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Cymbopogon nardus , a grass weed in the rangelands of Uganda : impact on plant species biodiversity and livestock performance

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Key words : Cymbopogon , biodiversity , plant species , livestock

Introduction *Cymbopogon nardus* is a dreaded and undesirable (Marshall et al . 1969) noxious grass of south-western Uganda rangelands . The species has replaced the indigenous grass species of the area notably Hyparrhenia spp . and is spreading fast to other areas . It is a tussock grass that establishes naturally from seed with leaves that contain aromatic oils , which impart a bitter taste . The species has leaves that have a rough texture . It grows fast and builds up thick coarse vegetation difficult to traverse by both humans and cattle . The canopy of a well grown plant can cover an area of up to 2 m in diameter . Due to its high competitiveness , the species establishes quickly in overgrazed and burnt areas and maintains dominance over other species . It is unpalatable to both domestic and wild game except at the young leaf stage . A study was conducted to determine impact of *Cymbopogon nardus* on plant species biodiversity and livestock performance in the pastoral systems of south-western Uganda .

Materials and methods Plant species prevalence was determined on three sites visually characterized by low , medium and high-density prevalence of *Cymbopogon nardus* along a 500m transect using a 1 x 1m quadrat laid at 5m intervals along the transect . An estimate of percent basal cover of each species within the quadrat and at each of the sites was made . Percent cover of each species on each site was computed for each site . In another study on 15 cattle ranches , plant species prevalence was estimated also along a 500m transect and at 5m intervals using a 1x1m quadrat . Forage biomass productivity on the ranches was estimated using a hydrologic based plant growth model PHYGROW and verified by regular clipping of quadrats to determine dry matter (DM) productivity and computation of cattle stocking rates for the ranches . Cattle body condition score on the ranches were monitored monthly for 12 months .

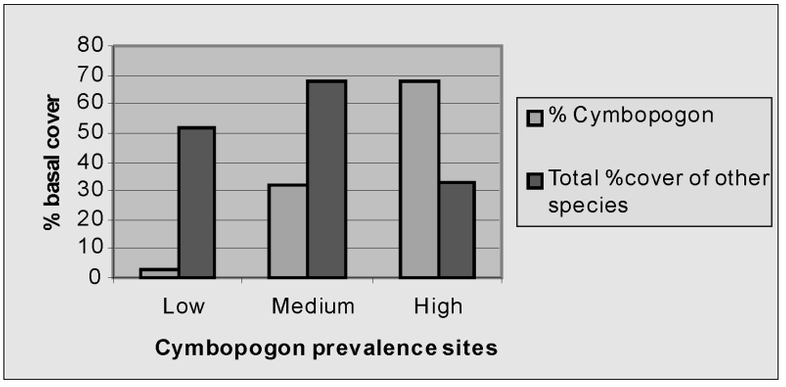

Figure 1 *Plant species prevalence(% cover)by site .*

Results and discussion The low (3%) *Cymbopogon* sites had a 52% prevalence of the other species while the high (67%) *Cymbopogon* sites had the lowest (34%) prevalence of the other species indicating the suppression of other species by *Cymbopogon nardus* (Figure 1) .On the 15 ranches , *Cymbopogon nardus* prevalence ranged from 0 .2% to 14 .3% mean basal cover . *C . nardus* prevalence was negatively correlated with all the other grass species indicating its negative influence on species prevalence , the grazing potential and livestock performance .

C . nardus dominated ranches produced significantly (P=0. 05) the least forage biomass (25% lower) compared to ranches with lower levels of *C . nardus* (5107 kg/ha) , which translated into significantly (P=0 .05) lower stocking rates for such ranches . Similarly , cattle on *C . nardus* infested farms had the least mean body condition scores among the different ranches surveyed .

Reference

Marshall , B . , M .I .E . Long , and D .D . Thornton . (1969) . Nutritive Value of Grasses in Ankole and The Queen Elizabeth National Park , III *In Vitro* dry matter digestibility . *Trop Agric , Trin* . 46(1) :43-46 .