

ASSESSMENT OF DAIRY CATTLE MILK PRODUCTION IN KANO STATE, NIGERIA

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ABSTRACT

The study was conducted to assess the performance of dairy cows in 16 local government areas of Kano State, Nigeria. A total of 123 dairy cattle farmers were randomly selected and structured questionnaire were used to obtain information on dairy cows. Data collected were analyzed using Microsoft Excel application package. The results showed that 93.50% of cattle kept by the respondent were indigenous breeds while 6.5% were hybrid. The husbandry practices were 66 % semi- intensive, 27 % extensive and 7 % intensive system respectively. Data on milk production showed the average milk yield per day per cow was 3.14 ± 0.35 , 2.37 ± 0.33 , 3.63 ± 0.45 , 9.42 ± 0.93 , and 21.0 ± 1.42 liters for Bokolo, Bunaji, Bokolo×Bunaji, Friesian (Bun/Bok×Friesian) and Friesian pure respectively. The study indicated that, the performance of indigenous breed was low. There is need for improvement of nutrition of indigenous cattle for better milk production.

Keywords: Performance, Dairy, Cows, Milk, Production.

INTRODUCTION

Cattle production contributes to peoples livelihoods through provision of meat, milk, lather, farm energy, manure, transport, soil conservation and employment (Njombe et al., 2012). Milk production in Nigeria is dominated by cattle as virtually nothing in terms of milk comes from Nigerian goat and sheep. Three major production systems can be identified in the country; pastoral (traditional), semi-intensive and commercial (intensive) with pastoral and semi- intensive system producing the bulk of the milk consumed in the rural and urban areas of Nigeria (Saleh et al., 2016). The Nigerian dairy industry is largely subsistent producing an estimated milk of 450, 000 tons per annum (FAO, 2010). This production has been found to be inadequate to satisfy the dairy demands of Nigerian (FAO, 2010). The productivity of cattle in Nigeria is said to be poor due to a number of reasons which includes low genetic capacity of the indigenous cattle, feed shortage, disease prevalence, low level of management, poor breeding practice which might lead to long days open, late age at first calving, long calving interval, short lactation length and low milk yield. Local production of dairy supply in Nigeria is far below the annual demand which was estimated at 1.45 billion liters by 2010 (FAO, 2010) making milk consumption among Nigerians to be less than 10 liters per head, whereas the world standard was put at 40 liters per head (Staal et al., 2008). Therefore, the aim of this study was to assess the milk production as well as and management system of different cattle breeds among dairy cattle farmers in Kano state.

MATERIALS AND METHODS

The study was conducted in 16 local Government Areas of Kano state, Nigeria. Kano is situated between latitude $12^{\circ}00'N$ and longitude $8^{\circ}31'E$ at 460m above sea level with average rainfall of 980mm and total land area of $20,131\text{km}^2$ respectively (KNARDA, 2001). The climate is semi-arid characterized by a long dry season and a short wet season with a mean annual temperature of $26^{\circ}C$, relative humidity ranges from 80% in August to 23% between January and March. The area has two distinct seasons; a short raining season (May - October) and longer dry season (October - May). Crop and livestock production are the main occupation of people in the study area.

Data Collection and Analysis

A total of 123 dairy farmers, mostly pastorals and few commercials were randomly selected from 16 local government area of the state namely; Kumbotso, Dawakin Kudu, Kura, Garun Malam, Madobi, Gwarzo, Kiru, Karaye, Dawakin-Tofa, Tarauni, Wudil, Sumaila, Ajingi, Ungogo, Minjibir and Tudin Wada. A structured questionnaire were used for data collection which lasted for 4 months (October 2019 and January 2020). The questionnaire captured information on Milk production and management of dairy cattle in the study area. The collected data were analyzed using Microsoft Excel application package.

Table 1: Dairy Cattle of Respondents by the Breed

Breed	Percentage(%)
Bunaji	48.8
Bokolo	32.5
Bokolo×Bunaji	12.2
Friesian(Bun/Bok×Friesian)	4.9
Friesian Pure	1.6

Table 2: Management Practices Employed by the Respondents.

Prod. System	Breed					Percentage (%)
	Bokolo	Bunaji	Bokolo×Bunaji	Friesian(Bun/Bok×Friesian)	Friesian Pure	
Intensive	0	0	0	6	2	7
Semi-Intensive	36	31	15	0	0	66
Extensive	4	29	0	0	0	27

Bun=Bunaji, Bok=Bokolo.

Table 3: Milk Yield(mean±SE) of Dairy Breeds and their Crosses.

Breed	Parameters				
	Milk Yield	Minimum	Maximum	Sd	CV(%)
Bokolo	3.14±0.35	2.00	7.00	0.96	31
Bunaji	2.37±0.33	1.50	4.00	0.72	30
Bokolo×Bunaji	3.63±0.45	2.00	5.50	1.34	36
Friesian(Bun/Bok×Friesian)	9.42±0.93	7.00	12.50	2.28	24
Friesian Pure	21.00±1.42	19.00	23.00	2.00	10

Bun=Bunaji, Bok=Bokolo, Sd=standard deviation, CV=Coefficient of Variation.

RESULTS AND DISCUSSION

The result in Table 1 shows the cattle population in the study. About 93.50% of the cattle population which comprises of Bunaji (48.80%), Bokolo (32.50%) and BokoloXBunaji (12.20%) were indigenous breed while 6.50%; Bunaji/BokoloXFriesian (4.90%) and Friesian pure (1.60%) were hybrid. This means majority of the respondents utilize indigenous cattle more than the hybrid which may be due to better adaptability of indigenous cattle in their natural ecological environment. This finding agree with Shittu et al. (2008) who reported that indigenous breed (Sokoto Gudali and white Fulani) constitute about 87% of the total dairy cattle population in their studies. Ehoche et al. (1999) stated that majority of cattle in dairy farms in the developing countries such as Nigeria are improved dairy cattle.

The husbandry practice (Table 2) employed among the farms surveyed was 66% semi- intensive, 27% extensive and 7% intensive. The largest percentage of 66% accounted by semi-intensive system will be explained by the expensive nature of the intensive type of management practice. This finding is in line with the observation made by Diop and Mazouz (1995) that semi-intensive system is the most common practice in the peri- urban zones.

Table 3: compares the production performance of cattle breed in the study. The result revealed that, the average milk yield(ltr)/cow/day of Bokolo, White Bunaji, BokoloXBunaji, Bunaji/BokoloXFriesian and Friesian breeds were 3.14, 2.27, 3.63 , 9.42 and 21.00 respectively. This

result showed that one Friesian crossbreed dairy cow produces as much milk as three indigenous breeds. Similarly, one Friesian pure dairy cow produces as much milk as six indigenous breeds. This agrees with the findings of Saleh et al.(2016) who found that one Friesian dairy cow produces as much milk as one and half FriesianXBunaji or three and half Bunaji breeds. According to the authors there was a significant difference ($F= 11.75, P \leq 0.05$) between the quantities of milk yield for indigenous and exotic breeds in northern Nigeria. Also on-station experiment conducted by National Animal Production Research Institute, Zaria gave a consistent average of 1.70ltrs for Bunaji breed, 27ltrs for crossbreed and 35ltrs for Friesian dairy cattle (Ehoche, et al., 1999). The lower quantity of milk yield for indigenous cattle may be attributed to inadequate feed and to some extent genetic composition and management practices by dairy cattle farmers. The coefficient of variation (CV) varies from 10-36% for all the five breeds which was similar to less than 50% reported by Saleh et al.(2016) reflecting stability in the quantities of milk yields of the breeds in the study.

CONCLUSION AND RECOMMENDATION

Dairy cattle farmers in the study area mostly kept indigenous breed of cattle under semi – intensive and extensive system of management. Indigenous cattle breeds produce less quantities of milk than exotic breeds of dairy cattle. To enhance the productivity of indigenous breeds, there is need to improve the nutrition of indigenous dairy cattle.

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