

# Pengembangan Model Optimasi Untuk Mengurangi Total Biaya Outbound Logistics di Industri Poultry dengan Metode Mixed Integer Linear Programming (MILP) = Development of an Optimization Model to Reduce the Total Cost of Outbound Logistics in the Poultry Industry with Mixed Integer Linear Programming (MILP) Method

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## Abstrak

Industri <em>poultry </em> merupakan salah satu industri di Indonesia yang memiliki fokus dalam ayam potong. Industri <em>poultry </em> mengalami kenaikan dalam permintaan dan untuk menjamin ketersediaan pasokan dan stabilisasi daging ayam ras diperlukan harga acuan yang mempertimbangkan harga pengiriman<em>. </em>Salah satu perusahaan industri <em>poultry </em> memiliki proses <em>outbound logistics</em> yang terdiri dari pengiriman dan penyimpanan. Pada bulan Oktober hingga Desember 2022, terjadi peningkatan permintaan dan juga biaya <em>outbound logistics,</em> dimana <em>outbound logistics </em>sendiri memiliki dua biaya yaitu biaya pengiriman dan biaya penyimpanan. Biaya <em>Outbound logistics </em> yang tinggi disebabkan oleh pemilihan dan perencanaan kendaraan yang masih belum optimal. Sehingga diperlukan optimasi perencanaan <em>outbound logistics</em> yang lebih baik lagi. Penelitian ini melakukan pengembangan model optimasi untuk mengurangi biaya <em>outbound logistics</em> dengan metode <em>mixed integer linear programming </em>(MILP) menggunakan perangkat lunak LINGO. Hasil penelitian menunjukkan bahwa total biaya <em>outbound logistics </em> memiliki penurunan dari Rp451.364.739 menjadi Rp246.817.288. Penggunaan kendaraan juga mengalami penurunan dari 229 unit menjadi 89 unit. Sedangkan utilisasi kendaraan mengalami kenaikan dari 69% menjadi 96%.

.....The poultry industry is one of the industries in Indonesia that has a focus on broiler chickens. The poultry industry has experienced an increase in demand and to ensure the availability of supply and stabilization of chicken meat, a reference price is needed that takes into account the shipping price. One of the poultry industry companies has an outbound logistics process which consists of shipping and storage. From October to December 2022, there was an increase in demand and also outbound logistics cost, where outbound logistics itself has two costs, namely shipping costs and storage costs. The high outbound logistics costs are caused by the selection and planning of vehicles that are still not optimal. So better optimization of outbound logistics planning is needed. This research develops an optimization model to reduce outbound logistics costs using the mixed integer linear programming (MILP) method using LINGO software. The results of the study show that the total cost of outbound logistics has decreased from IDR 451,364,739 to IDR 246,817,288. The use of vehicles also decreased from 229 units to 89 units. Meanwhile, vehicle utilization increased from 69% to 96%.