PENGENDALIAN PERSEDIAAN BAHAN BAKU MENU UMKM TEH MANIS JUMBO TEA MENGGUNAKAN METODE ANALISIS ABC DAN MRP LOT SIZING

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ABSTRAK

Permasalahan utama pada UMKM Teh Manis Jumbo Tea adalah seringnya terjadi kekosongan stok (*stockout*) dan inefisiensi biaya akibat metode pemesanan yang hanya berbasis perkiraan. Penelitian ini bertujuan mengoptimalkan pengendalian persediaan bahan baku prioritas melalui integrasi Analisis ABC, peramalan *Holt-Winters*, dan *Material Requirement Planning* (MRP) dengan perbandingan teknik *lot sizing*. Metodologi meliputi klasifikasi inventaris, peramalan permintaan, dan evaluasi teknik *Lot for Lot* (LFL), *Economic Order Quantity* (EOQ), serta *Period Order Quantity* (POQ). Temuan ilmiah menunjukkan bahwa Gula, *Cup Jumbo*, dan Bubuk Teh merupakan item Kategori A yang mencakup 80% total nilai investasi. Metode peramalan *Multiplicative Holt-Winters* memberikan akurasi terbaik dengan MAPE 17%-18%. Penerapan MRP menghasilkan efisiensi biaya yang signifikan; teknik *Lot for Lot* (LFL) terbukti paling efisien untuk Gula dengan total biaya persediaan Rp133.794, sedangkan teknik *Period Order Quantity* (POQ) adalah yang paling optimal untuk *Cup Jumbo* sebesar Rp248.670 dan Bubuk Teh sebesar Rp322.622. Implikasi penelitian ini membuktikan bahwa pendekatan MRP secara efektif meminimalkan biaya operasional dengan meniadakan biaya simpan yang tidak perlu sekaligus menjamin ketersediaan bahan baku.

Kata Kunci: Pengendalian Persediaan, Peramalan permintaan*, Lot Sizing, Holt-Winters,* Analisis ABC

RAW MATERIAL INVENTORY CONTROL OF UMKM TEH MANIS JUMBO TEA MENU USING ABC ANALYSIS AND MRP LOT SIZING METHODS

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ABSTRACT

The primary challenge facing Teh Manis Jumbo Tea MSME is frequent stockouts and cost inefficiencies caused by an estimation-based ordering method. This study aims to optimize priority raw material inventory control by integrating ABC Analysis, Holt-Winters forecasting, and Material Requirement Planning (MRP) with lot-sizing comparisons. The methodology involves inventory classification, demand forecasting, and evaluating Lot for Lot (LFL), Economic Order Quantity (EOQ), and Period Order Quantity (POQ) techniques. Scientific findings identified Sugar, Jumbo Cups, and Tea Powder as Category A items, accounting for 80% of the total investment value. The Multiplicative Holt-Winters method yielded the highest forecast accuracy with a MAPE of 17%-18%. MRP implementation demonstrated significant cost efficiency; the Lot for Lot (LFL) technique was most efficient for Sugar with a total inventory cost of Rp133,794, while the Period Order Quantity (POQ) technique was optimal for Jumbo Cups at Rp248,670 and Tea Powder at Rp322,622. These implications prove that the MRP approach effectively minimizes operational costs by eliminating unnecessary holding expenses while ensuring raw material availability.

Keywords : *Inventory Management, Demand Forecasting, Lot Sizing, Holt-Winters, ABC Analysis.*