PEMANFAATAN LIMBAH PENEBANGAN UNTUK MENGURANGI KERUSAKAN TANAH HUTAN AKIBAT OPERASI ALAT BERAT DALAM RANGKA PEMANENAN RAMAH LINGKUNGAN

(Utilization of Logging Waste to Reduce Soil Disturbance Caused by Heavy Equipment for Environmental Friendly Harvesting)

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ABSTRAK

Penelitian ini dilakukan di areal Hutan Tanaman Industri jenis *Acacia mangium* di Sumatera Selatan. Tujuan penelitian; (1) menentukan pengaruh kerapatan serasah terhadap pengurangan kepadatan tanah akibat mensin pemanenan hutan, (2) mengukur tingkat kepadatan tanah pada berbagai intensitas penyaradan oleh *forwarder* dengan atau tanpa serasah. Mesin pemanenan yang digunakan adalah *Forwarder Timberjack* 1010B. Penelitian lapangan dirancang dengan membuat plot tanpa serasah dan plot dengan kerapatan serasah10 kg/m^2,15kg/m^2, 20kg/m^2, 25 kg/m^2 dilalui beberapa kali forwarder melintas.Kepadatan tanah meningkat dengan bertambahnya intensitas melintasnya forwarder. Peningkatan kepadatan tanah yang ditunjukkan oleh nilai *bulk density* dan *cone index* terjadi dipermukaan tanah sampai dengan kedalaman 30 cm dibawah permukaan tanah. Setelah lima kali intensitas penyaradan oleh *forwarder* nilai *bulk density* dan *cone index* tidak berpengaruh lagi terhadap peningkatan kepadatan tanah. Tanah terbuka tanpa serasah dan dengan serasah hanya 10 sampai 15 kg/m^2 mengalami pemadatan tanah yang lebih besar dibandingkan dengan permukaan tanah dengan perlakukan kerapatan serasas 20 dan 25 kg/m^2. Kerapatan serasah 20 kg/m^2 adalah perlakuan yang nyata mengurangi dapat mengurangi kepadatan tanah. Pemanfaatan serasah mengurangi kepadatan tanah oleh *forwarder* dalam penyaradan kayu .

Kata kunci : Pemadatan tanah, serasah,forwarder, bulk density, *Acacia mangium.*

ABSTRACT

The research was conducted at a forest plantation area of *Acacia mangium* at South Sumatera. The research objectives are (1)to determine the effect of slash densities in reducing soil compaction in a forest harvesting operation, (2) and to measure the degree of soil hardness after number of forwarder passes with or without slash. Harvesting machinery was used in this research was a forwarder Timberjack 1010B. Field research was designed into several plots and treatments. Bare plots were passed several times of forwarder and treatment of slash plot (10 kg/m^2,15kg/m^2, 20kg/m^2, 25 kg/m^2) were set for several passes of a forwarder. Soil hardness increased with the increase of forwarder passes. The increasing of bulk density occurred in the soil surface and also in the 30 cm depth of soil. After fifth forwarder passes the bulk density and cone penetration index was slightly affected any further by subsequent passes. Bare soil without slash and slash densities 10, and 15 kg/m^2 treatment had greater compaction than 20 and 25 kg/m^2. The 20 kg/m^2 of slash treatment was significantly lower than bare without slash. The amount of slash present reduced soil compaction by forwarder operation in the plantation forest.

Keywords: Soil compaction, slash, forwarder, bulk density, *Acacia mangium.*