

M. ILHAM DIARSYAH NRP.16.033.1.1.00008. IMPLEMENTASI ALGORITMA TABU SEARCH UNTUK MENYELESAIKAN VEHICLE ROUTING PROBLEM WITH PICKUP AND DELIVERY (VRPPD) PADA OPTIMASI RUTE DISTRIBUSI KERUPUK UD.MAWAR. Dibawah bimbingan **Dr. Moh. Fuad Fauzul M, S.TP., M.Si dan Burhan, S.TP., MT.,**

ABSTRAK

VRP atau Vehicle routing problem merupakan permasalahan pada sistem distribusi dari produsen ke konsumen. VRP dibagi menjadi beberapa jenis tergantung kendala yang ada didalamnya, seperti VRPTW, CVRP, VRTW, dan VRPPD. Pada penelitian ini menggunakan VRPPD (vehicle routing problem with pick up and delivery), dimana kendala yang terjadi yakni proses pengiriman serta pengambilan dilakukan secara bersamaan. Penelitian ini bertujuan untuk mengetahui solusi optimum dari jarak, biaya, dan waktu pada proses distribusi produk UD. Mawar serta mengukur kinerja proses distribusi berdasarkan jarak, biaya, dan waktu distribusi kerupuk UD. Mawar. Metode optimasi yang digunakan untuk mendapatkan solusi optimum yaitu metode nearest neighbours dan tabu search. Optimasi dilakukan dengan beberapa tahap yaitu, dilakukan pengambilan data lapangan (existing) kemudian dilakukan optimasi menggunakan nearest neighbours yakni dengan mengunjungi titik terdekat dari titik kunjungan sebelumnya, kemudian rute yang dihasilkan dari optimasi menggunakan metode nearest neighbours dilakukan optimasi menggunakan algoritma tabu search untuk mengetahui jarak, biaya dan waktu optimum proses distribusi kerupuk mawar. Hasil menunjukkan bahwa setelah dilakukan optimasi terjadi penurunan persentase biaya, waktu, dan jarak yang digunakan untuk melakukan distribusi kerupuk UD. Mawar. Persentase penurunan biaya sebesar 51% dari biaya awal yang dibuuhkan sales, persentase penurunan waktu didapat hasil 61%, sedangkan persentase penurunan jarak sebesar 54%. Penurunan persentase jarak, biaya, dan waktu terjadi signifikan.

Kata Kunci:VRP, VRPPD, Tabu Search.

M. ILHAM DIARSYAH NRP.16.033.1.1.00008. IMPLEMENTATION OF A SEARCH TABBULY ALGORITHM TO COMPLETE VEHICLE ROUTING PROBLEM WITH PICKUP AND DELIVERY (VRPPD) ON THE OPTIMIZATION OF CHOCOLATE DISTRIBUTION ROUTES UD.MAWAR. Under the guidance of **Dr. Moh. Fuad Fauzul M, S.TP., M.Si dan Burhan, S.TP., MT.,**

ABSTRACT

VRP or Vehicle Routing Problem is a problem in the distribution system from producers to consumers. VRP is divided into several types depending on the constraints involved, such as VRPTW, CVRP, VRTW, and VRPPD. In this study, using VRPPD (vehicle routing problem with pick up and delivery), where the obstacles that occur are the delivery and collection processes are carried out simultaneously. This study aims to determine the optimum solution from distance, cost, and time in the distribution process of UD products. Mawar and measure the performance of the distribution process based on distance, cost and time of distribution of UD crackers. Rose. The optimization method used to obtain the optimum solution is the nearest neighbors and taboo search methods. Optimization is carried out in several stages, namely, data collection is carried out in the field (existing) then optimization is carried out using nearest neighbors, namely by visiting the closest point of the previous visit point, then the route generated from the optimization using the nearest neighbors method is carried out by optimization using the taboo search algorithm to determine the distance, optimum cost and time of distribution process of rose crackers. The results showed that after the optimization there was a decrease in the percentage of costs, time and distance used to distribute UD crackers. Rose. The percentage reduction in costs was 51% of the initial costs required by sales, the percentage of time reduction was 61%, while the percentage reduction in distance was 54%. The percentage reduction in distance, cost, and distance occurred significantly.

Keywords:VRP, VRPPD, Tabu Search.