

The canopy effects of *prosopis juliflora* (dc.) and *acacia tortilis* (hayne) trees on herbaceous plants species and soil physico-chemical properties in Njemps flats, Kenya

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Abstract

The canopy effects of an exotic and indigenous tree species on soil properties and under storey herbaceous plant species were investigated on the Njemps Flats, Baringo district, Kenya. Samples of soil and herbaceous plant species were obtained within the canopies of systematically selected *P. juliflora* (exotic) and *A. tortilis* (indigenous) trees, and from adjacent open areas. Standing biomass, frequency and cover of under storey plant species were significantly ($P < 0.05$) higher in the open area than under the canopies. Cover for herbaceous plant species was 63% under *P. juliflora*, 82% under *A. tortilis* and 90% in open areas. All forbs occurred under the canopies indicating that they are more adapted to the shaded microenvironments than grasses. Soils under the tree canopies had significantly ($P < 0.05$) higher organic carbon and total nitrogen than those in adjacent open areas. Soils under *A. tortilis* had significantly ($P < 0.05$) higher organic carbon and total nitrogen than soils from under *P. juliflora*. The results suggested that *A. tortilis* trees are more beneficial to soil physical and chemical properties than *P. juliflora*. Accordingly, the common practice of clearing woody trees indiscriminately to improve grassland for livestock production or for crop cultivation should not be recommended.