EFFECT OF CLIMATIC VARIABLES ON YIELD OF TEA IN KANDY REGION

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ABSTRACT

The tea industry is Sri Lanka's main net foreign exchange earner and source of income for the majority of laborers. It was argued that tea yield is strongly related climatic variables. There were many variables associated with tea yield. A study was undertaken to find out the effect of climate variables on yield of tea in Kandy region. The objectives of this study were to find out the relationship between tea yield and climatic variables using time series analysis, and to formulate a suitable model to forecast the tea yield. Relevant data were collected from the Tea Research Institute of Sri Lanka and the Department of Meteorology and the variables were monthly total tea yield in metric ton, monthly mean temperature in Celsius, monthly total sunshine in hours and monthly average relative humidity in percentage. The Augmented Dickey-Fuller Test was used and confirmed that data on tea yield in Kandy was stationary. The correlation coefficient was computed between the tea yield and the monthly values of the climatic variables of the same year. .Box-Jenkins model was used and selected the ARIMA (3, 0, 2) model for study which had the minimum AIC value among the models. Results of the Ljung-Box Q-test revealed that residuals were random. Forecasting was done to find the total amount of monthly tea yield expected for the next five years for Kandy. Tea plantation was found that there was a steady increase in the yield of tea in Kandy region.

Keywords: ARIMA model, ADF, Climate change, Forecasting, Tea yield.

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