

## ABSTRAK

PT. Firdaus Kurnia Indah merupakan perusahaan yang memproduksi 14 jenis jamu tradisional. Perusahaan menghadapi kendala dalam menentukan jumlah produksi yang optimal karena keterbatasan bahan baku, waktu produksi, dan tenaga kerja. Jumlah produksi setiap jenis jamu masih ditetapkan sama sehingga keuntungan yang diperoleh belum maksimal. Permasalahan ini mendukung pencapaian *Sustainable Development Goals* (SDGs), khususnya SDG 8 (*Decent Work and Economic Growth*) dan SDG 12 (*Responsible Consumption and Production*) melalui peningkatan efisiensi penggunaan sumber daya. Penelitian ini bertujuan menentukan jumlah produksi optimal untuk memaksimalkan keuntungan perusahaan menggunakan metode *Integer Linear Programming* dengan bantuan *Microsoft Excel Solver*. Model optimasi disusun berdasarkan fungsi tujuan memaksimalkan keuntungan dengan mempertimbangkan kendala bahan baku, waktu produksi, kapasitas produksi, permintaan minimum dan maksimum. Hasil penelitian menunjukkan bahwa kombinasi produksi optimal menghasilkan 13 jenis jamu masing-masing sebanyak 260 botol dan produk Harmalak sebanyak 620 botol. Total produksi meningkat dari 3.640 botol menjadi 4.000 botol, pendapatan meningkat dari Rp144.560.000 menjadi Rp167.960.000, dan keuntungan meningkat dari Rp112.222.240 menjadi Rp130.624.000. Hasil tersebut menunjukkan bahwa *Microsoft Excel Solver* mampu mengoptimalkan penggunaan sumber daya sehingga keuntungan perusahaan meningkat.

**Kata kunci:** *Integer Linear Programming*, optimasi produksi, *Microsoft Excel Solver*, jamu, keuntungan, SDG 8 (*Decent Work and Economic Growth*), SDG 12 (*Responsible Consumption and Production*).

## ABSTRACT

*PT. Firdaus Kurnia Indah is a company that produces 14 types of traditional herbal medicine. The company faces challenges in determining optimal production quantities due to constraints regarding raw materials, production time, and labor. Currently, production volumes for each type of herbal medicine are set uniformly, preventing the maximization of profits. Addressing this issue supports the achievement of the Sustainable Development Goals (SDGs) specifically SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production) by enhancing resource use efficiency. This study aims to determine the optimal production quantities to maximize company profits using the Integer Linear Programming method with the aid of Microsoft Excel Solver. An optimization model was formulated with a profit-maximization objective function, accounting for constraints such as raw materials, production time, production capacity, and minimum/maximum demand. The results indicate that the optimal production mix yields 260 bottles each for 13 types of herbal medicine and 620 bottles of the "Harmalak" product. Total production increased from 3,640 to 4,000 bottles; revenue rose from IDR 144,560,000 to IDR 167,960,000; and profit increased from IDR 112,222,240 to IDR 130,624,000. These findings demonstrate that Microsoft Excel Solver effectively optimizes resource utilization, thereby increasing the company's profit.*

**Keywords:** *Integer Linear Programming, production optimization, Microsoft Excel Solver, herbal medicine, profit, SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production).*