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"Solidarity in a competing world — fair use of resources"

How Do Local Agro-Pastoralists Judge their Forage Resources?: Using Quantitative Ethnoecological Approach in West Africa

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Abstract

A profound local ecological knowledge (LEK) of natural resources is a prerequisite for a sustainable land management among local farmers in subtropical savannahs, where unpredictable precipitation regimes may negatively influence the quality and quantity of forage resources for livestock production. Notwithstanding, little is still known about LEK of forage resources in the study area. This paper therefore presents quantitative ethnoecological evidence on how local agro-pastoralists judge their forage resources for different livestock types and seasonal regimes in the face of climate change and variability. Using a stratified random sampling, we performed 526 ethnobotanical interviews across three dominant ethnic groups and a steep climatic gradient in Ghana and Burkina Faso. We specifically asked informants to separately list five most important forage resources for dry and wet seasons, and different livestock types (cattle, goats and sheep). Weighted ranks of forage resources were calculated via cognitive salience indices (CSI) using ANTHROPAC 1.0. Our findings revealed that ca. 72.62 % of local agro-pastoralists regarded herbaceous forage plants to be very palatable for livestock consumption in rainy season, but became less relevant (ca. 10.27 %) in dry season, representing a decline of ca. 62.35 %. In contrast, woody vegetation and crop-related forage plants were rather perceived to be more important to domestic livestock in the dry season than in the rainy season. In terms of livestock-specific preferences, herbaceous forage plants were most important to cattle (ca. 45.63 %), while crop-related forage plants were highly ranked for goats (ca. 43.35 %) and sheep (ca. 48.67 %) as compared to other forage plants, irrespective of seasonal type. For instance, *Pennisetum pedicellatum* Trin was adjudged the most salient forage species for cattle and during rainy season, and *Arachis hypogaea* L. was recorded as the most salient species for goats and sheep and in dry season. This study thus throws more light on how local land-users perceive and utilise their forage resources in both periods of abundance and scarcity, and the need for integrated feeding mechanism for sustainable subsistence agriculture and rural livelihood security.

Keywords: Agro-pastoralists, ethnoecological approach, forage resources, local ecological knowledge, West Africa

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