

ABSTRAK

Penelitian ini dilakukan di PT. X, sebuah perusahaan manufaktur pallet kayu yang berada di Surabaya. Penelitian bertujuan untuk mengoptimalkan persediaan bahan baku utama yaitu kayu albasia, rimba campur (RC) dan pinus. Guna untuk mengurangi resiko kelebihan dan kekurangan stok yang dapat mengganggu jalannya proses produksi. Data yang dianalisis mencakup data pemakaian, pembelian data harga kayu, biaya penyimpanan dan pemesanan selama periode Mei 2023 hingga April 2024. Hasil penelitian menunjukkan bahwa penerapan metode Min-Max Stock mampu mengurangi total biaya persediaan bahan baku dibandingkan dengan metode yang digunakan perusahaan sebelumnya. Selain itu, metode ini membantu perusahaan dalam menentukan level stok minimum dan maksimum yang optimal, sehingga proses produksi tetap berjalan tanpa hambatan akibat kekurangan stok. Penerapan metode ini juga mendukung efisiensi operasional perusahaan melalui peramalan kebutuhan bahan baku yang lebih akurat menggunakan metode perhitungan seperti *simple moving average* dan *single exponential smoothing*. Berdasarkan hasil pengolahan data peramalan bahan baku dilakukan dengan mencari nilai MAPE terkecil, pada kayu albasia metode peramalan yang terpilih yaitu *simple moving average* dengan nilai MAPE sebesar 13%, sedangkan untuk kayu RC peramalan yang terpilih yaitu *single exponential smoothing* dengan nilai MAPE sebesar 10,05% dan pada kayu pinus peramalan yang terpilih yaitu *single exponential smoothing* dengan MAPE sebesar 14%. Hasil perhitungan menggunakan Min-Max Stock memperoleh *total nilai inventory cost* pada kayu albasia sebesar Rp 2.164.250.182, pada kayu RC *total inventory cost* sebesar Rp 4.675.126.973 dan pada kayu pinus *total inventory cost* sebesar Rp 2.197.063.279.

Kata kunci: pengendalian persediaan, peramalan, metode Min-Max Stock

ABSTRACT

This research was conducted at PT. X, a wooden pallet manufacturing company located in Surabaya. The research aims to optimize the inventory of the main raw materials, namely albasia wood, mixed jungle (RC) and pine. In order to reduce the risk of excess and shortage of stock that can disrupt the production process. The data analyzed includes usage data, purchasing wood price data, storage costs and ordering during the period May 2023 to April 2024. The results of the study show that the application of the Min-Max Stock method is able to reduce the total cost of raw material inventory compared to the method used by the company previously. In addition, this method helps companies in determining the optimal minimum and maximum stock levels, so that the production process continues without obstacles due to lack of stock. The application of this method also supports the company's operational efficiency through more accurate forecasting of raw material needs using calculation methods such as simple moving average and single exponential smoothing. Based on the results of raw material forecasting data processing, it is done by finding the smallest MAPE value, for albasia wood the selected forecasting method is simple moving average with a MAPE value of 13%, while for RC wood the selected forecast is single exponential smoothing with a MAPE value of 10.05% and for pine wood the selected forecast is single exponential smoothing with a MAPE of 14%. The calculation results using Min-Max Stock obtained a total inventory cost value for albasia wood of Rp Rp 2.164.250.182, for RC wood the total inventory cost was Rp 4.675.126.973 and for pine wood the total inventory cost was Rp 2.197.063.279.

Keywords: inventory control, forecasting, Min-Max Stock method