DAFTAR PUSTAKA

Abrahams P, Bateman M, Beale T, Clottey V, Cock M, Colmenarez Y, Corniani N, Day R, Early R, Godwin et al. 2017. Fall armyworm: impacts and implications for Africa. Outlooks on Pest Management Vol 28.

Arif IA, Khan HA, Bahkali AH, Homaidan AA, Farhan AH, Sadoon MA, Shobrak M. 2011. DNA marker technology for wildlife conservation. Saudi J Biol Sci. 18: 219–225.

Arifin, S.H.A., Abdullah, T., Thamrin, S. 2021. Morfologi Dan Siklus Hidup Spodoptera Frugiperda J.E Smith (Lepidoptera: Noctuidae) Dengan Pakan Daun Kedelai (Glycine Max L) Di Laboratorium. Skripsi. Universitas Hasanuddin. Makassar

Belay DK, Clark PL, Skoda SR, Isenhour DJ, Molina-Ochoa J, Gianni C, Foster JE. 2012. Spatial genetic variation among Spodoptera frugiperda (Lepidoptera: Noctuidae) sampled from the United States, Puerto Rico, Panama, and Argentina. Ann Entomol Soc Am 105 (2): 359-367.

Bernasconi MV, Valsangiacomo C, Piffaretti JC, Ward PI. 2000. Phylogenetic relationships among Muscoidea (Diptera: Calyptratae) based on mitochondrial DNA sequences. Insect Mol Biol. 9(1): 67–74.

Dassou, A.G., Idohou, R., Azandémè-Hounmalon, G.Y., Sabi-Sabi, A., Houndété, J., Silvie, P., Dansi, A., 2021. Fall armyworm, Spodoptera frugiperda (J.E. Smith) in maize cropping systems in Benin: abundance, damage, predatory ants and potential control. Int. J. Trop. Insect Sci. 41, 1–10. https://doi.org/10.1007/ s42690-021-00443-5.

Daud, I.D, Izza N, Melina, Gassa, A, Dewi, V.S., 2023. Biology and Some Population Attributes of Spodoptera frugiperda J.E. Smith (Lepidoptera: Noctuidae) at Laboratory Conditions. Proceedings of The 4th International Conference of Food Security and Suistainable Agriculture in The Tropics; 15-16 February 2023, Makassar, Indonesia ; Journal and International Conference Proceeding Index by Scopus

De Groote, H., Kimenju, S.C., Munyua, B., Palmas, S., Kassie, M., Bruce, A., 2020. Spread and impact of fall armyworm (Spodoptera frugiperda J.E. Smith) in maize production areas of Kenya. Agric. Ecosyst. Environ. 292, 1–10. https://doi.org/ 10.1016/j.agee.2019.106804. Deshmukh, S.S., Prasanna, B.M., K

Deshmukh, S. et al. First report of the fall armyworm, Spodoptera frugiperda (J E Smith) (Lepidoptera: Noctuidae), an alien invasive pest on maize in India. Pest Manag. Hortic. Ecosyst. 24, 23–29 (2018)

Deshmukh, S.S., Prasanna, B.M., Kalleshwaraswamy, C.M., Jaba, J., Choudhary, B., 2021. In: Polyphagous Pests of Crops. Springer Singapore, Singapore, pp. 349– 372. https://doi.org/10.1007/978-981-15-8075-8_8.

Du Plessis H, Schlemmer ML, Van den Berg J. The Effect of Temperature on the Development of *Spodoptera frugiperda* (Lepidoptera: Noctuidae). Insects. 2020 Apr 7;11(4):228. doi: 10.3390/insects11040228. PMID: 32272548; PMCID: PMC7240686

FAO, & CABI. (2019). *Community-Based Fall Armyworm monitoring, early warning and management: Training of Trainers Manual*. http://www.fao.org/3/ca2924en/CA2924EN.pdf

[GAIN] Global Agricultural Information Network. 2019. Update: Fall Armyworm Now in 15 of China's Provinces. [Internet]. [diunduh 2020 Apr 13]. Tersedia pada: https://www.fas.usda.gov/data/china-update-fall-armywormnow-15-china-s-provinces

Goergen, G., Kumar, P. L., Sankung, S. B., Togola, A., & Tamò, M. (2016). First report of outbreaks of the fall armyworm spodoptera frugiperda (J E Smith) (Lepidoptera, Noctuidae), a new alien invasive pest in West and Central Africa. *PLoS ONE*, *11*(10), 1–9. https://doi.org/10.1371/journal.pone.0165632

Ginting, S., Zarkani, A., Wibowo, R.H., Sipriyadi, 2020. New invasive pest, Spodoptera frugiperda (J. E. Smith) (Lepidoptera: Noctuidae) attacking corn in Bengkulu, Indonesia. Serangga 25, 105–117.

Harahap IS. 2019. Fall Armyworm on Corn a Threat to Food Seceruty in Asia Pacific Region. Jawa Barat. Bogor

Hardke, J.T., Lorenz, G.M. and Leonard, B.R. (2015) Fall Armyworm (Lepidoptera: Noctuidae) Ecology in Southeastern Cotton. Journal of Integrated Pest Management, 6, 1-8. https://doi.org/10.1093/jipm/pmv009Herlinda, S., Suharjo, R., Elbi

Hidayat T, Pancoro A. 2008. Kajian filogenetika molekuler dan peranannya dala menyediakan informasi dasar untuk meningkatkan kualitas sumber genetik anggrek. J AgroBiogen. 4(1):35-40. doi: 10.21082/jbio.v4n1.2008.p35-40.

Hutasoit, R. T., Kalqutny, S. H., & Widiarta, I. N. (2020). Spatial distribution pattern, bionomic, and demographic parameters of a new invasive species of armyworm spodoptera frugiperda (Lepidoptera; noctuidae) in maize of south sumatra, Indonesia. *Biodiversitas*, *21*(8), 3576–3582. https://doi.org/10.13057/biodiv/d210821

Juarez ML, Muru´a MG, Garci´a MG, Ontivero M, Vera MT, Vilardi JC, Groot AT, Castagnaro AP, Gastaminza G, Willink E. 2012. Host Association of Spodoptera frugiperda (Lepidoptera: Noctuidae) corn and rice strains in Argentina, Brazil, and Paraguay. J Econ Entomol. 105(2): 573–582. doi: 10.1603/EC11184.

Kadir, S. (2009). Potensi iklim, sumber daya lahan dan pola tanam di sulawesi selatan. *Balai Pengkajian Teknologi Pertanian (BPTP) Sulawesi Selatan*, *2*(Bps 2008), 978–979.

Koudamiloro A, Nwilene FE, Togola A, Akogbeto M. 2015. Insect vectors of rice yellow mottle virus. *Journal of Insect.* 2015 : 1-12 http://dx.doi.org/10.1155/2015/721751

Kuate, A. F., Hanna, R., Doumtsop Fotio, A. R. P., Abang, A. F., Nanga, S. N., Ngatat, S., Tindo, M., Masso, C., Ndemah, R., Suh, C., & Fiaboe, K. K. M. (2019). Correction: Spodoptera frugiperda Smith (Lepidoptera: Noctuidae) inCameroon: Case study on its distribution, damage, pesticide use, genetic differentiation and host plants(PLoS ONE (2019) 14:4 (e0215749) DOI: 10.1371/journal.pone.0215749).

Langsari, N., Daud, I.D., Melina. 2022. Aplication of Biological Agent *Beuveria bassiana* Against *Spodoptera frugiperda* in Corn Plantation.The 5th International Conference on Science; 27-29 May 2022. Makassar. Indonesia

Lestari, P., Budiarti, A., Fitriana, Y., Susilo, F., Swibawa, I. G., Sudarsono, H., Suharjo, R., Hariri, A. M., Purnomo, Nuryasin, Solikhin, Wibowo, L., Jumari, & Hartaman, M. (2020). Identification and genetic diversity of spodoptera frugiperda in Lampung province, Indonesia. *Biodiversitas*, *21*(4), 1670–1677.https://doi.org/10.13057/biodiv/d210448

Li S, Pearl DK, Doss H. 1999. Phylogenetic tree construction using marcov cain monte carlo. J Am Stat Assoc. 95: 493–508.

Loto FDV, Carrizo EA, Romero MC, Baigorí DM, Pera LM. 2019. Spodoptera frugiperda (Lepidoptera: Noctuidae) strains from Northern Argentina: esterases, profiles, and susceptibility to Bacillus thuringiensis (Bacillales: Bacillaceae). Fla Entomol. 102(2) : 347–352.

Lunt DH, Zhang DX, Szymura JM, Hewltt GM. 1996. The insect cytochrome oxidase I gene: evolutionary patterns and conserved primers for phylogenetic studies. Insect Mol Biol. 5(3): 153–165.

Mahadeva-Swamy HM, Asokan R, Kalleshwaraswamy CM, Sharanabasappa, Prasad YG, Maruthi MS, Shashank PR, Devi NI, Surakasula A, Adarsha, Srinivas A, Rao S, Vidyasekhar, Raju MS, Reddy GSS, Nagesh SN. 2018. Prevalence of “R” strain and molecular diversity of fall army worm Spodoptera frugiperda (J.E.Smith) (Lepidoptera: Noctuidae) in India. Indian J Entomol 80 (3): 544-553.

Mallapur CP, Naik AK, Hagari S, Prabhu ST, Patil RK. 2018. Status of alien pest fall armyworm, Spodoptera frugiperda (J E Smith) on maize in Northern Karnataka. J Entomol Zool Stud. 6(6): 432–436.

M, Beale T, Clottey V, Cock M, Colmenarez Y, Corniani N, Early R, Godwin J. et al. 2017. Fall Armyworm: Impacts and Implications for Africa. Outl Pest Manag. 5 (28): 196–201. doi: 10.1564/v28_oct_02.

Monnerat R, Martins E, Queiroz P, Ordu´z S, Jaramillo G, Benintende G, Cozzi J, Real MD, Martinez-Ramirez A, Rausell C, Ceron J, Ibarra JE, Rincon-Castro MCD, Espinoza AM, Meza-Basso L, Cabrera L, Sanchez J, Soberon M, Bravo A. 2006. Genetic variability of Spodoptera frugiperda Smith (Lepidoptera: Noctuidae) populations from Latin America is

associated with variations in susceptibility to Bacillus thuringiensis cry toxins. Appl Environ Microbiol 72 (11): 7029-7035

Mufidha, Ayu.I.2022. Analisis Kondisi Iklim Terhadap Tingkat Serangan Hama Ulat Grayak (*Spodoptera frugiperda)* Pada Tanaman Jagung di Kabupaten Bandung.Thesis.Institut Pertanian Bogor, Bogor,Indonesia

Mukkun, L., KLEDEN, Y. L., & SIMAMORA, A. V. (2021). Detection of Spodoptera frugiperda (J.E. Smith) (Lepidoptera: Noctuidae) in maize field in East Flores District, East Nusa Tenggara Province, Indonesia. *International Journal of Tropical Drylands*, *5*(1), 20–26. https://doi.org/10.13057/tropdrylands/t050104

Nadrawati, Ginting S, dan A. Zarkani., 2019. Identifikasi hama baru dan musuh alaminya pada tanaman jagung, di Kelurahan Sidomulyo, Kecamatan Seluma; Thesis. Fakultas Pertanian Universitas Bengkulu. Bengkulu.

Nagoshi RN, Koffi D, Agboka K, Tounou KA, Banerjee R, Jurat-Fuentes JL, Meagher RL. 2019. Genetic characterization of fall armyworm infesting South Africa and India indicate recent introduction from a common source population. PLoS ONE 12(7). doi: e0181982

Nagoshi, R.N., Fleischer, S., Meagher, R.L., Hay-Roe, M., Khan, A., Murúa, M.G., Silvie, P., Vergara, C., Westbrook, J., Chiang, T.-Y., 2017. Fall armyworm migration across the Lesser Antilles and the potential for genetic exchanges between North and South American populations. PLoS ONE 12 (2), e0171743. https://doi. org/10.1371/journal.pone.0171743.

Nonci N, Kalgutny, Hary S, Mirsam H, Muis A, Azrai M, Aqil M. 2019. Pengenalan Fall Armyworm (Spodoptera frugiperda) J.E. Smith) Hama Baru pada Tanaman Jagung di Indonesia. Maros (ID): Badan Penelitian dan Pengembangan Pertanian Balai Penelitian Tanaman Serealia.

0. Folmer, M. Black, W. Hoeh, R. Lutz, and R. V., & Table. (1994). DNA primers for amplification of mitochondrial cytochrome c oxidase subunit I from diverse metazoan invertebrates 0. *Molecular Marine Biology and Biotechnology*, *3*(5),294–299

Pashley DP. 1986. Host-associated genetic differentiation in fall armyworm (Lepidoptera, Noctuidae) a sibling species complex. Ann Entomol Soc Am. 79(6): 898–904.

Prasanna, B., Huesing, J. E., Eddy, R., & Peschke, V. M. (2018). *Fall armyworm in Africa: A gudie for Integrated Pest Management*.

Pu'u, Y. M., & Mutiara, C. (2021). Serangan hama invasif Spodoptera frugiperda (J. E. Smith) (Lepidoptera: Noctuidae) pada tanaman jagung di Kabupaten Ende Flores, Indonesia. *Jurnal Entomologi Indonesia*, *18*(2), 153–158. https://doi.org/10.5994/jei.18.2.153

Pujawan AANO, Nindhia TS, Mahardika IGNK. 2012. Identifikasi spesies udang mantis (Stomatopoda) di perairan pemuteran dengan menggunakan gen cytochrome c oxidase subunit-1 dari DNA mitokondria. Indon Med Vetern.

1(2): 268–280.

Robinson EA, Blagoev GA, Hebert PDN, Adamowicz SJ. 2009. Prospects for using DNA barcoding to identify spiders in species-rich genera. ZooKeys. 16: 27-46. doi: 10.3897/zookeys.16.239.

Sartiami, D., Dadang, Harahap, I. S., Kusumah, Y. M., & Anwar, R. (2020). First record of fall armyworm (Spodoptera frugiperda) in Indonesia and its occurence in three provinces. *IOP Conference Series: Earth and Environmental Science*, *468*(1). https://doi.org/10.1088/1755-1315/468/1/012021

Schlemmer M. 2018. Effect of Temperature on Development and Reproduction of Spodoptera frugiperda (Lepidoptera: Noctuidae) [disertasi]. Evanston (USA): North-West University.

Sharanabasappa, Kalleshwaraswamy CM, Asokan R, Mahadeva-Swamy HM, Maruthi MS, Pavithra HB, Hedge K, Navi S, Prabhu ST, Goergen G. 2018. First report of the fall armyworm Spodoptera frugiperda (JE Smith) (Lepidoptera: Noctuidae) an alien invasive pest on maize in India. Pest Manag Hortic Ecosyst 24 (1): 23-29.

Silva TRFG, Almeida ACS, Moura TL, Silva AR, Freitas SS, Jesus FG.2016. Effect of the flavonoid rutin on the biology of Spodoptera frugiperda (Lepidoptera: Noctuidae). Acta Sci Agron. 38 (2): 165-170

Sinaga, M., Fawwazi, F., & Suwandi, S. (2021). Firstreport of occurrence of corn and rice strains of fall armyworm, Spodoptera frugiperda in South Sumatra, Indonesia and its damage in maize. *Journal of the Saudi Society of Agricultural Sciences*, *21*(6), 412–419. https://doi.org/10.1016/j.jssas.2021.11.003

Subiono T. 2019. Preferensi Spodoptera frugiperda (Lepidoptera: Noctuidae) pada beberapa sumber pakan. JATL. 2(2): 130–134

Supartha, I. W., Susila, I. W., Sunari, A. A. A. A. S., Mahaputra, I. G. F., Yudha, I. K. W., & Wiradana, P. A. (2021). Damage characteristics and distribution patterns of invasive pest, spodoptera frugiperda (J.e smith) (lepidoptera: Noctuidae) on maize crop in Bali, Indonesia. *Biodiversitas*, *22*(6), 3378–3389.https://doi.org/10.13057/BIODIV/D22064

Supeno, B., Meidiwarman, Tarmizi, dan H. Haryanto. 2020. Eksplorasi dan Sebaran Musuh Alami Lokal Hama Baru Ulat Gerayak Jagung (Fall Armyworm /FAW), Spodoptera frugiperda di Pulau Lombok. Laporan akhir Penelitian Peningkatan Kapasitas. LPPM Universitas Mataram. 45p.

Suriana, Marwansyah, Amirullah. 2019. Karakteristik segmen gen sitokrom c oksidase sub-unit I (COI) ngengat Plusia chalcites (Lepidoptera: Noctuidae). J Penelitian Biologi. 6(2): 985-994

Tendeng E, Labou B, Diatte M, Djiba S, Diarra K. 2019. The Fall armyworm Spodoptera frugiperda (J.E. Smith), a new pest of maize in Africa: Biology and first native natural enemies detected. Int J Biol Chem Sci 13(2): 1011-

1026. DOI: 10.4314/ijbcs.v13i2.35.

Tindi M, Mamangkey NGF, Wullur S. 2007. DNA barcode dan analisis filogenetik molekuler beberapa jenis Bivalvia asal perairan Sulawesi Utara berdasarkan gen COI. Jurnal Pesisir dan Laut Tr**opis. https://**doi**.org/**10.35800/jplt.5.2.2017.15050

Tochen S, Woltz JM, Dalton DT, Lee JC, Wiman NG, Walton VM. 2015. Humidity affect populations of Drosophila suzukii (Diptera: Drosophilidae) in blueberry. *Journal of Applied Entomology.* 140(102): 47-57. DOI**:** **http://dx.**doi**.org/**10.1603/EN13200

Topik, H., Yukawa, T. & Ito, M. (2005) Molecular phylogenetics of subtribe Aeridinae (Orchidaceae): insights from plastid matK and nuclear ribosomal ITS sequences, **Journal of Plant Research**, 118 (4): 271–284.

Trisyono, Y. A., Suputa, S., Aryuwandari, V. E. F., Hartaman, M., & Jumari, J. (2019). Occurrence of Heavy Infestation by the Fall Armyworm Spodoptera frugiperda, a New Alien Invasive Pest, in Corn Lampung Indonesia. Jurnal Perlindungan Tanaman Indonesia , 23(1),156 https://doi.org/10.22146/j

Valdez-Torres JB, Soto-Landeros F, Osuna-Enciso T, Báez-Sañudo MA. 2012. [Phenological prediction models for white corn (Zea mays L.) and fall armyworm (Spodoptera frugiperda J. E. Smith)] [dalam bahasa Spanyol]. Agrociencia. 46: 399–410

Wang R, Jiang C, Guo X, Chen D, You C, Zhang Y, Wang M, Li Q. 2019. Potential distribution of Spodoptera frugiperda (J.E. Smith) in Cina and the major factors influencing distribution. Glob Ecol Conserv. 21

Westbrook JK, Nagoshi RN, Meagher RL, Fleischer SJ, Jairam S. Modeling seasonal migration of fall armyworm moths. Int J Biometeorol. 2016 Feb;60(2):255-67. doi: 10.1007/s00484-015-1022-x. Epub 2015 Jun 5. PMID: 26045330.

Xiao-xu S, Chao-xing H, Hui-ru J, Qiu-lin W, Xiu-jing S, Sheng-yuan Z, Yu-ying J, Kong-ming W. 2019. Case study on the first immigration of fall 28 armyworm Spodoptera frugiperda invading into China. J Integr Agric. 18(0): 2–10. doi: 10.1016/S2095-3119(19)62839-

LAMPIRAN

Tabel 1. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Takalar

Tanaman Sampel	Waktu Pengamatan (MST)					
	1	2	3	4	5	6
1	1	1	4	1	2	1
2	1	1	1	2	1	3
3	1	1	1	1	1	4
4	1	1	1	1	4	3
5	1	1	1	2	4	1
6	1	1	1	2	1	1
7	2	2	1	2	3	1
8	1	1	1	2	3	3
9	1	1	3	1	3	3
10	1	1	1	2	3	1
11	1	1	1	3	1	2
12	1	1	1	3	3	1
13	1	1	4	3	4	1
14	2	3	3	2	4	1
15	1	2	1	4	3	1
16	1	2	1	2	4	1
17	1	1	1	4	4	2
18	2	1	1	3	4	5
19	1	1	1	5	4	3
20	1	1	1	4	5	4
21	1	2	1	4	1	3
22	2	2	3	3	4	5
23	2	1	1	2	3	4
24	1	1	1	3	1	1
25	1	1	1	4	3	1
26	1	1	1	3	1	5
27	1	1	1	4	3	1
28	1	1	1	3	3	1
29	1	1	1	2	4	3
30	1	1	1	2	1	1
31	1	1	1	3	1	1
32	1	1	1	1	1	4
33	1	1	1	4	1	1
34	1	3	1	3	1	3
35	1	1	1	4	2	4
36	1	1	1	2	1	1
37	1	1	1	3	1	3

Tabel 1. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Kabupaten Takalar (Lanjutan)

Tanaman Sampel	Waktu Pengamatan (MST)					
	1	2	3	4	5	6
38	1	1	1	4	1	2
39	1	1	1	3	1	2
40	1	1	3	4	4	3
41	1	1	1	3	2	5
42	3	2	1	3	3	5
43	1	1	1	3	1	2
44	1	1	1	3	1	2
45	2	1	1	2	3	1
46	1	1	1	3	3	4
47	1	1	1	3	3	1
48	1	2	1	3	2	1
49	1	1	1	4	1	3
50	1	2	1	1	2	3

Tabel 2. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Wajo

Tanaman Sampel	Waktu Pengamatan (MST)					
	1	2	3	4	5	6
1	1	2	2	2	2	2
2	1	2	2	2	2	2
3	1	1	1	1	1	1
4	1	1	2	2	3	3
5	1	1	1	3	3	1
6	1	2	2	2	1	1
7	1	1	1	2	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	2	1	1	1	1
11	1	0	1	3	3	3
12	1	2	2	3	3	3
13	2	2	2	2	2	3
14	1	2	2	2	2	2
15	1	2	2	2	2	2
16	1	2	2	2	2	2
17	1	2	3	3	3	2
18	1	1	3	3	3	3
19	1	1	2	3	3	3
20	2	1	3	3	3	3
21	1	2	2	3	3	4
22	1	1	1	3	3	3
23	1	1	1	3	3	4
24	1	2	2	3	3	3
25	1	2	2	3	3	3
26	1	2	3	3	1	1
27	1	1	1	1	1	1
28	1	1	1	1	3	3
29	1	1	1	1	2	2
30	1	1	1	1	2	2
31	1	2	2	2	2	2
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	2	2	2
37	1	2	2	2	2	2
38	1	1	1	1	1	2
39	1	1	1	1	1	3

Tabel 2. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Wajo (Lanjutan)

Tanaman Sampel	Waktu Pengamatan (MST)					
	1	2	3	4	5	6
40	1	1	1	1	1	2
41	1	1	1	3	3	3
42	1	1	1	1	3	3
43	1	1	1	1	3	3
44	1	1	1	1	1	3
45	2	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	2	2	2	2	2
50	1	2	2	2	3	3

Tabel 3. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Luwu

Tanaman Sampel	Waktu Pengamatan					
	1	2	3	4	5	6
1	1	1	2	5	4	4
2	1	1	2	4	5	1
3	1	1	2	3	4	4
4	1	1	3	1	4	4
5	1	1	2	1	1	4
6	1	1	1	4	1	5
7	1	1	2	1	4	4
8	1	1	4	2	4	4
9	2	1	4	4	4	3
10	1	1	2	4	4	3
11	1	2	2	3	1	4
12	1	4	2	3	4	4
13	1	2	2	5	4	4
14	1	1	2	3	4	3
15	1	5	2	1	4	4
16	1	1	3	5	4	4
17	1	2	1	2	1	4
18	1	2	1	2	1	3
19	1	1	1	4	4	2
20	1	1	2	3	1	4
21	2	2	4	3	1	4
22	1	1	2	3	3	4
23	1	1	1	3	2	4
24	1	1	2	4	4	4
25	1	1	1	4	2	4
26	1	1	1	2	2	3
27	1	1	1	1	3	3
28	1	1	2	5	3	3
29	1	3	1	4	5	1
30	1	3	1	2	1	4
31	1	1	5	2	4	4
32	1	1	5	4	3	4
33	1	1	2	4	4	4
34	1	1	2	1	4	3
35	1	2	2	4	4	4
36	1	1	2	5	4	3
37	1	2	1	5	4	1
38	1	1	1	5	4	3
39	1	1	3	2	4	4
40	1	1	4	5	4	4

Tabel 3. Skoring Tingkat Kerusakan Pada Tanaman Sampel Setiap Minggu di Kabupaten Luwu (Lanjutan)

Tanaman Sampel	Waktu Pengamatan (MST)					
	1	2	3	4	5	6
41	1	2	4	1	4	5
42	1	1	2	4	3	2
43	1	1	2	5	4	2
44	1	1	2	1	3	1
45	1	2	3	3	3	3
46	1	2	1	2	3	1
47	1	1	4	4	3	1
48	1	1	2	4	4	1
49	1	1	4	5	4	3
50	1	1	2	4	4	4

Tabel 4. Pengamatan Tingkat Kerusakan Daun di Lokasi Pengamatan sesuai dengan Metode Kuate et al (2019)

Pengamatan di Minggu ke-	Tingkat Kerusakan		
	Takalar	Wajo	Luwu
I	23,2	21,2	20,8
II	24,8	28	26,4
III	25,6	30	44,4
IV	55,2	36,8	64,4
V	48	39,2	65,5
VI	47,2	41,6	65,2

Tabel 5. Rata-rata Populasi Larva di Kabupaten Takalar

Tanaman	Waktu Tanaman (MST)					
Sampel	1	2	3	4	5	6
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	1	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	1	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	1	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	1	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	1	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0

Tabel 5. Rata-rata Populasi Larva di Kabupaten Takalar (Lanjutan)

Tanaman Sampel	Waktu Tanaman (MST)					
	1	2	3	4	5	6
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
JUMLAH	**0**	**0**	**1**	**2**	**2**	**0**
RATA-RATA	**0**	**0**	**0,02**	**0,04**	**0,04**	**0**

Tabel 6. Rata-rata Populasi Larva di Kabupaten Wajo

Tanaman	Waktu Tanaman (MST)					
Sampel	1	2	3	4	5	6
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	1	0	0	0
5	0	0	0	1	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	1	2	0	0
12	0	0	0	2	1	0
13	0	0	1	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	1	0	0	1
22	0	0	1	0	0	0
23	0	0	0	1	0	0
24	0	0	0	1	0	0
25	0	0	0	1	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	1	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	1	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0

Tabel 6. Rata-rata Populasi Larva di Kabupaten Wajo (Lanjutan)

Tanaman Sampel	Waktu Tanaman (MST)					
	1	2	3	4	5	6
41	0	0	0	1	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	1	0	0	0
50	0	0	0	0	0	0
JUMLAH	**0**	**0**	**7**	**9**	**2**	**1**
RATA-RATA	**0**	**0**	**0,14**	**0,18**	**0,04**	**0,02**

Tabel 7. Rata-rata Populasi Larva di Kabupaten Luwu

Tanaman	Waktu Tanaman (MST)					
Sampel	1	2	3	4	5	6
1	0	0	0	1	0	0
2	0	0	0	0	1	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	1	0	1	0	0
13	0	0	1	0	0	0
14	0	0	0	0	0	0
15	0	2	0	0	0	0
16	0	0	0	1	1	0
17	0	2	0	0	0	0
18	0	1	0	0	0	0
19	0	0	0	1	0	0
20	0	0	0	0	0	0
21	0	0	1	1	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	1	0	0	0
25	0	0	0	1	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	1	0	0
29	0	4	0	0	0	0
30	0	1	0	0	0	0
31	0	0	1	0	0	0
32	0	0	1	1	0	0
33	0	0	1	0	0	0
34	0	0	1	0	0	0
35	0	0	0	1	0	0
36	0	0	0	1	0	0
37	0	0	0	2	0	0
38	0	0	0	0	0	0
39	0	0	0	1	0	0
40	0	0	2	4	0	0

Tabel 7. Rata-rata Populasi Larva di Kabupaten Luwu (Lanjutan)

Tanaman Sampel	Waktu Tanaman (MST)					
	1	2	3	4	5	6
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	2	0	0	0
48	0	0	0	9	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
JUMLAH	**0**	**11**	**11**	**26**	**2**	**0**
RATA-RATA	**0**	**0,22**	**0,22**	**0,52**	**0,04**	**0**

Tabel 8. Populasi Larva *S. frugiperda* di Lokasi Pengamatan

Pengamatan di Minggu ke-	Populasi (ekor/rumpun)		
	Takalar	Wajo	Luwu
I	0	0	0
II	0	0	0,22
III	0,02	0,14	0,22
IV	0,04	0,18	0,52
V	0,04	0,04	0,04
VI	0	0,02	0

Tabel 9. Tabel suhu dan kelembaban lokasi pengamatan 1 Oktober-30 November

Tanggal	LUWU		TAKALAR		WAJO	
	Suhu (°C)	Kelembaban (%)	Suhu (°C)	Kelembaban (%)	Suhu (°C)	Kelembaban (%)
01/10/2022	29,07	79,06	30,19	75,5	33,63	75,88
02/10/2022	25,62	91,81	29,64	79,62	29,08	86,56
03/10/2022	25,01	92,44	30,19	72,81	28,79	85,88
04/10/2022	26,55	87,62	29,37	79,31	30,92	80,62
05/10/2022	28,19	85,75	28,56	82,38	27,61	92,81
06/10/2022	26,64	90,31	28,88	79,38	30,58	81,75
07/10/2022	26,19	90,44	30,12	78,56	30,94	82,31
08/10/2022	26,33	90,5	30,48	78,44	29,2	87,38
09/10/2022	26,23	84,56	29,83	79,06	28,88	87,5
10/10/2022	29,03	78,06	29,99	76,94	31,18	72,81
11/10/2022	28,28	81,88	29,75	80,56	32	75,81
12/10/2022	27,73	84,81	28,52	81,88	31,06	77,31
13/10/2022	28,01	85,12	29,26	78,5	33,46	78,5
14/10/2022	27,23	85,56	29,35	75,88	30,9	84,19
15/10/2022	25,96	90,06	30,41	76,38	32,21	81,69
16/10/2022	25,87	91,31	29,94	77,56	28,55	89,19
17/10/2022	26,26	88,62	29,75	79,31	30,46	86,06
18/10/2022	25,58	91,06	28,62	83,81	29,15	90,69
19/10/2022	26,92	86,19	29,51	79	27,89	85,5
20/10/2022	27,74	84,44	30,77	75,5	31,77	80,06
21/10/2022	27,47	88,5	30,16	79,75	31,54	81,5
22/10/2022	27,77	86,5	30,4	76,38	29,57	85,94
23/10/2022	29,82	81,88	30,16	79,25	34,54	76,5
24/10/2022	27,62	85,38	29,93	79,06	31,98	82,31
25/10/2022	29,08	83,25	31,05	71,88	32,61	78,12
26/10/2022	31,25	80,38	29,87	76,88	34,4	77,88
27/10/2022	24,8	93,31	28,19	81,25	27,59	91
28/10/2022	25,27	90,62	28,85	76,62	29,36	84,12
29/10/2022	28,14	84,75	29,84	74,62	32,64	78
30/10/2022	26,44	89,19	29,91	75,62	31,73	83
31/10/2022	26,37	89,31	29,66	75,19	30,55	81,81
01/11/2022	27,22	87,5	29,9	75,38	31,26	79,12
02/11/2022	29,14	82,56	28,53	70,19	31,47	80,06
03/11/2022	28	82	31,19	72,44	32	81,62
04/11/2022	27,98	83,5	31,17	74,62	31,48	82,88
05/11/2022	26,87	84,56	30,69	74,69	30,76	83,81
06/11/2022	26,66	85,62	29,66	78	30,79	79,44
07/11/2022	23,89	95,56	28,73	77,81	29,23	83,38
08/11/2022	26,54	87,44	28,83	77,38	30,48	84,5

Tabel 9. Tabel suhu dan kelembaban lokasi pengamatan 1 Oktober-30 November (Lanjutan)

Tanggal	LUWU		TAKALAR		WAJO	
	Suhu (°C)	Kelembaban (%)	Suhu (°C)	Kelembaban (%)	Suhu (°C)	Kelembaban (%)
09/11/2022	28,23	83,81	28,24	80,5	31,36	80,44
10/11/2022	25,8	88,12	29,54	76,25	30,54	77,31
11/11/2022	26,94	86,56	29,44	78,44	31,56	77,56
12/11/2022	26,47	89,38	29,97	75,19	31,19	82,19
13/11/2022	26,4	87,62	28,74	79,56	31,39	80,12
14/11/2022	27,9	87,69	29,19	79,19	30,15	85,56
15/11/2022	28,6	87	28,61	84,56	30,2	89
16/11/2022	28,73	84,25	28,65	84,25	30,54	85,12
17/11/2022	27,19	88,81	28,29	83,94	30,04	86,5
18/11/2022	0	0	0	0	0	0
19/11/2022	0	0	0	0	0	0
20/11/2022	0	0	0	0	0	0
21/11/2022	27,77	84,94	29,65	75,75	30,69	76,88
22/11/2022	27,12	82,75	29,25	78,44	31,1	81,44
23/11/2022	27,28	83,69	29,36	78,12	30,3	82,06
24/11/2022	24,64	95,19	28,3	81,38	30,21	83,56
25/11/2022	27,24	82,31	28,73	78,81	29,58	80,38
26/11/2022	25,84	91,88	28,22	83,12	30,12	82,12
27/11/2022	24,41	86,94	27,22	81,94	28,97	81,94
28/11/2022	27,09	86,25	28,84	78,06	31,15	78,81
29/11/2022	26,37	89,31	28,02	86,06	30,05	86,62
30/11/2022	26,66	87,88	27,79	85,94	28,81	87,81

Tabel 10. Tabel curah hujan bulanan selama pengamatan pada 3 wilayah Sulawesi Selatan

Waktu (2022)	**Curah Hujan Pada Lokasi Pengamatan (mm)**		
	Takalar	**Wajo**	**Luwu**
Oktober	647	289	335
November	570	55	122

***Data analisis curah hujan diperoleh dari Buletin BMKG**

Tabel 11. Deskripsi varietas BISI-18

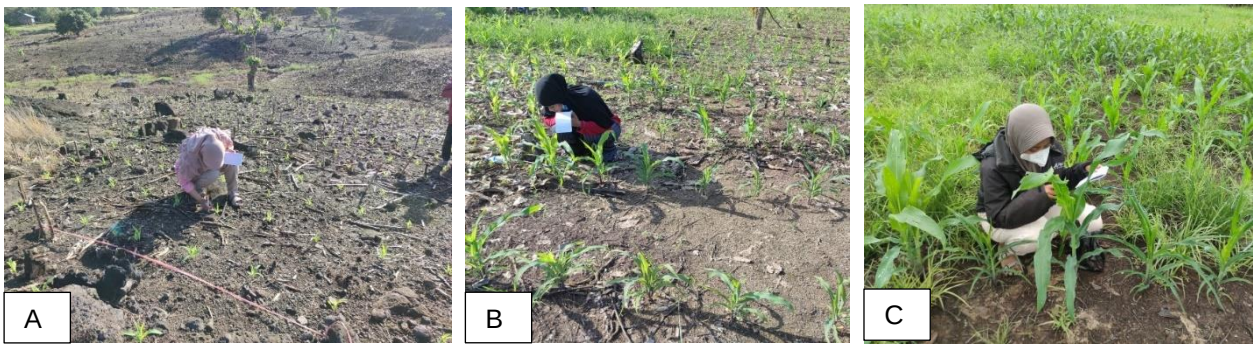
Nama Varietas	:	BISI 18
Tanggal Lepas	:	12 Oktober 2004
Asal	:	F1 silang tunggal antara galur murni FS46 induk betina dan galur murni FS17 sebagai induk jantan
Umur	:	50% keluar rambut
		Dataran rendah : 57 hari
		Dataran Tinggi : 70 hari
		Masak Fisiologis
		Dataran rendah : 100 hari
		Dataran Tinggi: 125 hari
Batang	:	Besar, kokoh tegap
Warna batang	:	Hijau
Tinggi Tanaman	:	230 cm
Daun	:	Medium dan tegak
Warna Daun	:	Hijau gelap
Keragaman Tanaman	:	Seragam
Perakaran	:	Baik
Kerebahan	:	Tahan Rebah
Bentuk malai	:	Kompak dan agak tegak
Warna sekam	:	Ungu kehijauan
Warna anthena	:	Ungu Kemerahan
Warna rambut	:	Ungu Kemerahan
Tinggi tongkol	:	115 cm
Kelobot	:	Menutup tongkol cukup baik
Tipe biji	:	Semi mutiara
Warna biji	:	Oranye kekuningan
Jumlah baris/tongkol	:	14-16 baris
Bobot 1000 biji	:	303 g
Rata-rata hasil	:	9,1 t/ha pipilan kering
Potensi hasil	:	12 t/ha pipilan kering
Ketahanan	:	Tahan terhadap penyakit karat daun dan bercak daun
Daerah Pengembangan	:	Daerah yang sudah biasa menanam jagung hibrida pada musim kemarau dan hujan, terutama yang menghendaki varietas berumur genjah-sedang
Keterangan	:	Baik ditanam di dataran rendah sampai ketinggian 1000m dpl
Pemulia	:	Nasib W.W
		Putu Darsana
		M.H. Wahyudi
		Purwoko

Tabel 12. Deskripsi varietas Pertiwi 5

Nama Varietas	:	Pertiwi 5
Umur	:	105 HST
Batang	:	Besar, kokoh dan tahan rebah
Warna batang	:	Hijau
Tinggi Tanaman	:	220 cm
Daun	:	Daun tipe tegak
Warna Daun	:	Hijau tua
Keragaman Tanaman	:	Seragam
Kerebahan	:	Tahan rebah
Kelobot	:	Menutup sementara
Tipe biji	:	Semi Mutiara
Warna biji	:	Oranye
Jumlah baris/tongkol	:	14-16 baris
Rata-rata hasil	:	10 ton/ha
Potensi hasil	:	15 ton/ha
Ketahanan	:	Sangat tahan bulai, hawar dan karat daun
Jarak Tanaman Anjuran	:	75 cm x 20 cm, 1 tanaman/lubang
Keterangan	:	Cocok untuk naungan, lebih tahan FAW

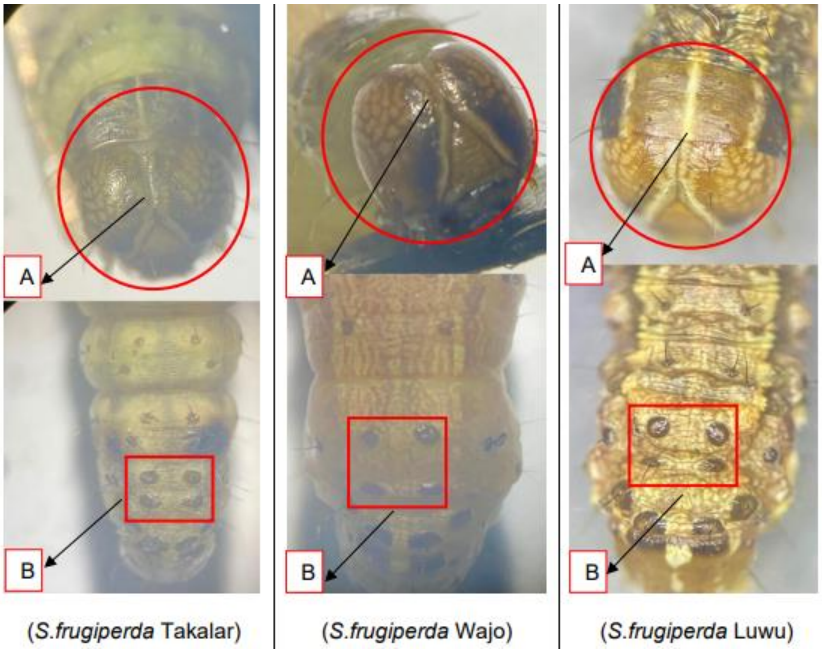
Tabel 13. Deskripsi varietas ADV 777 Ruby

Nama Varietas	:	ADV 777 Ruby
Umur	:	95 hari
Batang	:	Besar, kokoh tegap
Daun	:	Daun lebar
Warna biji	:	Oranye cerah/oranye kemerahan
Rata-rata hasil	:	11 ton/ha
Potensi hasil	:	13,6 ton/ha
Ketahanan	:	Tahan terhadap penyakit bulai dan ulat tanah, toleran kekeringan
Daerah Pengembangan	:	Lampung, Sulawesi, Nusa Tenggara, Jawa, Sumatera Utara (dataran rendah)
Jarak Tanam Anjuran	:	70-75 cm antar baris

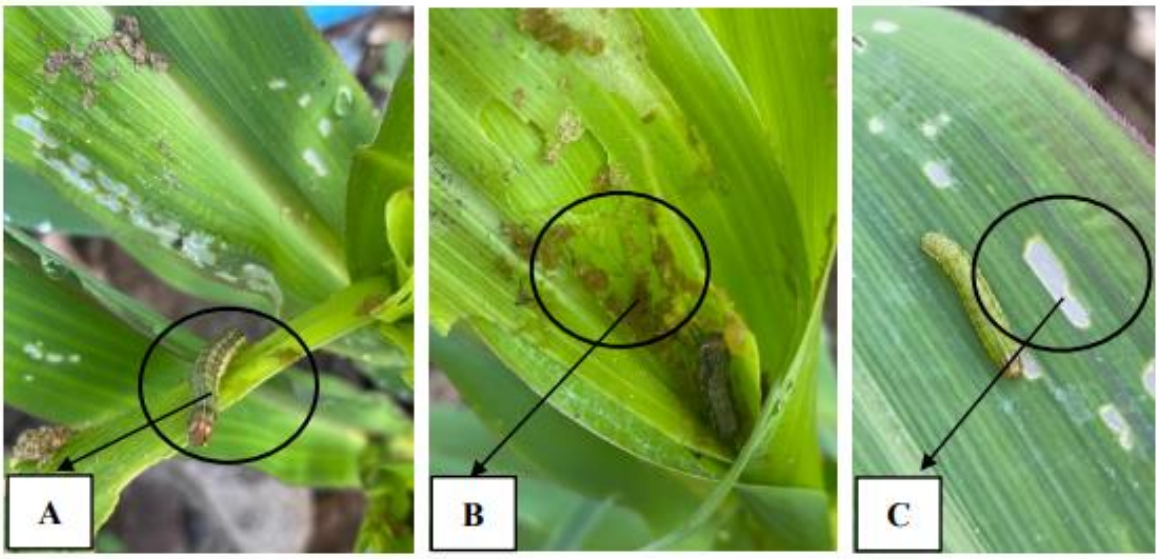


Gambar 1. Pengamatan intensitas dan populasi *S.frugiperda* di (A) Kabupaten Takalar, (B) Kabupaten Wajo, dan (C) Kabupaten Luwu

Gambar 2. Pengamatan Morfologi *S.frugiperda*



Gambar 3. Ciri morfologi *S. frugiperda* dari ketiga lokasi pengamatan : bentuk Y terbalik pada caput (A), dan empat pinacula pada segmen abdomen (B)



Gambar 4. Gejala serangan *S. frugiperda* (A) larva pada daun, (B) bekas makan larva, dan (C) bekas gerekan larva sehingga daun menjadi transparan

Gambar 5. Serangan larva *S. frugiperda* yang menyebabkan tanaman kerdil