

ABSTRAK

Pengangkutan Tandan Buah Segar (TBS) merupakan salah satu tahapan penting dalam proses produksi minyak kelapa sawit karena berpengaruh langsung terhadap kualitas bahan baku yang diterima oleh pabrik. Keterlambatan pengangkutan TBS dapat mengakibatkan terjadinya buah restan, yaitu TBS yang tidak terangkut pada hari panen, sehingga berdampak pada peningkatan kadar asam lemak bebas (Free Fatty Acid/FFA), penurunan mutu Crude Palm Oil (CPO), serta menurunnya efisiensi operasional. Penelitian ini bertujuan untuk mengidentifikasi faktor utama penyebab terjadinya buah restan pada proses pengangkutan TBS serta merancang langkah perbaikan proses menggunakan metode Fault Tree Analysis (FTA) dan siklus Plan-Do-Check-Act (PDCA). Metode FTA digunakan untuk memetakan hubungan sebab dan akibat dari permasalahan buah restan secara sistematis hingga diperoleh penyebab dasar, sedangkan siklus PDCA diterapkan sebagai pendekatan perbaikan berkelanjutan berdasarkan hasil analisis FTA. Penelitian ini dilakukan di PTPN IV Regional II Unit PKS Adolina dengan fokus pada proses pengangkutan TBS yang berpotensi menimbulkan buah restan. Hasil analisis menunjukkan bahwa penyebab utama buah restan meliputi keterbatasan armada angkut, kondisi jalan kebun yang kurang baik, perencanaan rute dan jadwal pengangkutan yang belum optimal, serta koordinasi antar bagian yang belum efektif. Penerapan siklus PDCA berdasarkan hasil FTA diharapkan mampu meminimalkan terjadinya buah restan, meningkatkan ketepatan waktu pengangkutan TBS, serta mengoptimalkan kinerja operasional perusahaan secara berkelanjutan.

Kata kunci: Tandan Buah Segar (TBS), buah restan, Fault Tree Analysis (FTA), PDCA, pengangkutan kelapa sawit.

ABSTRACT

The transportation of Fresh Fruit Bunches (FFB) is a crucial stage in the palm oil production process as it directly affects the quality of raw materials delivered to the mill. Delays in FFB transportation can lead to the occurrence of restan fruit, namely FFB that are not transported on the harvesting day, which subsequently results in an increase in free fatty acid (FFA) levels, a decline in Crude Palm Oil (CPO) quality, and reduced operational efficiency. This study aims to identify the main factors causing restan fruit during the FFB transportation process and to design process improvement measures using the Fault Tree Analysis (FTA) method and the Plan-Do-Check-Act (PDCA) cycle. FTA is applied to systematically map the cause-and effect relationships of restan fruit problems to determine their root causes, while the PDCA cycle is implemented as a continuous improvement approach based on the results of the FTA analysis. This research was conducted at PTPN IV Regional II, PKS Adolina Unit, with a focus on FFB transportation activities that potentially lead to restan fruit. The results indicate that the primary causes of restan fruit include limited availability of transport vehicles, poor plantation road conditions, suboptimal route and transportation scheduling, and ineffective coordination among operational units. The implementation of the PDCA cycle based on FTA findings is expected to minimize the occurrence of restan fruit, improve the timeliness of FFB transportation, and enhance the company's operational performance on a sustainable basis.

Keywords: Fresh Fruit Bunches (FFB), restan fruit, Fault Tree Analysis (FTA), PDCA, palm oil transportation.