

EVALUASI UJI PERBANDINGAN PERFORMA ALAT PENCACAH RUMPUT TENAGA SURYA *SMART MACHINE GRASS* DENGAN *S-GROMA*

Risse Entikaria Rachmanita, S.Pd., M.Si (Pembimbing TA Penghargaan)

Enno Agdelliano Diniardi

Program Studi Teknik Energi Terbarukan
Jurusan Teknik

ABSTRAK

Penggunaan teknologi sebagai penyedia pakan ternak mulai banyak diterapkan untuk membantu para peternak untuk menunjang produktivitas ternaknya. Salah satu penerapan teknologi mesin pencacah rumput ramah lingkungan tersebut adalah mesin *S-Groma* dan *Smart Machine Grass*. Penelitian ini bertujuan untuk mengevaluasi uji perbandingan dari rancang bangun antara mesin *S-Groma* dan *Smart Machine Grass* dengan mengkaji kinerja kedua alat yang meliputi rancangan struktural dan spesifikasi komponen, daya energi yang dihasilkan, kecepatan putar (rpm), dan kapasitas hasil cacahan rumput. Penelitian ini menggunakan metode evaluasi uji perbandingan dari rancang bangun pengembangan inovasi alat (*Research and Development*) untuk mengetahui evaluasi perbandingannya. Dalam pengujian ini dilakukan pengambilan data setiap 5 menit mulai pukul 08.00 sampai pukul 10.00 selama 2 jam di Unit Peternakan Politeknik Negeri Jember. Hasil evaluasi perbandingan performa alat *S-Groma* diperoleh data rata-rata output tegangan (V_{AC}) = 222,9 V, Arus (I_{AC}) = 1,54 A, Irradiasi (W/m^2) = 695,6 W/m^2 , Kecepatan Putar (Rpm) = 2557,1 Rpm, Kapasitas Cacahan (kg) = 69,9 kg. Sedangkan pada alat *Smart Machine Grass* diperoleh data rata-rata output tegangan (V_{AC}) = 221,0 V, Arus (I_{AC}) = 2,26 A, Irradiasi (W/m^2) = 640,0 W/m^2 , Kecepatan Putar (rpm) = 1142,9 Rpm, Kapasitas Cacahan (kg) = 64 kg.

Kata Kunci: pencacah rumput, uji perbandingan, *S-Groma*, *Smart Machine Grass*.

EVALUATION OF COMPARISON TEST OF SOLAR POWER TOOLS SMART MACHINE GRASS WITH S-GROMA

Risse Entikaria Rachmanita, S.Pd., M.Si (Supervisor)

Enno Agdelliano Diniardi

Study Program of Renewable Energy Engineering
Department of Engineering

ABSTRACT

The use of technology as a provider of animal feed has begun to be widely applied to help breeders to increase the productivity of their livestock. One application of environmentally friendly lawnmower technology is the S-Groma and Smart Machine Grass machines. This study aims to evaluate the comparative test of the design between the S-Groma machine and the Smart Machine Grass by examining the performance of the two tools which include structural design and component specifications, energy generated, rotational speed (rpm), and grass chopping capacity. This study uses the comparative test evaluation method of the design and development of innovative tools (research and development) to determine the comparative evaluation. In this test, data was collected every 5 minutes from 08.00 to 10.00 for 2 hours at the animal husbandry unit of the Jember State Polytechnic. The evaluation results for the comparison of the performance of the S-Groma tool obtained an average data output Voltage (V_{AC})=222,9 V, Current (I_{AC})=1,54 A, Irradiation (W/m^2)=695,6 W/m^2 , Rotating Speed (rpm)=2557,1 rpm, Chopping capacity (Kg)= 69,9 Kg. Meanwhile, on the Smart Machine Grass the average output Voltage (V_{AC})=221,0 V, Current (I_{AC})=2,26 A, Irradiation (W/m^2)=640,0 W/m^2 , Rotating Speed (rpm)=1142,9 rpm, Chopping Capacity (kg)=64 kg.

Keywords: grass chopper, comparison test, S-Groma, Smart Machine Grass.