

A B S T R A C T

Field and greenhouse studies with Pangola grass and Elephant grass were conducted on Piarco Fine Sand.

Yield response to N fertilization was evident for both grasses; however, due to substantial N losses in the field the magnitude of the response was less than that obtained in the greenhouse.

A large proportion of fertilizer P applied to the soil was fixed in the Al-P form. P requirement of both grasses was relatively low and yield response of Pangola grass to P was realised in the greenhouse only when soil P levels were extremely low. All fertilizer P applied to soil in the greenhouse was converted to Al-P, Fe-P and Ca-P. Olsen P correlated well with P uptake for Pangola grass; however recently fixed Al-P could also be utilised by the grasses.

Neither grass responded to K fertilization, but K uptake in the field was unusually high due to the ability of the grasses to utilise non-exchangeable soil K. Boiling HNO_3 -extractable K was a more reliable index of plant available K than was exchangeable $(\text{NH}_4\text{OAc})\text{K}$.

Liming increased Pangola yields significantly in the greenhouse. In the field there were insignificant yield increases between the un-limed and the limed treatments for both grasses. Beneficial effects of liming were attributed to a reduction of exchangeable Al in the soil.