ROASTED ROBUSTA COFFEE QUALITY CONTROL USING SIX SIGMA (CASE STUDY OF *FINCA DE CASCADA*)

Muhammad Ardhany Saadillah

Study Program of Agroindustry Management
Department of Agribusiness Management

ABSTRACT

Finca De Cascada was a small enterprise engaged in coffee processing, particularly in the production of roasted robusta coffee beans. Post-harvest activities up to the roasting process still had the potential to cause quality deviations, such as inappropriate moisture content, broken beans, and the presence of immature beans. This condition indicated that comprehensive and detailed quality control was still required to maintain product quality. Therefore, this research applied the Six Sigma approach with the DMAIC stages (Define, Measure, Analyze, Improve, Control) as a method to improve product quality by reducing the defect rate. Based on the analysis using the p-control chart, it was found that all data on product nonconformities of roasted robusta coffee beans were still within statistical control limits. This was shown by the absence of any points exceeding the upper or lower control limits, which meant that the production process could be considered stable. The most dominant type of nonconformity was broken coffee beans with a total of 30 packages. The calculation of Defect Per Million Opportunities (DPMO) resulted in 170,000 with a sigma level of 2.33, which meant that in one million units or production processes, there was a possibility of 170,000 defective products. Meanwhile, the value of process capability (Cp) was 0.7, which indicated that the company's ability to produce uniform products was 70%. The main factors causing the nonconformities in this research originated from three aspects, namely environmental factors in the form of storage warehouses without temperature and humidity measuring devices, material factors in the form of inadequate raw material sorting which led to immature and hollow beans, and human factors in the form of low worker accuracy and the absence of a systematic process control checklist. The results of this study emphasized that the application of the Six Sigma method could serve as an essential basis for improving the quality of roasted robusta coffee beans at Finca De Cascada in a sustainable manner.

Keywords: Finca De Cascada, Roasted Robusta Coffe Bean, Quality Control, Six Sigma Method