

Appendix

Effects of degree of mulching on mulching oil palm fronds using tractor mounted mulcher blades

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Non-commercial use only

Appendix Figures

FIELD LAYOUT FOR PERFORMANCE EVALUATION OF MULCHER BLADE DESIGNS						
		8.5m				
		60°	90°	120°	150°	
V1		B1V1P1	B2V1P1	B3V1P1	B4V1P1	R1
		B1V1P1	B2V1P1	B3V1P1	B4V1P1	R2
		B1V1P1	B2V1P1	B3V1P1	B4V1P1	R3
		B1V1P2	B2V1P2	B3V1P2	B4V1P2	R1
		B1V1P2	B2V1P2	B3V1P2	B4V1P2	R2
		B1V1P2	B2V1P2	B3V1P2	B4V1P2	R3
V2		B1V2P1	B2V2P1	B3V2P1	B4V2P1	R1
		B1V2P1	B2V2P1	B3V2P1	B4V2P1	R2
		B1V2P1	B2V2P1	B3V2P1	B4V2P1	R3
		B1V2P2	B2V2P2	B3V2P2	B4V2P2	R1
		B1V2P2	B2V2P2	B3V2P2	B4V2P2	R2
		B1V2P2	B2V2P2	B3V2P2	B4V2P2	R3
V3		B1V3P1	B2V3P1	B3V3P1	B4V3P1	R1
		B1V3P1	B2V3P1	B3V3P1	B4V3P1	R2
		B1V3P1	B2V3P1	B3V3P1	B4V3P1	R3
		B1V3P2	B2V3P2	B3V3P2	B4V3P2	R1
		B1V3P2	B2V3P2	B3V3P2	B4V3P2	R2
		B1V3P2	B2V3P2	B3V3P2	B4V3P2	R3
		<i>B_i</i> = <i>i</i> th Blade Angle; <i>i</i> = 1,2,3 & 4 <i>V_i</i> = <i>i</i> th Tractor Forward Speed, <i>V</i> ; <i>i</i> = 1,2 & 3 <i>P_i</i> = <i>i</i> th PTO Speed, <i>P</i> ; <i>i</i> = 1 & 2				

Appendix Figure 1. Experimental plot layout for data collection.



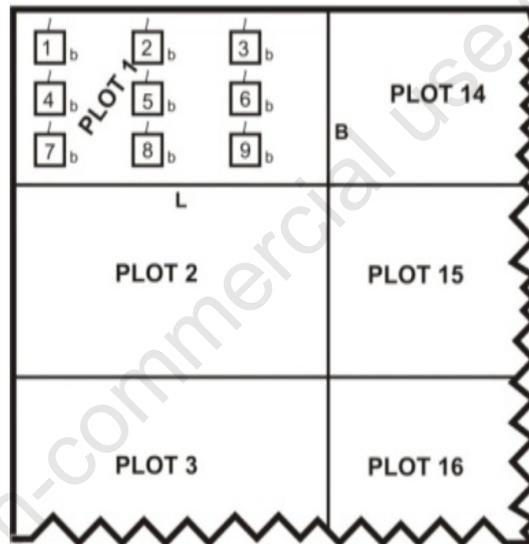
Appendix Figure 2. New Holland tractor (G240) and mulcher implement used for field data collection.



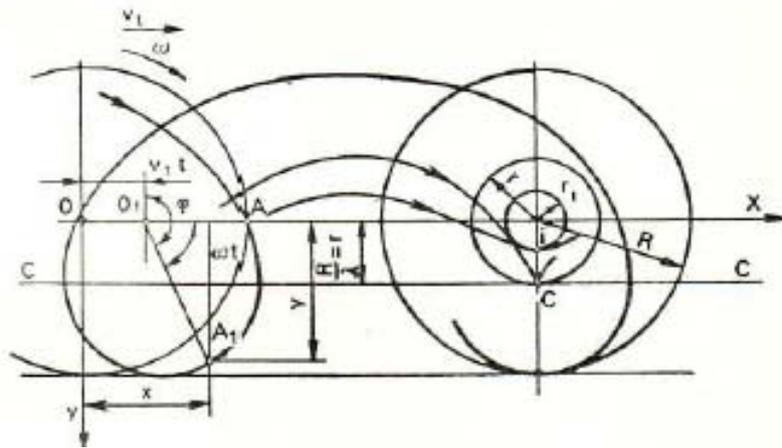
Appendix Figure 3. Replacement of tractor mounted mulcher blades.



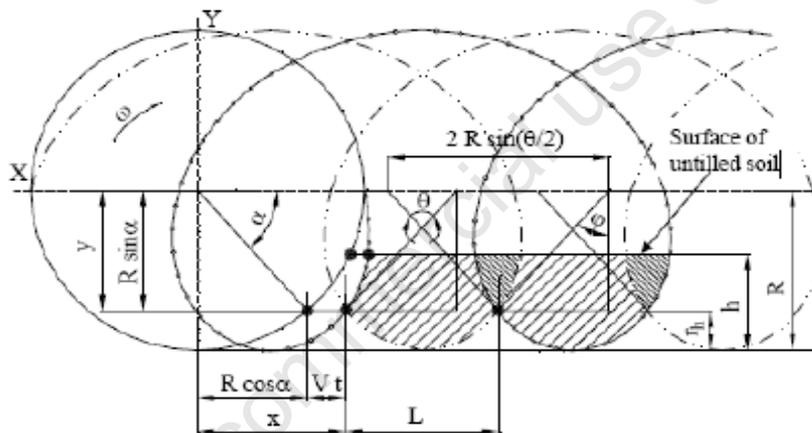
Appendix Figure 4. Mulched soil sample collected using a quadrant.



Appendix Figure 5. Layout of experimental plot for collecting mulched oil palm fronds samples.



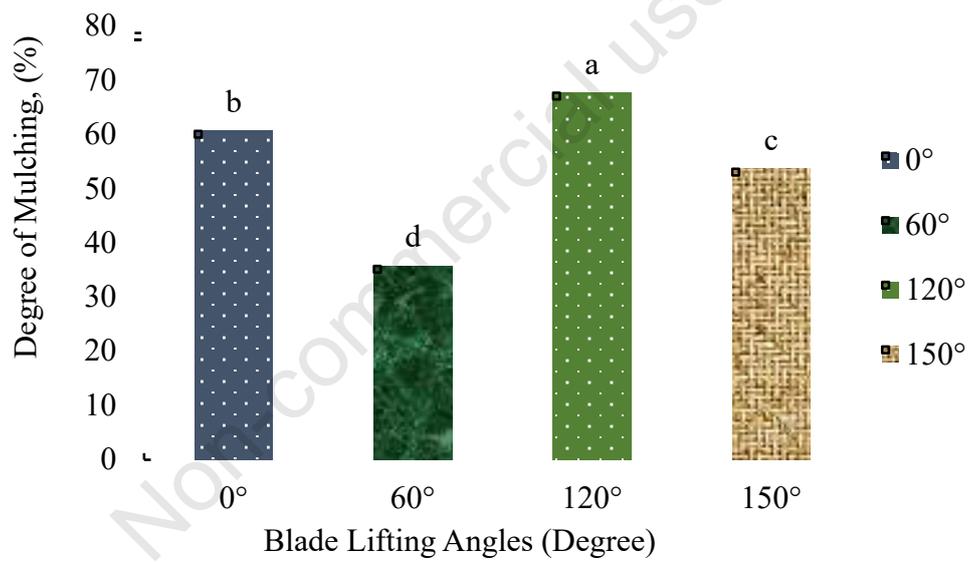
Appendix Figure 6. Schematic diagram of determining trajectory motion of cutter blade (Source: Celik *et al.* (2008).



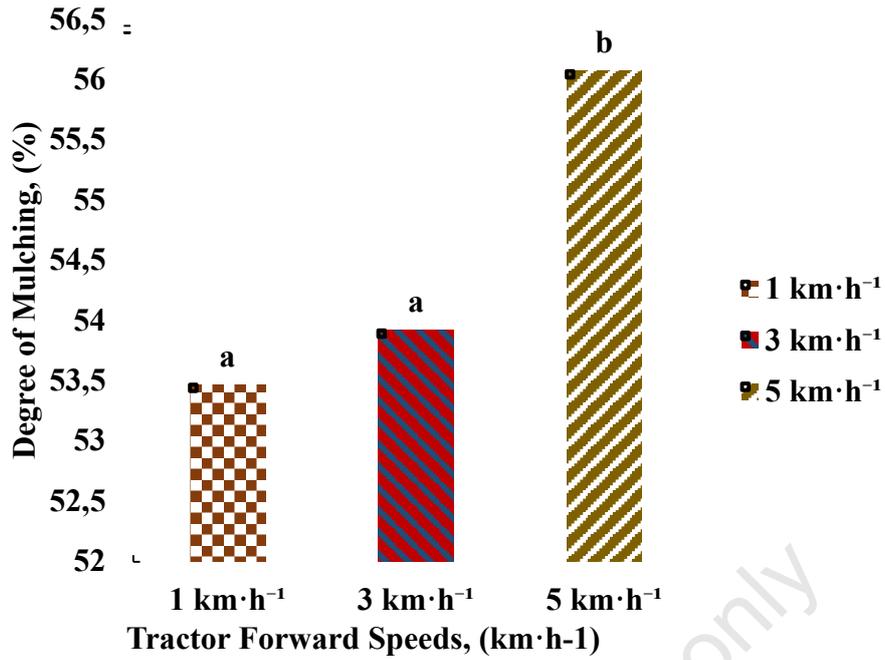
Appendix Figure 7. Side view showing geometric relationship among ridge height, rotor radius, tillage depth, longitudinal distance of any point on the blade path to the Y and X Axis and the tillage pitch (L) (Source: Celik *et al.*, 2008).



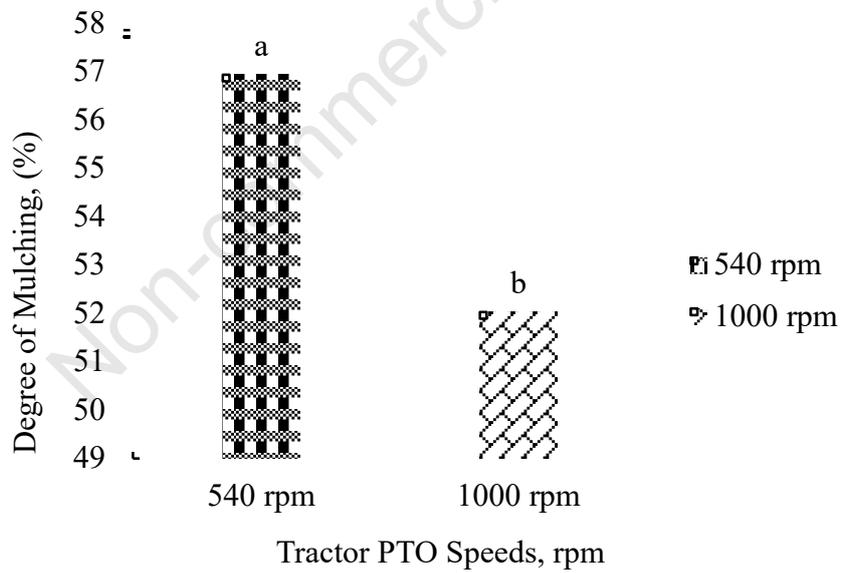
Appendix Figure 8. Mechanical sieve shaker used for sieving the samples.



Appendix Figure 9. Effects of blade lifting angles on degree of mulching.



Appendix Figure 10. Effects of tractor forward speeds on degree of mulching.



Appendix Figure 11. Effects of tractor PTO speeds on degree of mulching.