

Peningkatan Efisiensi Produksi *Crispy Crunch* Melalui Six sigma dan Analisis Regresi Linear Berganda di PT Charoen Pokphand Indonesia

(Improving Crispy Crunch Production Efficiency Through Six sigma and Multiple Linear Regression Analysis at PT Charoen Pokphand Indonesia)

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ABSTRACT

This study aims to identify factors influencing the production yield of "Crispy Crunch" at PT Charoen Pokphand Indonesia, determine the impact of waste at each stage on yield, and formulate measurable improvement recommendations. The research was conducted over five months across 28 production runs, utilizing primary and secondary data from observations, interviews, and checksheets; analysis employed the Six Sigma DMAIC (Define, Measure, Analyze, Improve) approach and multiple linear regression using SPSS. The "Define" phase identified waste in the frying, coating, and sorting stages as accounting for 86.7% of total waste, with frying waste being the highest contributor (54.35%) due to oversized conveyor mesh and unstable temperatures. The "Measure" phase revealed the frying process operated at a sigma level of 2.5 with a DPMO of 148,830, while the "Analyze" phase identified machinery-related issues as the primary root cause. Pearson correlation analysis showed that frying waste had the strongest significant negative correlation with yield ($r = -0.445$; $p = 0.018$). The F-test indicated that the five waste variables did not have a significant simultaneous effect ($F = 1.743$; $p = 0.167$; $R^2 = 0.284$); however, the t-test showed that frying waste had a significant partial effect on yield (coefficient = -1.435 ; $p = 0.045$). The average actual yield of 51.59% remained below the company's target of 62%. It is concluded that improvements should focus on the frying, coating, and sorting stages prioritizing frying through conveyor mesh replacement, automatic temperature calibration, and conveyor alignment to reduce frying DPMO to 66,800 (sigma 3.0). The company is advised to prioritize structural improvements to the fryer machinery and enhance operator competence.

Keywords: DMAI, multiple linear regression, Six sigma, waste, yield.