

ABSTRAK

ANALISIS PENGENDALIAN PERSEDIAAN BAHAN PERTANIAN MENGUNAKAN METODE *EOQ*

(Studi Kasus: Petani Padi di Dusun Tegal Luhur, Kabupaten Karawang)

Oleh :

DIAH TRI RAHAYU

21416226201048

Program Studi Teknik Industri

Sektor pertanian merupakan penopang ketahanan pangan, namun pengendalian persediaan bahan pada petani masih belum efisien. Petani padi di Dusun Tegal Luhur, Kabupaten Karawang cenderung membeli pupuk dan pestisida sekaligus tanpa perhitungan yang terukur, sehingga menimbulkan pemborosan biaya, risiko kerusakan bahan, dan keterbatasan modal. Penelitian ini bertujuan menganalisis sistem pengendalian persediaan yang ada serta menerapkan metode *Economic Order Quantity (EOQ)* untuk menentukan jumlah pembelian optimal. Penelitian dilakukan dengan pendekatan kuantitatif melalui observasi, wawancara, dan dokumentasi pada seorang petani pengelola lahan 2 Ha. Hasil menunjukkan sistem pengendalian masih konvensional dengan total biaya Rp 22.500.000 per musim. Penerapan *EOQ* menghasilkan pemesanan optimal 1.217 kg pupuk dan 0,471 unit pestisida dengan potensi penghematan Rp 585.758 atau 1,32% per tahun. Namun, *constraint Minimum Order Quantity (MOQ)* di lapangan mensyaratkan pembelian pestisida minimal 1 paket penuh, sehingga pola eksisting petani sudah mendekati optimal. Metode *EOQ* terbukti dapat menjadi alat validasi yang mengonfirmasi bahwa praktik pembelian petani sudah relatif efisien, sekaligus memberikan alternatif pengendalian persediaan yang lebih terukur bagi petani padi.

Kata Kunci: Efisiensi Biaya, *EOQ*, Persediaan, Petani Padi.

ABSTRACT

Analysis of Agricultural Input Inventory Control by Using the EOQ Method

(Case Study: Rice Farmers in Tegal Luhur Hamlet, Karawang Regency)

By

DIAH TRI RAHAYU

21416226201048

Industrial Engineering Study Program

The agricultural sector is a pillar of food security, yet inventory control at the farmer level remains inefficient. Rice farmers in Tegal Luhur Hamlet, Karawang Regency, tend to purchase fertilizers and pesticides in bulk without proper calculation, leading to cost waste, risk of material damage, and capital limitations. This study aims to analyze the existing inventory control system and apply the Economic Order Quantity (EOQ) method to determine the optimal purchase quantity. The research employed a quantitative approach through observation, interviews, and documentation with a farmer managing 2 hectares of rice fields. The results show that the current inventory system is still conventional, with a total cost of IDR 22,500,000 per planting season. Applying the EOQ method resulted in an optimal order of 1,217 kg of fertilizer and 0.471 units of pesticides, yielding a potential saving of IDR 508,185, or 1.23%, per year. However, Minimum Order Quantity (MOQ) constraints in practice require pesticide purchases of at least 1 full package, making the farmers' existing pattern already near optimal. The EOQ method proves to be an effective validation tool that confirms farmers' purchasing practices are relatively efficient, while providing a more measured alternative for inventory control among rice farmers.

Keywords: *Cost Efficiency, EOQ, Inventory, Rice Farmers.*