

ABSTRACT

PT Bio Industri Nusantara is a company that engaged in fertilizer's production which used for plantation. One of their products is Pupuk Hayati Emas which is a mixture of mineral materials and bacterias. In their inventories of raw materials planning, a company often have an excess supply of raw materials. The total cost of inventory by using a previous system which is currently carried out is quite high. At this time, a company makes a reservation only based on estimation. if there is not improvement of the inventory system immediately, the company will suffer losses.

The purpose of the research is to determine the optimal lot size numbers and the time orders by using the provisions of each type of order number from suppliers and the provisions of safety stock number from company to minimize the total cost of production.

The inventory planning of raw materials to form a PHE, those are zeolites, Peat, Gypsum, Sacks, NaOH, C₆H₁₂O₂₂, C₄H₆O₅, Yeast Extract, Corn, MgSo₄.7H₂O, and CaSo₄.2H₂O performed by using the Dynamic Lot Sizing consisting of Fixed Order Quantity, least Unit Cost, Silver Meal algorithm, Lot and Lot For Fixed Period Requirement. This method was chosen because the raw materials of PHE has a lead time when ordering. Besides that, the raw materials have certain characteristics, so that some lot sizing techniques can be used to test the most appropriate method in the determination of lot. Based on the results of calculations performed, the method of dynamic lot sizing which minimizes the total cost of production depends on the characteristics of the raw materials with a total cost of Rp 524,046,417.1, -/tahun, so the company can do a savings of 8%

The research is expected to help the company to take a decision on ordering raw materials and the numbers of inventory.

Key words : Material Requirement Planning, Dynamic Lot Sizing, Order Quantity, Fixed Order Quantity, Least Unit Cost, Silver Meal Algorithm, Lot For Lot dan Fixed Periode Requirement