

PENGENDALIAN PERSEDIAAN BAHAN BAKU PADA MESIN PENCACAH PLASTIK MULTIFUNGSI MENGGUNAKAN METODE *REQUIREMENT PLANNING* (MRP) DI CV TUNAS KARYA YOGYAKARTA

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INTISARI

Latar Belakang: CV Tunas Karya menghadapi keterlambatan produksi akibat kekurangan bahan baku. Untuk mengoptimalkan persediaan dan proses produksi, perusahaan perlu menerapkan metode MRP guna mencapai tujuan bisnis yaitu memperoleh laba melalui kelancaran produksi dan meminimasi biaya persediaan.

Tujuan: Penelitian ini bertujuan mengendalikan persediaan bahan baku dan meminimalkan biaya persediaan CV Tunas Karya dengan menentukan teknik peramalan optimal, mengetahui total biaya simpan, biaya pesan dan total biaya persediaan.

Metode Penelitian: Metode penelitian meliputi pengumpulan data primer dan sekunder, dilanjutkan dengan pengolahan dan analisis menggunakan *Microsoft Excel* untuk perhitungan MRP guna mengendalikan persediaan dan meminimasi biaya persediaan bahan baku mesin pencacah plastik multifungsi. Metode yang digunakan yaitu peramalan teknik Regresi Linear, *DES Holt Winter*, MRP, LFL, LUC, SM dan Analisis sensitivitas.

Hasil: Teknik peramalan terbaik menggunakan metode Regresi Linear dengan nilai MAPE terendah sebesar 9.82%. Biaya persediaan *existing* memiliki nilai tertinggi ketika dilakukan perbandingan analisis sensitivitas. Sebagai usulan dilakukan dengan metode *lot size Silver Meal* karena dapat meminimasi biaya simpan, biaya pesan dan biaya persediaan.

Kesimpulan: Penerapan metode peramalan Regresi Linear dan *lot sizing* dengan teknik SM dapat meningkatkan efisiensi dalam perencanaan persediaan di CV Tunas Karya. Metode-metode tersebut terbukti mampu menekan biaya persediaan dan meningkatkan ketepatan perencanaan produksi.

Kata Kunci: Persediaan Bahan Baku, MRP, MPS, *Forecasting*, *Bill of Material*, Analisis Sensitivitas.

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ABSTRACT

Background: CV Tunas Karya faces production delays due to a shortage of raw materials. To optimize supply and production processes, companies need to implement MRP with optimal lot sizing and demand forecasting methods, in order to the business goal of earning profit through smooth production and minimizing supply costs.

Purpose: This study aims to minimize the cost of provisioning a Tunas Karya CV by determining the optimal forecasting technique, knowing the total cost of storage, order cost, and total supply cost in order to compare with the best lot size proposal.

Research methods: The research method includes the collection of primary and secondary data, continued with processing and analysis using Microsoft Excel for MRP calculations to minimize the cost of supplying raw materials for multifunctional plastic grinder machines. The methods used are Linear Regression prediction, DES Holt Winter, MRP, LFL, LUC, SM and Sensitivity Analysis.

Results: The best prediction technique uses Linear regression method with the lowest MAPE value of 9,82%. Existing inventory cost has the highest value when comparing sensitivity analysis. As a suggestion is done with the lot size method Silver Meal as it can minimize the cost of storage, order costs and inventory costs.

Conclusion: Application of Linear Regression and Double Exponential Smoothing Holt Winter prediction methods as well as lot sizing techniques such as UN, SM, and LUC can improve efficiency in inventory planning in Tunas Karya CV. These methods have proven to reduce the cost of supply and increase the accuracy of production planning.

Keywords: Raw Material Supplies, MRP, MPS, Forecasting, Bill of Material, Sensitivity Analysis.