

DAFTAR PUSTAKA

- Amalialisa. 2020. “*Apa yang dimaksud dengan tanah ultisol?*”.
<https://www.dictio.id/t/apa-yang-dimaksud-dengan-tanah-ultisol/120052>.
- Anonim. 2023. “*Luas areal perkebunan sawit di Indonesia*”.
<https://spks.or.id/detail-publikasi-luas-areal-perkebunan-sawit-di-indonesia-capai-1638-juta-hektare>. Diakses pada tanggal 27 september 2023.
- Anonim. 2020. “*PH Tanah: Permasalahan pH, Dampak Bagi Ketersediaan Hara dan Cara Mengatasinya*”,<https://www.jagotugas.com/2020/12/ph-tanah-permasalahan-ph-dampak-bagi.html>, diakses pada 28 Agustus 2023
- Ardi, R. 2009. *Kajian Aktivitas Mikroorganisme Tanah pada Berbagai Kelerengan dan Kedalaman Hutan Alam*. Skripsi. Departemen Kehutanan Fakultas Pertanian, Universitas Sumatera Utara.
- Aprita, D. 2015. *Pengaruh Tapak Timbun terhadap Pertumbuhan dan Produksi Tanaman Kelapa Sawit*. Skripsi. Fakultas Pertanian, Institut Pertanian Stiper.
- Chandra, M.A. 2015. *Pengaruh Pupuk Kompos Batang Pisang dan Pupuk Organik Cair Super Bionik terhadap Pertumbuhan Bibit Kelapa Sawit (Elaeis guineensis Jacq.) di Pembibitan Awal*. Skripsi. Fakultas Pertanian, Universitas Muhammadiyah Sumatera Utara.
- Darmosarkoro, W., Harahap. I.Y. & Syamsuddin, E., 2001. *Pengaruh Kekeringan Pada Tanaman Kelapa Sawit dan Upaya Penanggulangannya*. Warta PPKS, 9(3): 83–96.
- Donicie, P. J. dan Idak. 1941. *Pertanaman Djeruk di Daerah Bandjarmasin, Marabahan dan Martapura (Dalam Wilayah Afdeling Bandjarmasin)*. Diperbanyak oleh Lembaga Pusat Penelitian Pertanian Perwakilan Kalimantan tahun 1971.

- Legros, S., I. Mialet-Serra, J.P. Caliman, F.A. Siregar, A. Clement-Vidal, and M. Dingkuhn. 2009. *Phenology and Growth Adjustments of Oil Palm (Elaeis guineensis, Jacq) of Photoperiod and Climate Variability*. *Annals of Botany*, 104: 1171- 1182.
- Matana, Y. dan N. Mashud. 2015. *Respon Pemupukan N,P,K dan Mg terhadap Kandungan Unsur Hara Tanah dan Daun pada Tanaman Muda Kelapa Sawit*. *Buletin Palma* 16 (1) : 23-31.
- Nursiani lubis, M. Arul Khoiri & Riko Irawan. (2023). Pengaruh Tinggi Tapak Timbun Terhadap Distribusi Akar Kelapa Sawit umur 10 tahun Pada Lahan Mineral. <http://jurnal.utu.ac.id/jagrotek/article/view/8311/pdf>.
- Pahan, Iyung. 2013. *Panduan Lengkap Kelapa Sawit*. Cet 11. Penebar Swadaya. Jakarta.
- Riza Syofiani, Santi Diana Putri, Nike Karjunita.2020 “*characteristics of soil properties as determining factors for agricultural potentials in the village silokek of national geopark area*”. <https://ojs.unimal.ac.id/agrium/article/download/2349/1383> . Diakses pada 15 oktober 2023.
- Rizky Septiawan.2026.”*Pemberian pupuk organic pada tanah ultisol*”. https://repository.ump.ac.id/9705/3/RIZKY%20SEPTIAWAN_BAB%20II.pdf . diakses pada 15 oktober 2023
- Suwarto dan Y. Octaviany. 2010. *Budidaya Tanaman Perkebunan Unggulan*. Penebar Swadaya. Jakarta.
- Suyatno, R. 1994. *Kelapa Sawit: Upaya Meningkatkan Produktivitas*. Kanisius. Yogyakarta.

LAMPIRAN

Lampiran 1. Data curah hujan tahun 2013-2022

Bulan	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022	
	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH	CH	HH
Jan.	162	7	54	3	33	4	40	1	77	7	129	10	112	5	108	3	167	8	21	1
Feb.	112	4	82	1	31	2	106	3	119	9	15	1	36	1	121	4	3	1	133	8
Mar.	-	-	76	3	51	7	-	-	116	7	11	1	12	2	13	2	246	9	36	2
Apr.	132	7	83	3	34	4	24	2	41	3	84	6	76	4	81	4	169	9	61	3
Mei	92	4	146	6	39	3	72	4	161	10	220	6	144	5	213	8	101	8	446	6
Jun.	89	3	68	4	63	5	101	7	62	3	75	3	29	1	352	11	160	7	125	8
Jul.	65	4	26	2	163	8	126	8	107	7	153	3	61	3	166	9	112	4	36	3
Ags.	254	9	134	11	163	13	57	5	264	12	9	2	280	9	124	7	318	12	285	11
Sep.	128	5	120	9	105	4	233	9	259	12	182	9	143	6	296	12	138	8	-	-
Okt.	376	11	265	10	117	5	50	5	193	12	254	10	347	13	163	12	253	9	-	-
Nov.	226	7	305	12	193	11	83	7	213	12	64	5	170	8	369	16	251	10	-	-
Des.	79	7	182	15	21	1	81	6	97	9	85	6	67	5	171	9	150	6	-	-
Jumlah	1715	68	1541	79	1013	67	973	57	1709	103	1281	62	1477	62	2177	97	2068	91	1143	42

Sumber : Administrasi Kebun Tanah Itam Ulu

Lampiran 2. Uji T Produksi TBS

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
KG_TBS	Bumbun	18	49,0418	15,61257	3,67992
	Tanpa_Bumbun	18	41,7512	9,20812	2,17037

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
KG_TBS	Equal variances assumed	5,310	0,027	1,706	34	0,097	7,29061	4,27227	-1,39169	15,97292	
	Equal variances not assumed			1,706	27,550	0,099	7,29061	4,27227	-1,46718	16,04841	

ANOVA					
KG_TBS					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	478,377	1	478,377	2,912	0,097
Within Groups	5585,211	34	164,271		
Total	6063,588	35			

Lampiran 3. Uji T Jumlah JIG

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Jumlah_JIG	Bumbun	18	2,1192	0,42179	0,09942
	Tidak_Bumbun	18	2,5323	0,77770	0,18331

Independent Samples Test					
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		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Jumlah_JJG	Equal variances assumed	5,492	0,025	-1,981	34	0,056	-0,41317	0,20853	-0,83695	0,01062
	Equal variances not assumed			-1,981	26,205	0,058	-0,41317	0,20853	-0,84165	0,01531

ANOVA					
Jumlah_JJG					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,536	1	1,536	3,926	0,056
Within Groups	13,306	34	0,391		
Total	14,843	35			

Lampiran 4.Uji T BJR

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
BJR	Bumbun	18	19,0556	2,46080	0,58002
	Tanpa_Bumbun	18	19,2778	1,07406	0,25316

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BJR	Equal variances assumed	1,101	0,301	-0,351	34	0,728	-0,22222	0,63286	-1,50834	1,06390
	Equal variances not assumed			-0,351	23,250	0,729	-0,22222	0,63286	-1,53061	1,08616

Lampiran 5. Analisis Karakter agronomi tinggi tanaman

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Tinggi_tanaman	Bumbun	45	55,2667	35,71376	5,32389
	Tanpa_bumbun	45	41,0222	36,25634	5,40478

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Tinggi_tanaman	Equal variances assumed	1,455	0,231	1,878	88	0,064	14,24444	7,58653	-0,83219	29,32108
	Equal variances not assumed			1,878	87,980	0,064	14,24444	7,58653	-0,83224	29,32113

ANOVA					
Tinggi tanaman					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4565,344	1	4565,344	3,525	0,064
Within Groups	113959,778	88	1294,997		
Total	118525,122	89			

Lampiran 6. Analisis Karakter agronomi diameter batang

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Diameter_Batang	Bumbun	45	21,8222	4,49388	0,66991
	Tanpa_Bumbun	45	20,7778	6,02227	0,89775

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
									-	-	
Diameter_Batang	Equal variances assumed	2,121	0,149	0,932	88	0,354	1,04444	1,12015	-1,18161	3,27050	
	Equal variances not assumed			0,932	81,404	0,354	1,04444	1,12015	-1,18413	3,27301	

ANOVA					
Diameter_Batang					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24,544	1	24,544	0,869	0,354
Within Groups	2484,356	88	28,231		
Total	2508,900	89			

Lampiran 7. Analisis Karakter agronomi panjang pelepah

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Panjang_Pelepah	Bumbun	45	35,9333	4,38178	0,65320
	Tanpa_Bumbun	45	35,3778	5,26692	0,78515

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Panjang_Pelepah	Equal variances assumed	0,636	0,427	0,544	88	0,588	0,55556	1,02133	1,47413	2,58524	
	Equal variances not assumed			0,544	85,180	0,588	0,55556	1,02133	1,47507	2,58618	

ANOVA					
Panjang_Pelepah					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6,944	1	6,944	0,296	0,588
Within Groups	2065,378	88	23,470		
Total	2072,322	89			

Lampiran 8. Analisis Karakter agronomi lebar petiole

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Lebar_Petiole	Bumbun	45	20,6667	1,73205	0,25820
	Tanpa_Bumbun	45	20,1333	1,64593	0,24536

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
									-0,17451	1,24118	
Lebar_Petiole	Equal variances assumed	0,056	0,813	1,497	88	0,138	0,53333	0,35619	-0,17451	1,24118	
	Equal variances not assumed			1,497	87,772	0,138	0,53333	0,35619	-0,17454	1,24120	

ANOVA					
Lebar_Petiole					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6,400	1	6,400	2,242	0,138
Within Groups	251,200	88	2,855		
Total	257,600	89			

Lampiran 9. Analisis Karakter agronomi bunga jantan

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Bunga_Jantan	Bumbun	45	1,2444	0,80214	0,11958
	Tanpa_Bumbun	45	1,2000	0,75679	0,11282

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Bunga_Jantan	Equal variances assumed	0,254	0,615	0,270	88	0,788	0,04444	0,16440	-0,28226	0,37115	
	Equal variances not assumed			0,270	87,704	0,788	0,04444	0,16440	-0,28227	0,37116	

ANOVA					
Bunga_Jantan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0,044	1	0,044	0,073	0,788
Within Groups	53,511	88	0,608		
Total	53,556	89			

Lampiran 10. Analisis Karakter agronomi bunga betina

Group Statistics					
Perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Bunga_Betina	Bumbun	45	1,6889	1,29373	0,19286
	Tanpa_Bumbun	45	1,7778	1,12591	0,16784

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
									-	-	
Bunga_Betina	Equal variances assumed	0,813	0,370	-0,348	88	0,729	-0,08889	0,25567	0,59697	-	0,41919
	Equal variances not assumed			-0,348	86,354	0,729	-0,08889	0,25567	0,59710	-	0,41933

ANOVA					
Bunga_Betina					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0,178	1	0,178	0,121	0,729
Within Groups	129,422	88	1,471		
Total	129,600	89			

Lampiran 11. Pengukuran tinggi tanaman



Lampiran 12. Pengukuran Panjang Pelepah



Lampiran 13. Menghitung lebar petiole



Lampiran 14. Perhitungan bunga jantan dan bunga betina



Lampiran 15. Pokok LSU perlakuan bumbun dan tanpa perlakuan



Lampiran 16. Parit pembumbunan

