

ABSTRAK

PT Sapta Karya Damai merupakan industri proses yang bergerak dibidang produksi Tandan Buah Segar (TBS) menjadi *Crude Palm Oil* (CPO) dan kernel. Perusahaan ini memiliki masalah berkaitan dengan efektifitas mesin. Perawatan mesin dan pergantian komponen yang tidak rutin serta penggunaan mesin yang terus-menerus dapat mengakibatkan terjadinya permasalahan *downtime* mesin, sehingga berdampak pada penurunan hasil produksi mesin. Maka perlu adanya kajian lebih lanjut khususnya pada mesin *screw press* pada *line b* yang sering mengalami kerusakan.

Penelitian ini bertujuan untuk mengetahui tingkat efektifitas mesin *screw press*, menggunakan metode *Overall Equipment Effectiveness* (OEE). Metode OEE bertujuan untuk menganalisa dan mengidentifikasi tingkat *availability*, *performance efficiency*, *rate of quality* sehingga diketahui nilai efektifitas mesin. Selanjutnya di analisis menggunakan metode *Failure Mode Effect Analysis* (FMEA) dna diagram pareto bertujuan untuk mendapatkan usulan perbaikan yang tepat dalam menyelesaikan masalah-masalah yang terdapat pada mesin *screw press* di PT Sapta Karya Damai.

Berdasarkan hasil perhitungan dengan menggunakan metode OEE diketahui bahwa nilai *availability* mesin *screw press* 1 sebesar 94,12%, mesin *screw press* 2 sebesar 94,53%, mesin *screw press* 3 sebesar 94,41%, mesin *screw press* 4 sebesar 94,39%. Pada *performance efficiency* mesin *screw press* 1 sebesar 59,28%, mesin *screw press* 2 sebesar 59,71%, mesin *screw press* 3 sebesar 60,55%, mesin *screw press* 4 sebesar 59,97%. Pada faktor *rate of quality* diperoleh pada nilai mesin 1 sampai dengan mesin 4 sebesar 100% dan nilai OEE mesin 1 diperoleh sebesar 55,80%, mesin 2 sebesar 56,45%, mesin 3 sebesar 57,16%, mesin 4 sebesar 56,61%. Nilai *performance efficiency* yang diperoleh menunjukkan masih berada dibawah standar JIPM, sehingga fokus perbaikan yang dilakukan pada mesin *screw press* adalah pada faktor tersebut, guna meningkatkan nilai OEE. Berdasarkan analisa dengan menggunakan diagram pareto dan metode FMEA diperoleh beberapa strategi perbaikan. Strategi perbaikan yang perlu dilakukan untuk meningkatkan efektifitas antara lain, pergantian komponen mesin, meningkatkan ketelitian dibagian sortase, penjadwalan perawatan mesin secara rutin, pemakaian komponen sesuai standart, pergantian sparepart sesuai usia pakai, dan pemberian materi/pelatihan pada karyawan. Diharapkan dengan melakukan strategi perbaikan tersebut nilai OEE menjadi lebih baik sehingga efektifitas dapat meningkat.

Kata kunci: Efektivitas, perawatan mesin, *Overall Equipment Effectiveness* (OEE), FMEA, diagram pareto

ABSTRACT

PT Sapta Karya Damai is an industrial process engaged in the production of Fresh Fruit Bunches (FFB) into Crude Palm Oil (CPO) and kernels. This company has problems related to the effectiveness of the machine. Machine maintenance and non-routine replacement of components as well as continuous use of the machine can result in frequent machine downtime problems, resulting in a decrease in machine production. So there is a need for more studies, especially on the screw press machine on line b which is often damaged.

This study aims to determine the level of effectiveness of the screw press machine, using the Overall Equipment Effectiveness (OEE) method. The OEE method aims to analyze and identify the level of availability, performance efficiency, rate of quality so that the engine effectiveness is known. Furthermore, it is analyzed using the Failure Mode Effect Analysis (FMEA) method and pareto diagrams aiming to get the right improvement suggestions in solving the problems found in the screw press machine at PT Sapta Karya Damai.

Based on the results of calculations using the OEE method, it is known that the availability value of screw press machine 1 is 94.12%, screw press machine 2 is 94.53%, screw press machine 3 is 94.41%, screw press machine 4 is 94.39%. The efficiency performance of the screw press machine 1 is 59.28%, the screw press machine 2 is 59.71%, the screw press machine 3 is 60.55%, the screw press machine 4 is 59.97%. The rate of quality factor obtained for machine 1 to machine 4 is 100% and the OEE value for machine 1 is 55.80%, machine 2 is 56.45%, machine 3 is 57.16%, machine 4 is 56, 61%. The performance efficiency value obtained shows that it is still below the JIPM standard, so the focus of improvements made to the screw press machine is on this factor, in order to increase the OEE value. Based on the analysis using pareto charts and the FMEA method, several improvement strategies were obtained. Improvement strategies that need to be carried out to increase effectiveness include replacing machine components, monitoring the sorting division, scheduling routine machine maintenance, using standard components, changing spare parts according to age, and providing materials/training to employees. It is hoped that by carrying out these strategic improvements the value of OEE will be better so that effectiveness can increase.

Keyword: *Effectiveness, Machine Maintenance, Overall Equipment Effectiveness (OEE), FMEA, Pareto Diagram*