ABSTRACT

ABC Company is a distributor of beauty products in the markets of Southeast Asia, among others perfume and cosmetics. ABC Company has many customers spread across many different areas. In distribution of goods, ABC Company collaborate with 3PL companies for warehousing services, that is XYZ Company. Cost charged by XYZ Company to ABC Company among others cost of rental unit pallet, total pallet position, cost of handling, loading and unloading costs, restacking, printing and labeling, and cost of wrapping.

In this research, the problems examined are packing goods on a pallet. The problem belongs to the category of two-dimentional (2D) rectangular packing problem (Dyckhoff (1990)) belonging to the manufacturer's pallet packing problem that is focuses on the stacking identical carton package to a similar pallet. Researcher using genetic algorithms (GA) to solve the problem stacking on a pallet as was done by Edwards A. Herberth. GA technique developed by starting with the formation of initial population. Reproduction process using genetic among others elitist, mutation and crossover. This research will be reviewed on the optimization of the pallet usage space using a genetic algorithm that can minimize empty space pallet.

The greater the efficiency of the use of space can reduce the number of pallet used for each arrival. So it can reduce warehousing cost that released by ABC Company especially for cost of rental unit pallet, pallet position cost, cost of handling, and restacking. The savings that can be made for dated 22 April 2014 shipments were 9 pallets are charged Rp 738,000.00.

Keywords: stacking, pallet, genetic algorithms, two-dimensional (2D) rectangular packing problem, manufacturer's pallet packing problem