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“Development on the margin”

## The Seasonal Contribution of Trees and Shrubs to Cattle, Sheep and Goat for Different Climatic Zones in Burkina Faso, West Africa

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### Abstract

Across the West African Sudano-Sahelian zone, woody plants are frequently browsed by domestic ruminants. Most tree and shrub species maintain green leaves and a high nutritional value throughout the dry season, when grasses deteriorate both in quality and quantity. However, anthropogenic pressure and climate change affect the survival and regeneration of trees and shrubs. This study determined the seasonal preference of cattle, sheep and goats for different woody species across three agro-ecological zones of Burkina Faso, and the ethno-veterinary uses of these plants by livestock keepers. From February 2009 to August 2010, selection behaviour along daily grazing itineraries was determined by regular manual observation and GPS-tracking of one cattle and one small ruminant herd each in four different villages. Uses of ligneous plants for livestock feeding and disease treatments were assessed by structured interviews with 75 livestock keepers. Selection of a total of 75 woody species from 24 botanical families was recorded across the four study locations. Preference varied between livestock species, season and location. Cattle strongly preferred *Azelia africana*, *Pterocarpus erinaceus*, *Piliostigma thoningui*, *P. reticulatum* and *Dichrostachy cinera*, while sheep and goats primarily fed on *Balanites aegyptiaca*, *Ziziphus mauritiana*, *Acacia seyal*, *A. dudgeoni*, *A. gourmaensis*, *Piliostigma thoningui* and *P. reticulatum*. Across the yearly cycle, browsing time ranged from 19.9 to 36.9 % of daily eating time in goats, 3.5 to 19.2 % in sheep and 0.5 to 15.1 % in cattle, with insignificant differences between agro-ecological zones. About 70.7 % of interviewed livestock keepers relied on ethno-veterinary practices for treatment of sick animals, and more than 36 woody species were mentioned to be used in counteracting the 13 most frequent diseases of cattle and small ruminants. Leaves, bark, and flowers, respectively, of (I) *Vitellaria paradoxa*, (II) *Khaya senegalensis* and (III) *Balanites aegyptiaca* were used against snake bites as well as diarrhea (I), trypanosomiasis (II), and retention of placenta (III). Given the important roles of woody species for livestock feeding and health care, forecasts on how climate change might affect their occurrence and abundance are needed so as to allow livestock keepers develop adaptive strategies in anticipation.

**Keywords:** Browse, ethno-veterinary use, forage selection, grazing time