

Time budget on major activities of livestock grazing heterogeneous natural range and crop fields in semi-arid Nigeria

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Introduction Semi-arid rangelands of West Africa provide herbs, trees and shrubs, which together with crop residues form the main sources of feed for the livestock population. Feed supply in this region is characterised by a progressive decline in quantity and quality with advancing dry season. It was reported that walking ability as well as watering frequencies affect the productivity of grazing livestock (Dicko and Sangare, 1984). This study tests the hypothesis that advancing season increases both time spent walking as well as feeding, with a switch from grazing to browsing.

Materials and methods The study was conducted in the 235,500ha Zamfara reserve, northwestern Nigeria. The reserve falls within the Sudan-savannah zone (12° 10' – 13° 05'N; 6° 30' – 7° 15'E). Annual rainfall ranges from 500 mm in the north of the reserve to 800mm in the southern part, with an interannual variation of 22 – 32%. The rainy season is restricted to the months of May to September. Thirty-six indigenous ruminants (12 bulls, 12 rams and 12 bucks) were used in the study, which lasted from July 2002 to June 2003. The study period was divided into ten five-week periods. During each period, three bulls, three rams and three bucks were randomly selected and their grazing behaviour was observed and recorded after every five minutes for ten hours (from 08.00 to 18.00 hours) for two consecutive days. The experiment was designed as complete randomized block design, analysis of frequencies was performed on the data using SPSS 11.5 version.

Results Over the year, grazing and browsing constituted the major activities of all the livestock species, with a peak in May, June and July (Figure 1). Peak period of browsing was in May for all the species, indicating deterioration of the herbaceous layer. Time spent on grazing and browsing was higher compared to other activities. Time spent on grazing was higher ($P < 0.05$) for cattle (45%) compared to sheep and goats (39 and 36%). The reverse was observed for browsing. For the three species, time spent on grazing was higher ($P < 0.05$) during the rainy season compared to the dry season. Time spent walking and resting did not differ ($P > 0.05$) between the species and the periods.

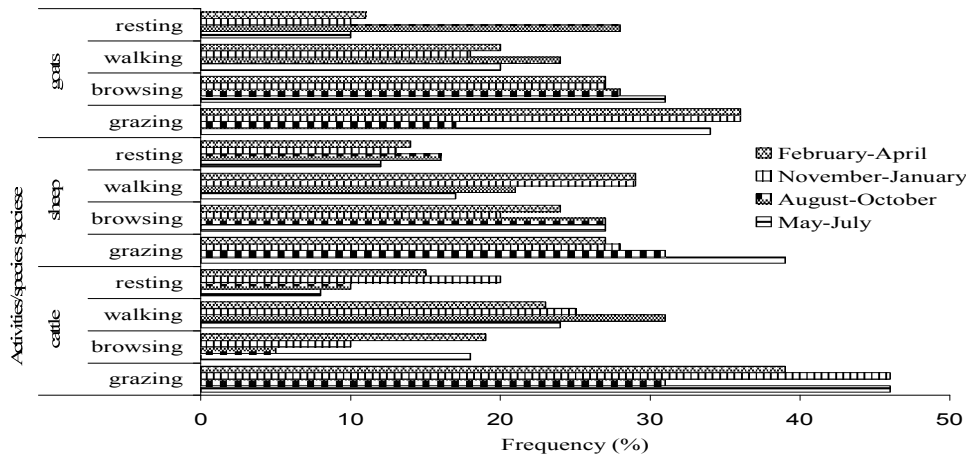


Figure 1 Mean time allocated to main activities by cattle, sheep and goats grazing heterogeneous semi-arid range and crop fields

Conclusion The increase in browsing activity during the dry season confirms the hypothesis that decline in feed quality and quantity increases the feeding time, with a switch from grazing to browsing. However, walking and resting periods were not affected by the seasonal availability of feed.

Reference

Dicko, M.S. and M. Sangare (1984) Feeding behaviour of domestic ruminants in sahelian zone. *Proceeding of the 2nd International Congress*, Adelaide, 388- 390.