

**FARMER PERCEIVED SOIL FERTILITY IMPROVING TREE  
SPECIES, THEIR LITTER AND UNDER-CANOPY-SOIL  
CHARACTERISTICS IN LIVESTOCK FARMS IN BUSHENYI  
DISTRICT, UGANDA**

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## ABSTRACT

In many Sub-Saharan Africa countries, including Uganda there is declining soil fertility and limited on-farm use of inorganic fertilizers due to poverty and limited subsidies. Thus, integration of soil fertility improving tree species (SFITs) in farming systems remains a plausible option to sustaining soil productivity. However, knowledge of the effects of many of the locally growing-farmer perceived soil fertility enhancing tree species on soil chemical and nutrient contents are still lacking. This has constrained decisions on their adoption and up scaling. The objectives of this study were to: identify farmers' preferred soil fertility improving tree species in agro-pastoral communities of Kyeizooba sub-county in Bushenyi district and characterise their litter content and assess their effect on selected soil chemical properties. Semi structured questionnaires were administered to 333 randomly selected agro-pastoral farmers. Litter and soils under canopy were sampled from three different environments: -Under canopy radius (A)- Canopy edge (B)- Open pasture land up to thrice the canopy radius (C). Results revealed *Eucalyptus* as the most common tree species on livestock farms, followed by *Erythrina abyssinica*. The highest litter content was recorded for *Markhamia lutea* (240 g/cm<sup>2</sup> under its canopy) followed by *Croton macrostachyus* (90g/cm<sup>2</sup>) and 19 g/cm<sup>2</sup> *Erythrina abyssinica*. Nitrogen was higher ( $p = 0.02$ ) in *Erythrina abyssinica* litter, K and Carbon in *Croton macrostachyus* litter ( $p = 0.03$ ). These results give evidence that soil improvers *Erythrina abyssinica*, *Croton macrostachyus* and *Markhamia lutea* may positively affect soil fertility. Farmers' indigenous knowledge and or valuation of important tree species can be relied on and there is need to improve their indigenous knowledge in tree species identification for promotion in farming systems.

Key words; Farmers, Leaf litter, Livestock farms, Soil fertility, Soil improvers, Tree species, Uganda