

Multiple Regression Model for Forecasting Quantity of Supply of Off-season Longan

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ABSTRACT

This research work aims to develop a forecasting model to predict the quantity of supply of off-season longan using multiple regression technique. There are 23 factors that influence the quantity of supply of off-season longan. Data collection was done in Chiang Mai and Lamphun provinces. The forecasting model based on multiple regression techniques, with enter, forward, backward, and stepwise selection methods were adopted, and these methods yielded mean absolute percentage error (MAPE) values of 18.39%, 25.63%, 21.21%, and 25.63%, respectively. These results demonstrate that multiple regression with the enter selection method is practical to predict the quantity of supply of off-season longan.

INTRODUCTION

Longan is an important export fruit of Thailand that brings in over two billion Baht per year. The main area of longan cultivation is the northern region of Thailand, mainly the Chiang Mai and Lamphun provinces. Although the present trends show a steady rise in longan exports, the oversupply and, subsequently, and low prices of longan during its season are the main problems faced by longan's agriculturists due to the lack of proper preparation as regards production and lack of market information. Therefore, forecasting of longan yield is necessary for agriculturists in order to plan for their market sales.

The oversupply of longan during its period of season (from July to August) causes agriculturists to face the problems of low quality and price for their produce (Sopadang et al., 2012). Thus, having a supply of off-season longan is a practical solution for them to gain more benefit.

The output of off-season longan is dependent on many parameters. Thus, the objective of this research is to create a forecasting model that predicts the quantity of off-season longan supply using the multiple regression technique. The input factors used in this research came from literature reviews and interviews of experts. The data collections were carried out in the Chiang Mai and Lamphun provinces of Thailand.