ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play an important role in economic growth in Indonesia. Inventory management is one of the key aspects in the sustainability of MSME operations, especially raw materials used in the production process. One of them is MSME XYZ which is a producer of meatball meatballs and tofu meatballs that uses several types of raw materials in its production process. The problem being faced is that there are still often shortages and excesses in purchasing raw materials during procurement. This study aims to analyze the cost of raw material inventory at MSME XYZ using five different Lot Sizing methods, namely Economic Order Quantity (EOQ), Period Order Quantity (POQ), Silver Meal (SM), Least Unit Cost (LUC), and Part Period Balancing (PPB). This study uses historical data from MSME XYZ to identify differences in raw material inventory costs between the five MRP methods used. The results of this study indicate that in the planning of raw material requirements for beef, the total inventory cost using the Silver Meal (SM) method can be minimized by 68% compared to the existing method, with a total proposed inventory cost of Rp 4,674,021.39; while the total inventory cost of the existing method is Rp 14,750,353.36. In the planning of tapioca starch raw materials, the lowest total inventory cost is using the Silver Meal (SM) method which can minimize the total inventory cost by 39% compared to the existing method, with a total proposed inventory cost of Rp 1,942,263.89; while the total inventory cost of the existing method is Rp 3,165,339.65. In the planning of MSG raw materials, the lowest total inventory cost is using the Part Period Balancing (PPB) method which can minimize the total inventory cost by 66% compared to the existing method, with a total proposed inventory cost of Rp 569,780.21; while the total cost of existing inventory method is Rp1,667,089.84. By implementing these methods, UMKM XYZ can optimize raw material inventory, minimize inventory costs, and ensure smooth production processes without shortages of raw materials.

*Keywords—**Production Planning, MRP, Lot Sizing, Inventory, Inventory Costs***