MODEL OF SHIPMENT CONSOLIDATION FOR AGRO-PERISHABLE PRODUCTS BASED ON TEMPERATURE

Name : Dewi Tressia Roito Saragih
NRP : 2510100137
Supervisor : Dr.Eng. Ir. Ahmad Rusdiansyah, M.Eng.,CSCP

ABSTRACT

Coordination among all players in the supply chain of a company is very needed in streamlining the flow of inventory throughout the supply chain. Common Replenishment Epochs (CRE) is one way to make coordination among supply chain actors become easier. With the aim of attracting a buyer to implement CRE, vendors offering discounts. The problem is how to determine the appropriate discount rate policy so that buyers interested to follow the replenishment schedule given by vendor and vendor still get the optimal benefit. The main assumption in this CRE strategy is that the CRE can be applied only when orders among buyers sent simultaneously (consolidation). This study will discuss the CRE policy model in which vendors of agro-perishable product offer discounts to buyers who are willing to replenish their products at the specified time period and willing if the delivery of the product ordered is done using the same refrigerated vehicle that is used to deliver others orders. Decision variables of this model is the discount rate offered by a vendor by considering the increasing cost in buyer and the decreasing cost in vendors, the temperature that should be applied on cold storage vehicles, as well as the interval replenishment that should be applied to the buyer so that the total the cost of the system is minimized. The objective function of this research is to consider the factor of quality degradation in products and energy consumption in refrigerated vehicles. After developing a model to solve the problem, a numerical study conducted to evaluate the benefits obtained through the CRE strategy. Through the study of literature, a decision can be made regarding the orders that should be consolidated, the type of vehicle that should be used, and the route that should be passed so that the total cost of the system can be minimized.

Key Words : agro-perishable products, Common Replenishment Epochs (CRE), deterioration quality, energy cost, interval replenishment, shipment consolidation.