

Grazing behaviour and selection of browse species by cattle, sheep and goats on natural pasture in the Sahelian zone of Burkina Faso

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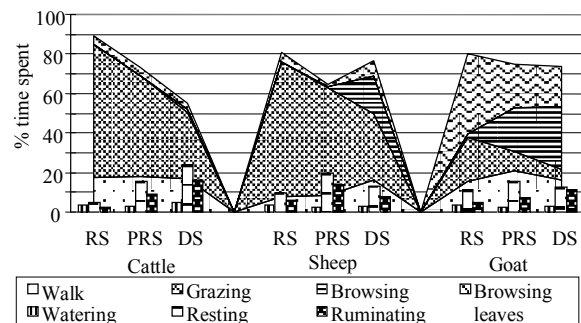
Introduction Pastures in semi-arid countries, are subject to seasonal variability. Browse species that are less dependent on rainfall, are highly valued. Goats are browsers, while cattle and sheep are grazers. However, faced with a scarcity of feed resources, especially in the late dry season, all animal species fall back on browse species. The objective of this study was to estimate feeding behaviour and browse species utilisation by cattle, sheep and goats on natural pasture in different seasons, and concurrently appreciate the indigenous knowledge on browse species in the study area.

Materials and methods The study was undertaken in the Sahelian zone of Burkina Faso. A herd of cattle (22), a flock of sheep (25) and one of goats (34) were followed during three consecutive days each month from June 2003 to April 2004: Rainy season - RS (June to Sept.), post rainy season – PRS (Oct. to Dec.) and dry season – DS (Jan. to April). Two mature females of each animal species were randomly selected each day and their activities recorded every 15 minutes. While browsing, the species and plant parts eaten were identified. The woody flora inventory was made in the same area to determine the contribution of different species to the available browse. Four types of pasture were identified and three random locations with a surface area of 1 ha were selected to count individual trees and shrubs in each type.. Concurrently a formal survey was conducted with farmers exploiting these pastures to investigate indigenous knowledge on browse species. The species names were given in Fulani and the corresponding scientific name was identified using a flora.

Results Overall, 42 species of 17 families and 28 genera were found on the rangeland. Woody plants density, flora diversity and contribution of browse species are given in Table 1. The activities of cattle, sheep and goats (mean animal per day and per season) on pasture in different seasons are shown in Figure 1. The feeding activities declined for all animal species from the rainy to the dry season, while resting and ruminating activities were increasing. This decline was more important with cattle that relied on herbage for feeding. They browsed (leaves and litter) about 4,5% of time spent on pasture during the study period. Sheep made a shift in their feeding activities from grazing to browsing in the dry season (27%). Browsing was the main activity of goats in all seasons (52% of the time). Cattle browsed on 10 species with *Guiera senegalensis* frequently selected. *Combretum micranthum*, *G.senegalensis* and *Balanites aegyptiaca* were the most important among the 18 browse species selected by sheep. Goats avoided only 12 species in the range. *Acacia senegal*, *Balanites aegyptiaca* and *Pterocarpus lucens* were the most preferred.

Table 1 Plants density, flora diversity and contribution of browse species on pastures

Pasture Type	Plants density /ha	No. of species	Browse Sp (%) contribution
Shrubby Steppe	222 ± 67	15	96.0
Sparse Woody Steppe	517 ± 186	27	87.3
Hollow Formation	1051 ± 66	35	83.0
Tiger bush	1590 ± 283	25	86.3



RS: rainy season, PRS: post rainy season, DS: dry season

Figure 1 Grazing behaviour of cattle, sheep and goats

The farmers identified a total of 56 browse species during the survey. Compared to the results of the flora inventory, 11 species were cited but not found during the inventory, while 5 species not cited by farmers were found.

Conclusions Farmers had good knowledge of the browse species present in the area and their classification depended on the availability of the species, their nutritive value and also on other uses. Most of the woody plants in the study area were browse species and played an important role in animal feeding, especially in the dry season. Cattle and sheep grazing in the same area in the rainy season could have great pressure on herbaceous cover that could result in degradation of this resource; while cattle and goats grazing could be advantageous.