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“Solidarity in a competing world —  
fair use of resources”

## Contribution of Local Tree Fodder Resources in Smallholder Mixed Production Systems of Central Kenya

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### Abstract

Locally available tree fodder resources are seldom considered in livestock feeding strategies in spite of their nutritional potential to supplement grass forages. Knowledge gaps on species utilisation and availability may be responsible for this situation. This study sought to characterise tree fodder species in humid and drier parts of central Kenya to assess available diversity that can be used to supplement present livestock feeding options consisting mainly of nappier grass and crop residues characterised by severe shortages during dry seasons. A survey of 117 farms randomly drawn from humid (Githunguri and Lari) and sub-humid (Kayatta) area was conducted. All the farms surveyed contained 60 fodder tree species, belonging to 27 botanical families - 39 of these species were of indigenous origin. Individually, farms had high indigenous species richness (65%) but of low individual trees (12%). Species richness was significantly higher in the sub-humid area of Kayatta (43 species) compared to humid areas of Lari (27) and Githunguri (25). Exotics such as *Grevillea robusta* and *Persea americana* and indigenous species such as *Acacia tortilis* and *Commiphora eminii* were most frequent across all farms surveyed. Some 46 species were valued during dry season and 15 others are used throughout the year. Indigenous and exotic tree species richness and abundance were positively correlated to farm size, but negatively related to the number of dairy cows per farm. Other results confirmed that the main feed resource used by farmers consists of nappier grass, crop residues, banana stover, dairy meal and hay. Implication of fewer indigenous fodder tree species present in the humid area to support livestock production compared to the more open grazing system of Kayatta are not clear even though it suggests a possible loss of local knowledge on valuable tree fodder resources. Nonetheless, findings show that tree fodder options are available to diversify current feeding options based mainly on grass and crop residues.

**Keywords:** Abundance, economic value, diversity, species richness, tree fodder