

PRICE FORECASTING OF JACK FRUIT USING SARIMA MODEL

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ABSTRACT

The farmers in some jackfruit growing countries are getting a good return from jackfruit than other major fruits. By means of bargaining, the price is fixed depending upon the supply, demand, quality of jackfruit, etc. (APAARI, 2012). In most cases farmers are uncertain about their future income due to fluctuations in price and / or government policies. Predicting the price of jackfruit and identification of seasonal month/s supports farmers to earn income and it is a key element in their decision makings. Therefore, this study focused to fix an appropriate model on price forecasting of Jack fruit in future. The study area was Jaffna district where Jack fruit is highly obtained from the home gardens. Wholesale prices of Jack fruit were accumulated from year 2008-2014 from Department of Agriculture, Jaffna. Time series plot of prices was observed initially and ensured that data are not stationary. Therefore, Seasonal Auto-Regressive Integrated Moving Average (SARIMA) model was applied. The P-value of both of estimated 'parameters and Box-Pierce chi-squared statistics were hypothesized. Appropriate price forecasting model was fixed after comparisons of error measurements among various SARIMA models. The model which had the lowest value of error terms was selected as the best model for forecasting of prices. Finally, time series plot was observed between actual value and forecasted value after model fitting. Also, multiplicative decomposition analysis was performed to observe seasonal month/s. Major findings revealed that price of jack fruit had been increasing from year 2008-2014 with seasonal fluctuations. SARIMA (1, 1, 1) (1, 0, 0)₁₂ is the best model for forecasting of prices of jack fruit. Jack fruit is vastly obtainable during the period of April-July. The price forecasting of jack fruit helps to farmers to achieve high sales of return while evading uncertainty of income.

Keywords: *Jack fruit, Multiplicative decomposition analysis, Price forecasting, SARIMA model,*

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