ABSTRACT

Quantity-Intensity measurements for K were made on ten Caribbean soils. AR_o^K values ranged from 0.001 $(M/l)^{\frac{1}{2}}$ to 0.023 $(M/l)^{\frac{1}{2}}$. The pool of labile K (K_L) had a range of 130-450 Kg/ha while PBC^K varied from 11-200 $\frac{me/100g}{(M/l)^{\frac{1}{2}}}$. The results as a whole indicated that Quantity-Intensity (Q/I) curves, though of great value in indicating potassium supplying power of soils, could not be used as a means of identifying soils belonging to specific soil series.

Different concentrations of $CaCl_2$ used in equilibration studies gave different AR_o^K values for similarly treated soils of River Estate Loam indicating that this soil does not obey the ratio law (though exchangeable Al in this soil was not taken into account). Maize and Sudan grass were used to study nutrient uptake and showed the effects of added K and Mg with regards to changes in the pool of labile K and the ability of the soil to maintain a given intensity over short periods of cropping.

The additions of lime to two Trinidad soils significantly increased soil pH ($P = 0.01$), reduced exchangeable Al and Al saturation. Liming reduced AR_o^K, significantly increased PBC^K ($P = 0.05$) of the acid (Avocat) soil, pH 4.2 but caused no significant changes in the less acid (Moruga) soil, pH 5.5. After the soils were cropped with red kidney beans, pH and AR_o^K decreased, exchangeable Al and PBC^K increased. High exchangeable Al was the

important factor that significantly reduced dry matter yields of beans on the acid (Avocat) soil ($r = -0.72$).

The addition of $(NH_4)_2 SO_4$ and urea in the same amounts (120 mg/1000g soil) caused only slight changes in AR_o^K and PBC^K values of River Estate and Boetica soils. In the green house maize grown in these soils generally gave lower yield with urea than with a similar amount of S/A. The form of nitrogen had no significant effect on K uptake.