

CALVING PATTERNS OF N'DAMA COWS IN ONDO STATE, NIGERIA

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ABSTRACT

The calving patterns, calving and post-partum anoestrus intervals, calving percentages and calf mortality of N'Dama cows in a cattle herd belonging to the Federal College of Agriculture, Akure were examined for the 1991 - 1995 calving periods. A total of 128 cows were involved. Calving patterns were irregular from year to year and calving percentage varied from 45 to 65% with a mean of 54.69% while calf mortality was between 6.25 and 11.11% during the period. Calving intervals were 786 ± 44.99 and 712 ± 14.70 days (1993 and 1995). Values for days open were 506 ± 44.99 and 432 ± 14.70 days (1993 and 1995) for the same years. The results of the study are suggestive of inefficient reproduction within the herd.

Key words: Calving, calving patterns, post-partum anoestrus, calf mortality, N'Dama Cows.

INTRODUCTION

In cow/calf herds in which reproduction is efficient, a cow is expected to drop a calf every year (365 days) and the annual calf crop or calving percentage would be between 90 and 95% (Wiltbank, 1970). Under this situation, every aspect of management is controlled. For example, optimum nutrition at the critical periods is ensured, females are joined with proven bulls within a given period, proper attention is paid to cows at calving and calves are weaned at properly defined weaning time to allow all cows come back on heat for breeding during breeding seasons.

Under the traditional system in Nigeria, however, apart from attaining maturity at a late age, many cows calve in alternate years (Osori, 1976), cows are grazed on unimproved pastures and run with the bull all year round with little or no supplementary feeding.

The main determinant of calving interval is the

period from calving to another successful conception (Peters, 1984). Extended post-partum anoestrus is a major obstacle to efficient zebu cattle reproduction (Wells *et al.*, 1986). It was also reported (Gyawu, 1988) that only 50% of N'Dama cows kept under village conditions were cycling 9 months after calving in Gambia. The duration of post-partum anoestrus is a function of nutrition, age of cows, season of the year, parity, lactation, suckling and management (Lamming *et al.*, 1981). This author further suggested that a better understanding of the reproductive patterns of N'Dama cattle will assist in formulating management schedules that will reduce their long calving intervals. The present investigation is designed to examine the calving patterns, percent cows calving, calving interval intervals, post-partum anoestrus interval (PPAI) and calf mortality in a herd of N'dama cows at the Federal College of Agriculture, Akure.

MATERIALS AND METHODS

Location

The study was carried out at the Livestock farm of Federal College of Agriculture, Akure, Ondo, State. Akure is situated between latitude 6°E and 8°N and between longitude 4°E and 6°E and is located in the centre part of Ondo State. The state is characterised by long wet season (March-October) and short dry season (November-February). The average rainfall is over 2000 cm/annum.

Animals, their management and feeding

The College herd of N'Dama cattle was used for the study. The herd was a mixed type with both the males and females, young and old animals in the herd grazing together. The females from which the data were collected included first calf heifers and cows aged $2\frac{1}{2}$ - 7 years. There was a total of 128 females of reproductive age within the herd during the period of study. All animals were identified with both plastic and metal tags.

The animal were usually kept together in a cattle holding pen at night and grazed between 0700 hr and 1500 hr on pastures located at various places on the College farm. The pastures were a mixture of *Panicum maximum*, *Cynodon plectostachys*, *Centrosema pubescence* and *Gliricidia species*. These forages were in paddocks where the animals grazed extensively during the rainy and dry seasons and supplementary feeds were given to the animals. The source of drinking water was the stream on which the College dam was built. Occasionally, however, water from the dam was served to the animals in water troughs in the holding pen.

Cows were calving at any time of the year in the paddocks or in the holding pens. Calves were suckled by their dams to weaning and received no supplementary feeding during the rearing period

were observed in October and the least in December. In 1993, calving began in April with a break in July and August. More calvings occurred in September and October of that year. Calvings started in April in 1994 and ended in November with a total of 11 calves recorded for that year. The first calving was recorded in May for 1995 calving year with a break in July. The least number of calves) was born in September of that year.

The calving percentages were 53.3, 55.2, 45.0, 55.0 and 54.69% for 1991, 1992, 1993, 1994 and 1995 respectively (Fig. 2). Calving intervals were 786 ± 44.99 days for 1993 and 712 ± 14.70 days for 1995. The mean post-partum anoestrus intervals were 506 ± 44.99 and 432 ± 14.70 days for 1993 and 1995 respectively.

Calf mortalities were 6.2% (1991), 9.52%

TABLE 1: CALVING PERCENTAGE, CALVING INTERVAL POST-PARTUM ANOESTRUS INTERVAL (PPAI) AND CALF MORTALITY DURING 1990-1995 CALVING PERIOD

Year	Cows (n)	Calvings	Calving Percentage (%)	Calving Interval (d)	PPAI (d)	Calf Mortality (%)
1991	30	16	53.3	-	-	6.25
1992	38	21	55.2	-	-	9.52
1993	20	9	45.0	786 ± 44.99	506 ± 44.99	11.11
1994	20	11	55.0	-	-	-
1995	20	13	54.69	712 ± 14.70	432 ± 14.70	-

which usually lasted for as long as the dams were receptive to the calves.

Data Collection and analysis

All calving dates were recorded for each cow and these were used to generate the data on percent cows calving, calving interval, post-partum anoestrus interval and gestation length.

RESULTS

Total of 70 calves (Table 1) were born during the 1991 - 1995 observation period and the pattern is illustrated in Figs 1 & 2. In 1992, calving started in February and ended in August. The highest number of calves (3) was recorded in March, April and July while the least was observed in June. Calving began in April in 1992 followed by a break of 3 months (May, June and July). Further calvings were recorded between August and December. The highest number of calves

(1992), 11.11% (1993) with no mortalities observed in 1994 and 1995.

DISCUSSION

The calving patterns during the years (1991 - 1995) under study indicate that the cows in the herd were not calving regularly. For instance, while calves in the herd were dropped between February and August 1991, calving began in April 1992 with a break of three months (May, June and July) followed by further calving in August to December with the greatest number of calves in September and October.

The 1994 and 1995 calving did not have patterns similar to previous years and even to one another. The relatively low calving percentage (45 - 55.2%) observed in this study is much lower than the 90 - 95% suggested as the ideal by Wiltbank (1971) for well managed cow herds in the United States.

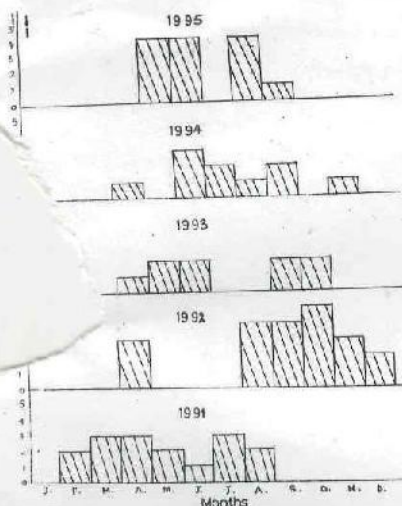


Fig. 1. Five year calving pattern of N'dama cows at the Federal College of Agriculture, Akure

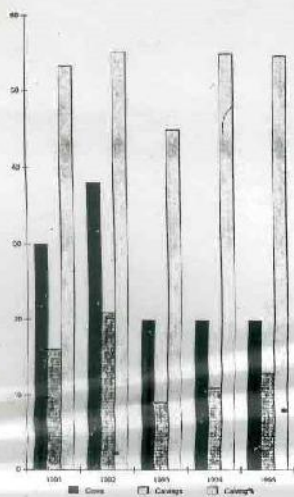


Fig 2. Reproductive performance of 1991 - 1995 calving period

The observed long calving intervals of 786 ± 44.99 days for 1993 and 712 ± 14.70 for 1995 and very long post-partum anoestrus interval (PPAI) which were 506 ± 44.99 days and 432 ± 14.70 days for 1993 and 1995 respectively, support the irregular calving pattern. These values are a little higher than the 18 months or more reported for Zebu cattle by previous workers (Wilson, 1985; Mukasa-Mugerwa *et al.*, 1989 and Tekelye Bekele *et al.*, 1991). The values are also higher than the calving interval of less than 18 months (Swensson *et al.*, 1989) Butterworth and McNitt,

1984; Haule-Mariam, 1987 and Ward *et al.*, 1989) which was however associated with improved management and proper stocking. Oyedipe *et al.*, (1982) and Hansel and Alila (1984) stated that the resumption of ovarian cyclicity in post-partum cows is influenced by several genetic and environmental factors and Wettamann *et al.*, (1982) added that these alter gonadotrophin synthesis and/or release. That the calves under this study were suckled for as long as the cows were receptive could mean that the hormonal systems of the cows were influenced by suckling impulse as has been shown by Wiltbank (1970) and Randel (1984). The non-supplementation of the pasture grazed by the animals even during the dry season could also have influenced the long PPAI.

The values reported for calf mortality were within normal range for cow/calf herds elsewhere (Brinks, 1977). The mortalities were due to a variety of reasons which included still-births, perinatal death (i.e. less than five days post-partum) and the refusal of dam to suckle the calf. Results of the present study indicate low level of reproductive efficiency of N'Dama herd under study. The reasons for the low reproductive efficiency are not quite clear but might be due largely to the management system. Studies are in progress to further elucidate in totality the factors that are likely influencing the efficiency of reproduction in these cows.

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