

## Impact of Land Ownership on Rangeland Condition in the Gauteng Province, South Africa

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**Abstract :** Rangelands are major feed resource for livestock farming in South Africa, despite being subjected to different forms of degradation. These forms of degradation are as a result of inappropriate veld and livestock management practices such as excessive stocking rates. While information on judicious veld management is available, adoption of appropriate practices is still unsatisfactory and seems to depend partly on the type of land ownership of farmers. The objectives of this study were to; (I) compare rangeland condition (species richness, basal cover, veld condition score, and herbaceous biomass) among three land ownership types (leased land, communal land and private land), and (II) determine the relationships between veld condition score (%) and herbaceous biomass (kg DM/ha) production. Vegetation was assessed at fifty farms under different land use types using nearest plant technique. Grass species composition and forage value were estimated using PROC FREQ procedure of SAS 9.3. A one-way ANOVA was used to determine significant differences ( $P < 0.05$ ) in species richness, basal cover, veld condition (%) large stock units, grazing capacity and herbaceous biomass production among the three grazing systems. A total of 28 grass species were identified, of which 95% and 5% were perennials and annuals, respectively. The most commonly distributed and highly palatable grass species, *Digitaria eriantha* had significantly higher frequency under private owned lands (32.3 %) compared to communal owned lands (12.3%). There were no significant difference on grass species richness and basal cover among land ownership types ( $P > 0.05$ ). There were significant differences on veld condition score and biomass production ( $P < 0.05$ ). Private lands had significantly higher (69.63%) veld condition score than leased (56.07%) and communal lands (52.55%). Biomass production was significantly higher ( $\pm$  S.E.)  $2990.30 \pm 214$  kg DM/ha on private owned lands, compared to leased lands  $2069.85 \pm 196$  kg DM/ha and communal lands  $1331.04 \pm 102$  kg DM/ha. Biomass production was positively correlated with rangeland condition ( $r = 0.895$ ;  $P < 0.005$ ). These results suggest that rangeland conditions on communal and leased lands are in poor condition than those on private lands. More research efforts are needed to improve management of rangelands in communal and leased land in Gauteng province.

**Keywords :** grazing, herbaceous biomass, management practices, species richness

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