

Abstract

The selection of native and introduced forages on a fine textured, high pH soil of Antigua was aimed at assessing their adaptability and persistence under contrasting management systems since there are few if any tropical forage legumes suitable for pasture improvement on cracking clay soils and drier regions in the tropics.

Twenty grass and twenty legume accessions representing the major forage families and having diverse origins and growth habits were grown in pure stands and in grass - legume associations. Detailed studies on sward productivity and composition, species life-cycles, forage quality, animal grazing behaviour and forage utilisation under a cutting and grazing regime were conducted over a 24 month period.

Problems with the establishment and management of grass - legume associations were experienced but the results clearly demonstrated that Neonotonia (syn. Glycine) wightii, (Wight and Arn) Lackey cv Tinaroo and Cooper, Macroptilium atropurpureum (DC.) Urb. cv Siratro, Centrosema sp. (DC) Benth cv CIAT 438 (syn CIAT 1733), Clitoria ternatea L. cv Local and Leucaena leucocephala (Lam.) de Witt cv CIAT 871 (syn Cunningham) can develop successful associations with Panicum maximum Jacq. cv Local and Likoni, Chloris gayana Kunth cv Pioneer, Pennisetum purpureum Schumach cv

Enano and Dichanthium caricosum (L.) A. Camus cv Local.

High yields and quality of herbage produced in the absence of added fertilizer throughout the study confirmed the inherently high fertility of this clay soil.

The cattle exhibited definite patterns of grazing activity during the day and preferentially grazed the grasses at the time of observation. The legumes, Clitoria ternatea L., Desmodium sp Desv. and Leucaena leucocephala (Lam) de Witt and the grasses Panicum maximum Jacq. and Pennisetum purpureum Schumacher were highly utilised. Legume and weed species increased under grazing.

At the end of the study period, stands of Leucaena leucocephala (Lam) de Witt and Neonotonia wightii (Wight and Arn) Lackey were comprised of original plants only whereas Stylosanthes hamata (L) Taub. and Clitoria ternatea L. produced fourth generation seedlings at the end of the two years.

Recommendations on pasture species suited to different livestock production systems on heavy clay soils as well as suggestions for further research on pasture improvement have been made.

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