMENT, HUSBANDRY PRACTICES AND PRODUCTION CONSTRAINTS OF CROSS-BREED DAIRY CATTLE IN SOUTH DARFUR STATE, SUDAN

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ABSTRACT: The present work was prepared to evaluate the management applied, husbandry practices and the constraints facing crossbred dairy cattle owners in South Darfur state, Sudan. Structured questionnaire was designed to collect the data, and the analysis was performed using frequencies and descriptive statistics. The results showed that graduated persons among dairy farm owners in Mossay district represent the majority (35%) then those of higher secondary certificate (25%) and those passing the intermediate school were (10%) where the rest of the producers were illiterate (5%). It was found that crossbred dairy farms in Mossay district was established during few last years; (55%) of the producer established their farms in a period more than 10 years, while 40% of the respondent claimed that they started investment in milk production in a period ranging between 3-8 years, only 5% of the herd owners replied that they involved in milk production. The results revealed that dairy farms in Mossay district were constructed from different materials, but the majority of the dairy farms (55%) were constructed from constant materials (bricks, iron and cement) while (20%) were made of local materials and (5%) prepared from both constant and local materials. Only (50%) of the dairy herd owners replied that they are using records while some (45%) did not keep records. The period extends between (April to June) represents the summit of forage shortage (45%), then the period between March-June (10%). It was noticed that dairy herd owners preparing their rations adding salts from different sources; (60%) add salt in a form of (Sodium chloride + licking stone), (35%) use (licking stone) and 5% add only (sodium chloride). Constraints facing the dairy herd owners in Mossay district found to be varying; (20%) of the respondents mentioned that prevalence of diseases was the major obstacle, (15%) said that feeding cost was the production limiting factors, whereas, (10%) claimed that (insecurity, water and power shortage) were the main constraints. Also, the results indicated that (60%) of the producers had high desire to continue investing in dairy production, some (15%) had a moderate desire however, a few (5%) had a weak desire and intending to change their activities. Concerning the husbandry practices; (25%) of dairy farm owners practiced dehorning, where, (15%) used identification (ear tags), also, (15%) of them practiced (dehorning + hooves care), on the other hand, (5%) of the respondents replied they did not adopt any husbandry practice. Fortunately, (90%) of respondents checked their cattle monthly and only (5%) did not check their animals regularly. According to the present findings, it is clearly ;dairy cattle owners at Mossay district need immediate and intensive extension programs to help them improving herd management and adopting ideal husbandry practices.

Keywords: Management, Husbandry Practice, Constraints, Crossbreed, Dairy Cattle, South Darfur, Sudan.

INTRODUCTION

Milk plays a major contribution to human diet in many countries worldwide, and cattle are considered as the main producing source (Eltaher, 2010). However, milk not only meets 25% of a pastoral family's caloric requirements in South Darfur, but also has an important exchange value, (Kerven, 1986). According to (MARF, 2012), cattle population in Sudan estimated to be about 29, 84000 heads which produce more than (2,776,000) tons of milk. Generally, in Sudan milk production relay mostly on traditional sector which produces more than 80% of the raw milk, (Elzubier and Mahala, 2011). Moreover, the indigenous cattle breeds in Sudan particularly (Butana and Kenana) provide the majority of milk supply for domestic consumption beside their adaptability and the ability to withstand the inconvenient and adverse environmental conditions and resistance of endemic diseases. Those dairy breeds under improved management at the research stations can produce more than 1500 kg /lactation (El-Habeeb, 1991) and (Musa et al., 2005).

However, still the milk produced from the indigenous dairy breeds do not fill the gap of raw milk shortage, therefore, efforts have been directed towards increase production (genetic improvement) of indigenous dairy cattle through cross breeding. Nowadays, in South Darfur state (particularly Nyala City) it is a common practice using crosses of local breeds with exotic high milking breeds to meet the continuous milk demand of Nyala city which witnessed heavy migration last decade due to the conflicts and tribal wars. It's well known that these crosses produce and reproduce better than local types, (McDowell, 1985). Really, these dairy farms that concentrated in Mossay district (just 9 kilometer Southern-East to Nyala) have provided more than 90% of total milk demand of the area. Before establishment of these dairy farms; Nyala milk supply comes from the adjacent village herds (Bulbul and Kass, about 60 and 100 kg respectively, Western Nyala) which always associated with some shortcomings such as improper handling and risk of chemical preservatives added to the milk to avoid spoilage during the transportation. Unfortunately, the nutritional system, husbandry practices and the level of management in these dairy farms were not subjected to any sort of evaluation and investigation, therefore, the present study was prepared to study the management and husbandry practice adopted in attempt to suggest solutions to the constraints.

MATERIAL AND METHODS

The present study was conducted in Mossay district, which is located about (9 kilometers Southern-East to Nyala), in South Darfur state-Sudan. This area is a center gathering many dairy farms using high yielding crossbred dairy cattle. These dairy farms established 20 years ago and contributed effectively in supplying liquid milk demand of Nyala. To collect data concerning the management, husbandry practice and constraints; structured questionnaire was designed and direct interview with dairy farm owners was conducted. Then the collected data were grouped, coded and analyzed using frequencies and descriptive statistics utilizing SPSS (version.11.).

RESULTS AND DISCUSSION

The results showed that age of the majority of dairy farm owners in Mossay district ranges between 30-40 years (45%), then 41-56 years old (40%) and only one respondent was above 60 years old (5%) (Figure 1). Graduated persons among dairy farm owners in Mossay district represent the majority (35%) then those of higher secondary certificate (25%) and those only passing the intermediate school were (10%) where the rest of the producers were received Khalwa education (5%) or illiterate (5%) (Figure 2).

It was found that crossbred dairy farms in Mossay district was established in few last years; the results revealed that 55% of the producer established their farms in a period more than 10 years, while 40% of the respondent claimed that they started investment in milk production in a period ranging between (3-8 years), only 5% of the herd owners replied that they involved in milk production field recently (before 2 years ago) .It was observed that dairy farms area in Mossay district was limited and small compared to the herd size and future expansion. Only 10% of the dairy farms having more than 5 fedans, 30% possessing farm area between (2-4 fedans) and 5% of the dairy farm owners their farms were less than one fedan. The results revealed that dairy farms in Mossay district were constructed from different materials, but the majority of the dairy farms (55%) were built from constant materials (bricks, iron and cement) while (20%) were made of local materials and (5%) prepared from both constant and local materials. The main types of animal reared in crossbred dairy farms in Mossay district were cattle and goats (55%) beside, some types which illustrated in fig.3. The phenomena of raising goats beside dairy cattle could be attributed to the reason that goats need least level of management, low feeds cost, short life cycle as well having good demand and high marketing chances. They used goats return to meet the feeding cost of their dairy cows.

No doubt, recording system in dairy farms is considered one of the essential tools of effective management, unfortunately, only 50% of the dairy herd owners replied that they use records when some others (45%) did not keep records. Even those herders whose practice recording they did not register animal data in ideal records form, instead they use paper sheets which are not permanent and liable to loss and damage. It was observed in the dairy farms of Mossay district, a complete absence of animal data and information concerning farm financial analysis, nutritional status and health care. Definitely, these miss-managerial defects could affect the right decisions in the dairy farm. Financial records are useful in analyzing previous performance while keeping health records decrease health hazards and assist in control and treatment of infectious diseases, (Delorenzo and Thomas, 1996) and (Babiker, 2007).

The common source of drinking water in area of study was wells (60%), some had water pipes (25%) and the other producers obtained drinking water from both pipes and wells (10%) (Figure 4).

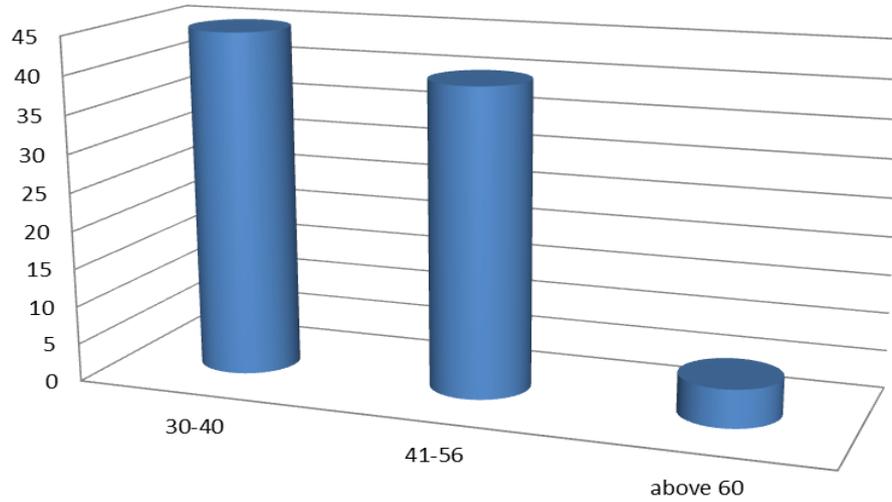


Figure 1. Ages of dairy farm owners in Mossay district

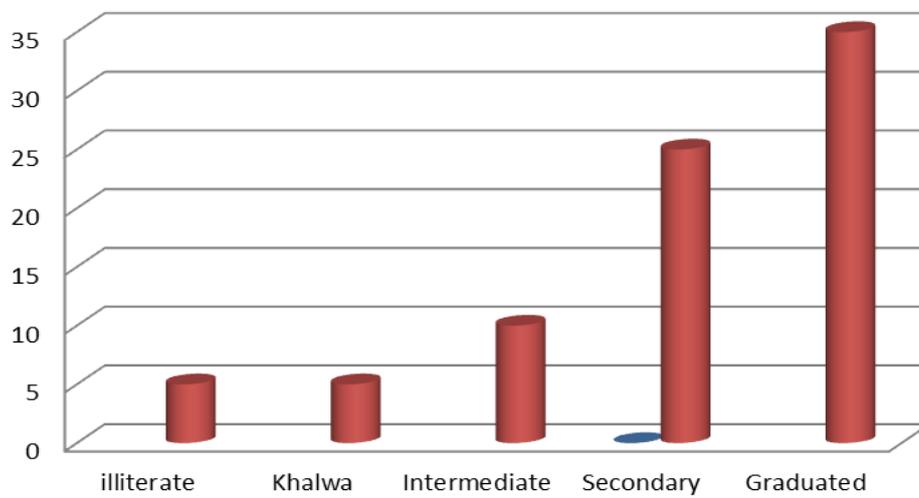


Figure 2. Educational level of responders

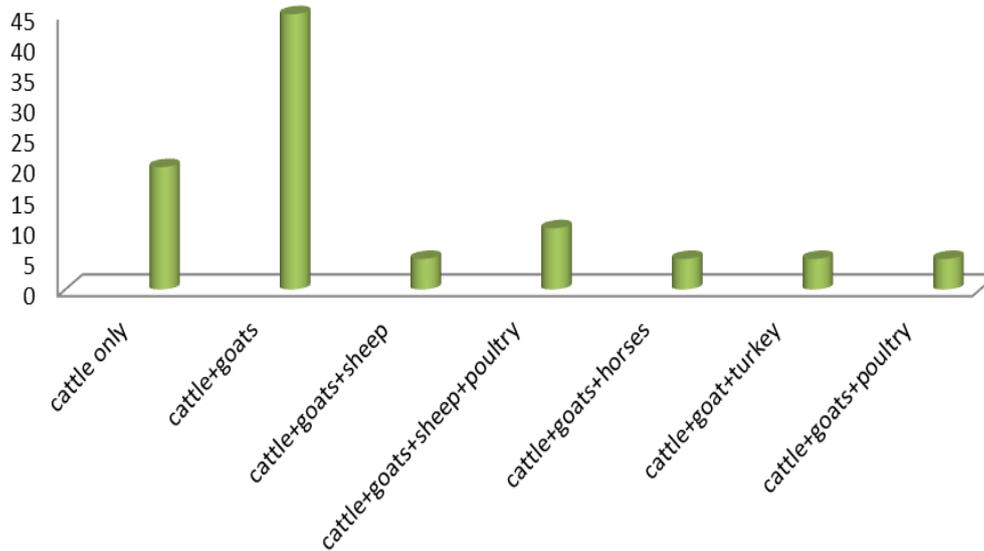


Figure 3. Types of animal kept beside cattle in Mossay area

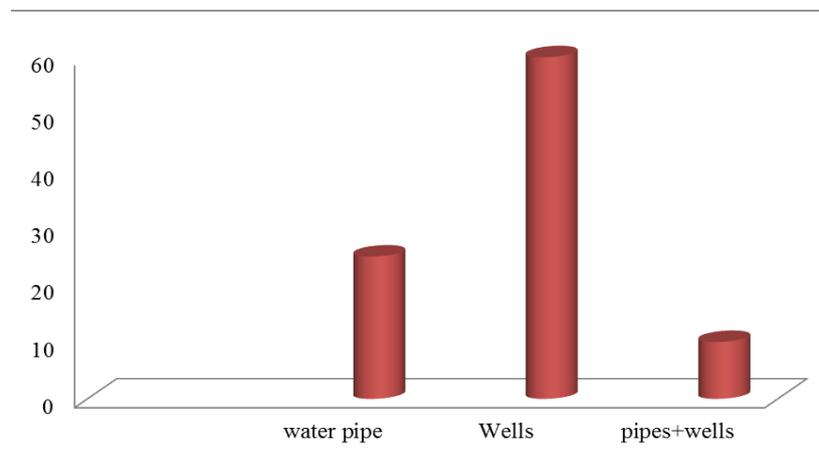


Figure 4. Water sources

All dairy herders kept their cows indoors (100%) and they do not allowed them to graze out sides. Most of the Dairy farm herders at Mossay district feed their cows individually (45%) whereas the others (35%) practiced group feeding. It was found that cows' owners offered concentrates, from various sources; 45% of them prepare the concentrates in the farm using the available raw materials, 30% of the respondents purchase the concentrates while 15% of the producers use both sources (farm prepared and commercial), the same practiced was observed by (Elniema et al., 2011) among herders keeping dairy herds in the pri-Urban regions of Khartoum North province and (Hanyani-Malmbo et al., 1998) in Zimbabwe. Although forages represent a big problem for the dairy cows' owners (for its scarcity and high price); only 45% of them grow forages while, 50% do not grow forages for their herds. Fig.5. shows the forages shortage periods, it was found that period between (April-June) represents the summit of forage shortage (45%), then the period between March-June (10%). Also, respondents were asked how they can overcome the period of forages scarcity, 50% of them answered they succeeded in controlling forage shortage by preserving fodder during abundance, whereas, 25% of them prepare and store feed stock and 15% purchase forage during the scarcity period. Fortunately, the majority of milk producer understood the importance of salt in the herds rations, therefore, it was noticed that they preparing their rations adding salts from different sources; 60% added salt in a form of (Sodium chloride + licking stone), 35% used (licking stone) and 5% added only (Sodium chloride). Moreover, all dairy farm owners milked their cows manually (100%) twice a day (100%). The constraints that facing the dairy herd owners in Mossay district and limit their activities found to be varied, while 20% of the respondents mentioned that prevalence of diseases was the major obstacle, 15% said that feeding cost was the production limiting factors, whereas, 10% claimed that (insecurity +water and power shortage) were the main constraints. Figure 6 demonstrates the major constraints facing dairy farm owners in Mossay district. Although the presence of these obstacles, big number (60%) of producers had high desire to continue investing in dairy production, some (15%) had a moderate desire however, a few (5%) had a weak desire and intending to change their activities.

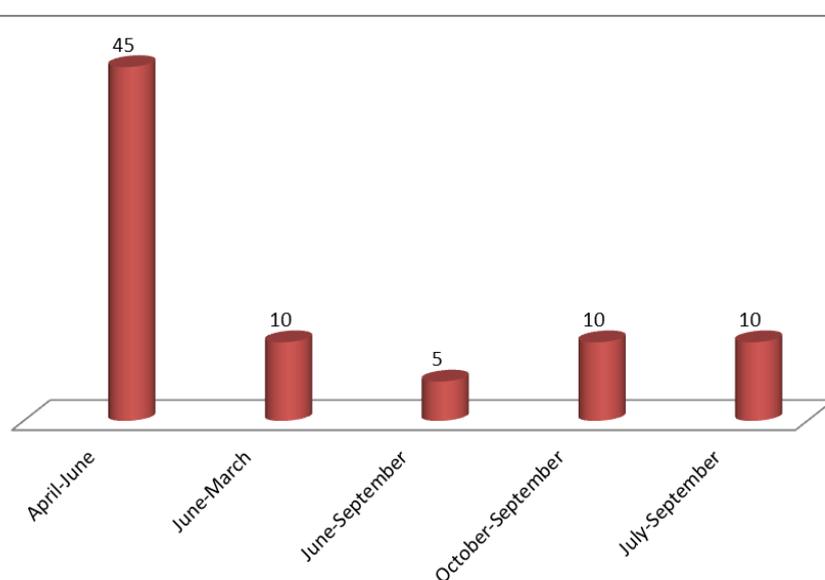


Figure 5. Forage shortage periods

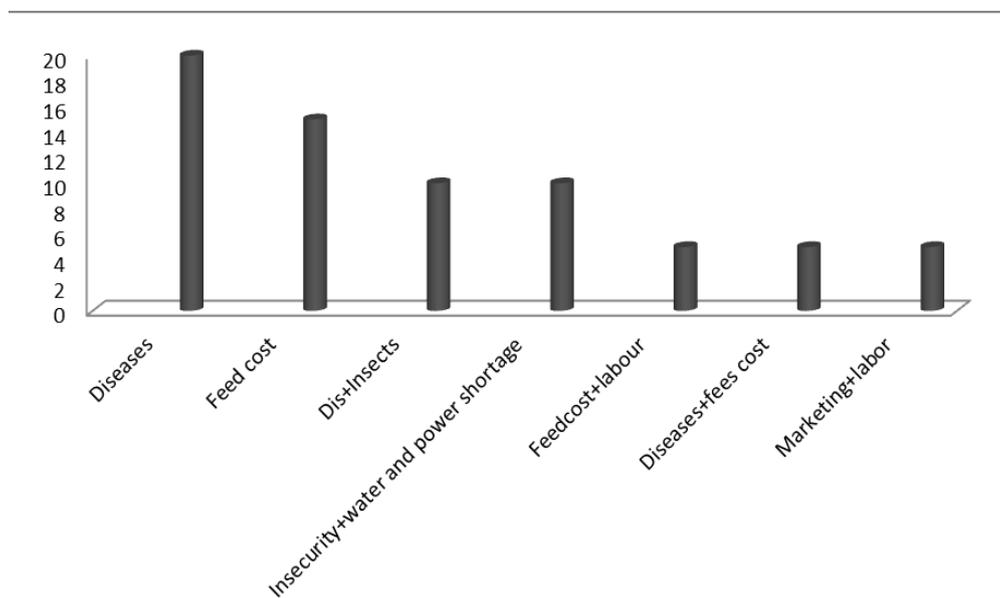


Figure 6. The major constraints of dairy farm owners in Mossay district

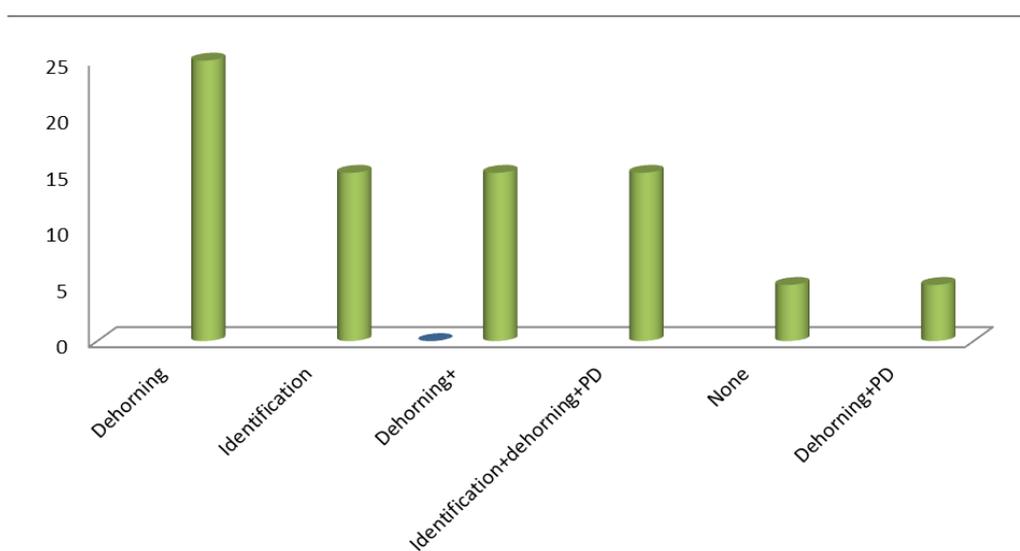


Fig 7. Husbandry practices

Husbandry practices are considering one of the important components of farm management but, the producers of Mossay dairy farms did not pay much care about the principles of husbandry practices. (25%) of dairy farm owners practiced dehorning, where, 15% used identification (ear tags), also, 15% of them practiced (dehorning + hooves care), on the other hand, 5% of the respondents replied they did not adopt any husbandry practice (Figure 7).

Fortunately, milk producers at Mossay district were very aware of periodic health check of animals; (90%) of them checked their cows monthly and only 5% did not check their animals regularly. This is considered a good practice, because, for maximum benefit of the dairy production healthy cows are required, (Payne and Wilson, 1999). It was clear that management level in crossbreed dairy farms in Mossay district was not proper; also, the husbandry practices were not ideal hence, intensive extension programs are needed to improve management standards, also, training and workshops are essential to enhance dairy farm owners' skills in husbandry practices.

REFERENCES

- Babiker IA (2007). A case study of dairy camps in Khartoum State, Management and health aspects. *Research Journal of Agriculture and Biological Sciences*, 3: 8-12.
- Delorenzo MA and Thomas CV (1996). Dairy records and models for economic and financial planning. *Journal*

- of Dairy Science, 79: 337-345.
- El-Habeeb E A (1991). Variation in reproductive and milk production traits in Butana and Kenana dairy cattle in the Sudan. M.V.Sc. Thesis, University of Khartoum-Sudan.
- Elniema OMA, Abdelhadi MB and Salih AM (2011). Husbandry management system and its effect on Improvement of Sudanese Indigenous Livestock types in the Pri-Urban Regions of Khartoum Province (KNP). *Global veterinaria*, 1:51-55.
- Eltahir HA (2010). The effect of feeding Cassava (*Manihot esculanta*) leaves on some productive traits of Sudanese Nubian goats. University of Nyala for applied Sciences, 1: 33-42.
- Elzubier EM and Mahala AG (2011). An overview of the management practices and constrains at the dairy camps in Khartoum State, Sudan. *Roavs*, 4:25-428.
- Hanyani-Malmbo BT, Sibanda S and Qstergaard V (1998). Socio-economic aspects of smallholder dairying in Zimbabwe. *Livestock Research for rural development*, 10 (2). <http://www.lrrd.org. lrrd10/2htm>.
- Kerven C (1986). Some research and development implications for pastoral dairy production in Africa. *ILCA Bulletin*, 26: 29–35.
- MARFR (2012). Ministry of Animal Resources, Fisheries and Rangeland. Statistical Bulletin for animal Resources, 21-22.
- McDowell RE (1985). Crossbreeding in tropical areas with emphasis on milk, health and fitness. *Journal of Dairy Science*, 68: 2418-2435.
- Musa LMA, Ahmed MKA, Peters KJ, Zumbach B and Gubartalla KAE (2005). The reproductive and milk performance merit of Butana cattle in Sudan. *Archives of Animal Breeding*, 48:445-459.
- Payne WJA and Wilson RT (1999). An introduction to animal husbandry in the tropics, 5. ed. Cambridge: Blackwell Science Ltd.