

DAFTAR PUSTAKA

- Adi, P. (2010). *Kaya dengan Bertani Kelapa Sawit Seri pertanian mode Pustaka Baru Press*. Yogyakarta.
- Ambarita, S., & Andayani, N. (2019). "Pengaruh Pemberian Pupuk NPK terhadap Pertumbuhan Bibit Kelapa Sawit (*Elaeis Guineensis* Jacq.) di Pre-Nursery." *Jurnal Teknik Pertanian Lampung*, 8(1), 17-26.
- Ariyanti, M., Rosniawaty, S., & Utami, H. A. (2018). Pertumbuhan bibit kelapa sawit (*Elaeis guineensis* Jacq.) dengan pemberian kompos blotong disertai dengan frekuensi penyiraman yang berbeda di pembibitan utama. *Kultivasi*, 17(3).
<https://doi.org/10.24198/kultivasi.v17i3.18890>
- Azizi, M., Aziz, M., & Mohamad, H. (2018). "Effect of Arbuscular Mycorrhizal Fungi on the Growth and Nutrient Uptake of Oil Palm Seedlings (*Elaeis guineensis* Jacq.)." *International Journal of Agronomy*, 2018, Article ID 4070543. doi:10.1155/2018/4070543.
- Dodd, J.C., Boddington, C.L., Rodriguez, A., Gonzalez-Chavez, M.C., Mansur, I., & Jansa, J. (2010). "Mycorrhizal symbioses in the tropics: biogeography, diversity patterns and ecosystem roles." In: *Tropical Mycology* (pp. 449-470). CABI.
- Krisnarini, K., Rini, M. V., & Timotiwu, P. B. (2019). The growth of oil palm (*Elaeis guineensis* Jacq.) seedlings with the application of different arbuscular mycorrhiza fungi and various phosphorous dosages. *Journal of Tropical Soils*, 23(3), 117–124.
- Pulungan, A. S. S. (2018). Tinjauan Ekologi Fungi Mikoriza Arbuskula. *Jurnal Biosains*, 4(1), 17. <https://doi.org/10.24114/jbio.v4i1.9389>
- Sunarko, I. (2014). *Budi Daya Kelapa Sawit di Berbagai Jenis Lahan*. AgroMedia.

- Asmono, D., Purba, A. R., Suprianto, E., & Yenni, Y. (2018). Akiyat. 2003. *Budidaya Kelapa Sawit. Pusat Penelitian Kelapa Sawit, Medan.*
- Basri, A. H. H. (2018). Kajian Peranan Mikoriza Dalam Bidang Pertanian. *Agrica Ekstensia*, 12(2), 74–78.
- Bonfante, P., & Genre, A. (2010). Mechanisms underlying beneficial plant - Fungus interactions in mycorrhizal symbiosis. *Nature Communications*, 1(4), 1–11. <https://doi.org/10.1038/ncomms1046>
- Dirjen Perkebunan Kementerian Pertanian. (2014). Pedoman Budidaya Kelapa Sawit (*Elaeis guineensis*) yang Baik. In *Kementrian Pertanian*.
- Fauzi, Y., Widyastuti, Y. E., Satyawibawa, I., & Hartono, R. (2012). Kelapa Sawit: Budidaya, Pemanfaatan Hasil dan Limbah, Analisis Usaha dan Pemasaran. *Penebar Swadaya, Jakarta*, 234.
- Hadianur, H., Syafruddin, S., & Kesumawati, E. (2016). Pengaruh jenis fungi mikoriza arbuscular terhadap pertumbuhan dan hasil tanaman tomat (*Lycopersicum esculentum* Mill). *Jurnal Agrista*, 20(3), 126–134. <http://e-repository.unsyiah.ac.id/agrista/article/view/10512>
- Handayani, E. (2008). *Respon Pertumbuhan dan Produksi Jagung (Zea mays L.) terhadap pemberian fungi mikoriza arbuskula (FMA) dan Perbedaan Waktu Tanam.*
- Johri, A. K., Oelmüller, R., Dua, M., Yadav, V., Kumar, M., Tuteja, N., Varma, A., Bonfante, P., Persson, B. L., & Stroud, R. M. (2015). Fungal association and utilization of phosphate by plants: Success, limitations, and future prospects. *Frontiers in Microbiology*, 6(OCT), 1–13. <https://doi.org/10.3389/fmicb.2015.00984>
- Lakitan, B. (1996). Fisiologi pertumbuhan dan perkembangan tanaman. *PT Raja Grafindo Persada. Jakarta*, 188.
- Lubis, A. U. (2008). *Kelapa sawit (Elaeis guineensis jacq.) di Indonesia*. Pusat

Penelitian Kelapa Sawit.

- Lubis, R. E., & Agus Widanarko, S. P. (2011). *Buku pintar kelapa sawit*. AgroMedia.
- Mangoensoekarjo, S., Adiwiganda, R., Wibowo, T., & Abdullah, Z. S. (2007). Manajemen tanah dan pemupukan budidaya perkebunan. *Gadjah Mada Universty Press, Yogyakarta. Hal, 1–385*.
- Mosse, B. (1981). *Vesicular-arbuscular mycorrhiza research for tropical agriculture*.
- Musfal. (2006). Respons tanaman jagung (*Zea mays* L.) kultivar Arjuna dengan populasi tanaman bervariasi terhadap mikoriza vesi-kular arbuskular (MVA) dan kapur pertani-an superfosfat (KSP) pada Ultisol. *Jurnal Akta Agrosia, 9(2), 75–85*.
- Nurtika, N., Setiawati, W., Penelitian, B., Sayuran, T., & Tangkuban, J. (2005). *2Ujdqln Whukdgds + Dvlo 7Rpdw. 15(2), 91–96*.
- Ramli, N. (2022). PENGARUH PUPUK ORGANIK CAIR (POC) TERHADAP PERTUMBUHAN DAN PRODUKSI TANAMAN MENTIMUN (*Cucumis sativus* L). *Jurnal Penelitian Agrosamudra, 9(2), 1–10*.
<https://doi.org/10.33059/jupas.v9i2.6491>
- Sari, V. I., , S., , S., , S., & , S. (2015). Peran Pupuk Organik dalam Meningkatkan Efektivitas Pupuk NPK pada Bibit Kelapa Sawit di Pembibitan Utama. *Jurnal Agronomi Indonesia (Indonesian Journal of Agronomy), 43(2), 153*.
<https://doi.org/10.24831/jai.v43i2.10422>
- Sarwono, H. (1995). Ilmu tanah. *Akademik Pressindo. Jakarta*.
- Silitonga, M. (2019). Peranan Sektor Agroindustri Kepala Sawit dalam Mendukung Perekonomian di Sumater Utara. *Jurnal Ilmiah Kohesi, 3(3), 15–20*.

- Silitonga, Y. R., Heryanto, R., Taufik, N., Indrayana, K., Nas, M., & Kusri, N. (2020). *Budidaya Kelapa Sawit & Varietas Kelapa Sawit*.
- Smith, S. E., & Read, D. J. (2010). *Mycorrhizal symbiosis*. Academic press.
- Smith, S. E., & Smith, F. A. (2011). Roles of arbuscular mycorrhizas in plant nutrition and growth: new paradigms from cellular to ecosystem scales. *Annual Review of Plant Biology*, 62(1), 227–250.
- Sutapa Mukherjee, S. M., & Analava Mitra, A. M. (2009). *Health effects of palm oil*.
- Suwandi, C. F. (1982). Pemupukan pada Tanaman Kelapa Sawit yang Telah Menghasilkan dalam Budidaya Kelapa Sawit (*Elaeis guineensis* Jacq.) oleh Lubis AU, Jamin A, Wahyuni S, Harahap IR. *Pusat Penelitian Marihat Pematang Siantar. Medan. Hal*, 19–21.

LAMPIRAN

Lampiran 1. RAL 2 faktor tinggi tanaman

Univariate Analysis of Variance

Between-Subjects Factors			
		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Tinggi Tanaman

NPK 15 15 15		Mean	Std. Deviation	N
N0	M0	19.800	3.0537	5
	M1	19.200	3.1741	5
	M2	20.800	3.7014	5
	M3	19.600	3.3053	5
	Total	19.850	3.1039	20
N1	M0	22.500	6.5479	5
	M1	19.400	2.5348	5
	M2	19.000	3.1820	5
	M3	22.800	4.4385	5
	Total	20.925	4.4523	20
N2	M0	21.800	3.7848	5
	M1	20.700	3.3091	5
	M2	21.900	3.6810	5
	M3	21.900	3.6810	5
	Total	21.575	3.3611	20
N3	M0	22.600	3.7815	5
	M1	23.100	4.0835	5
	M2	21.300	4.9699	5

	M3	18.600	2.6077	5
	Total	21.400	4.0445	20
Total	M0	21.675	4.2836	20
	M1	20.600	3.4397	20
	M2	20.750	3.7819	20
	M3	20.725	3.7080	20
	Total	20.938	3.7673	80

Tests of Between-Subjects Effects

Dependent Variable: Tinggi
Tanaman

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	35239.500 ^a	16	2202.469	148.065	0.000
N	36.063	3	12.021	0.808	0.494
M	14.763	3	4.921	0.331	0.803
N * M	118.363	9	13.151	0.884	0.544
Error	952.000	64	14.875		
Total	36191.500	80			

a. R Squared = ,974 (Adjusted R Squared = ,967)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Tinggi Tanaman

Duncan^{a,b}

		Subset	
NPK 15 15 15	N	1	
N0	20	19.850	a
N1	20	20.925	a
N3	20	21.400	a
N2	20	21.575	a
Sig.		0.204	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 14,875.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA Homogeneous Subsets

Tinggi Tanaman

Duncan^{a,b}

		Subset	
MIKORIZA	N	1	
M1	20	20.600	p
M3	20	20.725	p
M2	20	20.750	p
M0	20	21.675	p
Sig.		0.430	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 14,875.

- a. Uses Harmonic Mean Sample Size = 20,000.
- b. Alpha = ,05.

Lampiran 2. RAL 2 faktor jumlah daun.

Univariate Analysis of Variance

Between-Subjects Factors			
		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Jumlah Daun

		Mean	Std. Deviation	N
NPK 15 15 15				
N0	M0	3.000	0.0000	5
	M1	3.200	0.4472	5
	M2	3.600	0.5477	5
	M3	3.200	0.4472	5
	Total	3.250	0.4443	20
N1	M0	4.000	0.7071	5
	M1	4.000	0.0000	5
	M2	3.200	0.4472	5
	M3	4.200	0.4472	5
	Total	3.850	0.5871	20
N2	M0	4.000	0.7071	5
	M1	3.800	0.4472	5
	M2	4.200	0.4472	5
	M3	3.800	0.4472	5

	Total	3.950	0.5104	20
N3	M0	4.600	0.5477	5
	M1	4.000	0.0000	5
	M2	4.200	0.4472	5
	M3	4.000	0.0000	5
	Total	4.200	0.4104	20
Total	M0	3.900	0.7881	20
	M1	3.750	0.4443	20
	M2	3.800	0.6156	20
	M3	3.800	0.5231	20
	Total	3.813	0.5973	80

Tests of Between-Subjects Effects

Dependent Variable: Jumlah Daun

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1178.200 ^a	16	73.638	368.188	0.000
N	9.738	3	3.246	16.229	0.000
M	0.238	3	0.079	0.396	0.756
N * M	5.413	9	0.601	3.007	0.005
Error	12.800	64	0.200		
Total	1191.000	80			

a. R Squared = ,989 (Adjusted R Squared = ,987)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Jumlah Daun

Duncan^{a,b}

NPK 15 15 15	N	Subset			
		1	2	3	
N0	20	3.250			a
N1	20		3.850		b
N2	20		3.950	3.950	ab
N3	20			4.200	a
Sig.		1.000	0.482	0.082	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,200.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

**MIKORIZA
Homogeneous Subsets**

Jumlah Daun

Duncan^{a,b}

MIKORIZA	N	Subset	
		1	
M1	20	3.750	p
M2	20	3.800	p
M3	20	3.800	p
M0	20	3.900	p
Sig.		0.342	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,200.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 3. RAL 2 faktor diameter batang

Univariate Analysis of Variance

Between-Subjects Factors			
		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20

	3	M3	20
--	---	----	----

Descriptive Statistics

Dependent Variable: Diameter

Batang

NPK 15 15 15		Mean	Std. Deviation	N
N0	M0	0.7820	0.17079	5
	M1	0.6780	0.13461	5
	M2	0.7440	0.19021	5
	M3	0.6100	0.11683	5
	Total	0.7035	0.15802	20
N1	M0	0.8740	0.19021	5
	M1	0.8600	0.14697	5
	M2	0.7500	0.18615	5
	M3	0.8100	0.20603	5
	Total	0.8235	0.17575	20
N2	M0	0.8420	0.19524	5
	M1	0.8400	0.17132	5
	M2	0.8220	0.24325	5
	M3	0.8080	0.12872	5
	Total	0.8280	0.17422	20
N3	M0	0.9480	0.16270	5
	M1	0.8320	0.11606	5
	M2	0.8180	0.20438	5
	M3	0.6060	0.08385	5
	Total	0.8010	0.18629	20
Total	M0	0.8615	0.17643	20
	M1	0.8025	0.15141	20
	M2	0.7835	0.19383	20
	M3	0.7085	0.16557	20
	Total	0.7890	0.17792	80

Tests of Between-Subjects Effects

Dependent Variable: Diameter Batang

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	50.447 ^a	16	3.153	108.733	0.000
N	0.203	3	0.068	2.337	0.082
M	0.239	3	0.080	2.747	0.050
N * M	0.203	9	0.023	0.776	0.638
Error	1.856	64	0.029		
Total	52.302	80			

a. R Squared = ,965 (Adjusted R Squared = ,956)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Diameter Batang

Duncan^{a,b}

NPK 15 15 15	N	Subset		
		1	2	
N0	20	0.7035		c
N3	20	0.8010	0.8010	ab
N1	20		0.8235	a
N2	20		0.8280	a
Sig.		0.075	0.641	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,029.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA
Homogeneous Subsets

Diameter Batang

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M3	20	0.7085		q
M2	20	0.7835	0.7835	pq
M1	20	0.8025	0.8025	pq
M0	20		0.8615	p
Sig.		0.104	0.177	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,029.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 4. RAL 2 faktor berat basah tajuk

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Berat Basah

Tajuk

NPK 15 15 15		Mean	Std. Deviation	N
N0	M0	3.0700	1.09802	5
	M1	2.5840	0.62532	5

	M2	3.2100	0.88131	5
	M3	2.6920	0.69143	5
	Total	2.8890	0.81898	20
N1	M0	4.4980	1.49470	5
	M1	4.2880	1.62901	5
	M2	3.6640	1.14201	5
	M3	4.4160	0.57130	5
	Total	4.2165	1.21872	20
N2	M0	4.8480	0.77196	5
	M1	4.0640	0.65198	5
	M2	4.9940	1.64167	5
	M3	4.3200	0.75611	5
	Total	4.5565	1.02663	20
N3	M0	5.8000	0.82907	5
	M1	4.7840	1.02148	5
	M2	5.0680	1.83301	5
	M3	3.3320	1.29856	5
	Total	4.7460	1.50761	20
Total	M0	4.5540	1.41633	20
	M1	3.9300	1.28736	20
	M2	4.2340	1.55219	20
	M3	3.6900	1.08798	20
	Total	4.1020	1.36080	80

Tests of Between-Subjects Effects

Dependent Variable: Berat Basah

Tajuk

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1410.665 ^a	16	88.167	69.033	0.000
N	42.116	3	14.039	10.992	0.000
M	8.421	3	2.807	2.198	0.097
N * M	14.016	9	1.557	1.219	0.299
Error	81.738	64	1.277		
Total	1492.403	80			

a. R Squared = ,945 (Adjusted R Squared = ,932)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Berat Basah Tajuk

Duncan^{a,b}

NPK 15 15 15	N	Subset		
		1	2	
N0	20	2.8890		b
N1	20		4.2165	a
N2	20		4.5565	a
N3	20		4.7460	a
Sig.		1.000	0.167	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1,277.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA Homogeneous Subsets

Berat Basah Tajuk

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M3	20	3.6900		q
M1	20	3.9300	3.9300	p
M2	20	4.2340	4.2340	p
M0	20		4.5540	p
Sig.		0.156	0.103	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1,277.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 5. RAL 2 faktor berat basah akar

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Berat Basah Akar

NPK 15 15 15		Mean	Std. Deviation	N
N0	M0	1.1520	0.34252	5
	M1	1.1580	0.17456	5
	M2	1.3800	0.46717	5
	M3	0.9000	0.33144	5
	Total	1.1475	0.36134	20
N1	M0	1.7000	0.42603	5
	M1	1.4420	0.46949	5
	M2	1.0560	0.40029	5
	M3	1.3060	0.11696	5
	Total	1.3760	0.42218	20
N2	M0	1.4580	0.34332	5
	M1	1.2580	0.30070	5
	M2	1.3680	0.52704	5
	M3	1.1280	0.32965	5
	Total	1.3030	0.37581	20
N3	M0	1.7140	0.33156	5
	M1	1.4900	0.35071	5
	M2	1.5180	0.68849	5
	M3	0.8340	0.53668	5
	Total	1.3890	0.57043	20

Total	M0	1.5060	0.40711	20
	M1	1.3370	0.34188	20
	M2	1.3305	0.51773	20
	M3	1.0420	0.38275	20
	Total	1.3039	0.44253	80

Tests of Between-Subjects Effects

Dependent Variable: Berat Basah

Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	140.913 ^a	16	8.807	53.347	0.000
N	0.738	3	0.246	1.490	0.226
M	2.225	3	0.742	4.492	0.006
N * M	1.943	9	0.216	1.307	0.251
Error	10.566	64	0.165		
Total	151.478	80			

a. R Squared = ,930 (Adjusted R Squared = ,913)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

BERAT BASAH AKAR

Duncan^{a,b}

NPK 15 15 15	N	Subset	
		1	
N0	20	1.1475	a
N2	20	1.3030	a
N1	20	1.3760	a
N3	20	1.3890	a
Sig.		0.090	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,165.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA
Homogeneous Subsets

BERAT BASAH AKAR

Duncan^{a,b}

MIKORIZA	N	Subset	
		1	2
M3	20	1.0420	
M2	20		1.3305
M1	20		1.3370
M0	20		1.5060
Sig.		1.000	0.203

q
p
p
p

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,165.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 6. RAL 2 faktor berat kering tajuk

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable:

NPK 15 15 15		Mean	Std. Deviation	N
N0	M0	0.9140	0.32624	5
	M1	0.7620	0.22466	5
	M2	0.8960	0.32393	5
	M3	0.8000	0.25189	5

	Total	0.8430	0.26974	20
N1	M0	1.2360	0.41573	5
	M1	1.1960	0.45960	5
	M2	1.0200	0.33956	5
	M3	1.2020	0.15707	5
	Total	1.1635	0.34321	20
N2	M0	1.3780	0.26734	5
	M1	1.1080	0.21040	5
	M2	1.3600	0.57814	5
	M3	1.1120	0.25144	5
	Total	1.2395	0.35460	20
N3	M0	1.6360	0.25599	5
	M1	1.2580	0.27662	5
	M2	1.3220	0.44941	5
	M3	0.8960	0.37667	5
	Total	1.2780	0.41838	20
Total	M0	1.2910	0.39893	20
	M1	1.0810	0.34528	20
	M2	1.1495	0.44729	20
	M3	1.0025	0.29856	20
	Total	1.1310	0.38456	80

Tests of Between-Subjects Effects

Dependent Variable:

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	106.622 ^a	16	6.664	57.683	0.000
N	2.348	3	0.783	6.774	0.000
M	0.899	3	0.300	2.594	0.060
N * M	1.043	9	0.116	1.003	0.447
Error	7.394	64	0.116		
Total	114.016	80			

a. R Squared = ,935 (Adjusted R Squared = ,919)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Berat Kering Tajuk

Duncan^{a,b}

NPK 15 15 15	N	Subset		
		1	2	
N0	20	0.8430		b
N1	20		1.1635	a
N2	20		1.2395	a
N3	20		1.2780	a
Sig.		1.000	0.321	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,116.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA Homogeneous Subsets

Berat Kering Tajuk

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M3	20	1.0025		q
M1	20	1.0810	1.0810	pq
M2	20	1.1495	1.1495	pq
M0	20		1.2910	p
Sig.		0.202	0.068	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,116.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 7. RAL 2 faktor berat kering akar

Univariate Analysis of Variance

Between-Subjects Factors			
		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Berat Kering Akar

		Mean	Std. Deviation	N
NPK 15 15 15				
N0	M0	0.3700	0.12450	5
	M1	0.3420	0.07463	5
	M2	0.4160	0.19034	5
	M3	0.3020	0.13498	5
	Total	0.3575	0.13310	20
N1	M0	0.5080	0.14342	5
	M1	0.4280	0.13554	5
	M2	0.3660	0.14011	5
	M3	0.3800	0.02828	5
	Total	0.4205	0.12547	20
N2	M0	0.4640	0.16380	5
	M1	0.3740	0.15027	5
	M2	0.3960	0.22634	5
	M3	0.2860	0.12661	5
	Total	0.3800	0.16977	20
N3	M0	0.5020	0.11300	5
	M1	0.3880	0.09524	5
	M2	0.3880	0.20511	5
	M3	0.2480	0.14498	5

	Total	0.3815	0.16252	20
Total	M0	0.4610	0.13833	20
	M1	0.3830	0.11272	20
	M2	0.3915	0.17816	20
	M3	0.3040	0.11931	20
	Total	0.3849	0.14782	80

Tests of Between-Subjects Effects

Dependent Variable: Berat Kering Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	12.231 ^a	16	0.764	36.347	0.000
N	0.041	3	0.014	0.651	0.585
M	0.248	3	0.083	3.925	0.012
N * M	0.092	9	0.010	0.483	0.881
Error	1.346	64	0.021		
Total	13.577	80			

a. R Squared = ,901 (Adjusted R Squared = ,876)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Berat Kering Akar

Duncan^{a,b}

NPK 15 15 15	N	Subset	
		1	
N0	20	0.3575	a
N2	20	0.3800	a
N3	20	0.3815	a
N1	20	0.4205	a
Sig.		0.217	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,021.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA
Homogeneous Subsets

Berat Kering Akar

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M3	20	0.3040		q
M1	20	0.3830	0.3830	pq
M2	20	0.3915	0.3915	pq
M0	20		0.4610	p
Sig.		0.075	0.113	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,021.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 8. RAL 2 faktor luas daun

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Luas Daun

		Mean	Std. Deviation	N
N0	M0	102.1700	19.52070	5
	M1	98.0960	16.28745	5

	M2	129.3380	7.90595	5
	M3	132.4320	9.66607	5
	Total	115.5090	20.52336	20
N1	M0	166.3720	53.11084	5
	M1	130.9760	28.87712	5
	M2	119.3160	33.33888	5
	M3	143.0220	6.98588	5
	Total	139.9215	36.51170	20
N2	M0	153.7400	20.77522	5
	M1	127.6640	6.70469	5
	M2	245.4100	150.92044	5
	M3	133.7700	20.86898	5
	Total	165.1460	85.70605	20
N3	M0	190.7400	23.16701	5
	M1	193.6320	33.61931	5
	M2	206.3020	31.31527	5
	M3	143.1200	26.18353	5
	Total	183.4485	36.17244	20
Total	M0	153.2555	44.49484	20
	M1	137.5920	41.87153	20
	M2	175.0915	90.42060	20
	M3	138.0860	17.09850	20
	Total	151.0063	56.30664	80

Tests of Between-Subjects Effects

Dependent Variable: Luas Daun

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1944137.782 ^a	16	121508.611	59.564	0.000
N	52707.171	3	17569.057	8.612	0.000
M	18640.667	3	6213.556	3.046	0.035
N * M	48558.941	9	5395.438	2.645	0.011
Error	130557.831	64	2039.966		
Total	2074695.613	80			

a. R Squared = ,937 (Adjusted R Squared = ,921)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

Luas Daun

Duncan^{a,b}

NPK 15 15 15	N	Subset			
		1	2	3	
N0	20	115.5090			c
N1	20	139.9215	139.9215		bc
N2	20		165.1460	165.1460	ab
N3	20			183.4485	a
Sig.		0.092	0.082	0.205	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 2039,966.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA Homogeneous Subsets

Luas Daun

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M1	20	137.5920		q
M3	20	138.0860		q
M0	20	153.2555	153.2555	pq
M2	20		175.0915	p
Sig.		0.307	0.131	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 2039,966.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 9. RAL 2 faktor volume akar

Univariate Analysis of Variance

Between-Subjects Factors			
		Value Label	N
NPK 15 15 15	0	N0	20
	1	N1	20
	2	N2	20
	3	N3	20
MIKORIZA	0	M0	20
	1	M1	20
	2	M2	20
	3	M3	20

Descriptive Statistics

Dependent Variable: Volume
Akar

		Mean	Std. Deviation	N
NPK 15 15 15				
N0	M0	1.5000	0.61237	5
	M1	1.4000	0.22361	5
	M2	1.7000	0.83666	5
	M3	1.2000	0.57009	5
	Total	1.4500	0.58264	20
N1	M0	2.5000	0.35355	5
	M1	2.2000	0.57009	5
	M2	2.3000	0.44721	5
	M3	1.7000	0.27386	5
	Total	2.1750	0.49404	20
N2	M0	1.9000	0.65192	5
	M1	1.8000	0.75829	5
	M2	1.8000	1.09545	5
	M3	1.4000	0.82158	5
	Total	1.7250	0.80255	20
N3	M0	2.7000	0.57009	5
	M1	1.7000	0.57009	5
	M2	1.9000	0.82158	5
	M3	2.1000	1.43178	5
	Total	2.1000	0.92623	20

Total	M0	2.1500	0.70897	20
	M1	1.7750	0.59549	20
	M2	1.9250	0.79926	20
	M3	1.6000	0.88258	20
	Total	1.8625	0.76710	80

Tests of Between-Subjects Effects

Dependent Variable: Volume Akar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	290.300 ^a	16	18.144	34.457	0.000
N	6.862	3	2.288	4.344	0.008
M	3.263	3	1.088	2.065	0.114
N * M	2.663	9	0.296	0.562	0.823
Error	33.700	64	0.527		
Total	324.000	80			

a. R Squared = ,896 (Adjusted R Squared = ,870)

Post Hoc Tests

NPK 15 15 15 Homogeneous Subsets

VOLUME AKAR

Duncan^{a,b}

NPK 15 15 15	N	Subset		
		1	2	
N0	20	1.4500		b
N2	20	1.7250	1.7250	ab
N3	20		2.1000	a
N1	20		2.1750	a
Sig.		0.235	0.067	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,527.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

MIKORIZA

Homogeneous Subsets

VOLUME AKAR

Duncan^{a,b}

MIKORIZA	N	Subset		
		1	2	
M3	20	1.6000		q
M1	20	1.7750	1.7750	pq
M2	20	1.9250	1.9250	pq
M0	20		2.1500	p
Sig.		0.187	0.128	

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,527.

a. Uses Harmonic Mean Sample Size = 20,000.

b. Alpha = ,05.

Lampiran 10. Persiapan lahan dan bedengan serta pemberian pupuk hayati mikoriza pada media tanam.



Lampiran 11. Persiapan benih dan penanaman.





Lampiran 12. Pemupukan NPK 15-15-15



Lampiran 13. Perawatan bibit kelapa sawit di pre-nursery



Lampiran 14. Pengukuran parameter tinggi tanaman, jumlah daun, dan diameter batang.



Lampiran 15. Bibit kelapa sawit setelah di panen



Lampiran 16. Pengukuran PH tanah pada polybag yang digunakan untuk penelitian.



Lampiran 17. Pengukuran pada parameter berat basah tajuk, berat basah akar, berat kering tajuk, berat kering akar, luas daun, dan volume akar.



Lampiran 18. Identifikasi koloni mikoriza pada akar



Lampiran 19. Hasil pengamatan kolonisasi mikoriza pada akar bibit kelapa sawit di pre-nursery

