ABSTRACT

A series of experiments was carried out under the Canadian International Development Agency research grant scheme, to evaluate the response of selected tropical tuber crops to applied potassium fertilizer. The programme consisted of 5 series of experiments, which tested the response of the selected species, namely Sweet potato, Cassava, Xanthosoma, Potato, Turmeric and Ginger. The objective of the programme was not to develop fertilizer recommendations, but to identify the effects of the nutrient on predetermined growth aspects.

The results obtained from both field and pot trials show that potassium has a significant effect in increasing yields of sweet potato, cassava, xanthosoma, turmeric and ginger. While the response of the crops differ, all species increase yields by over 100% when optimal rates of potassium are applied. An effect of the K_2O : N ratio is also seen in sweet potato, cassava and xanthosoma, and the long term crops seem to require a higher ratio than the short term species. Potassium also induces tuber formation.

A comparison of the different types fertilizer illustrates the better response of crop to K_2SO_4. However, the high cost of this material does not warrent its regular use, especially as it has a lower quantity of potassium than KCl.

Potassium is required by the selected tuber crops throughout the growth cycles. Hence, top dressing alone does not produce high yields. The optimum method of application is splitting the required rate as a basal and top dressing. If a single application is made, basal dressing is seen to be the

best method of application. The ratios applied at basal and top dressing becomes important in these crops, especially to optimize fertilizer use with lower rates. However the importance of ratios at basal and top dressings' decreases with higher rates of potassium.

KEY WORDS - POTASSIUM; TROPICAL TUBERS, SWEET POTATO, CASSAVA; XANTHOSOMA, POTATO; GINGER; TURMERIC; GROWTH; YIELDS; TIME OF APPLICATION