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LAMPIRAN

Lampiran 1. Perhitungan Produktivitas

Produktivitas

Volume Tumpukan kayu = Panjang x Lebar x Tinggi stackingan kayu.

Menurut (Williams, 2015) Setelah Menghitung volume stackingan kayu maka harus di konversikan ke factor koreksi kayu Acacia Crasicarpa dari stapel meter ke meter kubik sebesar 0,59. Dengan rumus sebagai berikut :

m^3 = volume stackingan kayu x 0,59

Menghitung produktivitas proses kegiatan Debarking dengan menggunakan rumus sebagai berikut :

$$P = \frac{V}{T}$$

Keterangan:

P = Produktivitas mesin (m3 /jam).

V = Hasil Produksi pada 1 Jam Kegiatan Debark (m3).

T = Waktu total yang dibutuhkan untuk 1 jam pengamatan.

Operator = Tony

Ulangan 1 (Pagi) :

V = 4 m x 1,342 m x 6,4 m = 34,355 m

m^3= 34,355 m x 0,59 = 20,269 m^3

P = $\frac{2792}{3600} x 20{,}269 = 15{,}708\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,301 m x 5,89 m = 30,651 m

m^3= 30,651 m x 0,59 = 18,084m^3

P = $\frac{2742}{3600} x18{,}084 = 13{,}761\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,73 m x 7,2 m = 38,122 m

m^3= 34,355 m x 0,59 = 23,522 m^3

P = $\frac{2753}{3600} x23{,}522 = 17{,}103\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,69 m x 6,1 m = 35,863 m

m^3= 35,863 m x 0,59 = 22,653 m^3

P = $\frac{3134}{3600} x22{,}653 = 16{,}629\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,342 m x 6,4 m = 34,355 m

m^3= 34,355 m x 0,59 = 20,269 m^3

P = $\frac{3196}{3600} x20{,}269 = 14{,}289\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,333 m x 6,19 m = 35,731 m

m^3= 35,731 m x 0,59 = 21,643 m^3

P = $\frac{3425}{3600} x21{,}643 = 15{,}134\ m^3/jam$

Operator = Very

Ulangan 1 (Pagi) :

V = 4 m x 1,328 m x 7,38 m = 35,731 m

m^3= 39,202 m x 0,59 = 23,129 m^3

P = $\frac{2865}{3600} x 23{,}129 = 18{,}387\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,304 m x 4,82 m = 25,141 m

m^3= 25,141 m x 0,59 = 14,833 m^3

P = $\frac{2836}{3600} x 14{,}833 = 11{,}673\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,496 m x 5,67 m = 35,34 m

m^3= 35,731 m x 0,59 = 35,34 m^3

P = $\frac{2563}{3600} x 20{,}851 = 14{,}825\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,115 m x 5,21 m = 27,966 m

m^3= 27,966 m x 0,59 = 16,5 m^3

P = $\frac{2746}{3600} x 16{,}5 = 12{,}573\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,333 m x 6,19 m = 36,055 m

m^3= 36,055 m x 0,59 = 21,643 m^3

P = $\frac{2626}{3600} x 21{,}273 = 15{,}508\ m^3/jam$

Uangan 3 (Sore) :

V = 4 m x 1,333 m x 6,19 m = 35,274 m

m^3= 35,274 m x 0,59 = 20,812 m^3

P = $\frac{2451}{3600} x 20{,}812 = 14{,}152\ m^3/jam$

Operator = Irfan

Ulangan 1 (Pagi) :

V = 4 m x 1,225 m x 5,1 m = 24,99 m

m^3= 24,99 m x 0,59 = 14,744 m^3

P = $\frac{2330}{3600} x14{,}744 = 9{,}539\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,072 m x 5,54 m = 22,469 m

m^3= 22,469 m x 0,59 = 13,256 m^3

P = $\frac{2442}{3600} x13{,}256 = 8{,}987\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 0,989 m x 5,31 m = 25,074 m

m^3= 25,074 m x 0,59 = 14,794 m^3

P = $\frac{2512}{3600} x14{,}794 = 10{,}311\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 0,980 m x 4,77 m = 19,255 m

m^3= 19,255 m x 0,59 = 11,361 m^3

P = $\frac{2461}{3600} x11{,}361 = 7{,}759\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,304 m x 5,127 m = 23,596 m

m^3= 23,596 m x 0,59 = 13,922 m^3

P = $\frac{2711}{3600} x13{,}992 = 10{,}535\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,201 m x 4,005 m = 20,662 m

m^3= 20,662 m x 0,59 = 12,191 m^3

P = $\frac{2,431}{3600} x12,191 = 8,228\ m^3/jam$

Operator = Irwandi

Ulangan 1 (Pagi) :

V = 4 m x 1,7 m x 5,56 m = 37,808 m

m^3= 37,808 m x 0,59 = 22,306 m^3

P = $\frac{2376}{3600} x22,306 = 14,721\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,63 m x 4,49 m = 29,274 m

m^3= 29,274 m x 0,59 = 17,271 m^3

P = $\frac{2611}{3600} x17,271 = 12,573\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,142 m x 5,475 m = 39,064 m

m^3= 39,064 m x 0,59 = 23,048 m^3

P = $\frac{2486}{3600} x23,048 = 15,903\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,183 m x 4,654 m = 30,849 m

m^3= 30,849 m x 0,59 = 18,201 m^3

P = $\frac{2283}{3600} x18,201 = 11,539\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,333 m x 6,19 m = 34,796 m

m^3= 34,796 m x 0,59 = 20,53 m^3

P = $\frac{2414}{3600} x20,53 = 13,755\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,86 m x 5,963 m = 32,342 m

m^3= 32,342 m x 0,59 = 19,082 m^3

P = $\frac{2379}{3600} x19{,}082 = 12{,}594\ m^3/jam$

Operator = Ardiono

Ulangan 1 (Pagi) :

V = 4 m x 1,594 m x 5,52 m = 35,195 m

m^3= 35,195 m x 0,59 = 20,765 m^3

P = $\frac{3115}{3600} x20.765 = 17{,}961\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,57 m x 5,03 m = 31,588 m

m^3= 31,588 m x 0,59 = 18,636 m^3

P = $\frac{2879}{3600} x18{,}636 = 14{,}890\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,148 m x 5,974 m = 29,471 m

m^3= 29,471 m x 0,59 = 17,388 m^3

P = $\frac{3443}{3600} x17{,}388 = 16{,}622\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,571 m x 5,735 m = 27,359 m

m^3= 27,359 m x 0,59 = 16,142 m^3

P = $\frac{3149}{3600} x16{,}142 = 14{,}108\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,396 m x 6,24 m = 34,335 m

m^3= 34,335 m x 0,59 = 20,258 m^3

P = $\frac{3487}{3600} x20{,}258 = 19{,}609\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,198 m x 6,42 m = 29,161 m

m^3= 29,161 m x 0,59 = 17,205 m^3

P = $\frac{3288}{3600} x17{,}205 = 15{,}708\ m^3/jam$

Operator = Hendru Sinaga

Ulangan 1 (Pagi) :

V = 4 m x 1,266 m x 4,14 m = 20,964 m

m^3= 20,964 m x 0,59 = 12,368 m^3

P = $\frac{2648}{3600} x12{,}368 = 9.09\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,306 m x 4,25 m = 22,202 m

m^3= 22,202 m x 0,59 = 13,099 m^3

P = $\frac{3250}{3600} x13{,}099 = 11{,}815\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,109 m x 5,185 m = 20,51 m

m^3= 20,51 m x 0,59 = 12,101 m^3

P = $\frac{3012}{3600} x12{,}101 = 10{,}237\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,113 m x 5,276 m = 20,152 m

m^3= 20,152 m x 0,59 = 11,89 m^3

P = $\frac{3103}{3600} x11{,}89 = 10{,}116\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,26 m x 5,24 m = 15,723 m

m^3= 15,723 m x 0,59 = 9,277 m^3

P = $\frac{3588}{3600} x 9{,}277 = 9{,}239\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,213 m x 5,82 m = 16,337 m

m^3= 16,337 m x 0,59 = 9,639 m^3

P = $\frac{3012}{3600} x 9{,}639 = 8{,}058\ m^3/jam$

Operator = Ryan Sianaga

Ulangan 1 (Pagi) :

V = 4 m x 1,116 m x 4,58 m = 20,445 m

m^3= 20,445 m x 0,59 = 12,062 m^3

P = $\frac{3216}{3600} x 12{,}062 = 10{,}771\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,094 m x 3,9 m = 15,724 m

m^3= 15,724 m x 0,59 = 10,894 m^3

P = $\frac{3552}{3600} x 10{,}894 = 10{,}741\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,07 m x 4,36 m = 18,66 m

m^3= 18,66 m x 0,59 = 11,009 m^3

P = $\frac{3456}{3600} x 11{,}009 = 10{,}568\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,044 m x 4,25 m = 17,748 m

m^3= 17,748 m x 0,59 = 10,471 m^3

P = $\frac{3401}{3600} x10{,}471 = 9{,}884\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,08 m x 4,4 m = 19,008 m

m^3= 19,008 m x 0,59 = 11,214 m^3

P = $\frac{3396}{3600} x11{,}214 = 10{,}574\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,038 m x 4,17 m = 36,055 m

m^3= 17,313 m x 0,59 = 10,214 m^3

P = $\frac{3292}{3600} x10{,}214 = 9{,}325\ m^3/jam$

Operator = Risaldo Sitompul

Ulangan 1 (Pagi) :

V = 4 m x 0,94 m x 4,15 m = 15,172 m

m^3= 15,172 m x 0,59 = 8,951 m^3

P = $\frac{2781}{3600} x8{,}951 = 6{,}910\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 0,946 m x 3,99 m = 15,098 m

m^3= 15,098 m x 0,59 = 8,907 m^3

P = $\frac{2617}{3600} x8{,}907 = 6{,}466\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,01 m x 4,27 m = 17,250 m

m^3= 17,250 m x 0,59 = 10,177 m^3

P = $\frac{3287}{3600} x10{,}177 = 9{,}291 \frac{m^3}{jam}$

Ulangan 2 (Sore) :

V = 4 m x 0,958 m x 4,01 m = 15,366 m

m^3= 15,366 m x 0,59 = 9,065 m^3

P = $\frac{3121}{3600} x9{,}065 = 7{,}85\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,058 m x 4,19 m = 17,732 m

m^3= 17,732 m x 0,59 = 10,461 m^3

P = $\frac{3385}{3600} x10{,}461 = 9{,}833\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,054 m x 3,57 m = 15,051 m

m^3= 15,051 m x 0,59 = 8,88 m^3

P = $\frac{3023}{3600} x8{,}88 = 7{,}45\ m^3/jam$

Operator = Rahmad

Ulangan 1 (Pagi) :

V = 4 m x 1,376 m x 5,77 m = 31,758 m

m^3= 31,758 m x 0,59 = 18,737 m^3

P = $\frac{2823}{3600} x18{,}737 = 14{,}689\ m^3/jam$

Ulangan 1 (Sore) :

V = 4 m x 1,646 m x 4,57 m = 30,088 m

m^3= 30,088 m x 0,59 = 17,751 m^3

P = $\frac{2925}{3600} x17{,}751 = 14{,}413\ m^3/jam$

Ulangan 2 (Pagi) :

V = 4 m x 1,646 m x 4,57 m = 30,088 m

m^3= 30,088 m x 0,59 = 17,751 m^3

P = $\frac{2472}{3600} x19{,}027 = 14{,}403\ m^3/jam$

Ulangan 2 (Sore) :

V = 4 m x 1,734 m x 4,44 m = 31,984 m

m^3= 31,984 m x 0,59 = 18,871 m^3

P = $\frac{2349}{3600} x18{,}871 = 12{,}303\ m^3/jam$

Ulangan 3 (Pagi) :

V = 4 m x 1,646 m x 4,57 m = 32,096 m

m^3= 32,096 m x 0,59 = 18,937 m^3

P = $\frac{2671}{3600} x18{,}937 = 14{,}032\ m^3/jam$

Ulangan 3 (Sore) :

V = 4 m x 1,524 m x 4,01 m = 31,276 m

m^3= 31,276 m x 0,59 = 18,453 m^3

P = $\frac{2252}{3600} x18{,}453 = 11{,}533\ m^3/jam$

Lampiran 2. Rekapitulasi Produktivitas

Tabel 5. Rekapitulasi Produktivitas Level 1

Ulangan	Level 1			Rata - rata
	Operator A	Operator B	Operator C	
1	9,263	12,091	6,688	9,347
2	9,035	9,676	8,57	9,093
3	9,381	8,148	8,641	8,723
Rata - rata	9,226	9,971	7,966	

Tabel 6. Rekapitulasi Produktivitas Level 2

Ulangan	Level 2			Rata - rata
	Opreator D	Opreator E	Operator F	
1	13,647	10,756	14,551	12,984
2	14,829	10,226	13,353	12,802
3	12,066	9,954	12,782	11,6
Rata - rata	13,514	10,312	13,562	

Tabel 7. Rekapitulasi Produktivitas Level 3

Ulangan	Level 3			Rata - rata
	Opeator G	Opeator H	Opeator I	
1	14,734	16,61	16,425	15,923
2	16,866	13,699	15,365	15,31
3	14,711	14,83	17,658	15,733
Rata - rata	15,437	14,519	16,483	

Lampiran 3. Perhitungan Kualitas

Kualitas % = Jumlah Kayu Standar : Jumlah Kayu Total x100% (Iqbal, 2023)

Operator = Tony

Ulangan 1 (Pagi) : 145:168x100% = 86,3%

Ulangan 1 (Sore) : 130:161x100% = 80,7%

Ulangan 2 (Pagi) : 146:176x100% = 82,9%

Ulangan 2 (Sore) : 131:157x100% = 83,4%

Ulangan 3 (Pagi) : 144:181x100% = 79,5%

Ulangan 3 (Sore) :108:135x100% = 74,8%

Operator = Very

Ulangan 1 (Pagi) : 178:200x100% = 89%

Ulangan 1 (Sore) : 151:168x100%= 89,8%

Ulangan 2 (Pagi) : 159:189x100% = 84,1%

Ulangan 2 (Sore) : 147:172x100% = 85,4%

Ulangan 3 (Pagi): 171:192x100% = 89%

Uangan 3 (Sore) : 159:183x100% = 86,8%

Operator = Irfan

Ulangan 1 (Pagi) : 117:151x100% = 77,4%

Ulangan 1 (Sore) : 100:138x100% = 72,4%

Ulangan 2 (Pagi) : 128:165x100% = 77,5%

Ulangan 2 (Sore) : 117:153x100% = 76,4%

Ulangan 3 (Pagi) : 120:155x100% = 77,4%

Ulangan 3 (Sore) : 115:149x100% = 77,1%

Operator = Irwandi

Ulangan 1 (Pagi) : 126:163x100% = 77,3%

Ulangan 1 (Sore) : 135:170x100% = 79,4%

Ulangan 2 (Pagi) : 141:177x100% = 79,6%

Ulangan 2 (Sore) : 130:169x100%= 76,9%

Ulangan 3 (Pagi) : 145:185x100% = 78,3%

Ulangan 3 (Sore) : 133:172x100% = 77,3%

Operator = Ardiono

Ulangan 1 (Pagi) : 192:209x100% = 91,8%

Ulangan 1 (Sore) : 182:203x100% = 89,6%

Ulangan 2 (Pagi) = 185:204x100% = 90,6%

Ulangan 2 (Sore) = 165:185x100% = 89,1%

Ulangan 3 (Pagi) = 209:236x100% = 88,5%

Ulangan 3 (Sore) = 171:192x100% = 89%

Operator = Hendru Sinaga

Ulangan 1 (Pagi) : 83:114x100% = 72,8%

Ulangan 1 (Sore) : 99:126x100% =78,5%

Ulangan 2 (Pagi) : 102:126x100% = 80,9%

Ulangan 2 (Sore) : 97:121x100% = 80,1%

Ulangan 3 (Pagi) : 68:88x100% = 77,2%

Ulangan 3 (Sore) : 71:98x100% = 72,4%

Operator = Ryan Sianaga

Ulangan 1 (Pagi) : 94:110x100% = 85,4%

Ulangan 1 (Sore) : 91:101x100% = 90%

Ulangan 2 (Pagi) : 101:114x100% = 88,5%

Ulangan 2 (Sore) : 88:99x100% = 88,8%

Ulangan 3 (Pagi) : 93:111x100% = 83,7%

Ulangan 3 (Sore) : 84:100x100% = 84%

Operator = Risaldo Sitompul

Ulangan 1 (Pagi) : 58:85x100% = 68,2%

Ulangan 1 (Sore) : 50:70x100% = 71,4%

Ulangan 2 (Pagi) : 71:102x100% = 69,6%

Ulangan 2 (Sore) : 57:81x100% = 70,3%

Ulangan 3 (Pagi) : 78:103x100% = 75,7%

Ulangan 3 (Sore) : 49:68x100% = 72%

Operator = Rahmad

Ulangan 1 (Pagi) : 151:168x100% = 89,8%

Ulangan 1 (Sore) : 134:153x100% = 84,5%

Ulangan 2 (Pagi) : 162:191x100% = 84,8%

Ulangan 2 (Sore) : 139:170x100% = 81,764%

Ulangan 3 (Pagi) : 153:176x100% = 86,9%

Ulangan 3 (Sore) : 132:165x100% = 80%

Lampiran 4. Rekapitulasi Kualitas

Tabel 8. Rekapitulasi Kualitas Level 1

Ulangan	Level 1			Rata - rata
	Operator A	Operator B	Opeator C	
1	74,9	76,65	69,6	73,38
2	76,95	80,5	69,95	75,8
3	77,25	74,8	73,85	75,3
Rata - rata	76,3	76,9	71,1	

Tabel 9. Rekapitulasi Kualitas Level 2

Ulangan	Level 2			Rata - rata
	Opeator D	Opeator E	Opeator F	
1	78,35	87,7	87,6	84,55
2	78,25	88,65	83,282	83,394
3	77,8	84,7	83,45	81,983
Rata - rata	78,1	87,01	84,7	

Tabel 10. Rekapitulasi Kualitas Level 3

Ulangan	Level 3			Rata - rata
	Opeator G	Opeator H	Opeator I	
1	83,5	89,4	90,7	87,866
2	83	84,75	89,85	85,916
3	77,15	87,9	88,75	84,6
Rata - rata	81,2	87,3	89,7	

Lampiran 5. Uji Homogenitas Produktivitas Dan Kualitas

Tabel 11. Uji Produktivitas Homogenitas Varians

Produktivitas	**Statistik Levene**	**df1**	**df2**	**Sig.**
Berdasarkan Mean	3.197	2	6	.113
Berdasarkan Median	.390	2	6	.693
Berdasarkan Median dan df yang disesuaikan	.390	2	2.791	.709
Berdasarkan Mean yang Dipangkas	2.789	2	6	.139

Tabel 12. Uji Kualitas Homogenitas Varians

Kualitas	**Statistik Levene**	**df1**	**df2**	**Sig.**
Berdasarkan Mean	0.100	2	6	0.906
Berdasarkan Median	0.073	2	6	0.930
Berdasarkan Median dan df yang disesuaikan	0.073	2	5.763	0.930
Berdasarkan Mean yang Dipangkas	0.098	2	6	0.908