SUMMARY

BIMAHRI QAULAN TSAQIELA. The Reduction of Bullwhip Effect on Supply Chain of Fresh Fruit and Vegetables Commodities in Lottemart Wholesale Bogor. Under supervision of YANDRA ARKEMAN dan BUNASOR SANIM.

During the last 3 decades, Indonesia has shifted in consumption patterns from staple foods towards a larger share of fresh fruits and vegetables, but these commodities are perishable, seasonal and voluminous. This condition indicates that an increase in demand for fresh fruit and vegetables so that the supply chain from upstream to downstream should be well integrated and efficient. Modern market appeared to answer the needs of the society because of shifting demand patterns and lifestyles. Society request more complex not only emphasizes on product quality, comfort and value are obtained when people make purchases of products has become very important. LotteMart Wholesale Bogor is one of the modern market that sells fresh fruit and vegetables. LotteMart Wholesale Bogor experienced problems in the fulfillment of the supply of fresh fruits and vegetables. In addition, coordination between suppliers and wholesalers so low that often the quantity and quality of the submitted does not comply with provisions wholesaler so that in the event of an increase in demand at wholesaler level, the pattern of demand will be even more volatile upstream supply chain or occurred bullwhip effect.

The purpose of this study was: (1) to identify the structure of the supply chain of fruit and fresh vegetables in LotteMart Wholesale Bogor; (2) to analyze the value of bullwhip effect in the supply chain of fresh fruits and vegetables in LotteMart Wholesale Bogor; (3) to analyze the factors that led to the bullwhip effect in the supply chain of fresh fruit and vegetables in LotteMart Wholesale Bogor; and (4) to reduce bullwhip effect in the supply chain of fresh fruits and vegetables in LotteMart Wholesale Bogor.

Fresh fruits and vegetables that will be examined includes harumanis mango, grapes Red Globe USA, red seedless watermelon, imported carrots, onion and red chili. The data used in this study include primary data and secondary data. The primary data used in this study is the supply chain flow of fresh fruits and vegetables as well as order fulfillment system. Secondary data used in this study are order data from the wholesaler to the buyer and demand data from wholesaler to customer.

The methods used are descriptive qualitative method, quantitative methods and simulation using Arena software 14.0. Descriptive qualitative methods are used to explain the supply chain of fresh fruit and vegetables in LotteMart Wholesale Bogor and analyze the factors that led to the bullwhip effect. The main factors affecting decentralized demand forecast updating, irregular order batching, price fluctuation, Rationing and shortage gaming. Quantitative methods used to analyze the value of the bullwhip effect, while the Arena simulation software is used to reduce the bullwhip effect with 2 scenarios distribution time between arrival constant and also time between arrival for pickup are triangular and normal distribution of products in the supply chain of fresh fruits and vegetables in LotteMart Wholesale Bogor.

Fresh fruits and vegetables commodities that experienced the bullwhip or expansion of demand variability are USA Red Globe grapes, harumanis mango, seedless watermelon, onion, carrot import. While the red chili was not experienced the bullwhip effect. Factors that caused the bullwhip effect in the LotteMart Wholesale supply chain were price fluctuations, irregular order batching and decentralized demand forecast updating.

The best scenario is scenario 1 with time between arrival distribution is constant and time between arrival of pickup distribution is triangular. Bullwhip effect value is reduced after simulated Arena with two scenarios of normal and triangular time distribution. BE initial value of 1.98 becomes 0.49 and 0.68. This simulation showed that there is no amplify of the product demand variability.

Keywords: arena simulation, bullwhip effect, supply chain

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