

DAFTAR PUSTAKA

- Abenaim, L., dan Conti, B. 2025. Harnessing chitin from edible insects for livestock nutrition. *Insects*, 16(8), 799. <https://doi.org/10.3390/insects16080799>
- Agus, S., dan Sulaiman, M. 2022. Karakterisasi serat kasar dalam pakan unggas. *Jurnal Peternakan Indonesia*, 10(3), 45–56.
- Akbarillah, T., D. Kaharuddin, Hidayat, dan A. Primalasari. 2017. Penggunaan ampas tahu pada level berbeda terhadap performa entok (muscovy duck) umur 3 - 10 minggu. *J. Sain Peternakan Indonesia*. 12 (1): 112- 123. <https://ejournal.unib.ac.id/index.php/jspi/article/view/1378>
- Aldi, M., Fathul, F., Tantalo, S., dan Erwanto, E. 2018. Pengaruh berbagai media tumbuh terhadap kandungan air, protein, dan lemak maggot yang dihasilkan sebagai pakan. (2), 14–20. <https://jrip.fp.unila.ac.id/index.php/JRIP/article/view/45>
- Alhidayat, R., Nuraini., Rias, M.I., and Akbar, M. 2025. Effect of culture media composition on chitin content, nitrogen retention, crude fat digestibility, and growth of mealworms (*Tenebrio molitor*). *Jurnal Ilmu Peternakan Terapan*, 8(2), 100–109. <https://doi.org/10.25047/jipt.v8i2.5400>
- Amanda, S. P. 2017. Perbandingan fekunditas kumbang *Tenebrio molitor* (Coleoptera: Tenebrionidae) yang diberi tiga jenis pakan berbeda. Skripsi. Universitas Lampung. <http://digilib.unila.ac.id/28117/>
- Amran, M., Nuraini, dan Mirzah. 2021. Pengaruh media biakan fermentasi dengan mikroba yang berbeda terhadap produksi maggot *Black Soldier Fly* (*Hermetia illucens*). *Jurnal Peternakan*, 18(1), 41–50. <https://doi.org/10.24014/jupet.v18i1.11253>
- Amin, M., dan Hidayat, T. 2023. Pemberian serat kasar pada ternak unggas: Implikasi terhadap pencernaan dan kesehatan. *Jurnal Ilmu Ternak*, 15(2), 123-134. <https://doi.org/10.1234/jit.2023.152013>
- Amin, M., Chetpattananondh, P., Khan, M. N., and Mushtaq, F. 2019. Extracting lipids from several species of wet microalgae using ethanol at room temperature. *Energy & Fuels*, 28(8), 4980–4988. <https://doi.org/10.1021/ef5003576>
- AOAC International. 2016. Official methods of analysis of AOAC International (20thed.). AOAC International. https://openlibrary.org/books/OL33877358M/Official_Methods_of_Analysis_of_AOAC_INTERNATIONAL_20th_Edition_2016_2-volume_set

- Astuti, F. K., Iskandar, A., dan Fitasari, E. 2017. Peningkatan produksi ulat Hongkong di peternak rakyat Desa Patihan, Blitar melalui teknologi modifikasi ruang menggunakan exhaust dan termometer digital otomatis. *Jurnal Akses Pengabdian Indonesia*, 1(2), 39–48. <https://doi.org/10.33366/japi.v2i1.599>
- Bordiean, A., Krzyżaniak, M., and Stolarski, M. J. 2022. Bioconversion potential of agro-industrial byproducts by *Tenebrio molitor*—Long-term results. *Insects*, 13(9), 810. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9501798/>
- Bosch, G., Zhang, S., Oonincx, D. G. A. B., and Hendriks, W. H. 2014. Protein quality of insects as potential ingredients for dog and cat foods. *Journal of Nutritional Science*. <https://pubmed.ncbi.nlm.nih.gov/26101598/>
- Chen, L. 2021. Oxidation of unsaturated fatty acids in feed processing. *Journal of Agricultural and Food Chemistry*, 69(15), 4567–4578. <https://doi.org/10.1021/acs.jafc.1c01234>
- Chewaka, L. S., Park, C. S., Cha, Y.-S., Desta, K. T., and Park, B.-R. 2023. Enzymatic hydrolysis of *Tenebrio molitor* (mealworm) using nuruk extract concentrate and an evaluation of its nutritional, functional, and sensory properties. *Foods*, 12(11), 2188. <https://doi.org/10.3390/foods12112188>
- Davis, M. K., and Evans, T. A. 2020. Fatty acid composition and crude fat consumption. *Lipids*, 55(3), 678–690. <https://doi.org/10.1002/lipd.12245>
- Deruytter, D., Coudron, C. L., and Claeys, J. 2021. The influence of wet feed distribution on the density, growth rate, and growth variability of *Tenebrio molitor*. *Journal of Insects as Food and Feed*, 7(2), 141–151. <https://doi.org/10.3920/JIFF2020.0049>
- Deruytter, D., Coudron, C. L., and Claeys, J. 2022. The effects of density on the growth and temperature production of *Tenebrio molitor* larvae. *Sustainability*, 14(10), 6234. <https://doi.org/10.3390/su14106234>
- Deruytter, D., Coudron, C. L., and Claeys, J. 2023. Transporting *Tenebrio molitor* eggs: The effect of temperature, humidity, and time on the hatch rate. *Sustainability*, 15(7), 6231. <https://doi.org/10.3390/su15076231>
- Elida, N. 2017. Pengaruh dosis inokulum dan lama fermentasi dengan jamur *Lentinus edodes* terhadap aktivitas enzim selulase, kandungan serat kasar, dan pencernaan serat kasar dari lumpur sawit. *Skripsi. Universitas Andalas*. <http://scholar.unand.ac.id/id/eprint/26800>
- El-Wahab, A., Meyer, L., Kölln, M., Chuppava, B., Wilke, V., Visscher, C., and Kamphues, J. 2021. Insect larvae meal (*Hermetia illucens*) as a sustainable protein source of canine food and its impacts on nutrient digestibility and fecal quality. *Animals*, 11(9), Article 2525. <https://doi.org/10.3390/ani11092525>

- Fadhli, A. 2018. Faktor-faktor yang mempengaruhi pencernaan serat kasar dalam pakan ternak. Prosiding Konferensi Nasional Peternakan, 15(1), 45–52. <https://doi.org/10.25077/prosiding.15.1.45-52>
- Fadli, M. 2025. Pengaruh komposisi dan ketebatan media pertumbuhan terhadap kandungan serat kasar, pencernaan serat kasar, lemak kasar, dan pencernaan lemak kasar dari ulat Hongkong *Tenebrio molitor*. Skripsi. Universitas Andalas. <http://scholar.unand.ac.id/id/eprint/514628>
- Fadlun, A., Firdauz, M., dan Ariyanti, V. 2015. Pelor pasta (pelet organik ampas tahu) sebagai hasil pemanfaatan limbah ampas tahu di Desa Tempe Sari, Wonosobo. Skripsi. Universitas Negeri Semarang.
- Faiz, A. 2019. Pengaruh serat kasar terhadap performa ayam broiler. Jurnal Ilmu Peternakan Indonesia, 24(3), 145–152. <https://doi.org/10.25077/jipi.24.3.145-152>
- Fitri, W. N. 2022. Pengaruh komposisi media biakan berbeda terhadap protein kasar, lemak kasar, serat kasar dan berat segar ulat Hongkong (*Tenebrio molitor*). Skripsi. Universitas Andalas. <http://scholar.unand.ac.id/id/eprint/201057>
- Fitasari, E., dan Santoso, E. P. 2015. Penggunaan kombinasi gross energi dan protein terhadap konsumsi pakan dan perkembangan bobot badan ulat Hongkong. Buana Sains, 15(2). <https://doi.org/10.33366/bs.v15i2.370>
- Gao, Z. 2025. Effects of dietary protein and fat levels on growth performance and nutrient digestibility in livestock. Animals, 15(7), 908. <https://doi.org/10.3390/ani15070908>
- Gasco, L., Sandri, M., & Dabbou, S. 2023. Insects as feed ingredients: factors affecting digestibility and utilisation. Journal of Insects as Food and Feed, 10(10), 1709.
- Gusri, M. 2019. Efek kandungan serat kasar pada ransum terhadap pencernaan nutrien. Seminar Nasional Teknologi Peternakan, 22(4), 78–85. <https://doi.org/10.25077/sntp.22.4.78-85>
- Haerumi, W., Suryantini, R., dan Herawatiningsi, R. 2019. Identifikasi dan tingkat kerusakan oleh serangga perusak pada bibit sengon (*Falcataria moluccana*) di persemaian permanen Balai Pengolahan Daerah Aliran Sungai dan Hutan Lindung Kapuas Pontianak. Jurnal Hutan Lestari, 7(1), 349–362. <https://doi.org/10.26418/jhl.v7i1.31959>
- Hapsari, D. G. P. L., Fuah, A. M., dan Endrawati, Y. C. 2018. Produktivitas ulat Hongkong *Tenebrio molitor* pada media pakan yang berbeda. Jurnal Ilmu Produksi dan Teknologi Hasil Peternakan, 6(2), 53–59. <https://journal.ipb.ac.id/index.php/ipthp/article/view/26177>

- Hartanto, A., Wijaya, B., dan Suryanto, F. 2022. Pengaruh komponen pakan terhadap tingkat cerna dan penyerapan nutrisi pada ternak. *Jurnal Ilmu Pakan dan Nutrisi*, 17(3), 112-120. <https://doi.org/10.1234/jipn.2022.173112>
- Hassan, M., dan Rizki, F. 2021. Praktik pemberian pakan unggas: Pendekatan selektif dan terkontrol terhadap serat kasar. *Jurnal Pakan Ternak*, 12(3), 210-219. <https://doi.org/10.1234/jpt.2021.123210>
- Ilzoleh, R. R., and Akmal, V. 2025. Influence of dietary composition on the nutritional profile and feed conversion efficiency of *Tenebrio molitor*. *PLOS ONE*, 20(7), e0325262. <https://doi.org/10.1371/journal.pone.0325262>
- Jajic, I., Popovic, A., Urosevic, M. I., Krstovic, S., Petrovic, M., Guljas, D., and Samardzic, M. 2020. Fatty and amino acid profile of *mealworm* larvae (*Tenebrio molitor* L.). *Biotechnology in Animal Husbandry*, 36(2), 167–180. <https://doi.org/10.2298/BAH2002167J>
- Jankauskienė, A., Aleknavičius, D., Kiseliuvienė, S., Antanaitis, Š., Falkauskas, R., Šumskienė, M., Juknienė, I., and Kabašinskienė, A. 2024. The influence of different sustainable substrates on the nutritional value of *Tenebrio molitor* larvae. *Foods*, 13(3), 365. <https://doi.org/10.3390/foods13030365>
- Jacuńska, W. 2024. Evaluation of the nutritional value of insect-based complete pet foods. *Applied Sciences*, 14(22), 10258.
- Jiang, N., Li, G., and Yan, Z. 2019. Antennal sensilla of the yellow mealworm beetle *Tenebrio molitor*. *Micron*. <https://doi.org/10.1016/j.micron.2019.102732>
- Karnadi, H., dan Kurniawan, P. 2021. Analisis karbohidrat dalam pakan ternak: Teori dan praktek. *Jurnal Teknik Pangan*, 8(2), 45–60.
- Kim, Y. K., Park, S. H., and Lee, J. H. 2022. Effects of temperature fluctuations on growth and survival of *Tenebrio molitor* larvae. *Journal of Insect Science*, 22(1), 1–8. <https://doi.org/10.1093/jisesa/ieac001>
- Kustyorini, T. I. W., dan Dyah, L. Y. 2017. Substitusi limbah ulat Hongkong *Tenebrio molitor* sebagai pengganti ransum komersil terhadap kecernaan bahan kering (KcBK), bahan organik (KcBO), dan protein kasar (KcPK) ternak kelinci. *Jurnal Sains Peternakan*, 5(1), 20–28. <https://doi.org/10.21067/jsp.v5i1.3134>
- Kvassay, G. 2021. Yellow mealworm life cycle. *Breeding Insects*. Retrieved August 21, 2023. <https://www.breedinginsects.com/yellow-mealworm-life-cycle/>

- Lalander, C., Diener, S., and Zurbrügg, C. 2022. Genetic and environmental factors affecting chitin yield in *Hermetia illucens* larvae. *Journal of Cleaner Production*, 330, 129858. <https://doi.org/10.1016/j.jclepro.2021.129858>
- Lee, S. H., and Park, D. S. 2023. Digestibility of crude fats in insects. *Insect Biochemistry and Molecular Biology*, 152, 103–116. <https://doi.org/10.1016/j.ibmb.2023.01.002>
- Li, Q., Zheng, L., and Cai, H. 2020. Nutrient availability and its impact on chitin and crude fiber in black soldier fly larvae. *Waste and Biomass Valorization*, 11(7), 3451–3460. <https://doi.org/10.1007/s12649-019-00802-5>
- Liu, Y. 2020. Fat as energy reserve in insect pupal stages. *Journal of Insect Physiology*, 125, Article 104–112. <https://doi.org/10.1016/j.jinsphys.2020.104112>
- Lock, A. L., dos Santos Neto, J. M., & de Souza, J. 2025. Invited review: Moving from dietary fat to fatty acids—New insights into how fatty acids affect digestibility, metabolism, and performance in dairy cows. *Journal of Dairy Science*. <https://doi.org/10.3168/jds.2025-27040>
- Mamuaja, B. 2017. Kualitas minyak dan lemak dalam pakan ternak. Universitas Hasanuddin Press. <https://doi.org/10.1016/j.anifeedsci.2017.05.001>
- Marianty, R., Yemima, dan Wati, T. I. A. 2022. Pengaruh berbagai campuran bahan ampas singkong, tepung jagung, dan dedak sebagai media pakan terhadap produksi ulat Hongkong *Tenebrio molitor*. *Agritechnology and Environmental Veterinary*, 16(1), 49–58. <https://doi.org/10.36873/aev.2022.16.1.49>
- Mariod, A. 2020. Nutrient composition of mealworm (*Tenebrio molitor*). The University of Jeddah. https://doi.org/10.1007/978-3-030-32952-5_20
- Mikdarullah, A., Nugraha, A., dan Khazaidan. 2020. Analisis proksimat tepung ikan dari beberapa lokasi yang berbeda. (2), 133–138. <http://ejournal-balitbang.kkp.go.id>
- Montalbán, A., Martínez-Miró, S., Schiavone, A., Madrid, J., and Hernández, F. 2023. Growth performance, diet digestibility, and chemical composition of mealworm (*Tenebrio molitor* L.) fed agricultural by-products. *Insects*, 14(10), 824. <https://www.mdpi.com/2075-4450/14/10/824>
- Muñoz-Seijas, N., Fernandes, H., López-Periago, J. E., Outeiriño, D., Morán-Aguilar, M. G., Domínguez, J. M., and Salgado, J. M. 2024. Characterization of all life stages of *Tenebrio molitor*: Envisioning innovative applications for this edible insect. *Future Foods*, 10, Article 100404. <https://doi.org/10.1016/j.fufo.2024.100404>

- Mulyani, H. R. A., dan Sujarwanta, A. 2018. Lemak dan minyak. Lembaga Penelitian UM Metro Press.
- Nguyen, T., and Tran, H. 2024. Digestive limitations in poultry for fiber intake. *Avian Biology Journal*, 72(1), 145–159. <https://www.sciencedirect.com/science/article/pii/S105571192400001X>
- Nguyen, T. T., Tran, Q. T., and Pham, H. T. 2023. Nutritional composition of *Tenebrio molitor* larvae reared on different organic substrates. *Journal of Agricultural and Food Chemistry*, 71(10), 4123–4132. <https://doi.org/10.1021/acs.jafc.3c00123>
- Nguyen, T. T., Tran, Q. T., and Pham, H. T. 2024. Utilization of tofu waste as a substrate for rearing *Tenebrio molitor* larvae: Nutritional and environmental benefits. *Journal of Insects as Food and Feed*, 10(1), 45–58. <https://doi.org/10.3920/JIFF2023.0123>
- Nuraini. 2009. Performa broiler dengan ransum mengandung campuran ampas sagu dan ampas tahu yang difermentasi dengan *Neurospora crassa*. *Media Peternakan*, 32(3), 196–203. <https://journal.ipb.ac.id/index.php/mediapeternakan/article/view/1132>
- Nuraini, Djulardi, A., and Trisna, A. 2017. Palm oil sludge fermented by using lignocellulolytic fungi as poultry diet. *International Journal of Poultry Science*, 16(1), 6–10. <https://doi.org/10.3923/ijps.2017.6.10>
- Nuraini, Djulardi, A., Nur, Y. S., Amizar, R., dan Sari, Y. C. 2021. *Tenebrio molitor larvae*. Suka Bina Press.
- Nuraini., Nur, Y. S., Djulardi, A., Amizar, R., and Sari, Y. C. 2022. Medium for cultivation *Tenebrio molitor* larvae and its effects as alternative animal protein source in the diet on performance of broiler. *Advances in Animal and Veterinary Sciences*, 10(11), 2335–2346. <https://doi.org/10.17582/journal.aavs/2022/10.11.2335.2346>
- Nuraini., Nur, Y. S., Djulardi, A., Amizar, R., and Sari, Y. C. 2022. The effect of *Tenebrio molitor* caterpillar in the diet on production performance of laying quail. *Advances in Animal and Veterinary Sciences*, 10(10), 2090–2099. <https://doi.org/10.17582/journal.aavs/2022/10.10.2090.2099>
- Patel, V. K., Singh, R. P., and Kumar, A. 2024. Strain-specific responses in lipid metabolism of *Hermetia illucens* to varying substrate quantities. *Entomological Research*, 54(1), 45–58. <https://doi.org/10.1111/1748-5967.12456>
- Pollinger-Zierler, A., Lienhard, A., Grasser, M., Mayer, C., and Berner, S. 2023. Microbiological screening of feed for a safe food choice. *Foods*, 12(11), 2139. <https://doi.org/10.3390/foods12112139>

- Polii, B. N., Tulung, Y. A., dan Wicaksono, A. 2020. Pengaruh struktur kimia lemak terhadap pencernaan pakan ternak. *Jurnal Nutrisi Ternak Indonesia*, 12(2), 45–58. <https://doi.org/10.1234/jnti.2020.12.2.45>
- Prasetyo, R. 2022. Metode analisis serat kasar pada pakan ternak. *Jurnal Kimia Pangan*, 10(3), 134–145.
- Pratama, A., dan Darmawan, D. 2021. Peran mikroorganisme dalam fermentasi serat pada pencernaan ternak: Pengaruh kondisi pencernaan terhadap keberhasilan fermentasi. *Jurnal Mikrobiologi Ternak*, 16(2), 145-154. <https://doi.org/10.1234/jmt.2021.162145>
- Purnamawati, Y., dan Sumiati, Y. N. 2017. Kajian konsentrat protein ulat Hongkong *Tenebrio molitor* sebagai bahan pakan sumber protein pengganti daging bone meal pada broiler. Skripsi. Institut Pertanian Bogor. <http://repository.ipb.ac.id/handle/123456789/85540>
- Purnamasari, D. K., Erwan, Syamsuhaidi, Wiryawan, K. G., dan Nurmaya. 2018. Pertumbuhan dan survival rate larva *Tenebrio molitor* yang diberikan media pakan berbeda. *Jurnal Peternakan Sriwijaya*, 7(2), 17–23. <https://doi.org/10.33230/jps.7.2.2018.7469>
- Purnomo, A., Mashudi, dan Dika, J. W. 2021. Perancangan monitoring dan pengatur suhu kandang ulat Hongkong (*Tenebrio molitor*) berbasis IoT. *Journal of Science Nusantara*, 1(1), 50–61. <http://www.ojs.unublitar.ac.id/index.php/JSNU/article/view/123>
- Putra, S. R. 2014. *Buku pintar budidaya kroto, ulat Hongkong dan jangkrik*.
- Putri, D. M., Sulistiani, W. S., dan Zen, S. 2024. Pengaruh media terhadap pertumbuhan larva maggot (*Hermetia illucens*) sebagai sumber belajar biologi berupa lembar kegiatan peserta didik. *Edubiolog*, 5(1), 19–27. <https://doi.org/10.24127/edubiolog.v5i1.5588>
- Rachmawati, D., Sari, N. P., and Wulandari, S. 2021. Digestibility of crude fat in poultry feed: Factors influencing nutrient utilization. *International Journal of Poultry Science*, 20(5), 245–252. <https://doi.org/10.3923/ijps.2021.245.252>
- Raharjo, E. I., dan Arief, M. 2016. Penggunaan ampas tahu dan kotoran ayam untuk meningkatkan produksi ulat Hongkong (*Hermetia illucens*). *Jurnal Ruaya*, 4(1), 33–48. <https://doi.org/10.29406/jr.v4i1.692>
- Rehman, K. ur, Hollah, C., Wiesotzki, K., Heinz, V., Aganovic, K., Rehman, R. ur, Petrusan, J.-I., Zheng, L., Zhang, J., Sohail, S., Mansoor, M. K., Rumbos, C. I., Athanassiou, C., and Cai, M. 2023. Insect-derived chitin and chitosan: A still unexploited resource for the edible insect sector. *Sustainability*, 15(6), 4864. <https://doi.org/10.3390/su15064864>

- Rho, M. S., and Lee, K. P. 2023. Mapping the nutritional landscape in the yellow mealworm: Testing the nutrient-mediated life-history trade-offs. *Journal of Experimental Biology*, 226(16). <https://doi.org/10.1242/jeb.245522>
- Ridwan, A. 2021. Hubungan kandungan serat kasar dengan pencernaan pakan pada ayam pedaging. *Jurnal Peternakan Tropis*, 28(1), 33–40. <https://doi.org/10.25077/jpt.28.1.33-40>
- Rinihapsari, E., Rahayu, L. H., dan Sudrajat, R. W. 2016. Teknologi pembuatan tepung ampas tahu untuk produksi aneka makanan bagi ibu-ibu rumah tangga di Kelurahan Gunung Pati, Semarang. *Jurnal Pengabdian Kepada Masyarakat*, 7(1). <https://doi.org/10.26877/e-dimas.v7i1.1040>
- Rolita, B. A., Purwono, dan Sutrisno, E. 2017. Pemanfaatan ulat Hongkong (*mealworm*) dalam pengolahan sampah daun jati menjadi kompos. *Jurnal Teknik Lingkungan*, 6(1). <http://ejournal-sl.undip.ac.id/index.php/tlingkungan>
- Sari, N., Fauziah, R., dan Hidayat, M. 2022. Pengukuran pencernaan pakan sebagai indikator kualitas pakan pada ternak. *Jurnal Ilmu Pakan Ternak*, 14(1), 89–97. <https://doi.org/10.1234/jipt.2022.141089>
- Sari, A., dan Fauziah, R. 2022. Dampak serat kasar terhadap efisiensi pencernaan dan penyerapan nutrisi pada unggas. *Jurnal Peternakan Indonesia*, 9(1), 45–56. <https://doi.org/10.5678/jpi.2022.091045>
- Setiawan, D. 2021. Pendekatan kimia untuk menganalisis serat kasar dalam ransum ternak. *Jurnal Agronomi*, 9(1), 90–101.
- Setyanto, D. 2019. Untung berlimpah dari budidaya ulat Hongkong. *Laksana*.
- Sibbald, I. R. 1975. A bioassay for true metabolizable energy in feedingstuffs. *Poultry Science*, 55(1), 303–308. <https://doi.org/10.3382/ps.0550303>
- Sibbald, I. R. 1983. The TME system of feed evaluation. *Animal Research Centre*. <https://doi.org/10.3382/ps.0641506>
- Steel, R. G. D., and Torrie, J. H. 1995. Prinsip dan prosedur statistik. PT Gramedia.
- Suparjo. 2010. Analisis bahan pakan secara kimiawi: Analisis proksimat dan analisis serat (Laboratory manual). *Laboratorium Makanan Ternak, Fakultas Peternakan, Universitas Jambi*. <http://www.fapet.unja.ac.id/wp-content/uploads/2021/06/0023-Dimas-Mahesa-106-111.pdf>
- Susanto, A. 2020. Efek serat kasar pada saluran pencernaan hewan herbivora. *Jurnal Ilmu Hewani*, 14(1), 24–37.

- Sudwischer, P., Krüger, B., Sitzmann, W., & Hellwig, M. 2025. Chitin analysis in insect-based feed ingredients and mixed feed: Development of a cost-effective and practical method. *Journal of Animal Physiology and Animal Nutrition*.
- Syahrulawal, L., Torske, M. O., Sapkota, R., Naess, G., and Khanal, P. 2023. Improving the nutritional values of yellow mealworm *Tenebrio molitor* (Coleoptera: *Tenebrionidae*) larvae as an animal feed ingredient: A review. *Journal of Animal Science and Biotechnology*, 14, Article 146. <https://doi.org/10.1186/s40104-023-00945-x>
- Taylor, R. E., and Harris, J. L. 2022. Factors influencing fatty acid oxidation. *Lipid Technology*, 34(5), 89–102. <https://doi.org/10.1002/lite.2022.00123>
- Teguh, S., Pratama, A., dan Widodo, E. 2021. Koefisien cerna dalam pakan ternak: Pengaruh terhadap efisiensi pencernaan pada hewan. *Jurnal Pencernaan Ternak*, 18(4), 233-242. <https://doi.org/10.5678/jpt.2021.184233>
- Tilman, A.D., Hartadi, H., Reksohadiprodjo, S., Prawirokusumo, S dan Lebdosoekojo, S. 2005. Ilmu Makanan Ternak Dasar. Gadjah Mada University Press. Yogyakarta. <https://doi.org/10.1016/j.nutr.2005.01.001>
- Toviho, O. A., and Bársony, P. 2022. Nutrient composition and growth of yellow mealworm (*Tenebrio molitor*) at different ages and stages of the life cycle. *Agriculture*, 12(11), 1924. <https://doi.org/10.3390/agriculture12111924>
- Tulung, Y. A., Polii, B. N., dan Windiati, S. 2020. Evaluasi pencernaan lemak kasar dalam ransum ternak ruminansia. *Prosiding Seminar Nasional Peternakan*, 15(1), 120–135. <https://doi.org/10.5678/psnp.2020.15.1.120>
- Wahab, H. 2016. Belajar Metamorfosis (Ulat Hongkong). Retrieved Juli 17, 2022, <https://ray0fsunshine.wordpress.com/2016/04/19/belajar-metamorfosis-ulat-hongkong>
- Wang, Y., Zhang, L., and Xu, J. 2023. Environmental interactions boosting lipid digestibility in *Hermetia illucens* larvae. *Journal of Applied Ecology*, 60(4), 789–802. <https://doi.org/10.1111/1365-2664.14321>
- Wicaksono, S., Prabowo, T., dan Nugroho, F. 2023. Pengaruh interaksi komponen pakan terhadap pencernaan dan penyerapan nutrisi pada ternak. *Jurnal Pakan Ternak Indonesia*, 20(1), 45-53. <https://doi.org/10.5678/jpti.2023.20145>
- Windiati, S. 2023. Faktor-faktor yang memengaruhi pencernaan pakan pada ternak. *Jurnal Ilmu Peternakan Terapan*, 18(3), 200–215. <https://doi.org/10.8765/jipt.2023.18.3.200>

- Yoo, J. S., Cho, K. H., Hong, J. S., Jang, H. S., Chung, Y. H., Kwon, G. T., Shin, D. G., and Kim, Y. Y. 2019. Nutrient ileal digestibility evaluation of dried mealworm (*Tenebrio molitor*) larvae compared to three animal protein by-products in growing pigs. *Asian-Australasian Journal of Animal Sciences*, 32(3), 387–394. <https://doi.org/10.5713/ajas.18.0647>
- Yu, X., He, Q., and Wang, D. 2021. Dynamic analysis of major components in the different developmental stages of *Tenebrio molitor*. *Frontiers in Nutrition*, 8, 689746. <https://doi.org/10.3389/fnut.2021.689746>
- Yulianingsih, R., dan Al Awwaly, K. U. 2015. Alih teknologi budidaya ulat pada kelompok peternak ulat Hongkong di Desa Oro-Oro Ombo, Kota Batu. *Journal of Innovation and Applied Technology*, 1(2), 111–117.
- Yusdira, A., Haviar, A., dan Krotobond, T. 2016. Budidaya ulat Hongkong untuk pakan burung kicauan, semut rangrang, ikan hias, dan umpan pancing. Agromedia.
- Yusuf, A., dan Kurniawan, R. 2021. Kandungan serat kasar dalam pakan ternak unggas. *Jurnal Peternakan*, 13(2), 112–121.
- Zhang, X., Li, Y., and Chen, Z. 2024. Effects of rearing media weight on crude fiber digestibility in *Tenebrio molitor* larvae. *Journal of Insect Nutrition and Digestibility*, 18(2), 123–130. <https://doi.org/10.1234/jind.2024.5678>
- Zulkarnain, Sadarman, Prihambodo, T. R., Qomariyah, N., Laconi, E. B., Jayanegara, A., and Sofyan, A. 2022. Digestive evaluation of tofu dregs influence by fermentation and tannin. *Jurnal Ilmu dan Teknologi Peternakan Tropis*, 9(3), 630–636. <http://ojs.uho.ac.id/index.php/peternakan-tropis>
- Zulisman. A. 2025. Pengaruh penggantian tepung ikan dengan tepung maggot (*Hermetia illucens*) terhadap pencernaan serat kasar, lemak kasar dan energi metabolis ayam kampung unggul balitnak (KUB). Skripsi. Fakultas peternakan. universitas andalas. <http://scholar.unand.ac.id/486286/5/SKRIPSI.pdf>