

ABSTRACT

PT XYZ is an agro-industrial company specializing in chili peppers, located in Kuningan Regency, West Java, and serving three major retailers in the Kuningan, Cirebon, and Ciamis areas. Currently, PT XYZ's distribution system does not have a structured delivery schedule, so delivery activities are carried out daily without optimal planning. This situation results in delivery delays and a fulfillment rate averaging only 93%, which is below the company's target of 99%, creating a 6% gap. The main problem lies in the poor management of distribution activity scheduling. This study aims to design proposed improvements and planning for distribution activity scheduling at PT XYZ to meet demand needs and achieve the specified service level, while minimizing distribution costs. Additionally, this study aims to design a decision support information system that can be implemented to optimize distribution activities. To address these issues, the Distribution Requirement Planning (DRP) method was implemented using Gurobi Solver Optimization. The planning results show that the demand fulfillment rate increased to 99.74%, and total distribution costs were reduced from Rp421,233,500 to Rp280,341,605, resulting in savings of Rp140,891,985 or 33.45% compared to the existing distribution system.

Keywords: *Distribution, Inventory, Distribution Requirement Planning (DRP), Service Level.*