ABSTRACT

This study aims to analyze the application of linear programming using the simplex method to maximize t-shirt production profits at Home Industry Onetex Bandung. The company faces several challenges, including limited raw materials, fluctuating demand, declining revenue over the years, and production that only follows previous period demand. These conditions result in an inefficient product combination and unrealized profit potential. By applying linear programming with the simplex method through QM for Windows V5 software, this study identified a more optimal production combination. The results show that the production of children's t-shirts in size M should be increased from 127 units to 132 units, and adult t-shirts in size XL from 133 units to 188 units, while other sizes remain at their existing capacities. The maximum achievable profit is Rp. 6,262,927 per day, an increase of Rp. 611,743 or 11% compared to the current condition. Therefore, the application of linear programming proves effective in supporting more efficient production decision-making and enhancing the company's profitability.

Keywords: Linear Programming, Simplex Method, Production, Profit