

DAFTAR PUSTAKA

- Amalia, A.A. (2020). Intensitas Serangan Hama Penggerek Buah Kakao (*Conopomorpha cramerella*) Pada Lahan Konvensional Dan Non Konvensional Di Kecamatan Gantarang Keke Kabupaten Bantaeng. *Skripsi*. Makassar: Universitas Hasanuddin.
- Anggraini, P. H. (2019). Keanekaragaman Arthropoda Musuh Alami Pada Perkebunan Kakao (*Theobroma cacao* L.) Dengan Sistem Tanam Berbeda Di Kabupaten Pesawaran.
- Ariningsih, E., Purba, H. J., Sinuraya, J. F., Suharyono, S., & Septanti, K. S. (2019). Kinerja industri kakao di Indonesia.
- Asrul, L., 2004. Seleksi dan Karakterisasi Morfologi Tanaman Kakao Harapan Tahan Penggerek Buah Kakao (*Conopomorpha cramerella* Snell.). *Jurnal Sains dan Teknologi*, 4(3): 109- 122
- Badan Pusat Statistik (2018) Statistik Kakao Indonesia. Nomor katalog: 5504005. Nomor publikasi: 05130.1908. ISSN/ISBN: 978-602-438-296-4.
- Henuhili, V., & Aminatun, T. (2013). Conservation Of Natural Enemy Biological Control With Fishing Ecosystem Management. *Jurnal Penelitian Saintek*, 18(2).
- Juliasih, N.K.A., I.N. Arsana dan N.N.S.O. Adi. Budidaya Kakao (*Theobroma cacao* L.) Di Cau Chocolates Bali. Bali: Universitas Hindu Indonesia
- Junaedi, J., Thamrin, S., Darwisah, B., & Yana, R. N. (2017). Identifikasi Klon Unggul Kakao di Desa Tarengge Kecamatan Wotu Kabupaten Luwu Timur. *Agrokompleks*, 16(1), 23-26.
Kakao Indonesia. Jakarta: Agromedia Pustaka
- Karmawati, E., Mahmud, Z., Syakir, M., Munarso, J., Ardana, K., Rubiyo. 2010. Budidaya dan Pasca Panen Kakao. Pusat Penelitian dan Pengembangan Perkebunan Republik Indonesia, Bogor.
- Lamaga, L.M. (2018). Uji Efektivitas Ekstrak Etanol Kulit Buah Kakao (*Theobroma cacao* L.) Terhadap Pertumbuhan *Salmonella typhi* dan *Candida albicans*. Semarang: Universitas Muhammadiyah Semarang.
- Lesnida, S D. Bakti dan A.Z. Siregar. (2021). Pemanfaatan Tanaman Refugia dan Hama Padi Di Soporaru Tapanuli Utara. *Jurnal AGRIFOR*
- . Karakteristik Morfologis dan Anatomis Klon Harapan Penggerek Buah Kakao Sebagai Sumber Bahan Tanam. Balai Teknologi Pertanian Sulawesi Selatan. *Jurnal Litbang* Makassar. 31 (1) : 25



- Martono, B. 2015. Karakteristik Morfologi dan Kegiatan Plama Nutfah Tanaman
- Mubayin, A. (2016). Sukses Membudidayakan Tanaman Cokelat. Depok: Forest Publishing.
- Muliani, S., dan Isnaini, J. L. 2018. Intensitas Serangan Hama Penggerek Buah Kakao (*Conomorpha cramerella Snellen.*) di Kecamatan Marioriwawo Kabupaten Soppeng. *Jurnal Ilmiah Budidaya dan Pengelola Tanaman Perkebunan.*
- Muliani, S., Z. Kumalawati., Nildayanti dan R. Arif. (2022). Pengenalan teknik refugia untuk mengendalikan hama tanaman pada kelompok tani di Desa Pitusunggu, Kabupaten Pangkep. *Jurnal Aplikasi Teknologi Rekayasa dan Inovasi 1(1): 20-27.*
- Nainggolan D. 2001. Aspek Ekologis Kultivar Buah Merah Panjang (*Pandanus conoideus Lamk*) di Daerah Dataran Rendah Manokwari. Manokwari:
- Nasamsir. 2014. Respons Pertumbuhan Bibit Kakao (*Theobroma Cacao L.*) Terhadap Aplikasi Pupuk Organik Cair Pada Jenis Aksesori Buah Kakao Yang Berbeda. *Jurnal Ilmiah Universitas Batanghari Jambi 14(3) : 91-100.*
- Pamungkas, E. 2016. *Berbisnis Cerdas di Budidaya kakao.* Forest Publishing: Jakarta.
- Pertiwi, E. D., Asrul, L., & Baja, S. (2013). Karakteristik fenotipe buah kakao rentan terhadap serangan hama penggerek buah kakao (*Conopomorpha cramerella Snell.*). *Laporan Penelitian Universitas Hasanudin, Makassar.*
- Pratama, F., Mulyani, C., & Juanda, B. R. (2021). Intensitas Serangan Hama Penggerek Buah Kakao (*Conopomorpha Cramerella*) Dan Kehilangan Hasil Kakao (*Theobroma Cacao*) Di Kecamatan Peunaron. *Jurnal Penelitian Agrosamudra, 8(2), 29-38.*
- Rimbing, J dan R.A.G. Engka. (2022). Pengenalan Hama -Hama Tanaman Kakao Dan Pengendaliannya. Manado: Unsrat Manado.
- Sabahannur, S. T., Syam, N., & Ervina, E. (2023). MUTU FISIK DAN KIMIA BIJI KAKAO (*Theobroma cacao L.*) PADA BEBERAPA JENIS KLON. *AGROTEK: Jurnal Ilmiah Ilmu Pertanian, 7(2), 99-107.*
- Sahardi dan Djufry F, 2015. Keragaman Karakteristik Morfologid dan Agronomis Plasma Nutfah Klon Harapan Kakao Lokal Sulawesi Selatan. *Jurnal Listri,*

52.

na, E. D., Darwanti, D., & Goo, N. (2021). Pengaruh Ketinggian Feromon terhadap Penggerek Buah Kakao *Conopomorpha Snell.*(Lepidoptera: Gracillaridae). *Agrikultura, 32(3), 290-295.*

establishment of The Biological Control System By Black Ant, *thoracicus* (Smith) (Hymenoptera: Formicidae) And Mealybug,



Cataenococcus hispidus (Morrison) (Homoptera: Pseudococcidae) Against The Cocoa Pod Borer, *Conopomorpha cramerella* (Snellen) (Lepidoptera: Gracillariidae) in North Sumatra, Indonesia". Ph.D. Thesis, USM. Malaysia.

Samsudin. (2019). Teknologi Pengendalian Ramah Lingkungan Penggerek Buah Kakao (*Conopomorpha cramerella* Snell.) Balai Penelitian Tanaman Industri Dan Penyegar. Sukabumi

Septariani, D. N., Herawati, A., & Mujiyo, M. (2019). Pemanfaatan berbagai tanaman refugia sebagai pengendali hama alami pada tanaman cabai (*Capsicum annum* L.). *PRIMA: Journal of Community Empowering and Services*, 3(1), 1-9.

Septariani, D.N., A. Herawati dan Mujiyo. (2019). Pemanfaatan Berbagai Tanaman Refugia Sebagai Pengendali Hama Alami Pada Tanaman Cabai (*Capsicum annum* L.) Universitas Sebelas Maret.

Singapore Government. 2018. National Parks Flora & Fauna Web. National Parks. [Internet]. [Diakses 16 Agustus 2022]. Tersedia Pada: <https://Florafaunaweb.Nparks.Gov.Sg>.

Sulistiyowati E, dan Wiryadiputra, S. 2010 Hama Utama Kakao dan Pengendalian. Buku pintar Budidaya Kakao. Pusat Penelitian Kopi dan Kakao. Balai Penelitian Tanaman Industri dan Penyegar Suka Bumi.

Sulistiyowati., E. 2003. Pengaruh Serangan Hama Penggerek Buah kakao (PBK) Terhadap Mutu Biji Kakao. Warta Pusat Penelitian Kopi dan Kakao, 15 : 29-36

Sutomo, N., B.W. Hariyadi dan M. Ali. (2018). Budidaya Tanaman Kakao (*Theobroma cacao* L.). Surabaya: Universitas Merdeka Surabaya.

Thomson LJ, Macfadyen S, Hoffmann AA. 2010. Predicting the effects of climate change on natural enemies of agricultural pests. *Biological Control* 52:296–306.

Threenanda, I. E. (2023). Intensitas Serangan Hama Penggerek Buah Kakao pada Perkebunan Rakyat di Kecamatan Batang Anai Kabupaten Padang Pariaman (Doctoral dissertation, Universitas Andalas).

Zai, M. (2020). Dampak Refugia Terhadap Kelimpahan dan Keragaman Serangga di Pertanaman Cabai merah (*Capsicum Annum* L.) (Doctoral dissertation, Medan Area).



LAMPIRAN

Lampiran 1. Data Pengamatan 1 Intensitas serangan PBK pada pertanaman Kakao

SAMPEL	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	3	59	1	1	1	0	13.00
2	S1	3	33	0	1	0	2	69.77
3	S2	3	70	2	1	0	0	3.10
4	S2	6	31	0	2	3	1	34.62
5	GTB	7	40	1	4	2	0	13.80
6	S2	4	26	0	1	3	0	24.60
7	S2	3	58	1	1	1	0	13.00
8	M01	2	14	0	1	1	0	19.50
9	S2	2	10	0	1	1	0	19.50
10	S2	3	18	2	1	0	0	3.10
11	GTB	4	26	2	1	0	1	27.33
12	THR	5	38	2	3	0	0	5.58
13	S2	5	64	3	1	1	0	7.80
14	LU	5	53	3	0	0	2	40.00
15	LU	7	42	0	1	1	5	77.00
16	S2	28	84	10	9	4	5	25.09
17	M4/S2	0	9	0	0	0	0	0.00
18	S2	1	10	0	1	0	0	9.30
19	S2	2	14	2	0	0	0	0.00
20	S2	4	45	1	1	2	0	17.18
21	S2	2	19	0	1	1	0	19.50
22	THR	1	9	0	0	0	1	100.00
23	S2	2	16	1	1	0	0	4.65
24	S2	2	54	2	0	0	0	0.00
25	M01	1	8	0	0	1	0	29.70
26	M01	2	9	0	1	1	0	19.50
27	S2	10	56	4	3	0	0	3.99
28	THR/M4	1	13	1	0	0	0	0.00
29	S2	4	10	2	1	1	0	9.75
30	S2	1	22	1	0	0	0	0.00
31	S2	1	27	0	1	0	0	9.30
32	M01	0	5	0	0	0	0	0.00
33	S1	4	35	1	3	0	0	6.98
34	S2	3	31	2	0	1	0	9.90
35	S2	1	22	0	1	0	0	9.30
36	S2	2	38	1	1	0	0	4.65
37	S2	4	34	0	1	1	2	59.75
38	S2	1	30	0	0	0	1	100.00
39	S2	4	34	3	1	0	0	2.33
40	S2	0	1	0	0	0	0	0.00
41	M01	0	8	0	0	0	0	0.00
42	S2	6	23	1	2	0	3	53.10
43	S2	1	17	0	0	0	1	100.00
44	S2	4	42	1	0	0	3	75.00
45	S2	1	6	0	0	0	1	100.00
		3	14	0	0	1	2	76.57
		3	39	0	1	2	0	22.90
		4	59	2	0	0	2	50.00
		5	58	1	1	1	2	47.80
		2	11	0	0	0	2	100.00
		172	1494	53	50	30	36	1,437.91
		3.44	29.88	1.06	1	0.6	0.72	28.76



Lampiran 2. Data Pengamatan 2 Intensitas Serangan PBK Pada Pertanaman Kakao

SAMPSEL	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	3	55	2	0	1	0	9.90
2	S1	3	22	1	1	1	0	13.00
3	S2	10	24	4	5	0	1	14.65
4	S2	7	42	3	2	2	0	11.14
5	GTB	4	28	0	2	1	1	37.08
6	S2	3	19	1	1	0	1	36.43
7	S2	3	35	1	1	1	0	13.00
8	M01	0	9	0	0	0	0	0.00
9	S2	2	11	0	1	1	0	19.50
10	S2	7	31	4	3	0	0	3.99
11	GTB	2	15	1	1	0	0	4.65
12	THR	4	27	0	1	1	2	59.75
13	S2	8	46	3	1	3	1	24.80
14	LU	4	32	1	3	0	0	6.98
15	LU	3	18	2	0	1	0	9.90
16	S2	9	54	4	3	2	0	9.70
17	M4/S2	0	6	0	0	0	0	0.00
18	S2	3	20	1	1	1	0	13.00
19	S2	9	21	4	3	2	0	9.70
20	S2	15	43	9	3	2	1	12.49
21	S2	5	21	3	0	1	1	25.94
22	THR	0	8	0	0	0	0	0.00
23	S2	6	18	4	1	1	0	6.50
24	S2	12	45	4	6	1	1	15.46
25	M01	3	5	0	1	1	1	46.33
26	M01	5	9	1	0	1	3	65.94
27	S2	10	55	4	4	2	0	9.66
28	THR/M4	0	6	0	0	0	0	0.00
29	S2	5	24	3	1	1	0	7.80
30	S2	3	28	1	1	0	1	36.43
31	S2	2	31	1	1	0	0	4.65
32	M01	0	7	0	0	0	0	0.00
33	S1	3	32	2	1	0	0	3.10
34	S2	3	23	1	1	0	1	36.43
35	S2	4	44	1	2	1	0	12.08
36	S2	4	32	0	1	1	2	59.75
37	S2	4	29	2	1	1	0	9.75
38	S2	6	42	3	2	1	0	8.05
39	S2	4	49	2	1	0	1	27.33
40	S2	1	5	1	0	0	0	0.00
41	M01	2	6	0	0	0	2	100.00
42	S2	4	27	1	1	1	1	34.75
43	S2	3	26	0	3	0	0	9.30
44	S2	5	22	4	0	1	0	5.94
45	GTB	5	15	2	0	2	1	31.88
		1	18	0	0	1	0	29.70
		5	21	2	1	2	0	13.74
		4	25	0	2	2	0	19.50
		4	31	1	1	1	1	34.75
		3	21	2	1	0	0	3.10
		215	1283	86	65	41	23	967.51
		4.3	25.66	1.72	1.3	0.82	0.46	19.35



Lampiran 3. Data Pengamatan 3 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPSEL	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	6	68	0	2	2	2	46.33
2	S1	4	33	1	1	2	0	17.18
3	S2	5	28	3	0	1	1	25.94
4	S2	10	55	4	2	1	3	34.83
5	GTB	8	35	2	4	2	0	12.08
6	S2	2	16	0	1	1	0	19.50
7	S2	6	47	2	1	2	1	28.12
8	M01	0	12	0	0	0	0	0.00
9	S2	2	14	1	1	0	0	4.65
10	S2	4	32	0	3	1	0	14.40
11	GTB	2	18	2	0	0	0	0.00
12	THR	3	29	1	0	1	1	43.23
13	S2	9	56	4	3	2	0	9.70
14	LU	5	32	4	1	0	0	1.86
15	LU	6	17	1	1	3	1	33.07
16	S2	8	57	2	4	2	0	12.08
17	M4/S2	0	4	0	0	0	0	0.00
18	S2	2	19	0	2	0	0	9.30
19	S2	2	30	0	1	1	0	19.50
20	S2	14	59	4	5	3	2	23.97
21	S2	6	24	3	3	0	0	4.65
22	THR	1	9	0	0	0	1	0.00
23	S2	4	12	1	2	1	0	12.08
24	S2	9	55	4	2	1	2	27.59
25	M01	0	7	0	0	0	0	0.00
26	M01	0	10	0	0	0	0	0.00
27	S2	7	54	5	2	0	0	2.66
28	THR	0	11	0	0	0	0	0.00
29	S2	5	33	1	3	0	1	25.58
30	S2	5	31	2	1	1	1	27.80
31	S2	4	28	1	1	0	2	52.33
32	M01	1	7	0	0	1	0	29.70
33	S1	8	35	3	4	1	0	8.36
34	S2	6	33	4	2	0	0	3.10
35	S2	9	57	2	4	0	3	37.47
36	S2	10	42	0	3	5	2	37.64
37	S2	3	40	0	2	1	0	16.10
38	S2	8	61	3	3	0	2	28.49
39	S2	5	59	0	1	2	2	53.74
40	S2	1	2	0	1	0	0	9.30
41	M01	0	8	0	0	0	0	0.00
42	S2	4	24	2	2	0	0	4.65
43	S2	3	28	2	1	0	0	3.10
44	S2	4	20	3	1	0	0	2.33
45	GTB	0	12	0	0	0	0	0.00
		2	14	2	0	0	0	0.00
		3	28	0	2	1	0	16.10
		6	38	4	1	0	1	18.22
		3	29	1	0	0	2	66.67
		4	27	2	1	1	0	9.75
		219	1499	76	74	39	30	853.11
		4.38	29.98	1.52	1.48	0.78	0.6	17.06



Lampiran 4. Data Pengamatan 4 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPel	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	4	73	0	2	1	1	37.08
2	S1	3	34	0	1	2	0	22.90
3	S2	3	31	1	0	0	2	66.67
4	S2	14	64	4	6	0	4	32.56
5	GTB	14	39	9	3	1	1	11.26
6	S2	0	14	0	0	0	0	0.00
7	S2	6	55	2	1	2	1	28.12
8	M01	0	14	0	0	0	0	0.00
9	S2	3	15	2	0	1	0	9.90
10	S2	8	28	4	2	1	1	18.54
11	GTB	0	17	0	0	0	0	0.00
12	THR	4	29	1	0	1	2	57.43
13	S2	2	60	2	0	0	0	0.00
14	LU	7	35	4	3	0	0	3.99
15	LU	2	19	1	0	0	1	50.00
16	S2	15	64	4	4	4	3	30.40
17	M4/S2	0	5	0	0	0	0	0.00
18	S2	0	18	0	0	0	0	0.00
19	S2	5	34	1	4	0	0	7.44
20	S2	7	66	1	4	2	0	13.80
21	S2	2	28	1	1	0	0	4.65
22	THR	4	7	1	2	0	1	29.65
23	S2	1	15	1	0	0	0	0.00
24	S2	1	64	1	0	0	0	0.00
25	M01	0	8	0	0	0	0	0.00
26	M01	3	12	1	0	2	0	19.80
27	S2	12	53	9	3	0	0	2.33
28	THR	0	12	0	0	0	0	0.00
29	S2	1	31	1	0	0	0	0.00
30	S2	6	36	2	2	0	2	36.43
31	S2	5	32	1	0	1	3	65.94
32	M01	0	6	0	0	0	0	0.00
33	S1	4	37	3	0	1	0	7.43
34	S2	2	33	2	0	0	0	0.00
35	S2	11	67	3	5	2	1	18.72
36	S2	6	46	1	1	1	3	56.50
37	S2	5	43	3	0	2	0	11.88
38	S2	10	65	5	1	3	1	19.84
39	S2	10	64	0	1	5	4	55.78
40	S2	0	1	0	0	0	0	0.00
41	M01	0	7	0	0	0	0	0.00
42	S2	3	30	3	0	0	0	0.00
43	S2	0	27	0	0	0	0	0.00
44	S2	8	24	5	1	1	1	17.38
45	GTB	0	8	0	0	0	0	0.00
		0	17	0	0	0	0	0.00
		3	31	2	0	1	0	9.90
		4	40	0	1	2	1	42.18
		4	33	1	0	2	1	39.85
		4	27	4	0	0	0	0.00
		206	1618	86	48	38	34	828.30
		4.12	32.36	1.72	0.96	0.76	0.68	16.57



Lampiran 5. Data Pengamatan 5 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPEL	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	8	58	4	3	1	0	7.20
2	S1	7	25	2	3	1	1	22.51
3	S2	6	31	2	0	1	3	54.95
4	S2	8	49	2	2	2	2	34.75
5	GTB	2	31	0	1	1	0	19.50
6	S2	1	16	0	0	1	0	29.70
7	S2	9	38	4	1	2	2	29.86
8	M01	1	11	0	0	1	0	29.70
9	S2	0	13	0	0	0	0	0.00
10	S2	4	35	2	2	0	0	4.65
11	GTB	1	16	1	0	0	0	0.00
12	THR	0	32	0	0	0	0	0.00
13	S2	3	51	0	2	1	0	16.10
14	LU	7	30	4	2	1	0	6.90
15	LU	2	15	2	0	0	0	0.00
16	S2	9	60	2	3	2	2	31.92
17	M4/S2	2	4	0	0	1	1	64.85
18	S2	2	23	2	0	0	0	0.00
19	S2	7	27	2	4	1	0	9.56
20	S2	5	55	3	1	1	0	7.80
21	S2	4	19	3	1	0	0	2.33
22	THR	3	6	1	0	2	0	19.80
23	S2	0	12	0	0	0	0	0.00
24	S2	2	57	2	0	0	0	0.00
25	M01	1	7	0	0	1	0	29.70
26	M01	1	11	0	0	1	0	29.70
27	S2	6	62	4	1	0	1	18.22
28	THR/M4	1	9	0	1	0	0	9.30
29	S2	5	29	3	1	1	0	7.80
30	S2	7	31	3	3	0	1	18.27
31	S2	5	24	2	2	1	0	9.66
32	M01	3	8	0	0	1	2	76.57
33	S1	10	35	3	4	2	1	19.66
34	S2	8	26	3	2	3	0	13.46
35	S2	15	49	9	4	2	0	6.44
36	S2	7	35	3	2	2	0	11.14
37	S2	7	34	2	4	1	0	9.56
38	S2	11	53	6	5	0	0	4.23
39	S2	5	55	3	2	0	0	3.72
40	S2	1	5	1	0	0	0	0.00
41	M01	0	8	0	0	0	0	0.00
42	S2	5	21	2	2	1	0	9.66
43	S2	2	29	1	1	0	0	4.65
44	S2	4	27	3	1	0	0	2.33
45	GTB	4	18	2	2	0	0	4.65
46	S1	3	12	0	1	1	1	46.33
		5	23	1	3	0	1	25.58
		5	29	1	1	3	0	19.68
		3	33	2	1	0	0	3.10
		5	22	3	0	1	1	25.94
		222	1409	95	68	40	19	801.42
		4.44	28.18	1.9	1.36	0.8	0.38	16.03



Lampiran 6. Data Pengamatan 6 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPSEL	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	8	46	3	2	2	1	22.25
2	S1	7	18	3	3	1	0	8.23
3	S2	6	20	3	2	0	1	19.77
4	S2	6	38	2	2	1	1	24.72
5	GTB	8	33	5	2	1	0	6.04
6	S2	2	15	2	0	0	0	0.00
7	S2	5	31	4	1	0	0	1.86
8	M01	2	8	0	0	0	2	100.00
9	S2	2	9	1	1	0	0	4.65
10	S2	7	28	4	3	0	0	3.99
11	GTB	0	15	0	0	0	0	0.00
12	THR	3	24	0	2	1	0	16.10
13	S2	13	33	7	3	3	0	9.00
14	LU	11	24	6	4	1	0	6.08
15	LU	4	16	3	1	0	0	2.33
16	S2	11	47	7	3	1	0	5.24
17	M4/S2	1	6	0	0	0	1	100.00
18	S2	4	18	3	0	1	0	7.43
19	S2	5	19	3	1	1	0	7.80
20	S2	6	37	3	2	1	0	8.05
21	S2	7	21	3	4	0	0	5.31
22	THR	0	7	0	0	0	0	0.00
23	S2	4	16	2	1	1	0	9.75
24	S2	12	35	7	2	2	1	14.83
25	M01	0	5	0	0	0	0	0.00
26	M01	0	9	0	0	0	0	0.00
27	S2	16	47	8	4	2	2	18.54
28	THR/M4	2	6	0	0	0	2	100.00
29	S2	5	18	2	2	1	0	9.66
30	S2	4	24	2	2	0	0	4.65
31	S2	6	28	3	2	0	1	19.77
32	M01	1	7	0	0	0	1	100.00
33	S1	7	28	5	2	0	0	2.66
34	S2	9	16	5	2	1	1	16.48
35	S2	9	35	5	2	1	1	16.48
36	S2	14	32	6	4	4	0	11.14
37	S2	7	22	3	2	1	1	21.19
38	S2	11	31	6	5	0	0	4.23
39	S2	10	39	3	5	2	0	10.59
40	S2	0	5	0	0	0	0	0.00
41	M01	0	6	0	0	0	0	0.00
42	S2	2	25	2	0	0	0	0.00
43	S2	8	21	5	3	0	0	3.49
44	S2	6	18	3	1	1	1	23.17
45	GTB	4	13	3	0	1	0	7.43
46	S1	3	16	2	1	0	0	3.10
		4	20	3	1	0	0	2.33
		3	22	1	1	1	0	13.00
		3	28	2	0	1	0	9.90
		5	17	3	2	0	0	3.72
		273	1102	143	80	33	17	784.91
		5.46	22.04	2.86	1.6	0.66	0.34	15.70



Lampiran 7. Data Pengamatan 7 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPel	KLON	JUMLAH TERSERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	9	49	4	2	2	1	19.78
2	S1	7	20	3	2	1	1	21.19
3	S2	4	22	3	1	0	0	2.33
4	S2	7	53	3	2	2	0	11.14
5	GTB	6	24	3	1	2	0	11.45
6	S2	3	32	1	1	1	0	13.00
7	S2	7	31	4	3	0	0	3.99
8	M01	3	7	0	0	2	1	53.13
9	S2	0	11	0	0	0	0	0.00
10	S2	7	34	5	1	1	0	5.57
11	GTB	4	26	3	1	0	0	2.33
12	THR	4	25	1	0	0	3	75.00
13	S2	11	41	7	0	3	1	17.19
14	LU	6	29	4	2	0	0	3.10
15	LU	4	21	3	0	1	0	7.43
16	S2	5	57	2	2	1	0	9.66
17	M4/S2	0	7	0	0	0	0	0.00
18	S2	3	24	2	1	0	0	3.10
19	S2	5	21	2	3	0	0	5.58
20	S2	8	52	4	3	1	0	7.20
21	S2	6	32	3	1	2	0	11.45
22	THR	2	7	1	0	0	1	50.00
23	S2	4	22	2	1	1	0	9.75
24	S2	14	56	7	4	2	1	14.04
25	M01	1	5	0	0	0	1	100.00
26	M01	2	8	0	0	1	1	64.85
27	S2	13	50	8	3	1	1	12.12
28	THR/M4	0	6	0	0	0	0	0.00
29	S2	6	27	3	1	1	1	23.17
30	S2	7	31	4	3	0	0	3.99
31	S2	10	37	4	3	2	1	18.73
32	M01	0	7	0	0	0	0	0.00
33	S1	11	29	6	4	0	1	12.47
34	S2	4	24	1	2	1	0	12.08
35	S2	8	38	5	3	0	0	3.49
36	S2	9	32	4	2	2	1	19.78
37	S2	5	27	2	2	1	0	9.66
38	S2	4	62	2	2	0	0	4.65
39	S2	11	42	7	1	2	1	15.34
40	S2	0	7	0	0	0	0	0.00
41	M01	0	5	0	0	0	0	0.00
42	S2	4	31	2	1	1	0	9.75
43	S2	4	27	3	1	0	0	2.33
44	S2	3	24	2	1	0	0	3.10
45	GTB	4	19	3	0	1	0	7.43
46	S1	3	22	2	1	0	0	3.10
		4	27	2	2	0	0	4.65
		6	30	2	2	2	0	13.00
		8	24	2	3	1	2	32.20
		2	22	2	0	0	0	0.00
		258	1366	133	68	38	19	733.26
		5.16	27.32	2.66	1.36	0.76	0.38	14.67



Lampiran 8. Data Pengamatan 8 Intensitas Serangan PBK pada Pertanaman Kakao

SAMPel	KLON	JUMLAH TersERANG	JUMLAH BUAH KESELURUHAN	TOTAL				IS
				ΣA	ΣB	ΣC	ΣD	
1	S1	6	55	3	2	0	1	19.77
2	S1	3	22	1	2	0	0	6.20
3	S2	4	24	3	1	0	0	2.33
4	S2	10	42	4	4	1	1	16.69
5	GTB	2	28	1	1	0	0	4.65
6	S2	4	19	1	3	0	0	6.98
7	S2	9	35	4	5	0	0	5.17
8	M01	0	9	0	0	0	0	0.00
9	S2	3	11	2	1	0	0	3.10
10	S2	6	31	3	1	2	0	11.45
11	GTB	2	15	1	1	0	0	4.65
12	THR	3	27	1	2	0	0	6.20
13	S2	5	46	2	2	0	1	23.72
14	LU	4	32	3	1	0	0	2.33
15	LU	2	18	1	1	0	0	4.65
16	S2	13	54	6	4	1	2	20.53
17	M4/S2	0	6	0	0	0	0	0.00
18	S2	4	20	3	0	1	0	7.43
19	S2	3	21	1	1	1	0	13.00
20	S2	10	43	5	4	1	0	6.69
21	S2	5	21	2	1	2	0	13.74
22	THR	0	8	0	0	0	0	0.00
23	S2	6	18	2	1	2	1	28.12
24	S2	7	45	1	5	0	1	20.93
25	M01	0	5	0	0	0	0	0.00
26	M01	2	9	0	0	2	0	29.70
27	S2	8	55	3	2	2	1	22.25
28	THR/M4	1	6	0	0	0	1	100.00
29	S2	6	24	3	1	2	0	11.45
30	S2	7	28	3	3	1	0	8.23
31	S2	7	31	3	3	0	1	18.27
32	M01	0	7	0	0	0	0	0.00
33	S1	4	32	2	1	0	1	27.33
34	S2	3	23	3	0	0	0	0.00
35	S2	9	44	5	2	1	1	16.48
36	S2	6	32	3	2	1	0	8.05
37	S2	3	29	2	0	0	1	33.33
38	S2	5	42	3	2	0	0	3.72
39	S2	8	49	4	2	2	0	9.75
40	S2	1	5	0	1	0	0	9.30
41	M01	1	6	0	0	0	1	100.00
42	S2	2	27	1	1	0	0	4.65
43	S2	3	26	2	1	0	0	3.10
44	S2	4	22	2	1	1	0	9.75
45	GTB	3	15	2	1	0	0	3.10
46	S1	2	18	1	1	0	0	4.65
		1	21	1	0	0	0	0.00
		4	25	2	2	0	0	4.65
		3	31	1	2	0	0	6.20
		4	21	3	1	0	0	2.33
		208	1283	99	72	23	14	664.58
		4.16	25.66	1.98	1.44	0.46	0.28	13.29



Lampiran 9. Data pengamatan 1 berdasarkan arah mata angin

SAMPSEL	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	0	0	0	0	0,00	1	0	0	0	0,00	0	1	1	0	19,50	0	0	0	0	0,00
2	S1	0	0	0	0	0,00	1	1	0	0	9,30	1	0	0	0	0,00	0	0	0	0	100,00
3	S2	0	1	0	0	9,30	1	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
4	S2	0	1	0	0	29,70	0	0	2	1	53,13	0	0	0	0	0,00	0	2	0	0	9,30
5	GTB	1	1	0	0	4,65	0	2	1	0	16,10	0	0	0	0	0,00	0	1	1	0	19,50
6	S2	0	0	0	0	0,00	0	0	2	0	29,70	0	1	1	0	19,50	0	0	0	0	0,00
7	S2	0	0	1	0	29,70	0	0	0	0	0,00	0	0	1	0	0,00	1	1	0	0	4,85
8	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	1	0	29,70	0	1	0	0	9,30
9	S2	0	1	0	0	0,00	1	0	0	0	9,30	0	0	0	1	0	29,70	0	0	0	0,00
10	S2	0	1	0	0	9,30	1	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00
11	GTB	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,85	1	0	0	1	50,00
12	THR	1	1	0	0	4,65	1	0	0	0	0,00	0	2	0	0	9,30	0	0	0	0	0,00
13	S2	1	1	0	0	14,85	2	0	0	0	0,00	0	0	0	0	0,00	0	1	0	0	9,30
14	LU	3	0	0	0	0,00	0	0	0	0	100,00	0	0	0	0	0,00	0	0	0	1	100,00
15	LU	0	0	1	0	29,70	0	0	0	0	100,00	0	0	0	0	0,00	0	0	0	1	100,00
16	S2	2	3	0	0	21,32	1	4	0	0	22,87	3	0	3	2	36,14	4	2	1	1	18,54
17	M4/S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
18	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00
19	S2	0	0	0	0	0,00	0	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00
20	S2	1	1	0	0	4,65	0	0	2	0	29,70	0	0	0	0	0,00	0	0	0	0	0,00
21	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	1	0	29,70	0	1	0	0	9,30
22	THR	0	0	0	0	0,00	0	1	0	0	9,30	1	0	0	1	100,00	0	0	0	0	0,00
23	S2	0	0	0	0	0,00	0	1	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
24	S2	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00
25	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	1	0,00
26	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	1	1	0	19,50	0	0	0	0	0,00
27	S2	0	2	0	0	9,30	1	1	0	0	4,65	3	0	0	0	0,00	0	0	0	0	0,00
28	THR/M4	0	0	0	0	0,00	1	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00
29	S2	1	0	0	0	9,30	0	0	0	0	0,00	0	0	1	0	9,90	0	0	0	0	0,00
30	S2	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
31	S2	0	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00
32	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
33	S1	1	0	0	0	0,00	0	3	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00
34	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	1	0	29,70	2	0	0	0	0,00
35	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00
36	S2	0	1	0	0	9,30	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
37	S2	0	0	1	2	76,57	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	0	9,30
38	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
39	S2	2	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,85	0	0	0	0	0,00
40	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
41	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
42	S2	1	1	0	2	52,33	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00
43	S2	0	0	0	1	50,00	0	0	0	0	100,00	0	0	0	0	0,00	0	0	0	0	0,00
44	S2	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
45	GTB	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
46	S1	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	2	100,00	0	0	0	0	0,00
47	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	2	0	29,70	0	1	0	0	0,00
48	S2	0	0	0	0	0,00	0	0	0	1	100,00	0	0	0	0	0,00	1	1	0	0	0,00
49	S2	0	0	0	2	100,00	0	0	1	0	29,70	0	0	0	0	0,00	0	0	0	0	0,00
50	S1	0	0	0	0	0,00	0	0	0	1	100,00	0	0	0	1	100,00	0	0	0	0	0,00
Jumlah Rata-rata		0,3	1,3	0,26	0,1	0,16	0,22	0,3	0,16	0,18	0,28	0,18	0,26	0,12	0,25	0,24	0,13	0,26	0,13	0,26	0



Lampiran 10. Data pengamatan 2 berdasarkan arah mata angin

SAMPLE	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	0	0	1	0	29.70	0	0	0	0	0.00	0	0	0	0	0.00	2	0	0	0	0.00
2	S1	0	0	0	0	0.00	0	0	0	0	29.70	0	0	0	0	0.00	1	1	0	0	4.65
3	S2	2	0	0	0	0.00	0	0	0	0	0.00	1	3	0	0	6.98	1	2	0	1	29.65
4	S2	0	0	0	0	0.00	0	0	0	0	0.00	0	1	2	0	22.90	3	1	0	0	2.33
5	GTB	0	2	1	0	16.10	0	0	0	1	100.00	0	0	0	0	0.00	0	0	0	0	0.00
6	S2	0	0	0	0	0.00	0	0	0	0	100.00	1	1	0	0	4.65	0	0	0	0	0.00
7	S2	0	0	1	0	29.70	0	0	0	0	0.00	1	1	0	0	4.65	0	0	0	0	0.00
8	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
9	S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	2	1	1	0	19.50
10	S2	1	2	0	0	6.20	0	0	0	0	9.30	1	0	0	0	0.00	0	0	0	0	0.00
11	GTB	0	0	0	0	0.00	1	1	0	0	4.65	0	0	0	0	0.00	0	0	0	0	0.00
12	THR	0	1	0	0	9.30	0	0	1	2	76.57	0	0	0	0	0.00	0	0	2	1	53.13
13	S2	0	0	0	0	0.00	2	1	1	0	9.75	1	0	0	0	0.00	0	0	0	0	9.30
14	LU	0	0	0	0	0.00	0	0	0	0	0.00	1	1	0	0	4.65	0	0	0	0	0.00
15	LU	0	0	1	0	29.70	1	0	0	0	0.00	1	0	0	0	0.00	0	2	0	0	0.00
16	S2	0	0	1	0	29.70	0	2	1	0	16.10	3	1	0	0	2.33	1	0	0	0	0.00
17	M4/S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
18	S2	0	0	1	0	29.70	0	0	0	0	0.00	0	1	0	0	9.30	1	0	0	0	0.00
19	S2	2	1	0	0	3.10	0	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	9.30
20	S2	3	1	0	0	2.33	2	1	1	0	9.75	2	1	1	0	9.75	2	0	0	1	33.33
21	S2	1	0	0	0	0.00	0	0	0	0	0.00	0	0	1	1	64.85	2	0	0	0	0.00
22	THR	0	0	0	0	0.00	2	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
23	S2	1	0	1	0	14.85	2	0	0	0	0.00	0	0	0	0	0.00	1	1	0	0	4.65
24	S2	0	1	0	0	9.30	0	2	1	0	16.10	2	1	1	0	27.33	2	2	0	0	4.65
25	M01	0	0	0	0	100.00	0	0	0	0	0.00	0	1	1	0	19.50	0	0	0	0	0.00
26	M01	0	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	50.00	0	0	1	2	76.57
27	S2	0	2	1	0	16.10	2	1	0	0	3.10	2	1	1	0	9.75	0	0	0	0	0.00
28	THR/M4	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
29	S2	3	0	1	0	7.43	0	1	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0.00
30	S2	0	0	0	0	0.00	0	0	0	1	100.00	0	1	0	0	9.30	1	0	0	0	0.00
31	S2	0	0	0	0	0.00	1	1	0	0	4.65	0	0	0	0	0.00	0	0	0	0	0.00
32	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
33	S1	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	2	1	0	0	3.10
34	S2	0	1	0	0	9.30	0	0	0	0	0.00	1	0	0	1	50.00	0	0	0	0	0.00
35	S2	0	0	0	0	0.00	0	0	0	0	0.00	1	1	0	0	4.65	0	0	1	1	19.50
36	S2	0	0	0	2	100.00	0	1	0	0	9.30	0	0	0	0	0.00	0	1	0	0	29.70
37	S2	1	1	0	0	4.65	2	1	0	0	9.75	1	0	1	0	14.85	0	0	0	0	0.00
38	S2	0	0	0	0	0.00	0	0	0	0	0.00	2	1	0	0	3.10	0	0	0	0	0.00
39	S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
40	M01	1	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
41	M01	0	0	0	0	0.00	0	0	0	0	29.70	1	0	0	0	0.00	0	0	0	0	0.00
42	S2	0	2	0	0	0.00	0	0	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0.00
43	S2	0	2	0	0	9.30	0	1	0	0	9.30	0	0	0	0	0.00	1	0	0	0	0.00
44	S2	2	0	1	0	9.90	1	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
45	GTB	1	0	1	1	43.23	1	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
46	S1	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
47	S2	2	0	1	0	9.90	0	1	1	0	19.50	0	0	0	0	0.00	0	0	0	0	0.00
48	S2	0	2	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
49	S2	0	0	1	0	29.70	0	0	0	0	0.00	1	1	0	0	4.65	0	0	0	0	0.00
50	S1	2	1	0	0	3.10	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Rata-rata		0.44	0.36	0.26	0.08	16.73	0.36	0.3	0.18	0.1	566.52	0.48	0.36	0.18	0.12	18.15	0.44	0.28	0.14	0.14	4.65



Lampiran 11. Data pengamatan 3 berdasarkan arah mata angin

SAMPLE	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	0	1	1	0	19.50	0	0	0	0.00	0	1	0	2	69.77	0	0	1	0	29.70	
2	S1	0	0	0	0	0.00	0	0	0	29.70	0	1	0	0	9.30	1	0	1	0	14.85	
3	S2	0	0	1	1	64.85	0	0	0	0.00	2	0	0	0	0.00	1	0	0	0	0.00	
4	S2	2	0	1	0	9.90	2	0	0	33.33	0	1	0	2	69.77	0	1	0	0	9.30	
5	GTB	1	0	1	0	14.85	1	2	1	12.08	0	2	0	0	9.30	0	0	0	0	0.00	
6	S2	0	0	0	0	0.00	0	0	0	0.00	0	1	1	0	19.50	0	0	0	0	0.00	
7	S2	0	0	1	1	64.85	0	1	1	19.50	2	0	0	0	0.00	0	0	0	0	0.00	
8	M01	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
9	S2	0	1	0	0	9.30	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	0.00	
10	S2	0	2	1	0	16.10	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	9.30	
11	GTB	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	2	0	0	0	0.00	
12	THR	0	0	1	1	64.85	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
13	S2	2	1	1	0	9.75	0	0	1	29.70	2	2	0	0	4.65	0	0	0	0	0.00	
14	LU	0	0	0	0	0.00	1	1	0	4.65	2	0	0	0	0.00	1	0	0	0	0.00	
15	LU	0	0	3	0	29.70	1	1	0	6.20	0	0	0	1	100.00	0	0	0	0	0.00	
16	S2	1	1	0	0	4.65	0	2	2	19.50	0	0	0	0	0.00	1	1	0	0	4.65	
17	M4/S2	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
18	S2	0	0	0	0	0.00	0	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0.00	
19	S2	0	1	1	0	19.50	0	2	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
20	S2	0	1	1	0	19.50	0	2	1	16.10	0	0	0	1	38.28	1	2	0	0	6.20	
21	S2	2	0	0	0	0.00	1	2	0	6.20	0	0	0	0	0.00	0	1	0	0	9.30	
22	THR	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	100.00	
23	S2	0	0	0	0	0.00	0	2	1	16.10	0	0	0	0	0.00	1	0	0	1	100.00	
24	S2	0	0	1	2	76.57	0	0	0	0.00	3	1	0	0	2.33	1	1	0	0	4.65	
25	M01	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
26	M01	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
27	S2	1	1	0	0	4.65	1	1	0	4.65	0	0	0	0	0.00	3	0	0	0	0.00	
28	THR/M4	0	0	0	0	0.00	0	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0.00	
29	S2	0	0	0	0	0.00	0	1	0	9.30	1	2	0	0	6.20	0	0	0	0	100.00	
30	S2	2	0	1	1	32.43	0	0	0	0.00	0	1	0	0	9.30	0	0	0	0	0.00	
31	S2	0	0	0	0	0.00	1	1	0	4.65	0	0	0	0	0.00	0	0	0	0	100.00	
32	M01	0	0	0	0	0.00	0	0	0	0.00	0	0	1	0	29.70	0	0	0	0	0.00	
33	S1	1	1	0	0	4.65	2	0	0	0.00	0	0	0	0	6.20	0	3	1	0	14.40	
34	S2	3	0	0	0	0.00	0	0	0	0.00	1	2	0	0	6.20	0	0	0	0	0.00	
35	S2	1	1	0	2	52.33	0	2	0	9.30	0	1	0	1	100.00	0	0	0	0	4.65	
36	S2	0	2	0	0	9.30	0	0	2	53.13	0	1	0	0	19.50	1	0	2	1	53.13	
37	S2	0	0	0	0	0.00	0	0	0	9.30	0	0	1	0	16.10	0	0	0	0	0.00	
38	S2	1	0	0	0	0.00	0	3	0	9.30	0	0	0	2	100.00	0	0	0	0	0.00	
39	S2	0	1	0	0	9.30	0	0	0	0.00	0	0	2	0	29.70	0	0	0	0	0.00	
40	S2	0	0	0	0	0.00	0	0	0	0.00	0	1	0	0	9.30	0	0	0	0	0.00	
41	M01	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
42	S2	1	0	0	0	0.00	1	2	0	6.20	0	0	0	0	0.00	0	0	0	0	0.00	
43	S2	0	1	0	0	9.30	2	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
44	S2	2	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	0.00	
45	GTB	0	0	0	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
46	S1	0	0	0	0	0.00	1	0	0	0.00	1	0	0	0	0.00	0	0	0	0	0.00	
47	S2	0	1	0	0	9.30	0	1	1	19.50	0	0	0	0	0.00	1	0	0	0	0.00	
48	S2	0	0	0	0	100.00	3	1	0	2.33	0	0	0	0	0.00	0	0	0	0	0.00	
49	S2	0	0	0	0	0.00	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
50	S1	2	1	0	0	3.10	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	
Jumlah		22	17	15	9	658.22	19	27	11	319.17	17	18	7	10	648.89	18	10	10	10	648.89	
Kata-rata		0.44	0.34	0.3	0.18	23.87	0.38	0.54	0.22	13.18	0.34	0.36	0.14	0.2	26.45	0.36	0.36	0.36	0.36	26.45	



Lampiran 12. Data pengamatan 4 berdasarkan arah mata angin

SAMPel	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	0	1	0	1	54,65	0	0	0	0	29,70	0	1	0	0	9,30	0	0	0	0	0,00
2	S1	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	19,50	0	0	1	0	29,70
3	S2	0	0	0	0	100,00	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
4	S2	1	3	0	0	6,98	2	0	0	1	33,33	1	0	0	3	77,33	1	2	0	0	6,20
5	GTB	5	2	0	1	14,85	4	1	1	1	6,50	0	0	0	0	0,00	0	0	0	0	0,00
6	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
7	S2	0	0	1	1	64,85	0	1	1	0	19,50	2	0	0	0	0,00	0	0	0	0	0,00
8	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
9	S2	1	0	1	1	14,85	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00
10	S2	3	2	1	0	8,05	0	0	0	0	0,00	1	0	0	1	50,00	1	0	0	0	0,00
11	GTB	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
12	THR	1	0	1	0	14,85	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	2	100,00
13	S2	0	0	0	0	0,00	0	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00
14	LU	0	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	3,72	3	2	0	0	3,72
15	LU	1	0	0	0	0,00	0	0	0	1	100,00	0	0	0	0	0,00	0	0	0	0	0,00
16	S2	0	1	3	1	39,68	3	1	0	0	2,33	0	1	1	2	59,75	1	1	0	0	4,65
17	M4/S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
18	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
19	S2	0	2	0	0	9,30	1	1	0	0	4,65	0	1	0	0	9,30	0	0	0	0	0,00
20	S2	0	0	0	0	0,00	0	2	1	0	16,10	1	0	1	0	14,85	0	0	0	2	9,30
21	S2	0	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	0,00	0	0	0	0	0,00
22	THR	0	0	0	0	0,00	1	1	0	1	36,43	0	1	0	0	9,30	1	0	0	0	0,00
24	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
25	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
26	M01	0	0	0	0	0,00	0	0	0	2	29,70	1	0	0	0	0,00	0	0	0	0	0,00
27	S2	3	1	0	0	2,33	1	1	0	0	4,65	0	0	0	0	0,00	5	1	0	0	1,55
28	THR/M4	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
29	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
30	S2	1	1	0	0	4,65	0	0	0	1	100,00	0	0	0	0	0,00	1	1	0	0	4,65
31	S2	0	0	0	1	100,00	0	0	1	1	64,85	1	0	0	0	0,00	0	0	0	0	100,00
32	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
33	S1	2	0	0	0	0,00	1	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0	0,00
34	S2	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
35	S2	0	0	2	1	53,13	3	2	0	0	3,72	0	2	0	0	9,30	0	1	0	0	9,30
36	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	0	9,30	1	0	1	3	65,94
37	S2	1	0	1	0	14,85	0	0	0	0	9,30	2	0	1	0	9,90	0	0	0	0	0,00
38	S2	3	0	0	0	0,00	0	1	0	0	9,30	0	0	3	1	47,28	2	0	0	0	0,00
39	S2	0	1	0	3	77,33	0	0	0	0	0,00	0	0	0	0	29,70	0	0	0	0	0,00
40	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
41	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
42	S2	3	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
43	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
44	S2	5	1	1	0	5,57	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
45	GTB	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
46	S1	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
47	S2	2	0	0	0	0,00	0	0	0	0	29,70	0	0	0	0	0,00	0	0	0	0	0,00
48	S2	0	0	0	1	100,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
49	S2	0	0	0	0	0,00	1	0	0	0	0,00	0	0	2	0	29,70	0	0	0	0	0,00
50	S1	4	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
Jumlah		38	15	11	12	685,88	19	13	8	6	499,76	13	9	13	7	414,20	16	0	0	0	0,00
Rata-rata		0,76	0,3	0,22	0,24	21,92	0,38	0,26	0,16	0,12	20,84	0,26	0,18	0,26	0,14	27,85	0,32	0	0	0	0,00



Lampiran 13. Data pengamatan 5 berdasarkan arah mata angin.

SAMPLE	KION	UTARA				IS	TIMUR				IS	SELATAN				IS				
		A	B	C	D		A	B	C	D		A	B	C	D					
1	S1	2	0	0	0	0,00	2	1	0	0	3,10	1	2	0	0	9,30	0	1	0	29,70
2	S1	1	0	1	0	14,85	0	1	0	0	9,30	1	1	0	0	0,00	0	1	0	54,65
3	S2	2	0	0	2	50,00	0	0	1	0	29,70	0	0	0	0	0,00	0	0	1	100,00
4	S2	0	1	0	0	9,30	2	0	0	1	33,33	0	1	2	1	42,18	0	0	0	0,00
5	GTR	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	19,50
6	S2	0	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0	0,00	0	0	0	0,00
7	S2	0	0	0	1	100,00	1	0	0	1	39,85	3	1	0	0	2,33	0	0	0	0,00
8	M01	0	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0	0,00	0	0	0	0,00
9	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	6,20
10	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	1	2	0	0,00
11	GTR	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0,00
12	GTR	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
13	S2	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00	0	1	0	19,50
14	LU	2	0	0	0	0,00	1	0	0	0	6,20	1	2	0	0	6,20	0	1	0	29,70
15	LU	1	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0,00
16	S2	0	1	0	1	54,65	2	1	2	0	13,74	0	0	0	0	0,00	0	1	0	54,65
17	M4/S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	1	100,00	0	0	0	29,70
18	S2	0	0	0	0	0,00	1	1	0	0	0,00	1	0	0	0	0,00	0	0	0	0,00
19	S2	0	0	0	0	0,00	0	2	0	0	9,30	0	1	1	0	19,50	2	1	0	3,10
20	S2	0	0	0	0	0,00	0	0	1	0	9,90	0	0	0	0	0,00	1	1	0	4,65
21	S2	1	1	0	0	4,65	2	0	0	0	0,00	0	0	0	0	0,00	2	0	0	0,00
22	GTR	1	0	1	0	14,85	0	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0,00
23	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
24	S2	0	0	0	0	0,00	1	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0,00
25	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0,00
26	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	1	29,70
27	S2	1	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	0,00	2	0	0	33,33
28	THR/M4	0	0	0	0	0,00	0	0	0	0	9,30	0	1	0	0	9,30	0	0	0	0,00
29	S2	3	0	1	0	7,43	0	1	0	0	9,30	0	1	0	0	0,00	0	0	0	0,00
30	S2	0	2	0	1	39,53	2	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0,00
31	S2	0	0	0	0	0,00	0	0	0	0	0,00	2	1	0	0	3,10	0	1	0	19,50
32	M01	0	0	0	1	100,00	0	0	0	0	0,00	0	0	0	0	0,00	0	1	1	0,00
33	S1	0	2	0	1	39,53	1	2	1	0	12,08	0	0	0	0	0,00	2	0	0	9,90
34	S2	1	0	0	0	0,00	2	1	0	0	3,10	0	0	1	0	29,70	0	1	2	22,90
35	S2	0	1	0	0	9,30	4	1	1	0	6,50	3	0	0	0	0,00	2	2	1	0,66
36	S2	1	0	0	0	0,00	0	0	2	0	29,70	1	2	0	0	6,20	1	0	0	0,00
37	S2	0	1	0	0	0,00	2	3	0	0	5,58	0	1	1	0	19,50	0	0	0	0,00
38	S2	2	1	0	0	3,10	2	1	0	0	3,10	0	1	0	0	9,30	2	0	0	4,65
39	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,65	2	0	0	0,00
40	S2	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
41	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
42	S2	1	2	0	0	6,20	0	0	0	0	0,00	0	1	0	0	29,70	1	0	0	0,00
43	S2	1	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0,00
44	S2	0	0	0	0	0,00	0	1	0	0	0,00	1	1	0	0	4,65	2	0	0	0,00
45	GTR	1	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
46	S1	0	0	0	1	100,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
47	S2	1	1	0	0	4,65	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0,00
48	S2	1	0	0	2	29,70	1	1	0	0	4,65	0	0	0	0	0,00	0	0	0	0,00
49	S2	1	0	0	0	0,00	1	1	0	0	7,43	0	0	0	0	0,00	0	0	0	0,00
50	S1	0	0	0	0	0,00	3	0	1	1	303,00	0	0	0	0	13,24	21	0	0	0,4
Jumlah		23	13	5	8	597,04	33	18	13	2	303,00	18	17	8	2	359,65	21			
Rata-rata		0,46	0,26	0,1	0,16	21,52	0,66	0,36	0,26	0,04	11,42	0,36	0,34	0,16	0,04	13,24	0,4			



Optimization Software:
www.balesio.com

Lampiran 14. Data pengamatan 6 berdasarkan arah mata angin

SAMPLE	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	2	1	0	0	3,10	1	1	0	0	36,43	0	0	2	0	29,70	0	0	0	0	0,00
2	S1	2	2	1	1	9,66	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,65
3	S2	0	0	0	0	0,00	1	1	0	1	36,43	0	0	0	0	0,00	2	1	0	0	3,10
4	S2	0	0	0	0	0,00	0	1	1	1	46,33	2	1	0	0	3,10	0	0	0	0	0,00
5	GTRB	0	1	1	0	19,50	0	0	0	0	0,00	3	0	0	0	0,00	2	1	0	0	3,10
6	S2	0	0	0	0	0,00	0	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00
7	S2	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,65	3	0	0	0	0,00
8	M01	0	0	0	0	0,00	0	0	0	2	100,00	0	0	0	0	0,00	0	0	0	0	0,00
9	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,65
10	S2	2	0	0	0	0,00	0	1	0	0	9,30	2	2	0	0	4,65	0	0	0	0	0,00
11	GTRB	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
12	THR	0	0	0	0	0,00	0	2	1	0	16,10	0	0	0	0	0,00	0	0	0	0	0,00
13	S2	2	1	0	0	3,10	1	1	2	0	17,18	3	0	1	0	7,43	1	1	0	0	4,65
14	LU	2	2	1	0	9,66	1	0	0	0	0,00	0	0	0	0	0,00	3	2	0	0	3,72
15	LU	1	1	0	0	4,65	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
16	S2	3	1	0	0	2,33	1	2	0	0	6,20	0	0	0	0	0,00	3	0	1	0	7,43
17	M4/S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	1	100,00
18	S2	2	0	0	0	0,00	0	0	1	0	29,70	0	0	0	0	0,00	1	0	0	0	0,00
19	S2	2	0	0	0	0,00	1	1	0	0	4,65	0	0	1	0	29,70	0	0	0	0	0,00
20	S2	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
21	S2	1	0	0	0	9,30	2	1	0	0	3,10	1	2	0	0	6,20	2	2	1	0	0,00
22	THR	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
23	S2	0	0	0	0	0,00	2	1	1	0	9,75	0	0	0	0	0,00	0	0	0	0	0,00
24	S2	3	0	1	0	7,43	0	0	1	1	13,00	2	1	0	1	27,33	1	0	0	0	0,00
25	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
26	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
27	S2	2	0	2	1	31,88	0	1	0	0	9,30	3	1	0	1	21,86	3	2	0	0	3,72
28	THR/M4	0	0	0	0	0,00	0	0	0	2	100,00	0	0	0	0	0,00	0	0	0	0	0,00
29	S2	0	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00	0	2	1	0	16,10
30	S2	2	2	0	0	4,65	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
31	S2	0	0	0	0	0,00	1	2	0	0	6,20	2	0	0	0	0,00	0	0	0	0	100,00
32	M01	0	0	0	0	0,00	0	0	0	1	100,00	0	0	0	0	0,00	0	0	0	0	0,00
33	S1	0	0	0	0	0,00	4	2	0	0	3,10	1	0	0	0	0,00	0	0	0	0	0,00
34	S2	2	0	0	0	0,00	1	1	0	0	4,65	2	1	0	0	3,10	0	0	1	1	64,85
35	S2	1	1	0	0	4,65	3	1	1	0	2,33	1	0	0	0	0,00	0	0	1	1	64,85
36	S2	0	2	1	0	16,10	0	1	0	0	19,50	4	0	1	0	5,94	2	1	1	1	9,75
37	S2	0	0	0	0	0,00	1	1	0	1	14,85	2	2	0	0	4,65	0	0	0	0	0,00
38	S2	3	1	0	0	2,33	1	2	0	0	6,20	1	0	0	0	0,00	0	0	0	0	0,00
39	S2	2	2	1	0	9,66	0	1	0	0	9,30	1	0	0	0	0,00	0	0	0	0	0,00
40	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
41	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
42	S2	0	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
43	S2	2	0	0	0	0,00	3	2	0	0	3,72	0	1	0	0	9,30	0	0	0	0	0,00
44	S2	0	0	0	0	0,00	0	0	0	0	0,00	3	1	0	0	2,33	0	0	0	0	0,00
45	GTRB	1	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
46	S1	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	1	0	0	0	0,00
47	S2	0	0	0	0	0,00	2	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	0,00
48	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
49	S2	2	0	1	0	9,90	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
50	S1	1	1	0	0	4,65	2	1	0	0	3,10	0	0	0	0	0,00	0	0	0	0	0,00
Rata-rata		0,8	0,38	0,18	0,02	152,54	0,74	0,54	0,18	0,16	610,42	0,74	0,28	0,1	0,04	164,58	0,58				



Optimization Software:
www.balesio.com

Lampiran 15. Data pengamatan 7 berdasarkan arah mata angin

SAMPLE	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS		
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D			
1	S1	2	2	0	1	23.72	1	0	0	0	0.00	1	0	0	2	0	0	19.80	0	0	0	0.00	
2	S1	0	2	0	0	9.30	0	0	0	0	0.00	0	0	0	0	0	0	0.00	3	0	0	0.00	
3	S2	0	0	0	0	0.00	0	0	0	0	0.00	2	0	0	0	0	0	0.00	1	1	0	0	4.65
4	S2	0	0	0	0	0.00	0	0	0	1	2	2	1	0	0	0	0	3.10	1	0	0	0	0.00
5	GTR	0	1	1	0	19.50	0	0	0	0	0.00	3	0	0	1	0	0	7.43	0	0	0	0	0.00
6	S2	1	1	0	0	4.65	0	0	0	1	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
7	S2	0	1	0	0	9.30	0	0	0	2	0	0	0	0	0	0	0	0.00	2	0	0	0	0.00
8	M01	0	0	0	0	0.00	0	0	0	1	100.00	0	0	0	2	0	0	29.70	0	0	0	0	0.00
9	S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
10	S2	2	0	1	0	9.90	0	0	0	0	0.00	0	0	0	0	0	0	0.00	3	1	0	0	2.33
11	GTR	1	1	0	0	4.65	2	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
12	THR	0	0	0	0	0.00	0	0	0	1	50.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
13	S2	3	0	1	1	25.94	0	0	0	0	0.00	2	0	0	0	0	0	0.00	2	0	2	0	14.85
14	LU	1	1	0	0	4.65	0	0	0	0	0.00	3	1	0	0	0	0	2.33	0	0	0	0	0.00
15	LU	0	0	1	0	29.70	2	0	0	0	0.00	1	0	0	0	0	0	0.00	0	0	0	0	0.00
16	S2	0	2	1	0	16.10	0	0	0	0	0.00	1	0	0	0	0	0	0.00	1	0	0	0	0.00
17	M4/S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
18	S2	2	1	0	0	3.10	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
19	S2	0	0	0	0	0.00	1	0	0	0	0.00	1	2	0	0	0	0	6.20	0	1	0	0	9.30
20	S2	0	1	0	0	9.30	0	1	1	0	19.50	1	0	0	0	0	0	0.00	0	0	0	0	2.33
21	S2	1	1	0	0	4.65	2	0	0	0	0.00	0	0	0	2	0	0	29.70	0	0	0	0	0.00
22	THR	0	0	0	0	0.00	1	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	1	100.00
23	S2	2	0	1	0	9.90	0	1	0	0	9.30	0	0	0	0	0	0	0.00	0	0	0	1	100.00
24	S2	0	1	1	0	19.50	2	1	1	0	9.75	2	2	0	0	0	0	23.72	3	0	0	0	0.00
25	M01	0	0	0	0	100.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
26	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	1	1	0	64.85	0	0	0	0	0.00
27	S2	1	0	1	0	14.85	4	1	0	0	1.86	1	2	0	1	1	0	29.65	2	0	0	0	0.00
28	THR/M4	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
29	S2	2	0	1	0	9.90	1	1	0	1	36.43	0	0	0	0	0	0	0.00	0	0	0	0	0.00
30	S2	1	0	0	0	0.00	1	2	0	0	6.20	0	0	0	0	0	0	0.00	2	1	0	0	3.10
31	S2	0	0	0	0	0.00	0	2	2	0	19.50	3	1	0	0	0	0	2.33	1	0	0	1	50.00
32	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
33	S1	2	2	0	0	4.65	3	2	0	0	3.72	1	0	0	0	0	0	50.00	0	0	0	0	0.00
34	S2	0	1	0	0	9.30	1	0	0	0	0.00	0	1	1	0	0	0	19.50	0	0	0	0	0.00
35	S2	2	0	0	0	0.00	0	0	0	0	0.00	2	1	0	0	0	0	3.10	1	2	0	0	6.20
36	S2	0	0	1	1	64.85	2	1	0	0	3.10	1	1	0	0	0	0	4.65	1	0	1	0	14.85
37	S2	1	0	0	0	0.00	0	0	0	0	0.00	1	2	1	0	0	0	12.08	0	0	0	0	0.00
38	S2	0	2	0	0	9.30	2	0	0	0	0.00	1	0	0	0	0	0	0.00	0	0	0	0	0.00
39	S2	3	1	1	0	7.80	2	0	0	0	0.00	1	0	1	1	0	0	43.23	1	1	0	0	0.00
40	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
41	M01	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
42	S2	0	0	0	0	0.00	1	1	1	0	13.00	1	0	0	0	0	0	0.00	0	0	0	0	0.00
43	S2	1	1	0	0	4.65	0	0	0	0	0.00	2	0	0	0	0	0	0.00	0	0	0	0	0.00
44	S2	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	2	0	0	0	0.00
45	GTR	0	0	1	0	29.70	2	0	0	0	0.00	0	0	0	0	0	0	0.00	1	1	0	0	0.00
46	S1	1	0	0	0	0.00	0	0	0	0	0.00	1	0	0	0	0	0	0.00	0	0	0	0	0.00
47	S2	0	1	0	0	9.30	2	1	0	0	3.10	0	0	0	0	0	0	0.00	0	0	0	0	0.00
48	S2	0	1	0	0	0.00	2	2	0	0	4.65	0	0	0	0	0	0	0.00	0	0	0	0	0.00
49	S2	0	1	1	0	19.50	0	0	0	0	0.00	2	2	0	0	0	0	4.65	0	0	0	0	0.00
50	S1	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Jumlah		29	24	13	4	487.66	36	19	9	4	403.76	36	16	11	5	356.00	32						
Rata-rata		0.58	0.48	0.26	0.08	14.42	0.72	0.38	0.18	0.08	12.41	0.72	0.32	0.22	0.1	14.35	0.64						



Lampiran 16. Data pengamatan 8 berdasarkan arah mata angin

SAMPUL	KLON	UTARA				IS	TIMUR				IS	SELATAN				IS	BARAT				IS
		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	S1	0	1	0	0	9,30	0	1	0	1	54,65	0	0	0	0	0,00	3	0	0	0	0,00
2	S1	0	0	0	0	0,00	0	0	0	0	0,00	1	2	0	0	6,20	0	0	0	0	0,00
3	S2	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	1	1	0	0	4,65
4	S2	2	2	0	0	4,65	0	1	1	1	46,33	0	1	0	0	9,30	2	0	0	0	0,00
5	GTB	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00
6	S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	1	3	0	0	6,98
7	S2	0	1	0	0	9,30	3	2	0	0	3,72	1	0	0	0	0,00	0	2	0	0	9,30
8	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
9	S2	1	0	0	0	0,00	0	0	0	0	0,00	1	0	0	0	0,00	0	1	0	0	9,30
10	S2	1	1	0	0	4,65	2	0	2	0	14,85	0	0	0	0	0,00	0	1	0	0	0,00
11	GTB	1	1	0	0	4,65	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
12	THR	0	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00	1	1	0	0	4,65
13	S2	0	1	0	0	54,65	0	0	1	0	0,00	1	0	0	0	0,00	1	1	0	0	4,65
14	LU	2	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	0,00	0	0	0	0	0,00
15	LU	0	1	0	0	9,30	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
16	S2	0	1	0	0	9,30	0	0	0	0	100,00	4	0	1	1	21,62	2	3	0	0	5,58
17	M4/S2	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
18	S2	0	0	0	0	0,00	2	0	0	0	0,00	1	0	1	0	14,85	0	0	0	0	0,00
19	S2	0	0	0	0	0,00	0	1	1	0	19,50	0	0	0	0	0,00	1	0	0	0	0,00
20	S2	0	0	0	0	0,00	3	0	0	0	7,43	2	2	0	0	4,65	0	2	0	0	9,30
21	S2	2	1	0	0	3,10	0	0	0	0	0,00	0	0	2	0	29,70	0	0	0	0	0,00
22	THR	0	0	0	0	0,00	0	1	1	0	0,00	0	0	0	0	0,00	2	0	0	0	0,00
23	S2	0	0	1	0	29,70	0	1	1	0	19,50	0	0	0	1	100,00	2	0	0	0	0,00
24	S2	0	2	0	1	39,53	0	0	0	0	0,00	0	2	0	0	9,30	1	1	0	0	4,65
25	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
26	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	2	0	29,70	0	0	0	0	0,00
27	S2	1	0	1	1	43,23	0	1	0	0	9,30	2	1	0	0	3,10	0	0	1	1	29,70
28	THR/M14	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	1	100,00
29	S2	1	0	2	0	19,80	2	1	0	0	3,10	0	0	0	0	0,00	0	0	0	0	0,00
30	S2	0	0	0	0	0,00	1	2	0	0	6,20	1	0	0	0	0,00	1	1	1	1	13,00
31	S2	2	2	0	0	4,65	0	0	0	0	0,00	1	1	0	0	4,65	0	0	0	0	100,00
32	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
33	S1	0	0	0	0	0,00	0	0	0	0	0,00	2	1	0	1	27,33	0	0	0	0	0,00
34	S2	1	0	0	0	0,00	2	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
35	S2	1	1	0	0	4,65	3	1	0	0	2,33	1	1	0	0	0,00	0	0	1	1	64,85
36	S2	0	0	0	0	0,00	0	1	0	0	9,30	1	1	1	0	13,00	2	0	0	1	0,00
37	S2	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
38	S2	0	0	0	0	0,00	1	0	0	0	0,00	2	2	0	0	4,65	0	0	0	0	0,00
39	S2	1	1	1	0	13,00	3	1	0	0	2,33	0	0	0	0	0,00	0	0	0	0	0,00
40	M01	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
41	S2	0	0	0	0	9,30	1	0	0	0	0,00	0	0	1	0	100,00	0	0	0	0	0,00
42	S2	0	1	0	0	9,30	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
43	S2	2	1	0	0	3,10	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
44	S2	0	0	0	0	0,00	2	1	0	0	3,10	0	0	0	0	0,00	0	0	0	0	0,00
45	GTB	1	1	0	0	4,65	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
46	S1	0	0	0	0	0,00	1	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00
47	S2	0	0	0	0	0,00	1	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
48	S2	2	0	0	0	0,00	0	1	0	0	9,30	0	0	0	0	0,00	0	0	0	0	0,00
49	S2	1	0	0	0	0,00	0	0	0	0	9,30	0	1	0	0	9,30	0	0	0	0	0,00
50	S1	3	1	0	0	2,33	0	0	0	0	0,00	0	0	0	0	0,00	0	0	0	0	0,00
Jumlah		28	21	5	3	292,14	28	17	6	3	324,88	23	14	7	4	387,34	20	2	0	0	0,00
Rata-rata		0,56	0,42	0,1	0,06	11,29	0,56	0,34	0,12	0,06	11,78	0,46	0,28	0,14	0,08	15,38	0,4	0	0	0	0,00



Optimization Software:
www.balesio.com

Lampiran 17. Data intensitas serangan hama PBK setiap pengamatan

Pengamatan	IS
1	28.76
2	19.35
3	17.06
4	16.57
5	16.03
6	15.70
7	14.67
8	13.29

Lampiran 18. Data rata-rata intensitas serangan PBK berdasarkan arah mata angin

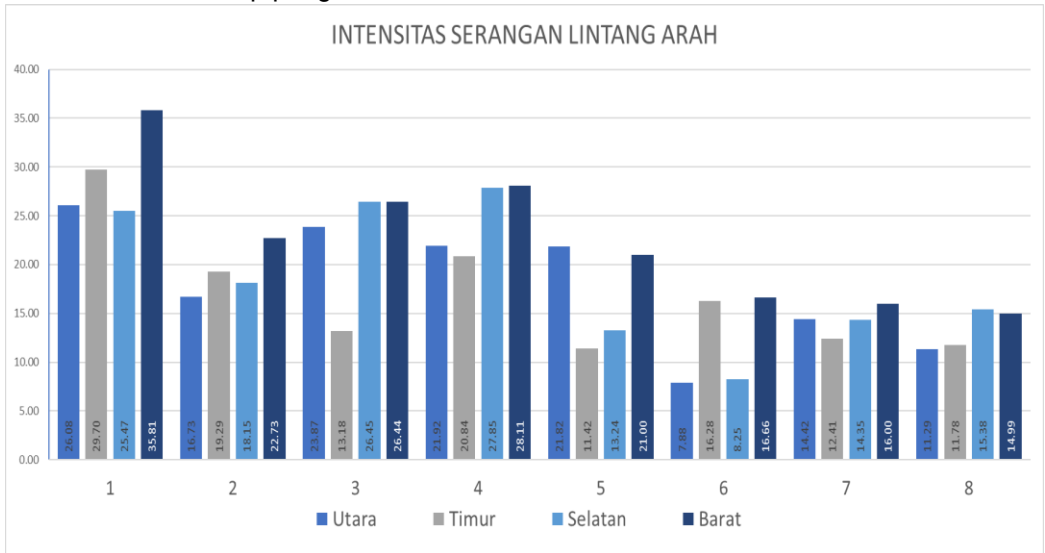
Pengamatan	Utara	Timur	Selatan	Barat
1	26.08	29.70	25.47	35.81
2	16.73	19.29	18.15	22.73
3	23.87	13.18	26.45	26.44
4	21.92	20.84	27.85	28.11
5	21.82	11.42	13.24	21.00
6	7.88	16.28	8.25	16.66
7	14.42	12.41	14.35	16.00
8	11.29	11.78	15.38	14.99
Jumlah	144.02	134.90	149.14	181.73
Rata-rata	18.00	16.86	18.64	22.72

Lampiran 19. Data rata-rata intensitas serangan hama PBK berdasarkan klon.

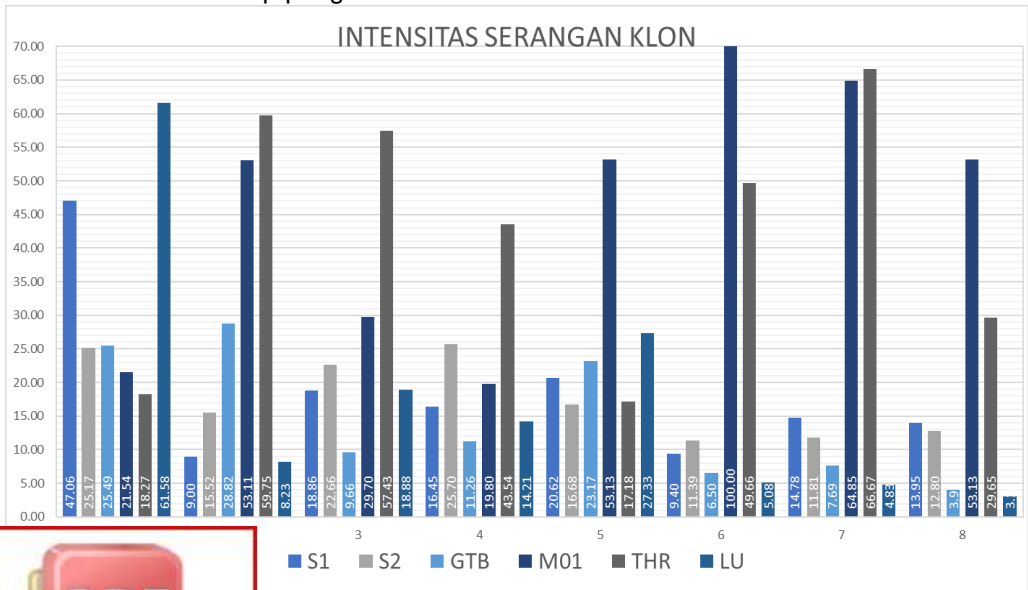
PENGAMATAN	S1	S2	GTB	M01	THR	LU
1	47.06	25.17	25.49	21.54	18.27	61.58
2	9.00	15.52	28.82	53.11	59.75	8.23
3	18.86	22.66	9.66	29.70	57.43	18.88
4	16.45	25.70	11.26	19.80	43.54	14.21
5	20.62	16.68	23.17	53.13	17.18	27.33
6	9.40	11.39	6.50	100.00	49.66	5.08
	4.78	11.81	7.69	64.85	66.67	4.83
	3.95	12.80	3.99	53.13	29.65	3.10
	50.12	141.73	116.57	395.27	342.14	143.24
	33.36	31.49	25.90	87.84	76.03	31.83



Lampiran 20. Grafik intensitas serangan hama PBK berdasarkan arah mata angin disetiap pengamatan.



Lampiran 21. Grafik intensitas serangan hama PBK berdasarkan klon disetiap pengamatan.



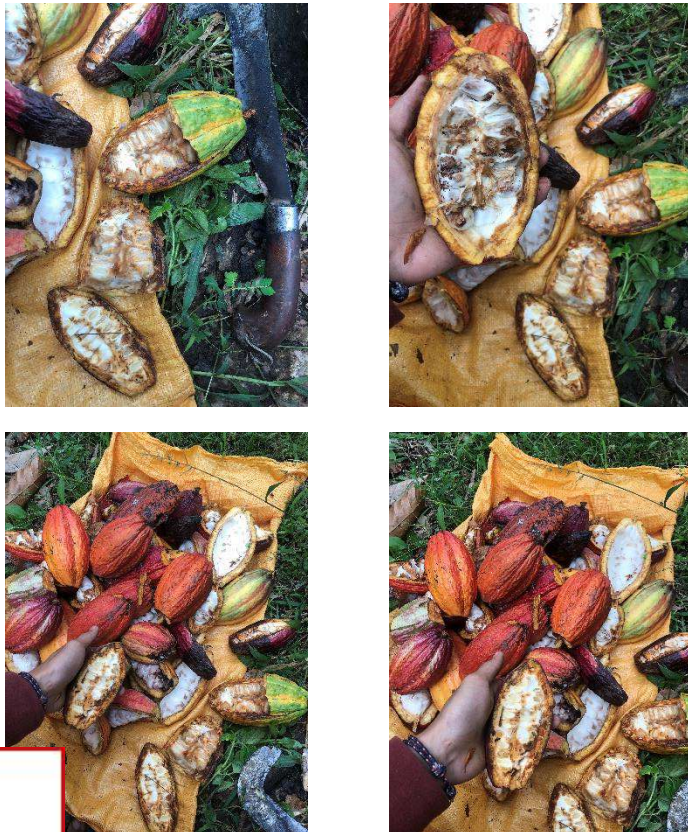


Lampiran 23. Dokumentasi penentuan pohon sampel





Lampiran 24. Dokumentasi pengamatan intensitas serangan





Optimization Software:
www.balesio.com