



## DAFTAR PUSTAKA

- Abd El-Hack, M.E., M. E. Shafi, W. Y. Alghamdi, S. A. Abdelnour, A. M Shehata, A. E. Noreldin, E. A. Ashour, A. A. Swelum, A. A. Al-Sagan, M. Alkhateeb, and A. E. Taha. 2020. Black Soldier Fly (*Hermetia illucens*) meal as a promising feed ingredient for poultry. Agriculture. 10(8):339.
- Adli, D. N., O. Sjofjan, M. H. Natsir, Y. F. Nuningtyas, N. Sholikah, and A, C. Marbun. 2020. The effect of replacing maize with fermented palm kernel meal (FPKM) on broiler performance. Livestock Research for Rural Development. 32(7).
- Aritonang, P. A., A. Daryanto, dan D. S. Hendrawan. 2015. Analisis pengaruh pemasaran terhadap keputusan pembelian bahan baku bungkil kedelai pada industri pakan ternak di Indonesia. Jurnal Aplikasi Manajemen. 13(3).
- Badan Pusat Statistik. 2021. Populasi Itik Manila Menurut Provinsi. Available at <https://www.bps.go.id/indicator/24/479/1/populasi-itik-itik-manila-menurut-provinsi.html>. Accession date 2<sup>nd</sup> Apr 2023.
- Baéza, E., 2016. Nutritional requirements and feed management of meat type ducks. World Poultry Science Journal. 72(1):5-20.
- Baéza, E., L. Guillier, and M. Petracci. 2022. Production factors affecting poultry carcass and meat quality attributes. Animal. 16:100-331.
- Baraggan-Fonseca, K. B., M. Dicke, and J. J. A. Van Loon. 2017. Nutritional Value of the black soldierfly (*Hermetia Illucens L.*) and its suitability as animal feed. Journal of Insect as Food and Feed. 3(2):105-120.
- Beski, S.S., R. A. Swick, and P. A. Iji. 2015. Specialized protein products in broiler chicken nutrition. Animal Nutrition. 1(2):47-53.
- Bieseck, J., J. Kuźniacka, M. Banaszak, S. Kaczmarek, M. Adamski, A. Rutkowski, A. Zmudzińska, K. Perz and M. Hejdysz. 2020. Growth performance and carcass quality in broiler chickens fed on legume seeds and rapeseed meal. Animals. 10(5):846.
- Biswas, S., R. Banerjee, D. Bhattacharyya, G. Patra, A. K. Das, and S. K. Das. 2019. Technological investigation into duck meat and its products-a potential alternative to chicken. World's Poultry Science Journal. 75(4):609-620.
- Bovera, F., G. Piccolo, L. Gasco, S. Marono, R. Loponte, G. Vassalotti, V. Mastellone, P. Lombardi, Y. A. Attia, and A. Nizza. 2015. Yellow



mealworm larvae (*Tenebrio molitor*, L.) as a possible alternative to soybean meal in broiler diets. British Poultry Science. 56(5):569-575.

Caligiani, A., A. Marseglia, G. Leni, S. Baldassarre, L. Maistrello, A. Dossena, and S. Sforza. 2018. Composition of black soldier fly prepupae and systematic approaches for extraction and fractionation of proteins, lipids and chitin. Food Research International. 105:812–820.

Canary, E. G. and L. Gonzalez. 2012. Design and Management of a Process to Recycle Organic Waste with the *Hermetia illucens* L. to Produce Larva Flour. Faculty of Engineering, Universidad de La Sabana. Chia.

Chen, G. H., K. Y. Zhang, G. Tian, S. P. Bai, X. M. Ding, J. P. Wang, L. Lv, Y. Xuan, and Q. F. Zeng. 2023. Effects of a high-fat diet on the growth performance, lipid metabolism, and the fatty acids composition of liver and skin fat in pekin ducks aged from 10 to 40 days. Poultry Science. 102(3):102429.

Chwen L.T., H. L. Foo, N. T Than, and D. Choe. 2013. Growth performance, plasmafatty acids, villous height and crypt depth of preweaning piglets fedwith medium chain triacylglycerol. Asian-Australasian Journal of Animal Science. 26:700–704.

Cickova H, G. L. Newton, R. C. Lacy, M. Kozanek. 2015. The use of fly larvae for organic waste treatment. Waste Management. 35:68-80.

Cockcroft, B.L. 2018. An Evaluation of Defatted Black Soldier Fly (*Hermetia illucens*) Larvae as a Protein Source for Broiler Chicken Diets. Dissertation. Stellenbosch University. Stellenbosch.

Cullere, M., G. Tasoniero, V. Giaccone, R. Miotti-Scapin, E. Claeys, S. Desmet, and A. Dalle Zotte. 2016. Black soldier fly as dietary protein source for broiler quails: apparent digestibility, excreta microbial load, feed choice, performance, carcass and meat traits. Animals. 10:1923–1930.

Dabbou, S., F. Gai, I. Biasato, M. T. Capucchio, E. Biasibetti, D. Dezzutto, M. Meneguz, I. Plachà, L. Gasco, and A. Schiavone. 2018. Black soldier fly defatted meal as a dietary protein source for broiler chickens: effects on growth performance, blood traits, gut morphology and histological features. Journal of Animal Science and Biotechnology. 9:49.

De Marco, M., S. Martínez, F. Hernandez, J. Madrid, F. Gai, L. Rotolo, M. Belforti, D. Bergero, H. Katz, and S. Dabbou. 2015. Nutritional value



of two insect larval meals (*Tenebrio molitor* and *Hermetia illucens*) for broiler Chickens: apparent nutrient digestibility, apparent ileal amino acid digestibility and apparent metabolizable energy. Animal Feed Science Technology. 209:211–218.

de Souza Vilela, J., T. I. R. C. Alvarenga, N. R. Andrew, M. McPhee, M. Kolakshyapati, D. L. Hopkins, and I. Ruhnke. 2021. Technological quality, amino acid and fatty acid profile of broiler meat enhanced by dietary inclusion of black soldier fly larvae. Foods. 10(2).

Diener, S., C. Zurbrugg, and K. Tockner. 2009. Conversion of organic material by black soldier fly larvae – establishing optimal feeding rates. Waste Management Research. 27:603-610.

Dorper, A., T. Veldkamp, and M. Dicke. 2021. Use of black soldier fly and house fly in feed to promote sustainable poultry production. Journal of Insect as Food and Feed. 7(5):761-780.

Dortmans B.M.A., J. Egger, S. Diener, and C. Zurbrügg. 2021. Black Soldier Fly Biowaste Processing - A Step-by-Step Guide. 2<sup>nd</sup> ed. Swiss Federal Institute of Aquatic Science and Technology. Dübendorf.

Edea, C., E. Tesfaye, T. Yirgu, and M. Alewi. 2022. Black soldier fly (*Hermetia illucens*) larvae as a sustainable source of protein in poultry feeding. Journal Agriculture Science. 32(1).

Ewald, N., A. Vidakovic, M. Langeland, A. Kiessling, S. Sampels, and C. Lalander. 2020. Fatty acid composition of black soldier fly larvae (*Hermetia illucens*)- possibilities and limitations for modification through diet. Agriculture. 102:40-47.

FAO. 2013. Edible insects: Future prospects for food and feed security. Food and Agriculture Organization of the United Nations. Rome (Italy).

Font-I-Furnols, M., M. Čandek-Potokar, C. Maltin, and M. P. Povše. Un Dated. A Handbook of Reference Methods for Meat Quality Assessment. European Cooperation in Science and Technology (COST). Brussels.

Grimaud Frères Company. 2015b. Breeding guide for roasting canedins. Grimaud Frères Selection (Ed). Roussay, France. P.

Gariglio, M., S. Dabbou, F. Gai, A. Trocino, G. Xiccato, M. Holodova, L. Gresakova, J. Nery, S. Bellezza Oddon, I. Biasato, L. Gasco, and A. Schiavone. 2021. Black soldier fly larva in muscovy duck diets: effects on duck growth, carcass property, and meat quality. Poultry Science. 100(9): 101303.



- Ginting, S., F. Lestari, B. R. Putra, K. Wahyudi, N. F. Muhidin, and N. Hikmah. 2022. Budidaya BSF-L (*Hermentia illuciens* L.) sebagai alternatif pakan ikan di RW 05 desa cikurutug, kecamatan cireunghas, kabupaten sukabumi. Jurnal Abdi Nusa. 2(3): 90-95.
- Gold, M., C. M. Cassar, C. Zurbrugg, M. Kreuzer, S. Boulos, S. Diener, and A. Mathys. 2020. Biowaste treatment with black soldier fly larvae: Increasing performance through the formulation of biowaste based on protein and carbohydrates. Waste Management. 102:319–329.
- GPMT. 2017. Impor Feed Wheat Bukan Pengganti Jagung. Available at <https://industri.kontan.co.id/news/gpmt-impor-feed-wheat-bukan-pengganti-jagung>. Accession date 3<sup>rd</sup> Apr 2023.
- Guo, F., J. Li, Y. Li, D. Li, X. Chen, F. Wang, and R. Jiang. 2018. Effect of dietary replacement of soybean meal with black soldier fly larvae meal on growth performance, serum biochemical indexes and immune function of shaoxing ducks. Journal of Animal Physiology and Animal Nutrition. 102(2):912-919.
- Haasbroek, P. 2016. The Use of *Hermetia illucens* and *Chrysomya chloropyga* larvae and Pre-pupae Meal in Ruminant Nutrition. Thesis. Master of Science, University of Stellenbosch. Western Cape.
- Han, Z., Y. Chen, S. Yu, and T. Zhang. 2020. Effects of dietary black soldier fly larvae meal on growth performance, carcass traits, and meat quality of pekin ducks. Animal Feed Science and Technology. 26(6):114-518.
- Heuel, M., C. Sandrock, F. Leiber, A. Mathys, M. Gold, C. Zurbrüegg, I. D. Gangnat, M. Kreuzer, and M. Terranova. 2022. Black soldier fly larvae meal and fat as a replacement for soybeans in organic broiler diets: effects on performance, body retention, carcase and meat quality. British Poultry Science. 63(5):650-661.
- Heuel, M., C. Sandrock, F. Leiber, A. Mathys, M. Gold, C. Zurbrüegg, I. D. Gangnat, M. Kreuzer, and M. Terranova. 2021a. Black soldier fly larvae meal and fat can completely replace soybean cake and oil in diets for laying hens. Poultry Science. 100(4):101034.
- Hossain, M. A., A. F. Islam, dan P.A. Aji. 2013. Growth responses, excreta quality, nutrient digestibility, bone development and meat yield traits of broiler chickens fed vegetable or animal protein diets. South Africa Journal of Animal Science. 43(2):208-218.
- Jang, J. C., K. H. Kim, D. H. Kim, S. K. Jang, J. S. Hong, P. S. Heo, and Y. Y. Kim. 2020. Effects of increasing levels of palm kernel meal containing  $\beta$ -mannanase to growing finishing pig diets on growth



performance, nutrient digestibility, and pork quality. *Livestock Science.* 10(1):40-41.

Joshi, D. and A. K. Azad. 2022. Duck Farming: Important Aspect and Complete Management. Available at <https://livestockmiddleeast.com>. Accession date 16<sup>th</sup> June 2023.

Kementerian Perindustrian RI. 2019. Analisa Struktur Industri Pakan Ternak Dalam Rangka Pengembangan Perwilayahkan Industri. Jawa Timur.

Kementerian Pertanian. 2021. Analisis kinerja perdagangan kedelai. pusat data dan sistem informasi pertanian kementerian pertanian. Agrikultur. 11(1):18-19.

Khatun, J., T. C. Loh, H. Akit, H. L. Foo, and R. Mohamad. 2017. Fatty acid composition, fat deposition, lipogenic gene expression and performance of broiler fed diet supplemented with different sources of oil. *Animal Science Journal.* 88(9):1406-1413.

Khatun, J., T. C. Loh, H. Akit, H. L. Foo, and R. Mohamad. 2018. Influence of different source of oil on performance, meat quality, gut morphology, ileal digestibility, and serum lipid profile in broiler. *Journal of Applied Animal Research.* 46(1):479-485.

Kokoszyński, D., D. Piwczyński, H. Arpášová, C. Hrnčar, M. Saleh, and R. Wasilewski. 2019. A comparative study of carcass characteristics and meat quality in genetic resources pekin ducks and commercial crossbreds. *Asian-Australasian Journal of Animal Science.* 32(11):1753.

Liu, C., C. Wang, H. Yao. 2019. Comprehensive resource utilization of waste using the black soldier fly (*Hermetia illucens* L.) (Diptera: Stratiomyidae). *Animals.* 9:349.

Liu, X., X. Chen, H. Wang, Q. Yang, K. Rehman, W. Li, M. Cal, Q. Li, L. Mazza, J. Zhang, Z. Yu, and L. Zheng. 2017. Dinamic changes of nutrient composition throughout the entire life cycle of black soldier fly. *Journal PLoS ONE.* 12(8):1-21.

Lopez, D. A., L. V. Lagos, and H. H. Stein. 2020. Digestible and metabolizable energy in soybean meal sourced from different countries and fed to pigs. *Animal Feed Science and Technology.* 268:114600.

Lu, S., N. Taethaisong, W. Meethip, J. Surakhunthod, B. Sinpru, T. Sroichak, P. Archa, S. Thongpea, S. Paengkoum, and R. A. P. Purba. 2022. Nutritional composition of black soldier fly larvae (*Hermetia*



*illucens* L.) and its potential uses as alternative protein sources in animal diets. Insects. 13:831.

Luthada-Raswiswi, R., S. Mukaratirwa, and G. O'Brien. 2021. Animal protein sources as a substitute for fishmeal in aquaculture diets: a systematic review and meta-analysis. Applied Science. 11(9):3854.

Mahmoud, I. M. A., H. A. Hassan, A. E. Eldlebshany, and A. A. A. Abdel-Wareth. 2022. Application of black soldier fly larvae as alternative source of protein in poultry nutrition. SVU International Journal of Agriculture Science. 4(4):67-78.

Makkar, H. P. S., G. Tran, V. Heuzé and P. Ankers. 2014. State of the art on use of insects as animal feed. Animal Feed Science and Technology. 197:1-33.

Maurer V., M. Holinger, Z. Amsler, B. Früh, J. Wohlfahrt, A. Stamer, F. Leiber. 2016. Replacement of soybean cake by *Hermetia illucens* meal in diets for layers. Journal Insect as Food and Feed. 2(2):83–90.

Montesqrit, M., H. Harnentis, and R. Rahmat. 2020. Optimasi pemberian tepung BSF-L dari larva black soldier fly (*Hermentia illucens*) dalam ransum ayam pedaging. In Prosiding Seminar Teknologi Agribisnis Peternakan (STAP). Fakultas Peternakan, Universitas Jenderal Soedirman. 7:556.

Murawska, D., T. Daszkiewicz, W. Sobotka, M. Geseck, D. Witkowska, P. Matusevičius, and T. Baukla. 2021. Partial and total replacement of soybean meal with full-fat black soldier fly (*Hermetia illucens* L.) larvae meal in broiler chicken diets: impact on growth performance, carcass quality and meat quality. Animals. 11(9).

Mutafela, R. N. 2015. High Value Organic Waste Treatment Via Black Soldier Fly Bioconversion. Thesis. Master of Science, Royal Institute of Technology. Stockholm.

Mutisya, M. M., A. K. Mawufe, J. N. Kinyuru, C. M. Tanga, M. Gicheha, G. Hailu, D. Salifu, Z. Khan, and S. Niassy. 2021. Can black soldier fly Desmodium intortum larvae-based diets enhance the performance of Cobb500 broiler chickens and smallholder farmers' profit in Kenya?. Poultry Science. 100(2):420–430.

Nasution, N. S. B., R. Hidayat, K. Dharmajati, R. A. Rosa, H. A. Sukria, R. Mutia, dan N. Nahrowi. 2022. Sifat kimia dan fisik defatted BSF-L. In Prosiding Seminar Nasional Teknologi Agribisnis Peternakan (STAP). 9: 469-474.



- Nayohan, S., I. Susanto, D. Permata, R. T. Pangesti, M. Rahmadani, and A. Jayanegara. 2022. Effect of dietary inclusion of black soldier fly larvae (*Hermetia illucens*) on broiler performance: a meta-analysis. In E3S Web of Conferences. 335:13.
- NRC. 1994. Nutrient Requirement of Poultry. National Academy Press. National Research. National Research Council, Washington DC.
- Nuray, N. T. 2017. Calcium salt of palm fatty acids and different fat sources in broiler. Agriculture. 34:255–262.
- Perma, A. D., U. Julita, L. Lusianti, and R. E. Putra. 2020. Mating success and reproductive behavior of black soldier fly *Hermetia illucens* L. (Diptera, Stratiomyidae) in tropics. Journal of Entomology. 17:117-127.
- Purnamasari, L., P., Z. Lopez, and J. F. D. Cruz. 2022. Evaluation of black soldier fly (*Hermetia illucens*) larvae meal as a dietary protein source in poultry diets. Journal of Tropical Biology. 10(3):191-202.
- Purwantono, I. dan S. Suwandi. 2019. Rencana bisnis kuliner bebek blengong di jakarta. Journal of Entrepreneurship, Management and Industry (JEMI). 2(2):109-114.
- Silva, G. D. P., and T. Hesselberg. 2019. A review of the use of black soldier fly larvae, *Hermetia illucens* (Diptera: Stratiomyid ae), to compost organic waste in tropical regions. Neotropical Entomology.
- Rambet, V., J. F. Umboh, Y. L. R. Tulung, and Y. H. S. Kowel. 2015. Kecernaan protein dan energi ransum broiler yang menggunakan tepung BSFL (*Hermetia illucens*) sebagai pengganti tepung ikan. Zootec. 36(1):13-22.
- Rizkuna, A., U. Atmomarsono dan D. Sunarti. 2014. Evaluasi pertumbuhan tulang ayam kampung umur 0-6 minggu dengan taraf protein dan suplementasi lisin dalam ransum. J. Ilmiah dan Teknologi Peternakan. 3(3):121-125.
- Salomone R., G. Saija, G. Mondello, A. Giannetto, S. Fasulo, and D. Savastano. 2016. Environmental impact of food waste bioconversion by insects: application of life cycle assessment to process using *Hermetia illucens*. Journal of Cleaner Production. 1–16.
- Schiavone, A., M. De Marco, S. Martínez, S. Dabbou, M. Renna, J. Madrid, F. Hernandez, L. Rotolo, P. Costa, F. Gai, and L. Gasco. 2017a. Nutritional value of a partially defatted and a highly defatted black soldier fly larvae (*Hermetia illucens* L.) meal for broiler chickens:



apparent nutrient digestibility, apparent metabolizable energy and apparent ileal amino acid digestibility. *Journal of Animal Science and Biotechnology*. 8:1-9.

Schiavone, A., M. De Marco, S. Martínez, S. Dabbou, M. Renna, J. Madrid, F. Hernandez, L. Rotolo, P. Costa, F. Gai, and L. Gasco. 2017b. Nutritional value of a partially defatted and a highly defatted black soldier fly larvae (*Hermetia illucens* L.) meal for broiler chickens: apparent nutrient digestibility, apparent metabolizable energy and apparent ileal amino acid digestibility. *Journal of Animal Science and Biotechnology*. 8(1).

Schiavone, A., S. Dabbou, M. Petracci, M. Zampiga, F. Sirri, I. Biasato, F. Gai, and L. Gasco. 2019. Black soldier fly *defatted* meal as a dietary protein source for broiler chickens: effects on carcass traits, breast meat quality and safety. *Animals*. 13(10):2397–2405.

Septiani, M. and M. F. Alexandi. 2014. Struktur perilaku kinerja dalam persaingan industri pakan ternak di indonesia periode tahun 1986–2010. *Jurnal Manajemen dan Agribisnis*. 11(2):77-88.

Sjofjan, O., D. N. Adli, M. H. Natsir, Y. F. Nuningtyas, I. Bastomi and F. R. Amalia. 2020. The effect of increasing levels of palm kernel meal containing  $\alpha$ - $\beta$ -mannanase replacing maize to growing-finishing hybrid duck on growth performance, nutrient digestibility, carcass trait, and VFA. *Journal of the Indonesian Tropical Animal Agriculture*. 46(1):29-39.

Standar Nasional Indonesia. 2016b. Pakan Konsentrat-Bagian 4: Ayam ras petelur. Badan Standardisasi Nasional.

Subhan, A., A. Hamdan, F. Hilmawan, R. Qomariah, M. Amin, and E. S. Rohaeni. 2022. Improvement of breeding management towards productivity of alabio duck in swamp land, south kalimantan. In International Conference on Improving Tropical Animal Production for Food Security (ITAPS 2021). Atlantis Press. Pp. 40-45.

Teguia, A., M. Mpoame, and J. A. Okourou Mba. 2002. The production performance of broiler birds as affected by the replacement of fish meal by BSF-L meal in the starter and finisher diets. *Tropicultura*. 20(4):187-192.

Veldkamp T. and G. Bosch. 2015. Insects: A protein-rich feed ingredient in pig and poultry diets. *Animal Frontiers*. 5:45-50.

Veldkamp T. G., A. Van Duinkerken, A. Van Huis, C. M. M. Lakemond, E. Ottevanger, G. Bosch, and B. Van. 2012. Insects as a sustanable feed



ingredient in pig and poultry diets-a feasibility study. Wageningen (Netherlands). Wageningen UR Livestock Research. 638.

Wang, C., L. Lu, L. Zhang, L. Zhang, Y. Liu, J. Lu, and S. Yu. 2021. Nutrient composition and fatty acid profile of black soldier fly larvae in different diets and its effects on growth performance, carcass traits, and meat quality of pekin ducks. Poultry Science. 100(1):69-80.

Wang, C., M. Xie, W. Huang, J. J. Xie, J. Tang, and S. S. Hou. 2013. Arginin requirements of male white pekin ducks from 1 to 21 days of age. Poultry Science. 92:1007-1010.

Wang, Y. S., and M. Shelomi. 2017. Review of black soldier fly (*Hermetia illucens*) as animal feed and human food. In Foods. 6(10).

Zhang, F., L. Xu, A. Doster, R. Murdoch, P. Cotter, A. Gardner, and T. J. Applegate. 2014. Dietary threonin requirement of pekin duck from 15 to 35 days of age based on performance, yield, serum natural antibodies and intestinal mucin secretion. Poultry Science. 93:1972-1980.