ABSTRACT

A series of studies were initiated under the fertilizer potassium grant of the Canadian International Development Agency, to evaluate the influence of potassium on growth, yields, nodulation and nitrogen fixation of selected important tropical food legumes. The objectives of the programme, conducted over four - five years in five distinct modules were to evaluate :-

A. The influence of basal dressing of potassium on growth, yields and nodulation of bushbeans, mungbean and cowpea

B. The effect of a basal and topdressing of potassium on growth and yields of bushbeans, mungbean, cowpea, chickpea and groundnut

C. The influence of the type of fertilizer potassium on growth, yields and nodulation of bushbeans, mungbean and cowpea

D. The influence of the ratio of potassium in basal and topdressing on growth and yields of bushbeans, mungbean and cowpea

E. The effect of potassium fertilizer on nitrogen fixation of bushbeans, mungbean and cowpea.

The results of the studies illustrate the following important features.

** Potassium increases growth, yield and nodulation of all selected legumes significantly

** Bushbeans require a greater quantity of potassium than mungbean and cowpea, especially when applied as a basal dressing

** Split applications do not reduce the potassium requirement of bushbeans and mungbean. However, the potassium requirement of cowpea is reduced by split application.

** Optimal yields of chickpea and groundnut are observed at 160 and 80 Kg K_2O per Ha. Thus, chickpea required a greater quantity of potassium than the other species tested.

** Application of potassium as Potassium sulphate increases yields and nodulation of bushbeans, mungbean and cowpea. However, the increases in yields are marginal and thus the regular use of this form of potassium is not warranted.

** Split applications of potassium produces higher yields than single applications. The best results are obtained when a given rate is applied either as 60:40 or 50:50 (basal:topdressing).

** Potassium increases nitrogen contents of the selected plants. It also increases nitrogen fertilizer uptake, fertilizer use efficiency and nitrogen fixation.

The overall results highlight the importance of potassium in the nutrition of the selected legumes, which are an important component of the food crop sector of Sri Lanka. Thus further studies are warranted to enable the confirmation of the results

of these studies, carried out at the University of Peradeniya, prior to developing suitable potassium fertilizer recommendations for the selected food legumes, which are grown in a diverse range of environments.

KEY WORDS:- **POTASSIUM, TROPICAL FOOD LEGUMES, BUSHBEANS, MUNGBEAN, COWPEA, GROUNDNUT,CHICKPEA, GROWTH, YIELDS, NODULATION, NITROGEN FIXATION**