INTISARI

PERENCANAAN DISTRIBUSI PUPUK NPK PHONSKA DENGAN MEMPERTIMBANGKAN KETIDAKSESUAIAN SUPLAI DAN KEBUTUHAN DI JAWA TENGAH MENGGUNAKAN *MULTI CRITERIA DECISION MAKING*

Sektor pertanian merupakan pilar utama dalam perekonomian Indonesia dengan menyerap tenaga kerja terbesar secara nasional. Untuk meningkatkan produktivitas pertanian, pemerintah menyediakan pupuk bersubsidi, termasuk pupuk NPK Phonska. Namun, distribusi pupuk bersubsidi kerap menghadapi kendala ketidaksesuaian antara suplai dan kebutuhan, serta perubahan regulasi yang memengaruhi mekanisme perencanaan.

Penelitian ini mengusulkan suatu kerangka terintegrasi dalam perencanaan distribusi pupuk NPK Phonska bersubsidi di Provinsi Jawa Tengah dengan menggabungkan metode peramalan deret waktu dan analisis pengambilan keputusan multikriteria. Kebutuhan diramalkan menggunakan model Seasonal Autoregressive Integrated Moving Average (SARIMA) berdasarkan data penjualan tahun 2019 hingga 2023 pada 29 wilayah penjualan. Pendekatan hybrid Multi-Criteria Decision Making (MCDM) digunakan untuk mengklasifikasikan wilayah menjadi prioritas dan non-prioritas, yang kemudian menjadi dasar dalam perencanaan distribusi.

Model SARIMA menunjukkan tingkat akurasi prediksi yang "dapat diterima" atau lebih baik pada 93% wilayah. Hasil analisis MCDM mengidentifikasi tujuh wilayah prioritas, yaitu A4, A5, A7, A9, A17, A22, dan A24. Wilayah-wilayah tersebut menerima alokasi distribusi berdasarkan hasil peramalan kebutuhan, sementara wilayah non-prioritas dialokasikan menggunakan pendekatan penjatahan persediaan. Model yang diusulkan mendukung perencanaan distribusi yang berbasis data dan adaptif terhadap perubahan kebijakan, serta memberikan kontribusi sebagai sistem pendukung keputusan dalam mengatasi ketidakseimbangan suplai pupuk bersubsidi.

Kata kunci : Distribusi Pupuk Bersubsidi, Manajemen Rantai Pasok, Penjatahan Persediaan, Peramalan Permintaan Musiman (*SARIMA*), *Multi Criteria Decision Making* (BWM-WPM).

ABSTRACT

PHONSKA NPK FERTILIZER DISTRIBUTION PLANNING BY CONSIDERING THE MISMATCH OF SUPPLY AND DEMAND IN CENTRAL JAVA USING MULTI CRITERIA DECISION MAKING

The agricultural sector is a cornerstone of Indonesia's economy, employing the largest share of the national workforce. To enhance agricultural productivity, the government provides subsidized fertilizers, including NPK Phonska. However, the distribution of these fertilizers is often hindered by mismatches between supply and demand, compounded by evolving regulatory frameworks.

This study proposes an integrated framework for planning the distribution of subsidized NPK Phonska fertilizer in Central Java by incorporating time-series forecasting and multi-criteria decision analysis. Demand was forecasted using the Seasonal Autoregressive Integrated Moving Average (SARIMA) model based on sales data from 2019 to 2023 across 29 sales regions. A hybrid Multi-Criteria Decision Making (MCDM) approach was employed to classify regions into priority and non-priority categories, which were then used to guide distribution planning.

The SARIMA models yielded acceptable or better predictive accuracy in 93% of the regions. The MCDM results identified seven regions (A4, A5, A7, A9, A17, A22, and A24) as distribution priorities. These regions received allocation based on forecasted demand, while others were assigned inventory using a rationing approach. The proposed model supports data-driven and regulation-aware distribution planning, offering a practical decision support system for managing fertilizer supply imbalances in a constrained and dynamic policy environment.

Keywords: *Subsidized Fertilizer Distribution, Supply Chain Management*, *Inventory Rationing*, *Seasonal Demand Forecasting (SARIMA), Multi Criteria Decision Making (BWM-WPM).*