

DAFTAR PUSTAKA

- Adnan, I. S., Utoyo, B., & Kusumastuti, A. (2015). Pengaruh Pupuk NPK dan Pupuk Organik terhadap Pertumbuhan Bibit Kelapa Sawit (*Elaeis guineensis* Jacq .) di Main Nursery (The Effect of NPK Fertilizer and Organic Fertilizer on the Growth of Oil Palm [*Elaeis guineensis* Jacq .] Seedling in Main Nursery. *Jurnal AIP*, 3(2), 69–81. <https://jurnal.polinela.ac.id/AIP/article/view/20>
- Arwati, D., & Sukadi. (2025). Pemanfaatan Pupuk Organik dari Limbah Pertanian dan Limbah Peternakan untuk Tanaman Sayuran di lahan Gambut. *PUBLIKASI PENELITIAN TERAPAN DAN KEBIJAKAN*, 8(1), 48–60. <https://doi.org/10.46774/pptk.v6i1.533>.
- Charloq, Yazid, A., & Yohanes, A. (2024). RESPON PERTUMBUHAN BIBIT KELAPA SAWIT (*Elaeis guineensis* Jacq) DENGAN PEMBERIAN BEBERAPA JENIS BIOCHAR PADA TANAH GAMBUT GROWTH RESPONSE OF OIL PALM SEEDLINGS (*Elaeis guineensis* Jacq .) BY APPLYING SEVERAL TYPES OF BIOCHAR TO PEAT SOILS. *Jurnal Pertanian Agros*, 26(1), 4421–4427. <http://dx.doi.org/10.37159/jpa.v26i1.3756>
- Hidayat, F., Syarovy, M., Pradiko, I., & Rahutomo, S. (2020). Aplikasi Kotoran Sapi untuk Perbaikan Sifat Kimia Tanah dan Pertumbuhan Vegetatif Bibit Kelapa Sawit (*Elaeis guineensis* Jacq.) pada Media Sub Soil. *Jurnal Penelitian Kelapa Sawit*, 28(1), 51–58. <https://doi.org/10.22302/iopri.jur.jpks.v28i1.107>
- Lase, B. Y. K., Loi, N., Lombu, S. I., Waruwu, D. P. D., Buulolo, F., Gulo, L. B., Zai, M. S. R., Halawa, N., Lugu, R., & Ndruru, W. P. (2025). Pembuatan pupuk organik cair (poc) dari limbah kotoran ternak babi di desa la'uso kecamatan onohazumba. *HAGA: Jurnal Pengabdian Kepada Masyarakat*, 4(2), 106–117. <https://doi.org/10.57094/haga.v4i2.4424>
- Listia, E. (2014). Pembibitan kelapa sawit. *Peneliti ilmu tanah dan agronomi, pusat penelitian kelapa sawit*.
- Marpaung, Dedi Setiawan Marpaung1, A. dan E. A. 2017. (2017). *Effect of Water Volume and Growth Cocoa Pod Husk Compost*. 4(1), 1–13.
- Marpaung, S., Sulistyanto, Y., Adji, F. F., Damanik, Z., Umbing, R. A., & Surawijaya, P. S. (2025). Pengaruh Pemberian Pupuk Kandang Kotoran Ayam dan Arang Tempurung Kelapa Terhadap Kemasaman Tanah dan Kandungan Hara Makro pada Tanah Gambut Pedalaman. *Jurnal Penelitian UPR: Kaharati*, 5(1), 47–53. <https://doi.org/10.52850/jptupr.v5i1.20043>
- Murnita, M., & Taher, Y. A. (2021). Dampak pupuk organik dan anorganik terhadap perubahan sifat kimia tanah dan produksi tanaman padi (*Oriza sativa* L.). *Menara Ilmu: Jurnal Penelitian dan Kajian Ilmiah*, 15(2). <https://doi.org/10.31869/mi.v15i2.2314>
- Musrif, & Wiranata, S. (2024). Respon Pertumbuhan Bibit Tanaman Vanili (*Vanilla planifolia* Andrews) Terhadap Dosis Pupuk Kandang Babi. *Jurnal Agriyan : Jurnal Agroteknologi Unidayan*, 10(2), 17–22.
- Nasution, S. H., Hanum, C., & Ginting, J. (2014). Pertumbuhan Bibit Kelapa Sawit (*Elaeis guineensis* Jacq.) Pada Berbagai Perbandingan Media Tanam

- Solid Decanter dan Tandan Kosong Kelapa Sawit Pada Sistem Single Stage. *Jurnal Online Agroteknologi*, 2(2), 691–701.
DOI: [10.32734/jaet.v2i2.7076](https://doi.org/10.32734/jaet.v2i2.7076)
- Nurahmi, E., Hidayat, T., & Arfan, M. (2024). PENGARUH MEDIA TANAM DAN DOSIS PUPUK NPK TERHADAP PERTUMBUHAN BIBIT KELAPA SAWIT (*Elaeis guineensis* Jacq .) The Influence of Growing Media and NPK Fertilizer Dosage on the Growth of Oil Palm Seedlings (*Elaeis guineensis* Jacq .). *Jurnal Agrium*, 21(4), 301–310.
<https://doi.org/10.29103/agrium.v21i4.19583>
- Nursyamsi, D., & Suprihati. (2005). Sifat-sifat Kimia dan Mineralogi Tanah serta Kaitannya dengan Kebutuhan Pupuk untuk Padi (*Oryza sativa*), Jagung (*Zea mays*), dan Kedelai (*Glycine max*). *Bul. Agron.*, 33(3), 40–47. <https://doi.org/10.24831/jai.v33i3.1263>
- Rosa, R. N., & Zaman, S. (2017). Pengelolaan Pembibitan Tanaman Kelapa Sawit (*Elaeis guineensis* Jacq.) Di Kebun Bangun Bandar, Sumatera Utara. *Buletin Agrohorti*, 5(3), 325–333.
<https://doi.org/10.29244/agrob.v5i3.16470>
- Saputra, B. D., Kautsar, V., & Gunawan, S. (2026). Pengaruh Macam dan Dosis Kotoran Hewan terhadap Pertumbuhan Bibit Kelapa Sawit (*Elaeis guineensis* Jacq) di Main Nursery. *Agroforetech*, 4(1), 42–46.
<https://eprints.instiperjogja.ac.id/id/eprint/4837>
- Usodri, K. S., & Utoyo, B. (2021). Pengaruh Penggunaan KNO₃ pada Pertumbuhan Bibit Kelapa Sawit (*Elaeis guineensis* Jack) Fase Pre-Nursery. *Jurnal Agrinika : Jurnal Agroteknologi Dan Agribisnis*, 5(1), 1. <https://doi.org/10.30737/agrinika.v5i1.1521>
- Usodri, K. S., Utoyo, B., Riniarti, D., Widiyani, D. P., Sari, R. P. K., & Guna, M. M. A. (2025). Pengaruh aplikasi pupuk organik cair (poc) kotoran kambing dan sapi terhadap pertumbuhan bibit kelapa sawit (*Elaeis guineensis* Jacq.) DI PEMBIBITAN UTAMA. *Jurnal Agrotropika*, 24(2), 442–454. <https://jurnal.fp.unila.ac.id/index.php/JAT>
- Wasis, B., Robi, D., & Waldi, D. (2019). Dampak kebakaran hutan terhadap flora dan sifat tanah mineral di kawasan hutan kabupaten pelalawan Provinsi Riau Impact of Forest Fire on Flora and Mineral Soil Properties in Forest Area of Pelalawan District, Riau Province. *Jurnal Silvikultur Tropika*, 10(1), 40–44. <https://doi.org/10.29244/j-siltrop.10.1.40-44>
- Yuniar, M., Susanti, H., Fredrickus, B., Program,), Magister, S., Fakultas, A., Universitas, P., Mangkurat, L., & Yani, J. A. (2021). *TANAH GAMBUT Growth and Yield Respone of Kailan on the Application of Dolomite Lime and Bokashi of Cow Manure on Peat Soil*. 17(3), 116–126.
<http://dx.doi.org/10.20527/es.v17i3.11815>

LAMPIRAN

Lampiran 1. Layout penelitian

A2B3	A1B1	A2B0	A1B4
A2B2	A1B0	A1B2	A2B5
A1B5	A2B4	A2B1	A1B3
A1B3	A1B1	A1B5	A2B5
A2B0	A2B0	A2B2	A2B4
A1B5	A1B0	A1B4	A2B1
A2B2	A2B4	A2B3	A1B4
A2B5	A2B1	A1B0	A1B2
A1B1	A1B3	A1B2	A2B3

Lampiran 2. Tabel hasil ANOVA pertumbuhan tinggi tanaman

Tests of Between-Subjects Effects

Dependent Variable: Tinggi_Tanaman

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	280.243 ^a	11	25.477	1.688	.137
Intercept	9136.174	1	9136.174	605.156	.000
Jenis_Tanah	1.174	1	1.174	.078	.783
Dosis_Kompos	250.035	5	50.007	3.312	.020
Jenis_Tanah * Dosis_Kompos	29.035	5	5.807	.385	.854
Error	362.333	24	15.097		
Total	9778.750	36			
Corrected Total	642.576	35			

Lampiran 3. Tabel hasil ANOVA tinggi tanaman

Tests of Between-Subjects Effects

Dependent Variable: Tinggi_Tanaman

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	296.076 ^a	11	26.916	1.542	.181
Intercept	45831.674	1	45831.674	2625.203	.000
Jenis_Tanah	5.063	1	5.063	.290	.595
Dosis_Kompos	222.701	5	44.540	2.551	.055
Jenis_Tanah * Dosis_Kompos	68.312	5	13.662	.783	.572
Error	419.000	24	17.458		
Total	46546.750	36			
Corrected Total	715.076	35			

Lampiran 4. Tabel hasil ANOVA penambahan diameter batang

Tests of Between-Subjects Effects

Dependent Variable: Diameter_Batang

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.542 ^a	11	.049	1.479	.204
Intercept	41.818	1	41.818	1254.533	.000
Jenis_Tanah	.001	1	.001	.033	.857
Dosis_Kompos	.452	5	.090	2.713	.044
Jenis_Tanah * Dosis_Kompos	.089	5	.018	.533	.749
Error	.800	24	.033		
Total	43.160	36			
Corrected Total	1.342	35			

Lampiran 5. Tabel hasil ANOVA diameter batang

Tests of Between-Subjects Effects

Dependent Variable: Diameter_Batang

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.572 ^a	11	.052	1.587	.166
Intercept	91.521	1	91.521	2792.169	.000
Jenis_Tanah	.001	1	.001	.034	.855
Dosis_Kompos	.492	5	.098	3.003	.030
Jenis_Tanah * Dosis_Kompos	.079	5	.016	.481	.787
Error	.787	24	.033		
Total	92.880	36			
Corrected Total	1.359	35			

Lampiran 6. Tabel hasil ANOVA jumlah tajuk

Tests of Between-Subjects Effects

Dependent Variable: Jumlah_Tajuk

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.972 ^a	11	.634	1.630	.153
Intercept	1950.694	1	1950.694	5016.071	.000
Jenis_Tanah	.250	1	.250	.643	.431
Dosis_Kompos	3.472	5	.694	1.786	.154
Jenis_Tanah * Dosis_Kompos	3.250	5	.650	1.671	.180
Error	9.333	24	.389		
Total	1967.000	36			
Corrected Total	16.306	35			

Lampiran 7. Tabel hasil ANOVA panjang akar

Tests of Between-Subjects Effects

Dependent Variable: Panjang_Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	520.056 ^a	11	47.278	.774	.662
Intercept	61173.778	1	61173.778	1001.025	.000
Jenis_Tanah	.694	1	.694	.011	.916
Dosis_Kompos	254.806	5	50.961	.834	.539
Jenis_Tanah * Dosis_Kompos	264.556	5	52.911	.866	.518
Error	1466.667	24	61.111		
Total	63160.500	36			
Corrected Total	1986.722	35			

Lampiran 8. Tabel hasil ANOVA berat basah tajuk

Tests of Between-Subjects Effects

Dependent Variable: Berat_Basah_Tajuk

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	307.163 ^a	11	27.924	1.652	.147
Intercept	12473.167	1	12473.167	737.766	.000
Jenis_Tanah	.340	1	.340	.020	.888
Dosis_Kompos	248.921	5	49.784	2.945	.033
Jenis_Tanah * Dosis_Kompos	57.901	5	11.580	.685	.639
Error	405.760	24	16.907		
Total	13186.090	36			
Corrected Total	712.923	35			

Lampiran 9. Tabel hasil ANOVA berat kering tajuk

Tests of Between-Subjects Effects

Dependent Variable: Berat_Kering_Tajuk

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17.953 ^a	11	1.632	1.450	.215
Intercept	637.815	1	637.815	566.822	.000
Jenis_Tanah	.018	1	.018	.016	.900
Dosis_Kompos	15.055	5	3.011	2.676	.046
Jenis_Tanah * Dosis_Kompos	2.879	5	.576	.512	.765
Error	27.006	24	1.125		
Total	682.774	36			
Corrected Total	44.959	35			

Lampiran 10. Tabel hasil ANOVA berat basah akar

Tests of Between-Subjects Effects

Dependent Variable: Berat_Basah_Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	35.616 ^a	11	3.238	1.249	.310
Intercept	920.111	1	920.111	354.951	.000
Jenis_Tanah	9.610	1	9.610	3.707	.066
Dosis_Kompos	21.059	5	4.212	1.625	.192
Jenis_Tanah * Dosis_Kompos	4.947	5	.989	.382	.856
Error	62.213	24	2.592		
Total	1017.940	36			
Corrected Total	97.829	35			

Lampiran 11. Tabel hasil ANOVA berat basah akar

Tests of Between-Subjects Effects

Dependent Variable: Berat_Kering_Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.336 ^a	11	.121	1.063	.428
Intercept	49.867	1	49.867	436.177	.000
Jenis_Tanah	.004	1	.004	.033	.857
Dosis_Kompos	1.015	5	.203	1.776	.156
Jenis_Tanah * Dosis_Kompos	.317	5	.063	.555	.733
Error	2.744	24	.114		
Total	53.947	36			
Corrected Total	4.080	35			

Lampiran 12. Dokumentasi pengambilan limbah kotoran babi



Pengambilan



Proses Fermentasi



Fermentasi di tutup

Lampiran 13. Jenis media tanam dan kompos matang



Tanah Gambut



Tanah Mineral



Kompos Matang

Lampiran 14. Penimbangan limbah kotoran babi dan dosis pupuk kontrol



Limbah kotoran babi.



Pupuk NPK.

Lampiran 15. Pupuk NPK



Lampiran 16. Foto tanaman sebelum panen



Lampiran 17. Pemanenan dan pengamatan parameter



Lampiran 18. Proses pengovenan tanaman



Lampiran 19. Pengukuran pH media tanam tanah gambut dan tanah mineral

