

ABSTRAK

ANALISA KINERJA ALAT PEMBUATAN ADONAN PENCETAK KEMPLANG UNTUK MENINGKATKAN EFISIENSI PRODUKSI UMKM SELERA KEMPLANG

Muzammil

(2026: xv + halaman + gambar + tabel + lampiran)

Kemplang merupakan produk pangan tradisional khas Sumatera Selatan berbahan dasar ikan dan tepung sagu yang memiliki nilai ekonomi tinggi bagi pelaku Usaha Mikro, Kecil, dan Menengah (UMKM). Pada UMKM Selera Kemplang di Desa Talang Pangeran, Kabupaten Ogan Ilir, proses produksi masih dilakukan secara manual oleh 6 orang pekerja dengan kapasitas rata-rata hanya 6,67 kg/jam. Metode manual ini mengakibatkan ketidakseragaman ukuran produk, rendahnya kapasitas produksi, serta potensi kecelakaan kerja. Penelitian ini bertujuan untuk merancang dan menganalisis kinerja alat pencetak adonan kemplang berbasis mesin guna meningkatkan efisiensi produksi. Alat dirancang menggunakan motor listrik sebagai sumber penggerak, sistem transmisi daya berupa pulley dan sabuk, serta rangka berbahan stainless steel food grade. Komponen utama meliputi roller, hopper, konveyor, dan rotary die cutter yang bekerja secara terintegrasi untuk menghasilkan produk dengan ukuran seragam. Pengujian dilakukan pada tiga variasi putaran motor, yaitu RPM 10, RPM 20, dan RPM 30. Hasil pengujian menunjukkan bahwa kapasitas produksi meningkat seiring bertambahnya RPM: pada RPM 10 diperoleh kapasitas 19,64–23,56 kg/jam, pada RPM 20 sebesar 39,27 kg/jam, dan pada RPM 30 mencapai 61,71 kg/jam. Analisis uji One-Way ANOVA mengkonfirmasi perbedaan antar variasi RPM signifikan secara statistik dengan nilai $F_{hitung} 38,977 > F_{kritis} 2,409$ dan $P\text{-value} = 0,000 < 0,05$. Efisiensi kinerja alat dibandingkan proses manual mencapai 294,55–353,45% pada RPM 10, 589,09% pada RPM 20, dan 925,71% pada RPM 30. Hasil penelitian membuktikan bahwa mekanisasi proses pencetakan kemplang mampu meningkatkan produktivitas UMKM secara signifikan dan memperluas peluang pemenuhan permintaan pasar.

Kata Kunci: kemplang, mesin pencetak, UMKM, efisiensi produksi, motor listrik, rotary die cutter, kapasitas produksi.

ABSTRACT

PERFORMANCE ANALYSIS OF A KEMPLANG DOUGH MOLDING MACHINE TO IMPROVE THE PRODUCTION EFFICIENCY OF SELERA KEMPLANG MSME

Muzammil

(2026: xv + xx pages + xx figures + xx tables + xx appendices)

Kemplang is a traditional food product from South Sumatra made from fish and sago flour, which holds significant economic value for Micro, Small, and Medium Enterprises (MSMEs). At MSME Selera Kemplang in Talang Pangeran Village, Ogan Ilir Regency, the production process is still carried out manually by 6 workers with an average capacity of only 6.67 kg/hour. This manual method results in non-uniform product sizes, low production capacity, and potential occupational hazards. This research aims to design and analyze the performance of a mechanized kemplang dough molding machine to improve production efficiency. The machine was designed using an electric motor as the power source, a power transmission system consisting of pulleys and belts, and a food-grade stainless steel frame. Key components include rollers, a hopper, a conveyor, and a rotary die cutter that work in an integrated manner to produce uniformly sized products. Performance testing was conducted at three motor speed variations: 10 RPM, 20 RPM, and 30 RPM. Results showed that production capacity increased with higher RPM: at 10 RPM, capacity ranged from 19.64 to 23.56 kg/hour; at 20 RPM, it reached a constant 39.27 kg/hour; and at 30 RPM, the highest capacity of 61.71 kg/hour was achieved. One-Way ANOVA analysis confirmed that differences among RPM variations were statistically significant, with an F-calculated value of $38.977 > F\text{-critical } 2.409$ and a P-value of $0.000 < 0.05$. The machine's performance efficiency compared to manual methods reached 294.55–353.45% at 10 RPM, 589.09% at 20 RPM, and 925.71% at 30 RPM. The findings demonstrate that mechanization of the kemplang molding process can significantly improve MSME productivity and expand opportunities to meet broader market demand.

Keywords: kemplang, molding machine, MSME, production efficiency, electric motor, rotary die cutter, production capacity.