

ABSTRACT

DESIGN AND TEST PERFORMANCE OF CASSAVA STEMS CHOPPER TYPE TEP-1

By

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Cassava stems has not been maximally utilized, its existence in the land other than just thrown away and burned. This condition is the background of the research on the design of cassava stem chopper tool and its performance test.

Methods in this study include the design and experiments cassava stems chopper. The chopper performance test was performed by calculating the values of the parameter including the working capacity of the tool (kg/hour), the calculation of the weight loss (%), and the calculation of fuel consumption (ℓ/hour) tested on the chopper tool while operating at RPM 560, 870 and 1245.

On each RPM 560, 870 and 1245 the working capacity are 38,67 kg/hour, 59,73 kg/hour and 78 kg/hour; the weight average 4.60%, 3.89%, and 4.09%; the fuel consumption are 0.27 ℓ/hour, 0.68 ℓ/hour, and 0.81 ℓ/hour. For the three chopper size fraction ≥ 0.5 cm, $0,2 < x < 0,5$ cm, and $\leq 0,2$ cm, with RPM 560 obtained 12,88%, 45,45% , and 41.47%; for RPM 870 obtained 11.95%, 38.71%, and 49.35%; then for RPM 1245 obtained the result 13.37%, 37.50%, and 49.13%.

From the data, it can be concluded that for the best performance capacity obtained at RPM 1245 with the result of working capacity obtained 78 kg / hour with fuel consumption 0,81 ℓ/hour.

Keywords: Design, chopper, cassava stems

ABSTRAK

RANCANG BANGUN DAN UJI KINERJA ALAT PERAJANG BATANG SINGKONG TIPE TEP-1

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Batang singkong selama ini belum termanfaatkan maksimal, keberadaannya di lahan selain hanya dibuang dan dibakar. Kondisi tersebut yang menjadi latar belakang dilaksanakannya penelitian tentang perancangan alat perajang batang singkong beserta uji kinerjanya.

Metode dalam penelitian ini meliputi rancang bangun dan percobaan alat perajang batang singkong. Pengujian kinerja alat perajang dilakukan dengan menghitung nilai dari parameternya meliputi kapasitas kerja alat (kg/jam), perhitungan susut bobot (%), dan perhitungan konsumsi bahan bakar (ℓ/jam) yang diujikan pada alat perajang saat beroperasi pada RPM 560, 870 dan 1245.

Pada setiap RPM 560, 870 dan 1245 didapatkan hasil kapasitas kerja rata-rata 38,67 kg/jam, 59,73 kg/jam dan 78 kg/jam; susut bobot rata-rata 4,60%, 3,89%, dan 4,09%; konsumsi bahan bakar rata 0,27 ℓ/jam, 0,68 ℓ/jam dan 0,81 ℓ/jam. Tiga fraksi hasil cacahan alat perajang berukuran $\geq 0,5$ cm, $0,2 < x < 0,5$ cm, dan $\leq 0,2$ cm, pada RPM 560 didapatkan 12,88 %, 45,45%, dan 41,47%; pada RPM 870 didapatkan 11,95%, 38,71%, dan 49,35%; kemudian pada RPM 1245 didapatkan hasilnya 13,37%, 37,50%, dan 49,13%. Kinerja terbaik didapatkan pada RPM 1245 dengan hasil kapasitas kerja yang didapatkan 78 kg/jam dengan konsumsi bahan bakar 0,81 ℓ/jam.

Kata kunci : rancang bangun, alat perajang, batang singkong.