A B S T R A C T

The coconut industry occupies a position of great importance in the economy of Sri Lanka. The production of coconut can be increased by both long term and short term methods. These are i) replacement of existing low yielding palms by high yielding varieties and ii) improvement of existing palms by adequate fertilization and better maintenance.

Complex problems arise in proper economic evaluation of the optimal fertilizer policies to be pursued in the industry due to the variety of socio-economic as well as agronomic factors that are encountered. Such policies are however extremely necessary in view of the costs associated with fertilizer usage on one hand and the need to expand coconut production on the other hand in the present economic circumstances of Sri Lanka.

The present study concentrates on the analysis of a set of experimental data on response to fertilizer of coconut obtained from an experiment conducted by the Coconut Research Institute of Sri Lanka, from 1935-1965. Some limitations of earlier analysis of this data by others are discussed, and an attempt is made to incorporate other relevant factors including temporal effects in to the analysis.

The manner in which factors such as response lag, nutrient carry-over in the soil and plant tissues, change in response with ageing etc., that are important in nutrient response of perennial crops should be incorporated into the analysis is discussed. The importance of collection of data on these factors in future experiments is stressed and some possible methods of incorporating these factors in the analysis when only weak data are available is discussed.

Yielding patterns of palms over the period of the experiment under different nutrient combinations are studied. It is observed that under a majority of treatments, the time trend of the yields takes a U-shape.

The reason for such a shape is investigated and it is observed that the change in potassium level in 1950 cannot completely explain this. Possible explanations and their implications for policy are discussed.