

DAFTAR PUSTAKA

- Al-faruq, K. U., Yuniasih, B., & Noviyanto, A. (2026). Quantification of Total Biomass and Carbon Stock in Oil Palm Plantations Based on Compartments: Main Stand and Understory Vegetation. *Jurnal Biologi Tropis*, 26(2), 655–662. <https://doi.org/10.29303/jbt.v26i2.11568>
- Amzad, M., Rayhan, A., & Lael, M. I. J. (2025). Udara dan Bumi sebagai Sistem Ekologis dalam Al-Qur'an: Analisis kajian Tafsir Sains atas Siklus Karbon. *Kalamizu: Jurnal Sains, Sosial, Dan Studi Agama*, 1(8), 905–918. <https://hamfara.com/kalamizu/article/view/95/89>
- Anggraini, S., & Arifin, Y. W. (2021). Analisis Cadangan Karbon Kelapa Sawit Fase Tanaman Menghasilkan (Tm <20 Tahun) Dilahan Berpirit Kedalaman 40-60 Cm. *AGRITEPA: Jurnal Ilmu Teknologi Pertanian*, 8(1), 1–8. <https://doi.org/10.37676/agritepa.v8i1.1290>
- Ashiddiqy, A. R., Putri, R. T. H., & Meishanti, O. P. Y. (2025). Perbedaan Morfologi Kelapa Sawit Lahan Basah dan Kering sebagai Penyusunan Leaflet Edukasi di Kabupaten OKU. *YASIN*, 5(6), 6900–6916. <https://doi.org/10.58578/yasin.v5i6.8398>
- BMKG. (2022). Pengaruh Gas Rumah Kaca Terhadap Lautan Wilayah Tropis. *Buletin GRK*, 2(2). https://iklim.bmkg.go.id/bmkgadmin/storage/buletin/Buletin%20Gas%20Rumah%20Kaca%20Vol%202%20No%202_BMKG.pdf
- Borbon, S. M. C., Medina, M. A. P., Patricio, J. H. P., & Toledo-Bruno, A. G. (2020). Carbon Sequestration Potential of Oil Palm Plantations in Southern Philippines. *BioRxiv (Cold Spring Harbor Laboratory)*. <https://doi.org/10.1101/2020.04.14.041822>
- Brilianda, I., Lahugu, J. T. P., Damayanti, K., & Putri, J. F. (2025). Potensi Fraksi Minyak Sawit Sebagai Pengganti Lemak Kakao pada Produk Cokelat. *Botani: Publikasi Ilmu Tanaman Dan Agribisnis*, 2(2), 136–143. <https://doi.org/10.62951/botani.v2i2.336>
- Corley, R. H. V., & Tinker, P. B. (2016). The Oil Palm. In *The Oil Palm* (fifth). Wiley Blackwell. <https://doi.org/10.1002/9781118953297>
- Corley, R. H. V., & Tinker, P. B. (2003). *The Oil Palm* (4th ed.). Blackwell Science. <https://doi.org/10.1002/9780470750971>
- Daeli, I. S. (2024). Strategi mengurangi emisi gas rumah kaca untuk mengatasi konflik global akibat perubahan iklim. *Environment Conflict*, 1(2), 72–82. <https://doi.org/10.61511/enviroinc.v1i2.2024.1176>
- Darlita, R. R., Joy, B., & Sudirja, R. (2017). Analisis Beberapa Sifat Kimia Tanah Terhadap Peningkatan Produksi Kelapa Sawit pada Tanah Pasir di Perkebunan Kelapa Sawit Selangkun. *Jurnal Agrikultura*, 28(1), 15–20. <https://doi.org/10.24198/agrikultura.v28i1.12294>
- Drupadi, T. A., Ariyanto, D. P., & Sudadi. (2021). Pendugaan Kadar Biomassa dan Karbon Tersimpan pada Berbagai Kemiringan dan Tutupan Lahan di KHDTK Gunung Bromo UNS. *Jurnal Agrikultura*, 32(2), 112–119. <https://doi.org/10.24198/agrikultura.v32i2.32344>

- Faradika, M., Oktoyoki, H., & Paulina, M. (2024). Estimasi Cadangan Karbon di Beberapa Jenis Penggunaan Lahan di Indonesia. *Journal of Global Forest and Environmental Science*, 4(2), 42–57. <https://ejournal.unib.ac.id/jhutanlingkungan/article/view/39451>
- Febrianto, E. B., Dibisono, M. Y., Yosephine, I. O., Tarigan, S. M., Guntoro, Manurung, S., Raja, P. M., Maisarah, Giyanto, Siahaan, M., Junaidi, Mutiara, R., & Isra, M. (2025). *Kelapa Sawit: Budidaya, Pengolahan dan Manfaat Ekonomi* (W. Yuliani, Ed.). Lingkar Edukasi Indonesia. www.lingkaredukasiindonesia.com
- Hidayat, F. R., Wirianata, H., & Kautsar, V. (2023). *Potensi Serapan Karbon di Perkebunan Kelapa Sawit*. <https://eprints.instiperjogja.ac.id/id/eprint/2454>
- Judijanto, L. (2026). Navigating Uncertainty: Palm Oil Sector Outlook For 2026 Through The Lens Of Smallholder Welfare And Sustainability Imperatives. *Revista de Geopolítica*, 17(1), 1–34. <https://doi.org/10.56238/revgeov17n1-127>
- Maimunah, S., Avianto, Y., Noviyanto, A., Ramadhani, F., Kautsar, V., Astuti, Y. T. M., Gunawan, S., & Samek, J. H. (2026). Biodiversity and carbon stock analysis in the high conservation value forest within the oil palm plantation setting in Central Kalimantan, Indonesia. *Biodiversitas*, 27(4), 1–11. <https://doi.org/10.13057/biodiv/d270408>
- Prasetyo, A., Ariyanto, D. P., Erwinda, E., Hati, D. P., Pratamaningsih, M. M., Siahaan, H., Santosa, B., Alouw, J. C., Marwanto, S., & Lubis, M. A. R. (2025). Allometric Model of Carbon Sequestration in Coconut (*Cocos nucifera* L.) Agroforestry System in Indonesia. *Research Square*, 1–28. <https://doi.org/10.21203/rs.3.rs-7179099/v1>
- Rauf, M. A., Tumora, I., Jafar, F. N. I., Mutmainnah, & Sya'adah, M. (2025). *Kajian Kebijakan dan pemanfaatam Ruang Untuk Sektor Pertambangan dan Sawit di DAS Lasolo Melalui Perspektif PRB dan Ketahan Pangan*. PuSPAHAM: Pusat Kajian dan Advokasi Hak Asasi Manusia. <https://wallacea.id/id/riset/8/kajian-kebijakan-dan-pemanfaatan-ruang-untuk-sektor-pertambangan-dan-sawit-di-das-lasolo-melalui-perspektif-prb#flipbook-detailpdf/1/>
- Rosaprana, W., Kuncahyo, B., & Puspaningsih, N. (2023). Carbon Stock Estimation on Oil Palm Plantations and Oil Palm-Based Agroforestry in Gunung Mas Regency. *Media Konservasi*, 28(3), 253–261. <https://doi.org/10.29244/medkon.28.3.253-261>
- Sinatria, A., Wulan, I. R., Tanjung, J. C., Fahima, S., Lestari, P., & Ngadisih. (2024). Potensi Ancaman dan Upaya Mitigasi Emisi Gas Rumah Kaca di Sektor Pertanian Indonesia: Tinjauan Sistematis atas Literatur. *Jurnal Teknologi Lingkungan Lahan Basah*, 12(1), 245–254. <https://doi.org/10.26418/jtllb.v12i1.74231>
- Syaputra, F. N., Hartati, R. M., & Yuniasih, B. (2025). Stok Karbon pada Berbagai Umur Kelapa Sawit Perkebunan Kelapa Sawit. *AGROISTA: Jurnal Agroteknologi*, 9(2), 82–88. <https://doi.org/10.55180/agi.v9i2.2208>
- Yahya, S., Ariyanti, M., & Asbur, Y. (2022). Perpektif Baru: Manajemen Vegetasi Bawah Tegakan Pada Budidaya Kelapa Sawit Berkelanjutan. *Jurnal*

- Agronomi Indonesia (Indonesian Journal of Agronomy)*, 50(3), 343–356.
<https://doi.org/10.24831/jai.v50i3.44605>
- Yusuf, S. M. W., Saili, A. R., Sajali, N. A., Jos, S., Nangkai, N., Terrence, D., Aman, N., & Reli, S. N. (2025). Estimation Of Carbon Stock in Young and Mature Oil Palm Plantation with Integrated and Conventional Practices. *Proceedings of the International Conference on Sustainable Energy: Toward Energy Transition and Net-Zero Emission (ICOSE 2025)*, Atlantis Highlights in Sustainable Development 4, 138–146. https://doi.org/10.2991/978-94-6463-944-5_10
- Zumrotin, A. (2022). *Analisis Emisi Gas Rumah Kaca Karbondioksida dan Pemetaan Zona Emisi Menggunakan Geographic Information System* [Universitas Islam Negeri Sunan Ampel]. <https://digilib.uinsa.ac.id/id/eprint/53977>

LAMPIRAN



Lampiran 1. Penimbangan berat vegetasi bawah tanaman pada umur 3 tahun



Lampiran 2. Penimbangan berat vegetasi bawah tanaman kelapa sawit umur 11 tahun



Lampiran 3. Pengukuran lingkaran batang tanaman pada umur 3 tahun



Lampiran 4. Pengukuran lingkaran batang tanaman pada umur 11 tahun



Lampiran 5. Pengukuran lebar petiol tanaman pada umur 3 tahun



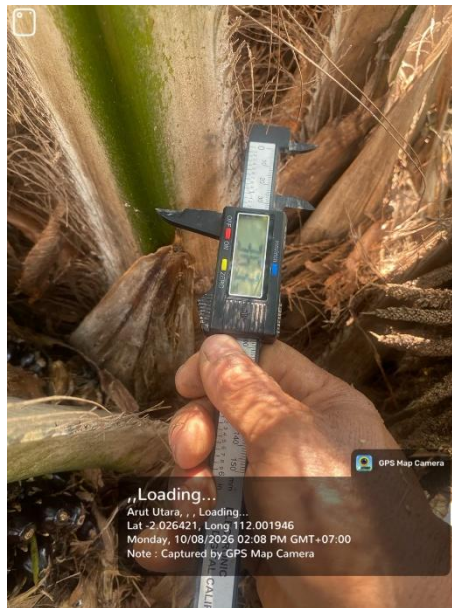
Lampiran 6. Pungkuran lebar petiol tanaman umur 11 tahun



Lampiran 7. Pengukuran tinggi tanaman umur 3 tahun



Lampiran 8. Pengukuran tinggi tanaman umur 11 tahun



Lampiran 9. Pengukuran tebal petiol tanaman umur 3 tahun



Lampiran 10. Pengukuran tebal petiol tanaman umur 11 tahun



Lampiran 11. Pengambilan sampel vegetasi bawah tanaman umur 3 tahun



Lampiran 12. Pengambilan sampel vegetasi bawah tanaman umur 11 tahun



Lampiran 13. Foto bersama pemilik kebun lahan penelitian

Group Statistics					
	Sampel	N	Mean	Std. Deviation	Std. Error Mean
Berat Kering Vegetasi Bawah	Umur 3	15	.0473	.03058	.00790
	Umur 11	15	.0240	.00910	.00235
Berat Kering Daun	Umur 3	15	194.4867	45.67385	11.79294
	Umur 11	15	474.2147	120.02716	30.99088
Berat Kering Batang	Umur 3	15	22.4147	5.68910	1.46892
	Umur 11	15	192.5367	50.37571	13.00695
Berat Kering Tandan	Umur 3	15	21.7093	9.84687	2.54245
	Umur 11	15	35.1073	27.53430	7.10933
Berat Kering Akar	Umur 3	15	59.6520	11.99205	3.09633
	Umur 11	15	175.4647	35.37306	9.13329
Berat Kering Total/Pokok	Umur 3	15	276.7527	58.24680	15.03926
	Umur 11	15	842.2167	170.30810	43.97336
Stok Karbon Vegetasi Bawah	Umur 3	15	154.2193	107.52481	27.76279
	Umur 11	15	77.6587	28.91366	7.46548
Stok Karbon/Pokok	Umur 3	15	10.0760	3.41971	.88297
	Umur 11	15	237.7813	61.18703	15.79842

Lampiran 14. Hasil olah data SPSS *Group Statistics* Uji-T

Independent Samples Test									
		t-test for Equality of Means							
		t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
				One-Sided p	Two-Sided p			Lower	Upper
Berat Kering Vegetasi Bawah	Equal variances assumed	2.832	28	.004	.008	.02333	.00824	.00646	.04021
	Equal variances not assumed	2.832	16.461	.006	.012	.02333	.00824	.00591	.04076
Berat Kering Daun	Equal variances assumed	-8.436	28	<.001	<.001	-279.72800	33.15883	-347.65078	-211.80522
	Equal variances not assumed	-8.436	17.971	<.001	<.001	-279.72800	33.15883	-349.40012	-210.05588
Berat Kering Batang	Equal variances assumed	-12.997	28	<.001	<.001	-170.12200	13.08963	-196.93490	-143.30910
	Equal variances not assumed	-12.997	14.357	<.001	<.001	-170.12200	13.08963	-198.13111	-142.11289
Berat Kering Tandan	Equal variances assumed	-1.775	28	.043	.087	-13.39800	7.55027	-28.86403	2.06803
	Equal variances not assumed	-1.775	17.523	.047	.093	-13.39800	7.55027	-29.29151	2.49551
Berat Kering Akar	Equal variances assumed	-12.009	28	<.001	<.001	-115.81267	9.64387	-135.56724	-96.05810
	Equal variances not assumed	-12.009	17.176	<.001	<.001	-115.81267	9.64387	-136.14357	-95.48177
Berat Kering Total/Pokok	Equal variances assumed	-12.167	28	<.001	<.001	-565.46400	46.47403	-660.66174	-470.26626
	Equal variances not assumed	-12.167	17.231	<.001	<.001	-565.46400	46.47403	-663.41563	-467.51237
Stok Karbon Vegetasi Bawah	Equal variances assumed	2.663	28	.006	.013	76.56067	28.74901	17.67099	135.45034
	Equal variances not assumed	2.663	16.014	.008	.017	76.56067	28.74901	15.61985	137.50148
Stok Karbon/Pokok	Equal variances assumed	-14.391	28	<.001	<.001	-227.70533	15.82308	-260.11744	-195.29323
	Equal variances not assumed	-14.391	14.087	<.001	<.001	-227.70533	15.82308	-261.62270	-193.78796

Lampiran 15. Hasil olah data SPSS *Independent Sampels Test*

Model Summary					
Sampel	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Umur 3	1	.997 ^a	.994	.994	8.60991
Umur 11	1	.951 ^a	.905	.897	9.25778

a. Predictors: (Constant), Berat Kering Vegetasi Bawah

Lampiran 16. *Model summary* uji regresi berat kering vegetasi bawah

ANOVA ^a							
Sampel	Model		Sum of Squares	df	Mean Square	F	Sig.
Umur 3	1	Regression	160898.477	1	160898.477	2170.473	<.001 ^b
		Residual	963.698	13	74.131		
		Total	161862.175	14			
Umur 11	1	Regression	10589.814	1	10589.814	123.559	<.001 ^b
		Residual	1114.185	13	85.707		
		Total	11703.999	14			

a. Dependent Variable: Stok Karbon Vegetasi Bawah

b. Predictors: (Constant), Berat Kering Vegetasi Bawah

Lampiran 17. Anova uji regresi berat kering vegetasi bawah

Model Summary

Sampel	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Umur 3	1	.677 ^a	.459	.417	2.61098
Umur 11	1	.465 ^a	.216	.156	56.20545

a. Predictors: (Constant), Berat Kering Daun

Lampiran 18. *Model summary* uji regresi berat kering daun

ANOVA^a

Sampel	Model		Sum of Squares	df	Mean Square	F	Sig.
Umur 3	1	Regression	75.098	1	75.098	11.016	.006 ^b
		Residual	88.624	13	6.817		
		Total	163.722	14			
Umur 11	1	Regression	11346.251	1	11346.251	3.592	.081 ^b
		Residual	41067.680	13	3159.052		
		Total	52413.931	14			

a. Dependent Variable: Stok Karbon Per pokok

b. Predictors: (Constant), Berat Kering Daun

Lampiran 19. Anova uji regresi berat kering daun

Model Summary

Sampel	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Umur 3	1	.798 ^a	.638	.610	2.13665
Umur 11	1	.738 ^a	.545	.510	42.83272

a. Predictors: (Constant), Berat Kering Batang

Lampiran 20. *Model summary* uji regresi berat kering batang

ANOVA^a

Sampel	Model		Sum of Squares	df	Mean Square	F	Sig.
Umur 3	1	Regression	104.373	1	104.373	22.862	<.001 ^b
		Residual	59.349	13	4.565		
		Total	163.722	14			
Umur 11	1	Regression	28563.588	1	28563.588	15.569	.002 ^b
		Residual	23850.343	13	1834.642		
		Total	52413.931	14			

a. Dependent Variable: Stok Karbon Per pokok

b. Predictors: (Constant), Berat Kering Batang

Lampiran 21. Anova uji regresi berat kering batang

Model Summary

Sampel	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Umur 3	1	.436 ^a	.190	.128	3.19309
Umur 11	1	.136 ^a	.018	-.057	62.90976

a. Predictors: (Constant), Berat Kering Tandan

Lampiran 22. *Model summary* uji regresi berat kering tandan

ANOVA^a

Sampel	Model		Sum of Squares	df	Mean Square	F	Sig.
Umur 3	1	Regression	31.176	1	31.176	3.058	.104 ^b
		Residual	132.546	13	10.196		
		Total	163.722	14			
Umur 11	1	Regression	964.640	1	964.640	.244	.630 ^b
		Residual	51449.291	13	3957.638		
		Total	52413.931	14			

a. Dependent Variable: Stok Karbon Per pokok

b. Predictors: (Constant), Berat Kering Tandan

Lampiran 23. Anova uji regresi berat kering tandan

Model Summary

Sampel	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Umur 3	1	.650 ^a	.423	.378	2.69681
Umur 11	1	.684 ^a	.468	.427	46.32387

a. Predictors: (Constant), Berat Kering Akar

Lampiran 24. *Model summary* uji regresi berat kering akar

ANOVA ^a							
Sampel	Model		Sum of Squares	df	Mean Square	F	Sig.
Umur 3	1	Regression	69.176	1	69.176	9.512	.009 ^b
		Residual	94.546	13	7.273		
		Total	163.722	14			
Umur 11	1	Regression	24517.224	1	24517.224	11.425	.005 ^b
		Residual	27896.707	13	2145.901		
		Total	52413.931	14			

a. Dependent Variable: Stok Karbon Per pokok

b. Predictors: (Constant), Berat Kering Akar

Lampiran 25. Anova uji regresi berat kering akar