

DAFTAR PUSTAKA

- Adam, H., M. Collin, F. Richaud, T. Beule, D. Cros, A. Omore, L. Nodichao, B. Nouy, and J.W. Tregear. 2011. *Environmental Regulation of Sex Determination in Oil Palm: Current Knowledge and Insights from Other Species*. *Annals of Botany*, 108(8): 1529-1537.
- 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 2022
- Agus, F. dan I.G.M. Made Subiksa. 2008. *Lahan Gambut: Potensi untuk Pertanian dan Aspek Lingkungan*. *Badan Penelitian dan Pengembangan Pertanian*. Balai Penelitian Tanah. Bogor. 36 hal.
- Andoko dan Widodoro. 2013. *Berkebun Kelapa Sawit "Si Emas Cair"*. Perseroan Terbatas. Agromedia Pustaka, Jakarta.
- Aprita, D. 2015. *Pengaruh Tapak Timbun terhadap Pertumbuhan dan Produksi Tanaman Kelapa Sawit*. Skripsi. Fakultas Pertanian, Institut Pertanian Stiper.
- Ardi, R. 2009. *Kajian Aktivitas Mikroorganisme Tanah pada Berbagai Kelerengan dan Kedalaman Hutan Alam*. Skripsi. Departemen Kehutanan Fakultas Pertanian, Universitas Sumatera Utara.
- Badan Pusat Statistik. 2020. *Statistik Kelapa Sawit Indonesia 2020*. Jakarta.
- 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.
- Jaya E.S., Wawan dan Nelvia. 2021. *Hubungan Perbedaan Tinggi Muka Air Terhadap Kadar Cu dan Zn Daun Serta Pertumbuhan Tanaman Kelapa*

Sawit (Elaeis guineensis Jacq.) di Lahan Gambut. J. Solum Vol. XVIII No. 1, Januari 2021: 12-22

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.

Lumbangaol, P. 2010. *Rekomendasi Pemupukan Kelapa Sawit*. Musim Mas Press. Medan.

Management Committee Agronomy and Research. 2012. *SOP Pemupukan*. PT Smart Tbk. Jakarta

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.

Mutalib, A.Aa, J.S. Lim, M.H. Wong and L. Koonvai. 1991. *Characterization, Distribution and Utilization of Peat in Malaysia*. Proc. International Symposium on Tropical Peatland. 6-10 May 1991, Kuching, Serawak, Malaysia.

Nasir, A.R.M., R. Ishak, and S. Hamzah. 2014. *The Effect of Irrigation on Yield Components of a Mature Lysimeter Palm*. TMC Academic Journal, 8(2): 16-26.

Noor ,M. 2010. *Pembentukan dan Kerusakan Lahan Gambut. Dalam: Noor, M. Lahan Gambut, Pengembangan, Konservasi dan Perubahan Iklim*. Gadjah Mada University Press. Yogyakarta.

Nu'man, M. 2009. *Pengelolaan Tenaga Kerja Perkebunan Kelapa Sawit (Elaeis guineensis Jacq.) di Perkebunan PT. Cipta Futura Plantation, Muara Enim, Sumatera Utara*. Skripsi. Institut Pertanian Bogor: Bogor.

Nugroho, K., G. Gianinazzi and IPG. Widjaja-Adhi. 1997. *Soil Hydraulic Properties of Indonesian Peat*. In: *Rieley and Page (Eds.)*. pp. 147-156 In *Biodiversit and Sustainability of Tropical Peat and Peatland*. Samara Publishing Ltd.

Pahan, Iyung. 2013. *Panduan Lengkap Kelapa Sawit*. Cet 11. Penebar Swadaya. Jakarta.

Risza, S. 2012. *Kelapa Sawit*. Kanisius. Yogyakarta.

- Santosa, P.B. 2011. *Kendala dan Upaya Meningkatkan Keberhasilan Penanaman di Lahan Gambut*. Galam, 5 (1), 1-12.
- Setiawan, K. 2012. *Managemen Panen Kelapa Sawit (Elaeis guineensis Jacq.) pada Lahan Gambut di Kebun Mandah, PT. Bumireksa Nusa Sejati, Minamas Plantation, Kabupaten Indragiri Hilir, Provinsi Riau*. Skripsi. Institut Pertanian Bogor: Bogor.
- Setiawan, N.2013. *Implementasi Konservasi Tanah dan Air di Perkebunan Kelapa Sawit*. Skripsi. Fakultas Pertanian, Universitas Tridinanti.
- Siagian, 2016. *Distribusi Fe, Cu Dan Zn Pada Lahan Gambut Perkebunan Kelapa Sawit Berdasarkan Jarak Dari Batang Dan Ketebalan Gambut Pada Musim Hujan*. Tesis. Program Pascasarjana IPB. Bogor.
- Siallagan, E.J. 2015. *Efektivitas Pupuk Majemuk dan Cu Terhadap Pertumbuhan Vegetatif Tanaman Kelapa Sawit (Elaeis guineensis Jacq.) di Lahan Gambut*. Universitas Riau. Pekanbaru. Tidak dipublikasikan.
- Stevenson, F.J. 1994. *Humus Chemistry.Genesis, Composition, and Reactions*. John Wiley and Sons.Inc. New York. 443 p.
- Sutrisno, T. 2015. *Respon Limbah Cair Tahu dan Blotong Tebu terhadap Pertumbuhan Bibit Kelapa Sawit (Elaeis guineensis Jacq.) di Pre-Nursery*. Skripsi (tidak dipublikasi). Universitas Muhammadiyah Sumatera Utara.
- Suwarto dan Y. Octavianty. 2010. *Budidaya Tanaman Perkebunan Unggulan*. Penebar Swadaya. Jakarta.
- Suyatno, R. 1994. *Kelapa Sawit: Upaya Meningkatkan Produktivitas*. Kanisius. Yogyakarta.
- Tan, K. H. 1993. *Environmental Soil Science*. Marcel Dekker. Inc, New York.
- Tie,Y.L and J.S.Lim (1991): *Characterisitcs and Classification of Organic Soils in Malaysia*; Proceedings of International Symposium on Tropical Peatland, Kuching, Sarawak,107-113.
- Widjaja-Adhi, I P.G. 1988. *Physical and Chemical Characteristic of Peat Soil of Indonesia*. Ind. Agric. Res. Dev. J. 10:59-64. Cardigan. UK.
- Widyati, E. dan T. Rostiwati. 2010. *Memahami Sifat-Sifat Tanah Gambut untuk Optimasi Pemanfaatan Lahan Gambut*. Jurnal Mitra Hutan Tanaman. 5(2): 57-68.

LAMPIRAN

Lampiran 1a. Data curah hujan tahun 2010-2020

Bulan	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Januari	335	199	169	231	80	261	440	148	154	355	300
Februari	240	217	282	218	198	296	310	309	146	318	290,5
Maret	426	190	230	194	394	346	242	251	211	207	175
April	221,5	332	254	311	142	297	395	249	214	152	436
Mei	333,3	195	131	217	281	152	207	150	258	144	217
Juni	424,2	54	114	73	229	255	66	81	90	199	173
Juli	466,5	125	192	129	78	80	42	127	16	86	227
Agustus	305	63	197	292	92	50	134	180	46	16	248
September	390	106	45	215,3	63	2	259	150	250	3	135
Oktober	381	364	290	172	11	102	216	212	285	113	358
November	270,5	320	306	365	185	233	210	210	498	83	298
Desember	157	260	250	311	219	173	136	294	417	220	126
Total	3950	2425	2460	2728,3	1972	2247	2657	2361	2585	1896	2983,5
Jumlah HH	194	140	157	156	113	125	201	208	189	147	225
Rerata	329,1667	202,0833	205	227,3583	164,3333	187,25	221,4167	196,75	215,4167	158	248,625
Bulan Kering	0	1	1	0	1	2	1	0	2	2	0
Bulan Basah	12	10	11	11	7	9	10	11	9	8	12
Bulan Lembab	0	1	0	1	4	1	1	1	1	2	0

Sumber : Administrasi Sulin Estate

Lampiran 1b. Uji T produksi TBS tahun 2017-2021

Group Statistics					
	Perlakuan	N	Mean	Std. Deviation	Std. Error Mean
Produksi_tbs	Pembumbunan	15	21.0267	1.84366	.47603
	Tidak Pembumbunan	15	21.8180	1.22689	.31678

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
Produksi_tbs	Equal variances assumed	3.151	.087	-1.384	28	.177	-.79133	.57180	-1.96262	.37995
	Equal variances not assumed			-1.384	24.367	.179	-.79133	.57180	-1.97053	.38787

Lampiran 1c. Uji T tinggi tanaman

Group Statistics

	jenis perlakuan	N	Mean	Std. Deviation	Std. Error Mean
Tinggi Tanaman	pembumbunan	90	432,0444	96,00994	10,12034
	tanpa pembumbunan	90	520,1778	118,01957	12,44036

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	3,238	,074	-5,496	178	,000	-88,13333	16,03695	-119,78034	-56,48633
	Equal variances not assumed			-5,496	170,921	,000	-88,13333	16,03695	-119,78931	-56,47736

Lampiran 2a. Uji T diameter batang

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Diameter Batang	pembumbunan	90	66,0616	7,26819	0,76613
	tanpa pembumbunan	90	66,0439	8,35697	0,88090

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
Diameter Batang	Equal variances assumed	3,601	0,059	0,015	178	0,988	0,01767	1,16745	-2,28617 2,32150
	Equal variances not assumed			0,015	174,641	0,988	0,01767	1,16745	-2,28647 2,32180

Lampiran 2b. Uji T panjang pelepah

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Panjang Pelepah	pembumbunan	90	593,4667	69,25790	7,30042
	tanpa pembumbunan	90	632,1889	58,32491	6,14799

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
Panjang Pelepah	Equal variances assumed	0,191	0,663	-4,057	178	0,000	-38,72222	9,54431	-57,55679 -19,88766
	Equal variances not assumed			-4,057	172,992	0,000	-38,72222	9,54431	-57,56052 -19,88393

Lampiran 2c. Uji T lebar petiole

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Lebar Petiole	pembumbunan	90	78,1111	11,69985	1,23327
	tanpa pembumbunan	90	82,5778	11,11834	1,17198

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
Lebar Petiole	Equal variances assumed	0,215	0,643	-2,625	178	0,009	-4,46667	1,70132	-7,82402 -1,10932
	Equal variances not assumed			-2,625	177,539	0,009	-4,46667	1,70132	-7,82408 -1,10926

Lampiran 3a. Uji T tebal petiole

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Tebal Petiole	pembumbunan	90	39,2111	4,51090	0,47549
	tanpa pembumbunan	90	41,7000	4,92289	0,51892

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
Tebal Petiole	Equal variances assumed	0,189	0,665	-3,536	178	0,001	-2,48889	0,70382	-3,87780 -1,09998
	Equal variances not assumed			-3,536	176,657	0,001	-2,48889	0,70382	-3,87787 -1,09991

Lampiran 3b. Uji T kemiringan tanaman

Group Statistics										
jenis perlakuan			N	Mean	Std. Deviation	Std. Error Mean				
Kemiringan Tanaman	pembumbunan		90	27,4889	17,86670	1,88332				
	tanpa pembumbunan		90	26,1778	24,70936	2,60459				
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
Kemiringan Tanaman	Equal variances assumed	14,227	0,000	0,408	178	0,684	1,31111	3,21415	-5,03164	7,65386
	Equal variances not assumed			0,408	162,086	0,684	1,31111	3,21415	-5,03591	7,65813

Lampiran 3c. Uji T bunga betina

Group Statistics				
Perlakuan	N	Mean	Std. Deviation	Std. Error Mean
Bunga_betina Pembumbunan	408	.1348	.34193	.01693
Tidak Pembumbunan	408	.2010	.40123	.01986

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
Bunga_betina	Equal variances assumed	26,288	.000	-2,536	814	.011	-.06618	.02610	-.11740 -.01495
	Equal variances not assumed			-2,536	794,037	.011	-.06618	.02610	-.11741 -.01495

Lampiran 4a. Uji T bunga jantan

Group Statistics				
Perlakuan	N	Mean	Std. Deviation	Std. Error Mean
Bunga_jantan Pembunuhan	408	.0809	.27299	.01351
Bunga_jantan Tidak Pembunuhan	408	.1201	.32548	.01611

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
Bunga_jantan	Equal variances assumed	14.115	.000	-1.865	814	.063	-.03922	.02103	-.08050	.00207
	Equal variances not assumed			-1.865	790.062	.063	-.03922	.02103	-.08050	.00207

Lampiran 4b. Uji T sex rasio

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Sex Ratio	pembunuhan	3	62,1293	12,54655	7,24375
	tanpa pembunuhan	3	64,4129	11,03728	6,37238

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.						Lower	Upper
Sex Ratio	Equal variances assumed	0,045	0,843	-0,237	4	0,825	-2,28365	9,64775	-29,07011	24,50281
	Equal variances not assumed			-0,237	3,936	0,825	-2,28365	9,64775	-29,24264	24,67534

Lampiran 4c. Uji T jumlah tandan

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Jumlah Janjang	pembunuhan	1770	0,2492	0,44425	0,01056
	tanpa pembumbunan	1800	0,2639	0,45330	0,01068

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.						Lower	Upper
Jumlah Janjang	Equal variances assumed	3,612	0,057	-0,981	3568	0,327	-0,01474	0,01502	-0,04419	0,01472
	Equal variances not assumed			-0,981	3567,960	0,327	-0,01474	0,01502	-0,04419	0,01472

Lampiran 5a. Uji T berat tandan

Group Statistics					
jenis perlakuan		N	Mean	Std. Deviation	Std. Error Mean
Jumlah Janjang	pembumbunan	1770	4,6616	8,93834	0,21246
	tanpa pembumbunan	1800	5,0578	9,34456	0,22025

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
Jumlah Janjang	Equal variances assumed	6,029	0,014	-1,294	3568	0,196	-0,39620	0,30614	-0,99642 0,20402
	Equal variances not assumed			-1,295	3565,281	0,196	-0,39620	0,30602	-0,99619 0,20380

LAMPIRAN GAMBAR

Lampiran 6

a. Pengukuran tinggi tanaman



Gambar 6a



b. Pengukuran panjang pelepah



Gambar 6b



c. Pengukuran tebal dan lebar petiole



Gambar 6c



Lampiran 7

- a. Pengukuran kemiringan tanaman



Gambar 7a

- b. Pengukuran jumlah dan berat tandan



Gambar 7b

- d. Penghitungan bunga jantan dan betina



Gambar 7c

Lampiran 8

- a. Pembumbunan dan tanpa pembumbunan



Gambar 8