Siriluk Piyatraiphoom 2013: Material Inventory Management for Corn Processing Plant. Master of Engineering (Engineering Management), Major Field: Engineering Management, Department of Industrial Engineering. Thesis Advisor: Associate Professor Roongrat Pisuchpen, D.Eng. 145 pages.

The purpose of this research was to study for finding optimum quantity of raw materials of trading in agricultural products that have seasonal demand. This study is conducted the appropriate inventory level for three raw materials of the Corn Processing Plant. First, the needs of the technical uncertainty of customer demand's forecasting, such as Simple Moving Average, Simple Exponential Smoothing, Holt's Model or Double Exponential Smoothing and Holt-Winters Smoothing, are studied. The method which gives the minimum mean absolute deviation is selected to forecast the demand of each material in one year. Next, use the technique in operations research (principles and application) by using an ability of linear constraints to determine the optimal product mix, that is, the quantities to make of each type product which will maximize profit. Then, the simulation is applied for find out reorder point and economic order quantity. The results are used to evaluate the performance of the system is the lowest total cost. The Research Process analyzer is used in the simulation to find ways in order to identify the optimal order quantity under uncertainty. The total average cost is down 55.06% from the current system.

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