DAFTAR PUSTAKA

Allou, K., Morin, J. P., Kouassi, P., N'Guessan, F. K., & Rochat, D. (2006). Functional responses of Oryctes monoceros adults to different trap designs and palm tissues. Entomologia Experimentalis et Applicata, 118(1), 41–48. https://doi.org/10.1111/j.1570-7458.2006.00356.x

Astuti, R. D., Marpaung, T. N., & Sihombing, R. (2021). Identifikasi hama kumbang tanduk pada tanaman kelapa sawit. Jurnal Agroekoteknologi, 9(2), 45–52. https://doi.org/10.31289/agroekoteknologi.v9i2.4527

Badan Pengelola Dana Perkebunan Kelapa Sawit (BPDPKS). (2025). Laporan tahunan 2025: Perkembangan industri kelapa sawit nasional. BPDPKS.

Bedford, G. O. (1980). Biology, ecology, and control of palm rhinoceros beetles. Annual Review of Entomology, 25(1), 309–339. https://doi.org/10.1146/annurev.en.25.010180.001521

Bedford, G. O. (2014). Advances in the control of rhinoceros beetle, Oryctes rhinoceros in oil palm. Journal of Oil Palm Research, 26(3), 183–194.

Chapman, R. F., Simpson, S. J., & Douglas, A. E. (2013). The insects: Structure and function (5th ed.). Cambridge University Press.

Chenon, R. D., Sipayung, A., Sudharto, P. S., & Pardede, H. (1997). Biology and management of rhinoceros beetle in oil palm. Indonesian Oil Palm Research Institute (IOPRI).

Direktorat Jenderal Perkebunan. (2020). Statistik perkebunan Indonesia 2019–2021: Kelapa sawit. Kementerian Pertanian.

Fadjar, H. (2009). Teknologi pemanfaatan limbah kelapa sawit. Graha Ilmu.

Fadzly, N., Zuharah, W. F., & Idris, A. B. (2016). Behavioral responses of Oryctes rhinoceros adults to volatiles of oil palm. Journal of Applied Entomology, 140(6), 458–466. https://doi.org/10.1111/jen.12274

Fauzana, N., Hidayat, R., & Siregar, H. (2023). Pemanfaatan limbah tandan kosong kelapa sawit sebagai media alternatif. Jurnal Agroteknologi Tropika, 12(1), 22–31. https://doi.org/10.23960/jat.v12i1.2023

Fitriani, R., Nugroho, D., & Syahputra, A. (2023). Decomposition of oil palm biomass waste and its relationship to pest emergence. International Journal of Agricultural Research, 18(2), 55–65.

Giblin-Davis, R. M. (2001). Borers of palms. In F. W. Howard, D. Moore, R. M. Giblin-Davis, & R. G. Abad (Eds.), Insects on palms (pp. 267–304). CABI

Publishing.

Gusman, M. (2022). Ekologi kumbang tanduk pada perkebunan kelapa sawit. Universitas Andalas Press.

Han, C. J., Hong, Y. H., Jo, J. W., Kim, J., Yoon, S. H., Kim, S. R., & Lee, J. Y. (2024). Gut microbial symbiosis of the coconut rhinoceros beetle (Oryctes rhinoceros): Lignocellulose digestion and microbial diversity. Frontiers in Microbiology, 15, 1339890. https://doi.org/10.3389/fmicb.2024.1339890

Hawaii Invasive Species Council. (2025). Oryctes rhinoceros: Coconut rhinoceros beetle. https://dlnr.hawaii.gov/hisc

Hutauruk, P. (2005). Pengendalian hama kelapa sawit. Pusat Penelitian Kelapa Sawit.

Iswahyudi, I., & Iskandar, J. (2022). Keragaman serangga pada perkebunan sawit. Jurnal Biodiversitas, 23(4), 2021–2028. https://doi.org/10.13057/biodiv/d230445

Kalshoven, L. G. E. (1981). The pests of crops in Indonesia (Revised by P. A. van der Laan). PT Ichtiar Baru.

Kamarudin, N., Wahid, M. B., & Idris, A. B. (2018). Pheromone trapping of Oryctes rhinoceros in oil palm plantations. The Planter, 94(1110), 489–500.

Linnaeus, C. (1758). Systema naturae (10th ed.). Laurentius Salvius.

Lubis, R., & Siregar, M. (2022). Analisis populasi kumbang tanduk pada perkebunan sawit rakyat. Jurnal Penelitian Kelapa Sawit, 30(2), 101–110.

Made, S., & Ika, N. (2019). Pemanfaatan tandan kosong sawit sebagai pupuk organik. Jurnal Agrotek Indonesia, 5(1), 77–86.

Manoharan, T., Chong, K. K., & Cheong, P. L. (2020). Impact of pheromone trapping on Oryctes rhinoceros population suppression in Malaysia. Crop Protection, 135, 105218. https://doi.org/10.1016/j.cropro.2020.105218

Nasution, A., Sembiring, M., & Ginting, R. (2021). Kualitas kompos tandan kosong sawit terhadap sifat kimia tanah. Jurnal Tanah dan Lingkungan, 23(2), 69–77. https://doi.org/10.29244/jtl.23.2.69-77

Nurulita, S., Darmawan, A., & Yusuf, M. (2020). Potensi pemanfaatan tandan kosong kelapa sawit sebagai pupuk organik. Jurnal Pertanian Tropika, 7(3), 45–53.

Osei-Adu, J., Awudzi, G. K., & Adjei, M. (2022). Influence of organic residue decomposition on insect pest dynamics in oil palm ecosystems. Agricultural Systems, 196, 103342. https://doi.org/10.1016/j.agsy.2022.103342

PASPI. (2025). Peran strategis industri sawit Indonesia. Palm Oil Agribusiness Strategic Policy Institute.

Prasetyo, A., Lubis, R., & Sihombing, R. (2019). Decomposition rate of oil palm empty fruit bunches in different environments. Jurnal Ilmu Tanah dan Agroklimatologi, 16(2), 97–106.

Prasetyo, A., Simatupang, H., & Siregar, H. (2020). Respon pertumbuhan sawit muda terhadap aplikasi tandan kosong. Jurnal Agrotek Tropika, 8(2), 145–153.

Sari, S. L., Ginting, R. C. B., & Simarmata, T. (2016). Isolation of cellulolytic and hemicellulolytic bacteria from the gut of Oryctes rhinoceros larvae. Biodiversitas, 17(1), 198–204. https://doi.org/10.13057/biodiv/d170126

Sitanggang, D., Ginting, R., & Lubis, A. (2021). Decomposition rate of oil palm empty fruit bunches and its effect on soil nutrients. Journal of Tropical Soils, 26(1), 15–24. https://doi.org/10.5400/jts.2021.26.15

Sulung Research Station. (2023). Observation of Oryctes rhinoceros population dynamics in relation to oil palm residue application. Internal Report, Indonesian Palm Oil Research Institute.

Susanto, A. (2005). Management of Oryctes rhinoceros in oil palm plantations in Indonesia. In International Oil Palm Conference 2005: Biotechnology for the Sustainability of Oil Palm Industry (pp. 1–13). Indonesian Oil Palm Research Institute.

Susanto, A., Arif, S., & Widjaja, E. (2005). Integrated pest management of Oryctes rhinoceros in Indonesia. The Planter, 81(945), 505–518.

Susanto, A., Hutauruk, P., & Lubis, R. (2021). Evaluasi penggunaan feromon dalam pengendalian kumbang tanduk. Jurnal Proteksi Tanaman, 29(2), 155–165.

Susi, S., Fatriasari, W., & Syafii, W. (2023). High-yield alpha-cellulose from oil palm empty fruit bunches: Composition and potential application. Journal of Polymers and the Environment, 31(2), 510–521. https://doi.org/10.1007/s10924-022-02686-2

Tahir, M., Ahmad, N., & Rahman, M. A. (2022). Residues of oil palm as a substrate for insect and microbial activity. Sustainability, 14(6), 3331. https://doi.org/10.3390/su14063331

Winarto, B. (2005). Ilmu hama tanaman perkebunan. Kanisius.

Wood, B. J., Liau, S. S., & Khoo, K. C. (1973). Outbreaks and control of bagworms (Lepidoptera: Psychidae) on oil palms in Malaysia. The Malaysian

Agricultural Journal, 47(1), 3–20.

Zakri, M., & Adam, N. (2021). Utilization of oil palm empty fruit bunches as a medium for insect development. Malaysian Journal of Sustainable Agriculture, 5(2), 45–52

LAMPIRAN

Lampiran 1. Data Primer

1. Data tangkapan kumbang perferotrap

Pengamatan Tangkapan Kumbang

Blok	Perlakuan	Ferotrap	Minggu 0	Minggu 2	Minggu 4	Minggu 6	Minggu 8	Minggu 10	Minggu 12	Total
K23	P0 (0 ton)	U1	0	0	0	0	0	0	0	0
		U2	0	0	0	1	0	0	2	3
		U3	0	0	0	0	1	0	0	1
		U4	0	0	0	0	2	4	0	6
J42	P1 (20 ton)	U1	0	0	3	0	1	0	0	4
		U2	0	0	1	2	1	0	2	6
		U3	0	0	1	4	3	2	3	13
		U4	0	0	0	0	0	0	0	0
M24	P2 (40 ton)	U1	0	0	3	7	5	3	0	18
		U2	0	1	2	0	2	1	5	11
		U3	0	0	2	3	1	2	0	8
		U4	0	1	0	0	2	0	4	7

2. Data Pengutipan Larva peraplikasi

H0

	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4	
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml
	1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0
	2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0
	3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0
	4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0
	5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0
	6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0
	7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0
	8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0
	9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0
K23	Total	0		0		0		0	J42	Total	0		0		0		0	M24	Total	0		0		0		0

M+2

	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4	
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml
	1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0
	2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0
	3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0
	4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0
	5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0
	6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0
	7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0
	8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0
	9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0
K23		0		0		0		0	J42		0		0		0		0	M24		0		0		0		0

M+4

	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4	
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml
	1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0
	2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0
	3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0
	4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0
	5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0
	6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0
	7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0
	8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0
	9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0
K23		0		0		0		0	J42		0		0		0		0	M24		0		0		0		0

M+6

	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4	
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml		Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml
	1	0	1	0	1	0	1	0		1	0	1	0	1	0	1	0		1	1	1	0	1	0	1	0
	2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	0		2	0	2	0	2	0	2	3
	3	0	3	0	3	0	3	0		3	0	3	0	3	0	3	0		3	0	3	0	3	1	3	0
	4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0		4	0	4	0	4	0	4	0
	5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0		5	0	5	0	5	0	5	0
	6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0		6	0	6	0	6	0	6	0
	7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0		7	0	7	0	7	0	7	0
	8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0		8	0	8	0	8	0	8	0
	9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0		9	0	9	0	9	0	9	0
K23		0		0		0		0	J42		0		0		0		0	M24		1		0		1		3

	M+8										M+8										M+8								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	
	1	0	1	0	1	0	1	0			1	0	1	1	1	0	1	0			1	0	1	0	1	0	1	1	
	2	0	2	0	2	0	2	0			2	1	2	0	2	0	2	0			2	0	2	0	2	2	2	1	
	3	0	3	0	3	0	3	0			3	1	3	0	3	0	3	0			3	0	3	0	3	0	3	0	
	4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0			4	0	4	0	4	1	4	0	
	5	0	5	0	5	0	5	0			5	1	5	0	5	0	5	0			5	0	5	0	5	0	5	0	
	6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0	
	7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0	
	8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0	
	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
K23		0		0		0		0	J42			2		1		0		0	M24			0		0		3		2
	M+10										M+10										M+10								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0	
	2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0	
	3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0	
	4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0	
	5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0	
	6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0	
	7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0	
	8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0	
	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
K23		0		0		0		0	J42			0		0		0		0	M24			0		0		0		0	
	M+12										M+12										M+12								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml			Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	Aplikasi ke	Jml	
	1	0	1	0	1	0	1	0			1	0	1	0	1	1	1	0			1	1	1	0	1	0	1	1	
	2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	1	
	3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0			3	1	3	1	3	0	3	0	
	4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0	
	5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0	
	6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0			6	1	6	0	6	0	6	0	
	7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0			7	0	7	0	7	0	7	0	
	8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0	
	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
K23		0		0		0		0	J42			0		0		1		0	M24			3		1		0		2

3. Data Skoring Serangan perpohon

	H0										H0										H0								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0	
	2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0	
	3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0	
K23	4	0	4	0	4	0	4	0	J42		4	0	4	0	4	0	4	0	M24		4	0	4	0	4	0	4	0	
	5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0	
	6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0			6	0	6	0	6	0	6	0	
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	8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0	
	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
	Total	0		0		0		0			Total	0		0		0		0			Total	0		0		0		0	
	M+2										M+2										M+2								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0	
	2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0	
	3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0	
K23	4	0	4	0	4	0	4	0	J42		4	0	4	0	4	0	4	0	M24		4	0	4	0	4	0	4	0	
	5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0	
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	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
		0		0		0						0		0		0						0		0		0			
	M+4										M+4										M+4								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	1	1	0	1	0	1	1	
	2	0	2	0	2	0	2	0			2	0	2	0	2	0	2	0			2	0	2	1	2	1	2	0	
	3	0	3	0	3	0	3	0			3	0	3	0	3	0	3	0			3	1	3	1	3	1	3	0	
K23	4	0	4	0	4	0	4	0	J42		4	0	4	0	4	0	4	0	M24		4	1	4	1	4	0	4	0	
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	8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0			8	0	8	0	8	0	8	0	
	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0	
		0		0		0						0		0		0						3		4		2		1	
	M+6										M+6										M+6								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	
	1	0	1	0	1	0	1	0			1	0	1	1	1	1	1	0			1	0	1	0	1	1	1	0	
	2	0	2	1	2	0	2	1			2	1	2	1	2	1	2	1			3	0	3	1	3	1	3	0	
	3	0	3	0	3	0	3	0			3	0	3	1	3	1	3	0			4	0	4	0	4	1	4	0	
K23	4	0	4	0	4	0	4	0	J42		4	1	4	1	4	0	4	0	M24		5	0	5	0	5	0	5	0	
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		0		1		0		1				2		4		4		2											
	M+8										M+8										M+8								
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4		
	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor			Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	1	1	0	1	0	1	0	
	2	0	2	0	2	1	2	0			2	1	2	1	2	0	2	1			2	1	2	1	2	0	2	0	
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K23	4	0	4	0	4	0	4	0	J42		4	0	4	0	4	0	4	0	M24		4	1	4	1	4	2	4	0	
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		0		0		1		0				1		1		0		3				4		3		0		0	

	M+10										M+10										M+10									
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			
K23	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		J42	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		M24	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		
	1	0	1	0	1	0	1	0			1	0	1	0	1	0	1	0			1	1	1	0	1	0	1	0		
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	3	0	3	1	3	0	3	0			3	0	3	0	3	1	3	0			3	1	3	1	3	1	3	0		
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		0		1		0		0				0		0		1		0				4		4		3		1		
	M+12										M+12										M+12									
	Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4				Ferotrap 1		Ferotrap 2		Ferotrap 3		Ferotrap 4			
K23	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		J42	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		M24	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor	Pokok ke	Skor		
	1	0	1	0	1	0	1	0			1	0	1	0	1	1	1	0			1	1	1	0	1	0	1	0		
	2	0	2	1	2	1	2	0			2	0	2	0	2	0	2	0			2	2	2	0	2	0	2	0		
	3	0	3	0	3	0	3	0			3	0	3	0	3	1	3	0			3	1	3	0	3	1	3	0		
	4	0	4	0	4	0	4	0			4	0	4	0	4	0	4	0			4	0	4	0	4	2	4	0		
	5	0	5	0	5	0	5	0			5	0	5	0	5	0	5	0			5	0	5	1	5	0	5	0		
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	9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0			9	0	9	0	9	0	9	0		
		0		1		1		0				0		0		3		0				4		1		3		0		

Lampiran 2. Hasil Olah SPSS

1. Tangkapan Kumbang

1.1. Uji F

ANOVA

Tangkapan Kumbang

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	147,167	2	73,583	3,604	0,071
Within Groups	183,750	9	20,417		
Total	330,917	11			

post hoc

Tangkapan Kumbang

Duncan[a]

Dosis TKKS	N	Subset for alpha = 0.05	
		1	2
0 ton	4	2,5000	
20 ton	4	5,7500	5,7500
40 ton	4		11,0000
Sig.		0,336	0,135

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

1.2. Uji T

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Tangkapan Kumbang	0 Ton	4	2,500	2,645	1,322
	20 Ton	4	5,750	5,439	2,719

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
Tangkapan Kumbang	Equal variances assumed	0,980	0,360	-1,075	6	0,324	-3,250	3,024	-10,649	4,149
	Equal variances not assumed			-1,075	4,344	0,339	-3,250	3,024	-11,390	4,890

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Tangkapan Kumbang	20 Ton	4	5,750	5,439	2,719
	40 Ton	4	11,000	4,966	2,483

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
Tangkapan Kumbang	Equal variances assumed	0,013	0,913	-1,426	6	0,204	-5,250	3,682	-14,261	3,761
	Equal variances not assumed			-1,426	5,951	0,204	-5,250	3,682	-14,279	3,779

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Tangkapan Kumbang	0 Ton	4	2,500	2,645	1,322
	40 Ton	4	11,000	4,966	2,483

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
Tangkapan Kumbang	Equal variances assumed	0,900	0,379	-3,021	6	0,023	-8,500	2,813	-15,384	-1,61523
	Equal variances not assumed			-3,021	4,576	0,033	-8,500	2,813	-15,939	-1,06086

1.3. Analisis Regresi Korelasi

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.661[a]	0,437	0,380	4,31760	0,437	7,751	1	10	0,019	2,935

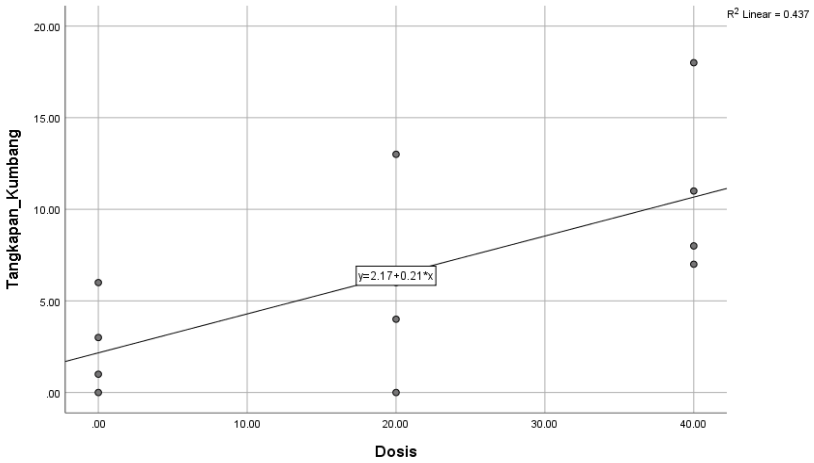
a. Predictors: (Constant), Dosis

b. Dependent Variable: Tangkapan_Kumbang

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,167	1,971		1,099	0,297
	Dosis	0,213	0,076	0,661	2,784	0,019

a. Dependent Variable: Tangkapan_Kumbang



2. Kutipan Larva

2.1. Uji F

ANOVA

Jumlah Larva

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34,667	2	17,333	7,800	0,011
Within Groups	20,000	9	2,222		
Total	54,667	11			

Jumlah Larva

Duncan[a]

Dosis TKKS	N	Subset for alpha = 0.05	
		1	2
0 ton	4	0,0000	
20 ton	4	1,0000	
40 ton	4		4,0000
Sig.		0,368	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

2.2. Uji T

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Jumlah Larva	0 Ton	4	0,0000	0,00000	0,00000
	20 Ton	4	1,0000	0,81650	0,40825

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
Jumlah Larva	Equal variances assumed	3,000	0,134	-2,449	6	0,050	-1,000	0,408	-1,998	-0,001
	Equal variances not assumed			-2,449	3,000	0,092	-1,000	0,408	-2,299	0,299

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Jumlah Larva	20 Ton	4	1,00	0,816	0,408
	40 Ton	4	4,00	2,449	1,224

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
Jumlah Larva	Equal variances assumed	1,200	0,315	-2,324	6	0,059	-3,000	1,291	-6,159	0,159
	Equal variances not assumed			-2,324	3,659	0,087	-3,000	1,291	-6,720	0,720

Group Statistics

Dosis TKKS	N	Mean	Std. Deviation	Std. Error Mean

Jumlah Larva	0 Ton	4	0,000	0,000	0,000
	40 Ton	4	4,000	2,449	1,224

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
Jumlah Larva	Equal variances assumed	3,000	0,134	-3,266	6	0,017	-4,000	1,225	-6,997	-1,003
	Equal variances not assumed			-3,266	3,000	0,047	-4,000	1,225	-7,898	-0,102

2.3. Analisis regresi Korelasi

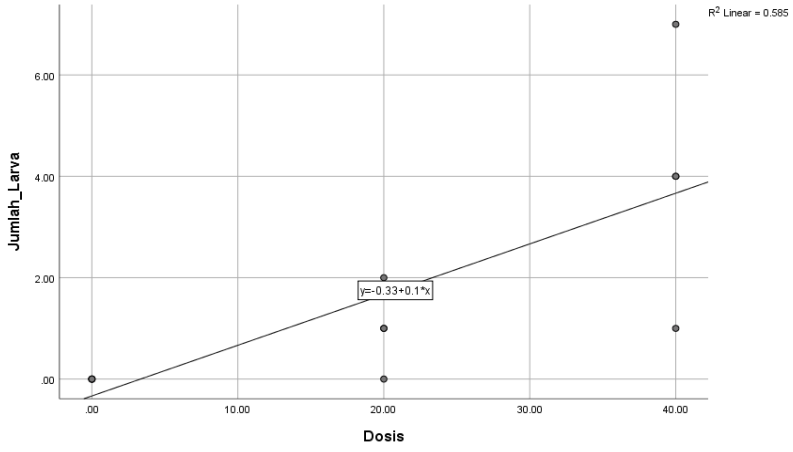
Model Summary[b]

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.765[a]	0,585	0,544	1,50555	0,585	14,118	1	10	0,004	1,456

a. Predictors: (Constant), Dosis

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-0,333	0,687		-0,485	0,638
	Dosis	0,100	0,027	0,765	3,757	0,004



3. Skoring Serangan

3.1. Uji F

ANOVA

Skoring Serangan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,367	2	0,684	6,751	0,016
Within Groups	0,911	9	0,101		
Total	2,278	11			

Skoring Serangan

Duncan[a]

Dosis TKKS	N	Subset for alpha = 0.05	
		1	2
0 ton	4	0,7500	
20 ton	4	1,0000	
40 ton	4		1,5575
Sig.		0,295	1,000

3.2. Uji T

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Skoring Serangan	0 Ton	4	0,7500	0,50000	0,25000
	20 Ton	4	1,0000	0,00000	0,00000

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
Skoring Serangan	Equal variances assumed	9,000	0,024	-1,000	6	0,356	-0,25000	0,25000	-0,86173	0,36173

	Equal variances not assumed			-1,000	3,000	0,391	-0,25000	0,25000	-1,04561	0,54561

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Skoring Serangan	20 Ton	4	1,0000	0,00000	0,00000
	40 Ton	4	1,5575	0,23186	0,11593

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
Skoring Serangan	Equal variances assumed	4,797	0,071	-4,809	6	0,003	-0,55750	0,11593	-0,84117	-0,27383
	Equal variances not assumed			-4,809	3,000	0,017	-0,55750	0,11593	-0,92644	-0,18856

Group Statistics

Dosis TKKS		N	Mean	Std. Deviation	Std. Error Mean
Skoring Serangan	0 Ton	4	0,7500	0,50000	0,25000
	40 Ton	4	1,5575	0,23186	0,11593

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
Skoring Serangan	Equal variances assumed	2,275	0,182	-2,930	6	0,026	-0,80750	0,27557	-1,48180	-0,13320
	Equal variances not assumed			-2,930	4,233	0,040	-0,80750	0,27557	-1,55627	-0,05873

3.3. Analisis Regresi Korelasi

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.757[a]	0,572	0,530	0,31214	0,572	13,385	1	10	0,004

a. Predictors: (Constant), Dosis

b. Dependent Variable: Skoring_Serangan

Coefficients[a]

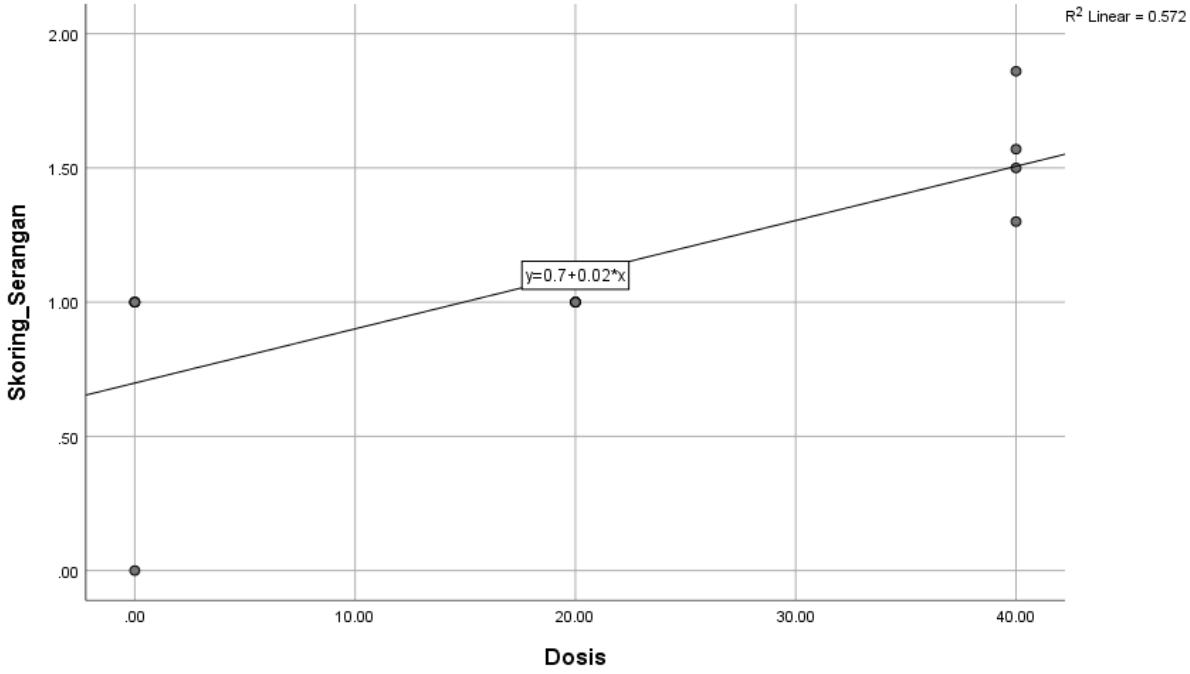
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,699	0,142		4,904	0,001
	Dosis	0,020	0,006	0,757	3,659	0,004

a. Dependent Variable: Skoring_Serangan

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	0,6988	1,5063	1,1025	0,34432	12
Residual	-0,69875	0,35375	0,00000	0,29761	12
Std. Predicted Value	-1,173	1,173	0,000	1,000	12
Std. Residual	-2,239	1,133	0,000	0,953	12

a. Dependent Variable: Skoring_Serangan



Lampiran 3. Dokumentasi Penelitian

Pengambilan imago kumbang di ferotrap

		
Dosis 20 ton	Kondisi TKKS	Dosis 40 ton
		
Skoring Serangan pada pohon		
		
Pengambilan sampel TKKS	TKKS dari tiap blok	Pengeringan TKKS