

ZAHIR. NIM 190331100094 PENGENDALIAN PADA PROSES PRODUKSI ROASTERY DI CHAPTER 5 COFFEE DENGAN STATISTICAL PROCESS CONTROL (SPC). Di bawah bimbingan **Dr. Iffan Muflahah., S.TP., M.Si dan Mojiono., S.TP. M.Si.**

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengendalian kualitas pada proses produksi roastery kopi di Chapter 5 Coffee menggunakan metode *Statistical Process Control* (SPC), mengidentifikasi faktor-faktor penyebab terjadinya biji cacat (*defect beans*), serta memberikan usulan perbaikan untuk meningkatkan kualitas produk. Penelitian dilakukan melalui observasi langsung terhadap proses produksi dan pengumpulan data jumlah produksi serta jumlah biji cacat selama 48 periode pengamatan pada bulan Desember 2025. Analisis data dilakukan menggunakan diagram kendali P (*P-Chart*) untuk mengetahui kestabilan proses produksi dan diagram fishbone untuk mengidentifikasi akar penyebab kecacatan produk.

Hasil penelitian menunjukkan bahwa nilai rata-rata proporsi biji cacat (*center line*) sebesar 0,1497 dengan batas kendali atas (BKA) sebesar 0,1835 dan batas kendali bawah (BKB) sebesar 0,1158. Sebagian besar titik pengamatan berada dalam batas kendali statistik, terdapat satu periode pengamatan yang berada di luar batas kendali atas sehingga menunjukkan bahwa proses produksi belum sepenuhnya terkendali secara statistik. Analisis fishbone menunjukkan bahwa penyebab utama terjadinya *defect beans* berasal dari faktor manusia (*man*), mesin (*machine*), metode (*method*), material, dan lingkungan (*environment*). Penerapan SPC terbukti mampu membantu memantau kestabilan proses produksi serta mengidentifikasi penyimpangan yang berpotensi meningkatkan jumlah biji cacat. Upaya perbaikan yang disarankan meliputi penyusunan SOP roasting yang lebih terstandar, peningkatan kompetensi operator, perawatan mesin secara berkala, pengendalian kualitas bahan baku, serta pengelolaan lingkungan kerja yang lebih baik.

Kata kunci: Statistical Process Control (SPC), P-Chart, Fishbone Diagram, Pengendalian Kualitas, Roastery Kopi, Defect Beans.

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ABSTRACT

This study aims to analyze quality control in the coffee roastery production process at Chapter 5 Coffee using the Statistical Process Control (SPC) method, identify the factors causing defective beans, and propose improvement strategies to enhance product quality. The research was conducted through direct observation of the production process and by collecting data on production volume and the number of defective beans over 48 observation periods during December 2025. Data were analyzed using a P control chart (P-Chart) to evaluate the stability of the production process and a fishbone diagram to identify the root causes of product defects.

The results showed that the average proportion of defective beans (center line) was 0.1497, with an Upper Control Limit (UCL) of 0.1835 and a Lower Control Limit (LCL) of 0.1158. Most observation points were within the statistical control limits; however, one observation period exceeded the Upper Control Limit, indicating that the production process was not yet fully under statistical control. The fishbone analysis revealed that the main causes of defective beans were related to human factors (man), machinery (machine), methods (method), materials (material), and the working environment (environment). The implementation of SPC proved effective in monitoring production process stability and identifying deviations that could increase the number of defective beans. The proposed improvement measures include establishing more standardized roasting Standard Operating Procedures (SOPs), enhancing operator competence, performing regular machine maintenance, strengthening raw material quality control, and improving workplace environmental management.

Keywords: Statistical Process Control (SPC), P-Chart, Fishbone Diagram, Quality Control, Coffee Roastery, Defective Beans

