

## PERENCANAAN PRODUKSI BAHAN BAKU JAMU DI BALAI BESAR PENELITIAN DAN PENGEMBANGAN TANAMAN OBAT DAN OBAT TRADISIONAL (B2P2TOOT) TAWANGMANGU

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### Abstrak

Kebutuhan bahan baku jamu di Balai Besar Penelitian dan Pengembangan Tanaman Obat dan Obat Tradisional (B2P2TOOT) Tawangmangu dari tahun ke tahun menunjukkan peningkatan yang signifikan, namun terkendala pasokan tanaman obat sebagai bahan baku jamu yang berasal dari petani karena bersifat fluktuatif. Hal tersebut membutuhkan suatu sistem perencanaan produksi yang mampu mengatasi ketidakpastian (*fluktuasi*) baik kekurangan (*shortage*) maupun kelebihan (*excessive*) bahan baku untuk menjaga kelangsungan produksi dengan biaya yang tetap efisien. Tujuan penelitian ini adalah untuk mengetahui kondisi aktual permintaan dan pasokan bahan baku jamu bersumber petani dan menentukan optimasi sumberdaya produksi dari kebun B2P2TOOT untuk memenuhi *safety stock* bahan baku jamu dengan biaya minimal. Metode yang digunakan adalah metode perencanaan produksi dengan *linear programming* di B2P2TOOT Tawangmangu. Analisis data digunakan peramalan permintaan dan pasokan simplisia bersumber petani yang sesuai pola data, selanjutnya digunakan *linear programming* untuk menentukan optimasi sumberdaya yang tersedia. Fungsi tujuan untuk menentukan biaya minimum terhadap fungsi kendala luas lahan dan permintaan pasar. Setelah dilakukan optimasi dengan bantuan *software* Lindo, maka dapat diketahui jumlah produksi optimal setiap kebun untuk memenuhi *safety stock*. Kemudian dianalisis tingkat sensitivitas yang didapatkan dari perencanaan tersebut. Hasil penelitian menunjukkan bahwa hasil peramalan permintaan simplisia dibanding rerata aktualnya untuk diproduksi di kebun B2P2TOOT adalah kunyit 129,85%, meniran 111,01%, tempuyung 265,74%, rumput mutiara 164,97%, dan kamilen 106,91%. Pemenuhan permintaan bahan baku jamu dilakukan dengan sistem budidaya tumpangsari karena faktor keterbatasan lahan yang tersedia. Hasil optimasi sumberdaya menghasilkan produksi optimal Kebun 1 dan Kebun 5 digunakan 100%, Kebun 2 digunakan 95,33%, Kebun 3 digunakan 93,57% dan Kebun 4 seluas 58,00%. Hasil analisis minimasi biaya menghasilkan biaya minimum untuk memenuhi permintaan *safety stock* sebesar Rp. 266.910.875,00.

Kata Kunci : bahan baku jamu, perencanaan produksi, optimasi, linear programming

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## **PRODUCTION PLANNING OF RAW MATERIAL OF HERBAL MEDICINE IN THE CENTER FOR RESEARCH AND DEVELOPMENT OF MEDICINAL PLANT AND TRADITIONAL MEDICINE (B2P2TOOT) TAWANGMANGU**

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### **Abstract**

The raw material needs of herbal medicine at the Center for Research and Development of Medicinal Plants and Traditional Medicines (B2P2TOOT) from year to year showed a significant increase, but were constrained by the supply of medicinal plants as raw materials for herbal medicine from farmers because they were uncertainties. This requires a production planning system that is able to overcome uncertainties (fluctuations) both shortages and excessive raw materials to maintain the continuity of production at a cost that is still efficient. The aim of this study is to determine the actual conditions of demand and supply of raw materials from farmers and determine the optimization of production resources from B2P2TOOT gardens to meet the safety stock of herbal raw materials with minimal costs. The method used is the production planning method with linear programming in B2P2TOOT Tawangmangu. Data analysis used demand forecasting and supply of farmer sourced simplicia according to the data pattern, then linear programming was used to determine the optimization of available resources. The objective function is to determine the minimum cost of the function of land area constraints and market demand. After optimization with the help of Lindo software, it can be seen the optimal production amount of each garden to meet safety stock. Then analyzed the level of sensitivity obtained from the plan. The results showed that the results of forecasting simplicia demand compared to the actual<sup>3</sup> average for B2P2TOOT production were turmeric = 129.85%, stonebreaker = 111.01%, milk saw thistle = 265.74%, pearl grass = 164.97%, and chamomile = 106.91%. Fulfillment of requests for medicinal raw materials is carried out with intercropping systems because of the limited availability of land. The results of optimization of resources resulted in optimal production of Gardens 1 and Gardens 5 used 100%, Gardens 2 were used 95.33%, Gardens 3 were used 93.57% and Gardens 4 were 58.00%. The results of the analysis of cost minimization produce a minimum cost to meet the safety stock demand of Rp. 266,910,875.00.

**Keywords:** herbal medicine raw materials, production planning, optimization, linear programming

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