

DAFTAR PUSTAKA

- Adeola, O., and A.J. Cowieson. 2011. Board-invited review: Opportunities and Challenges in Using Exogenous Enzymes to Improve Nonruminant Animal Production. *J Anim Sci.*, 89(10):3189-218.
- Amerah, A.M., L.F. Romero, A. Awati, V. Ravindran. 2017. Effect of Exogenous Xylanase, Amylase, and Protease as Single or Combined Activities on Nutrient Digestibility and Growth Performance of Broilers Fed Corn/Soy Diets. *Poultry Sci.*, 96(4):807–816.
- Amrullah, I.K. 2003. *Nutrisi Ayam Broiler*. Lembaga Satu Gunung Budi. Bogor.
- Anang, A. 2007. *Panen ayam kampung dalam 7 minggu*. Cetakan 1. Penebar Swadaya, Jakarta.
- Andri, K., C.H. Prayitno, N. Rahayu. 2019. Persentase Organ Dalam Itik Cihateup Yang Diberi Ransum Mengandung Kombinasi Tepung Kulit Buah Manggis Dan Tepung Kunyit. *Jurnal Peternakan Nusantara*, 5(1): 1-12.
- Anggorodi, R. 1985. *Kemajuan Mutakhir dalam Ilmu Makanan Ternak Unggas*. UI Press. Jakarta.
- Anggorodi, R. 1994. *Ilmu Makanan Ternak Umum*. PT Gramedia, Jakarta.
- Austic, R. E. and M.C., Nesheim. 1990. *Poultry production*. 13th ed. Lea and Febiger. Philadelphia.
- Badan Pusat Statistik (BPS). 2021. *Populasi-ayam-ras-pedaging-menurut provinsi*. <https://www.bps.go.id/indicator/24/478/1/html>. (diakses pada 11 Agustus 2021).
- Badan Standardisasi Nasional. 2006. *Pakan Ayam Ras Pedaging Masa Akhir (Broiler finisher)*. SNI 01-3931-2006. Jakarta.
- Bagenal, T.B. 1978. *Aspects of Fish Fecundity. Ecology of Freshwater Fish Production*. Blackwell Scientific Publications. Oxford: p. 77–101.
- Balasubramaniam, K. 1976. Polysaccharides of the Kernel of Maturing and Mature Coconuts. *Journal of Food Science*, 41(6): 1370-1373.

- Bastos, S.C., M.M.F., Fuentes, E.R., Freitas, G.B., Espíndola, C.V., Braga. 2007. Efeito da Inclusão do Farelo de Coco em Rações Para Frangos de Corte. *Revista Ciência Agronômica*, 38(3), 297–303.
- Basya dan A., Mochammad. 2004. Persentase Berat Karkas, Lemak Abdominal Dan Organ Dalam Ayam Pedaging Yang Di Beri Pakan Mengandung Protein Sel Tunggal. Skripsi. Fakultas Peternakan Institut Pertanian Bogor. Bogor.
- Bedford, M. R., 2000. Exogenous Enzymes in Monogastric Nutrition-their Current Value and Future Benefits. *Anim. Feed Sci. Tech.*, 86(1): 1-13.
- Bedford, M.R. and H.L. Classen. 1992. Influence of Dietary Xylanase on Intestinal Viscosity and Molecular Weight Distribution of Carbohydrates in Rye-fed Broiler Chicks, In Visser et al. (Eds.). *Xylans and Xylanases*. Elsevier, Amsterdam.p. 361-370
- Bell, D. and W. D., Weaver. 2002. *Commercial Chicken Meat and Egg Production*. 5th edition. Springer Science and Busines Media Inc. New York.
- Bintang, I.A.K., A.P. Sinurat dan P.P. Ketaren. 2006. Pengaruh Penambahan β -xilanase dan β glukanase Terhadap Performans Ayam Broiler. *JITV* 11(2): 92-96.
- Blair, G. J, Ensminger, M. E. and W. W. Heinemman. 1990. *Poultry Meat Feed and Nutrition*. 2nd Ed The Ensminger Publishing Company, California.
- Blakely, J. and D. A. Bade. 1998. *Ilmu Peternakan*. Terjemahan: B. Srigandono. Yogyakarta: Gadjah Mada University Press
- Budiansyah, A. 2010. Performan Ayam Broiler yang Diberi Ransum yang Mengandung Bungkil Kelapa yang Difermentasi Ragi Tape Sebagai Pengganti Sebagian Ransum Komersial. *Jurnal Ilmiah Ilmu-Ilmu Peternakan*, Vol. XIII, No. 5
- Choct, M. 2006. Enzymes for the feed industry: past present and future. *World's Poult. Sci. J.*, 62 (1): 5-15.
- Cozannet P, Kidd MT, Montanhini Neto R, Geraert P-A. 2017. Next-generation Non-starch Polysaccharide-degrading, Multi-carbohydrase Complex Rich in Xylanase and Arabinofuranosidase to Enhance Broiler Feed Digestibility. *Poultry Sci.*, 96:2743-50.

- Curch, D. C. and W. E. Pond. 1988. Basic Animal Nutrition and Feeding. 3rd ed. United States of America: John Willy and Sons, Inc.
- Daghir, N.J. 2008. Poultry Production in Hot Climates. Second Edition, Cabi Series, CABI
- Darana, S. 2011. Buku Ajar Ilmu Produksi Ternak Unggas. Bandung: Fakultas Peternakan Universitas Padjajaran.
- Departemen Pertanian. 2021. Produksi Kelapa Menurut Provinsi di Indonesia 2017 – 2021. <https://www.pertanian.go.id/home>, (diakses pada 3 Juli 2021).
- Despal. 2000. Kemampuan Komposisi Kimia dan Kecernaan In vitro dalam Mengestimasi Kecernaan In vivo. Media Peternakan, 23 (3): 84 – 88)
- Devi, A. 2016. Effect Of Diet Composition On The Utilization Of Copra Meal By Finishing Broiler Chickens. Tesis. School of Agriculture and Food Technology Faculty of Business and Economics The University of the South Pacific.
- Diarra, S.S., D. Sandakabatu, D. Perera, P.Tabuaciri, and U. Mohammed. 2014. Growth Performance, Carcass Measurements and Organs Weight of Broiler Chickens Fed Cassava Copra Meal-based or Commercial Finisher Ransoms in Samoa. Asian J. Poult. Sci., 8 (1): 16-22.
- Dibner, J.J. and J.D. Richards. 2004. Antibiotic Growth Promotoers in Agriculture: History and Mode of Action. Poult. Sci., 84: 634-643
- Ditjenpkh. 2016. menghemat-biaya-pakan-dengan-teknologi-enzim. <http://ditjenpkh.pertanian.go.id>. (diakses pada tanggal 6 November 2021).
- Djulardi, A., H. Muis, dan S.A. Latif. 2006. Nutrisi Aneka Ternak dan Satwa Harapan. Padang: Cetakan Pertama. Andalas University Press.
- Ensminger, M. E. 1980. Poultry Science. 2nd ed. Danville (US):The Interstate Printers and Publishers
- Evonik. 2016. Evonik AminoDat 5.0. Evonik Nutrition & Care GmbH Animal Nutrition. Germany.
- Fadilah, R. 2005. Panduan mengelola peternakan ayam broiler komersial. Jakarta: PT. Agromedia. Pustaka.

- Fikrinda, 2000. Isolasi dan Karakterisasi Bakteri Penghasil Selulase Ekstermofilik dari Ekosistem Air hitam. Tesis Program Pascasarjana IPB, Bogor.
- Fitasari, E. 2009. Pengaruh Penggunaan Probiotik dan Enzim Papain dalam Pakan terhadap Karakteristik Usus dan Penampilan Produksi Ayam Pedaging. Tesis. Program Pascasarjana Universitas Brawijaya Malang.
- Gultom, S.M., Supratman, Abun. 2014. Pengaruh Imbangan Energi dan Protein Ransum Terhadap Bobot Karkas dan Bobot Lemak Abdominal Ayam Broiler Umur 35 Minggu. Jurnal Fakultas Peternakan, Universitas Padjajaran, Bandung.
- Hamzah. 2013. Respon Usus dan Karakteristik Karkas Pada Ayam Ras Pedaging Dengan Berat Badan Awal Berbeda Yang Dipuaskan Setelah Menetas. Skripsi. Fakultas Penternakan Universitas Hasanuddin. Makassar.
- Haetinger, V.S., C.S. Park, and O, Adeola. 2021. Energi Values of Copra Meal and Cornstarch for Broiler Chickens. *Poultry Science*, 100(2): 858-864.
- Hermana, W. Hermana, dan A. Aliyani. 2003. Persentase Berat Karkas dan Organ Dalam Ayam Broiler Yang Diberi Tepung Daun Talas (*Colocasia Esculenta* (L.) Schott) Dalam Ransumnya. *Media Peternakan*, 26(1): 4-10
- Hossain, M. A., A. F. Islam, and P. A. Iji. 2012. Energy Utilization and Performance of Broiler Chickens Raised on Diets with Vegetable Proteins or Conventional Feeds. *Asian Journal of Poultry Science*, 6: 117-128
- Hosseini, S. M., and M. Afshar. 2017. Effects of Feed Form and Xylanase Supplementation on Performance and Ileal Nutrients Digestibility of Heat-stressed Broilers fed Wheatsoybean Diet. *J. Appl. Poult. Res.*, 45: 550-556.
- Ibrahim, S. 2008. Hubungan Ukuran-ukuran Usus Halus Dengan Berat Badan Broiler. *Agripet*, Vol (8) No. 2: 42-46.
- Iyayi, E. A., O. Ogunsulo and R. Ijaya. 2005. Effect of Three Sources of Fibre and Period of Feeding on the Performance, Carcase Measures, Organs Relative Weight and Meat Qulaity in Broilers. *Int.J.of Poult. Sci.*, 4: 695-700.

- Jácome I.M.T.D., L.P. Gomes da Silva, A. Guim, D.Q. Lima, M.M. Almeida, M.J. de Araújo, V.P. Oliveira, J.D.B. Silva, T.D.D. Martins. 2002. Effect of Different Levels of Coconut Meal in Broiler Chicken's Diets Upon the Carcass Yield. *Acta Science. Anim Sci.*, 24(4):1015–1019.
- Jha, R. and P. Mishra. 2021. Dietary Fiber in Poultry Nutrition and Their Effect on Nutrient Utilization, Performance, Gut Health, and on the Environment: a Review. *Journal of Animal Science and Biotechnology* 12:51
- Jones, G. P., and R.D. Taylor. 2001. The Incorporation of Whole Grain Into Pelleted Broiler Chicken Diets: Production and Physiological Responses, *Br. Poult. Sci.*, 42(4):477-483.
- Jørgensen, H., X.Q. Zhao, K.E. Knudsen, B.O. Eggum. 1996. The Influence of Dietary Fibre Source and Level on the Development of the Gastrointestinal Tract, Digestibility and Energy Metabolism in Broiler Chickens. *Br J Nutr.*, 75(3):379–395.
- Kimiaeitalab, M. V., G.S. Mirzaie, E. Jiménez-Moreno, L. Cámara, G.G. Mateos. 2018. A comparative Study on the Effects of Dietary Sunflower Hulls on Growth Performance and Digestive Tract Traits of Broilers and Pullets Fed a Pullet Diet From 0 to 21 Days of Age. *Anim. Feed Sci. Technol.*, 236: 57-67
- Kim, J., S. Kang, J. Yoon, Y. R. Yang, W. Kim, J. Jang, and Y.H. Choi. 2015. Effects of Dietary Pearlzyme on Growth Performance and Development of Digestive Organs in Broilers. *Korean Journal of Poultry Science*, 42:291-297.
- Kurniati, N. 2015. Produksi Enzim Protease dari Bakteri Asam Laktat Asal Bekasam. Tesis. Sekolah Pasca Sarjana IPB. Bogor.
- Leeson, S. and J. D. Summers. 2005. *Commercial Poultry Nutrition* 3rd edition. UniversityBooks. Guelph. Canada.
- Lenhart, L., and S. Mozez. 2003. Morphological and Functional Changes of the Small Intestine in Growth-Stunted Broilers. *Acta Vet Brno.*, 72:353-358.
- Lestari, R., A. Darmawan, dan I.W. Wijayanti. 2020. Suplementasi Mineral Cu dan Zn dalam Pakan terhadap Organ Dalam dan Lemak Abdomen Ayam Broiler. *Jurnal Ilmu Nutrisi dan Teknologi Pakan*, 18(3): 74-80

- Lokapirnasari, W.P., M.M. Fadli, R.T.S. Adikara, dan S. Suherni. 2015. Suplementasi Spirulina Pada Formula Pakan Mengandung Bekatul Fermentasi Mikroba Selulolitik Terhadap Kecernaan Pakan. *J. Agroveteriner*, 3(2): 137–144.
- Mairizal dan E. Erwan. 2008. Respon Biologis Pemberian Bungkil Kelapa Hasil Fermentasi dengan *Trichoderma Harzianum* dalam Ransum Terhadap Performans Ayam Pedaging. *Jurnal Ilmiah Ilmu-Ilmu Peternakan*. Vol. XI. No. 4.
- Mario, W. L. M. S., E. Widodo dan O. Sjojfan. 2013. Pengaruh Penambahan Kombinasi Tepung Jahe Merah, Kunyit dan Meniran dalam Pakan Terhadap Kecernaan Zat Makanan dan Energi Metabolis Ayam Pedaging. *JIP*, 24 (1):1-8.
- Marks, D.B., A.D. Marks, C.M. Smith. 2000. *Biokimia Kedokteran Dasar: Sebuah Pendekatan Klinis*. EGC. Jakarta
- Mateos, G.G., E. Jimenez-Moreno, M.P. Serrano, and R.P. Lazaro. 2012. Poultry Response to High Levels of Dietary Fiber Sources Varying in Physical and Chemical Characteristics. *Journal of Applied Poultry Research*, 21: 156-174.
- Maynard, L.A., J.K. Loosil, H.F. Hintz, and R.G. Warner, 2005. *Animal Nutrition 7th Edition*. McGraw-Hill Book Company. New York, USA.
- McDonald, P., R.A. Edwards, J.F.D. Greenhalgh, C.A. Morgan, L.A. Sinclair and R.G. Wilkinson. 2010. *Animal Nutrition 7th Edition*. Longman, New York.
- Mide, M.Z., dan Harfiah., 2013. Pengaruh Penambahan Tepung Daun Katuk (*saoropus androgynus*) Dalam Ransum Berbasis Pakan Lokal Terhadap Performans Broiler. *Buletin Nutrisi dan Makanan Ternak*, 9 (1): 18-26.
- Mitchell, M. A. and A. J. Carlisle. 1992. The Effects of Chronic Exposure to Elevated Environmental Temperature on Intestinal Morphology and Nutrient Absorption in the Domestic Fowl (*Gallus domesticus*). *Comp Biochem Physiol A Comp Physiol.*, 101(1):137-142.
- Mohsen, M. and I. H. Kim. 2018. Addition of a *Protease* to Low Crude Protein Density Diets of Broiler Chickens. *Journal of Applied Animal Research* Vol. 46 No.1 1377-1381.
- Murtidjo B. A. 1992. *Pedoman Beternak Ayam Broiler*. Yogyakarta. Kanisius

- National Research Council. 1994. Nutrient Requirements of Poultry. 9th Revised Edition. National Academic Press. Washington.
- Ndazigaruye, G. D.H. Kim, C.W. Kang, K.R. Kang, Y.J. Joo, S.R. Lee, and K.W. Lee. 2019. Effects of Low-Protein Diets and Exogenous Protease on Growth Performance, Carcass Traits, Intestinal Morphology, Cecal Volatile Fatty Acids and Serum Parameters in Broilers. *Animals* 9:226.
- Ningtias, A. S. 2013. Perbandingan Kualitas Pertumbuhan Ayam Broiler, Kampung, dan Backcross3 (*Gallus gallus domesticus* Linnaeus, 1758) Berdasarkan Morfometri dan Struktur Histologis Ileum dan Otot Dada. Skripsi. Fakultas Biologi Universitas Gajah Mada. Yogyakarta.
- North, M. O. and D. D. Bell. 1990. Commercial Chicken Production Manual. 4th edition. Van Northland Reinhold, New York.
- Novianti, T., P. Ardiningsih, W. Rahmalia. 2012. Pengaruh Temperatur Terhadap Aktivitas Enzim *Protease* dari Daun Sanksang (*Pycnarrhena Cauliflora* Diels). *Jurnal Kimia*, Vol.1, No.1, hlm: 31-34.
- Nuraini. 2009. Performan Broiler dengan Ransum Mengandung Campuran Ampas Sagu dan Ampas Tahu yang Difermentasi dengan *Neurospora Crassa*. *Media Peternakan* Vol. 32 No 3: 3-5.
- Nurrohman, A., V.D. Yuniarto, dan I. Mangisah. 2015. Penggunaan Tepung Biji Alpukat terhadap Kecernaan Lemak Kasar dan Energi Matabolis Ransum Ayam Broiler. *Jurnal Pengembangan Penyuluhan Pertanian*, 11(22);48-57.
- Noersidiq, A. 2015. Pengaruh Pemberian Tepung Kulit Nanas Yang Diberi Fermentasi Dengan Yoghurt Terhadap Retensi Bahan Kering, Protein Kasar dan Kecernaan Serat Kasar Pada Ayam Broiler Fase Awal. Skripsi. Fakultas Peternakan Universitas Jambi. Jambi
- Packham R. G., 1982. Feed composition, Formulation and Poultry Nutrition. In H Lloyd Davies.
- Palmer, T. 1991. Understanding Enzyme Third Edition. Ellis Horwood Limited. England.
- Pan, L., Q.H. Shang, X.K. Ma, Y. Wu, S.F. Long, Q.Q. Wang, and X.S. Piao, .2017. Coated Compound Proteases Improve Nitrogen Utilization by Decreasing Manure Nitrogen Output for Growing Pigs Fed Sorghum Soybean Meal Based Diets. *Animal Feed Science and Technology*, 230:136-142.

- Parakkasi, A. 1999. Ilmu Nutrisi dan Makanan Ternak Ruminansia. Universitas Indonesia Press, Jakarta.
- Pearce, E. C. 1984. Anatomi dan Fisiologi untuk Paramedik. PT Gramedia, Jakarta
- Pertiwi, D.D.R., R. Muwarni dan T. Yudiarti. 2017. Bobot Relatif Saluran Pencernaan Broiler yang Diberikan Air Rebusan Kunyit dalam Air Minum. Jurnal Peternakan Indonesia. Fakultas Peternakan dan Pertanian Universitas Diponegoro, Semarang.
- Poedjiadi, A. dan F.M.T. Supriyanti. 2009. Dasar-Dasar Biokimia. Universitas Indonesia. Jakarta.
- Prawitasari, R.H., V.D.Y.B. Ismadi, I. Estiningdriati. 2012. Kecernaan Protein Kasar dan Serat Kasar Serta Laju Digesta pada Ayam Arab Yang Diberikan Ransum Dengan Berbagai Level *Azolla microphylla*. *Animal Agriculture Journal*, Vol. 1. No. 1:471-483
- Price, M. A., S.D. Jones, G.W. Mathison and R.T. Berg .1980. The Effect of Increasing Ransumary Roughage and Slaughter Weight on the Feedlot Performance and Carcass Characteristics of Bull and Steer. *J.sci.*, 60: 349-358.
- Pusdatin, Kementan RI. 2020. Outlook Komoditas Petanian Subsektor Peternakan Daging Ayam. Jakarta: Pusdatin Kementan RI.
- Rasyaf, M. 1997. Beternak Ayam Pedaging. PT. Penebar Swadaya. Jakarta.
- Ravindran V. 2013. Feed Enzymes: the Tcience, Practice, and Metabolic Realities. *J Appl Poultry*, 22: 628-36.
- Retnoadiati, N. 2001. Persentase Bobot Karkas, Organ Dalam, dan Lemak Abdominal Ayam Broiler yang diberi Ransum Berbahan Baku Tepung Kadal (*Mabouya multifaciatakuhl*). Skripsi. Fakultas Peternakan. Institut Pertanian Bogor, Bogor.
- Richana, N. 2002. Produksi dan Prospek Enzim Xilanase dalam Pengembangan Bioindustri di Indonesia. *Buletin AgroBio*, 5(1): 29–36.
- Rizal, Y. 2006. Ilmu Nutrisi unggas, Andalas University Press, Padang
- Rose, S. P. 1997. Principle of Poultry Science. CAB Internationl, New York.

- Saleh, A. A., A.A. Kirrella, S.E. Abdo, M.M. Mousa, N.A. Badwi, T.A. Ebeid, A.L. Nada, M.A. Mohamed. 2019. Effects of Dietary Xylanase and Arabinofuranosidase Combination on the Growth Performance, Lipid Peroxidation, Blood Constituents, and Immune Response of Broilers Fed Low-Energy Diets. *Animals*, 9:467
- Sari, K.A., B. Sukamto, dan B. Dwiloka. 2014. Efisiensi Penggunaan Protein pada Ayam Broiler dengan Pemberian Pakan Mengandung Tepung Daun Kayambang (*Salvinia molesta*). *Jurnal Agripet*. 14 (2): 76-83.
- Scott, M.L., M.C. Neisheim, and, R.J. Young. 1982. *Nutrition of The Chicken* 3rd Ed. Pub. M.L. Scott and Associates. Ithaca. New York.
- Selle, P., K.H. Huang, and W.I. Muir. 2003. Effect of Nutrient Specifications and Xylanase Plus Phytase Supplementation of Wheat-Based Diets on Growth Performance and Carcas Traits of Broiler Chicks. *Asian-Aust J Anim Sci.*, 16(10): 1501-1509.
- Setiawati, M., R. Sutajaya, dan M. A. Supriyadi, 2008. Pengaruh Perbedaan Kadar Protein dan Rasio Energi Protein Pakan terhadap Kinerja Pertumbuhan Fingerlings Ikan Mas (*Cyprinus carpio*). *Jurnal Akuakultur Indonesia*, 7:171:178
- Setyoko, H. dan B. Utami. 2016. Isolasi dan Karakteristik Enzim Selulase Cairan Rumen Sapi untuk Hidrolisis Biomassa. *Proceeding Biology Education Conference (ISSN: 2528-5742)*, Vol 13(1): 863-867.
- Siri, S., H. Tobioka, I. Tasaki. 1992. Effects of Ransumary Cellulose Level on Nutrient Utilization in Chickens. *AJAS* 5(4): 741 - 746.
- Sklan, D., dan S. Hurtwitz, 1980. Protein Digestion and Absorption in Young Chick and Turkey, *J. Nutrition*, 110(1): 134-142.
- Steel, R. G. D., dan J. H Torrie. 1993. *Prinsip dan Prosedur Statistika Suatu Pendekatan Biometrik*. Alih Bahasa B Sumantri. PT Gramedia Pustaka Utama. Jakarta.
- Stein, H.H., G.A. Casas, J.J. Abelilla, Y. Liu, and R.C. Sulabo. 2015. Nutritional Value of High Fiber Co-Products From the Copra, Palm Kernel, and Rice Industries in Diets Fed to Pigs. *J. Anim. Sci. Biotechnol.* 6:56
- Suci, L.D., 2005. Pengaruh pemberian Jerami Pada Terfermentasi Terhadap Daya Cerna Bahan Organik dan Serat Kasar Pakan Pada Domba. Skripsi. Fakultas Kedokteran Hewan. Universitas Airlangga. Surabaya.

- Sundu, B., A. Kumar, and J. Dingle. 2004. The Effect of Levels of Copra Meal and Enzymes on Bird Performance. Australian Poultry Science Symposium, 16: 52-54.
- Sundu, B., A. Kumar, and J. Dingle. 2004b. The Effect of Commercial Enzymes on Chicks Fed High Copra Meal and Palm Kernel Meal Diets. Proc. Seminar Nasional Pemanfaatan Sumber Daya Hayati Berkelanjutan (Husain M.H. ed),. Tadulako University press, Indonesia, pp: 26-31
- Sundu, B., A. Kumar, and J. Dingle. 2005. Growth Pattern of Broilers Fed a Physically or Enzymatically Treated Copra Meal Diet. Proceedings of the 17th Australian Poultry Science Symposium. 7–9 February 2005, University of Sydney. pp. 291–294. (World's Poultry Science Association)
- Sundu, B., A. Kumar, and J. Dingle. 2006. Response of Broiler Chicks Fed Increasing Levels of Copra Meal and Enzymes. International Journal of Poultry Science, 5 (1): 13-18
- Sundu, B., A. Kumar, and J. Dingle. 2009. Feeding Value of Copra Meal for Broilers. World's Poultry Science Journal, 65(3), 481-491
- Sundu, B., U. Hatta, and A.S. Chaudhry. 2012. Potential of beta-mannan from copra meal as feed additive for broilers. World's Poult. Sci. J., 68 (4): 707-716.
- Sundu, B., U. Hatta, S. Mozin, N. Toana, Hafsa, Marhaeni, and S. Sarjuni. 2020. Coconut Meal as a Feed Ingredient and Source of Prebiotic for Poultry. IOP Conf. Ser.: Earth Environ. Sci., 492 012126.
- Suprijatna, E. 2010. Strategi Pengembangan Ayam Lokal Berbasis Sumber Daya Lokal dan Berwawasan Lingkungan. Prosiding Seminar Nasional Unggas Lokal, 4: 55-79.
- Suprijatna, E. 2018. Ilmu Dasar Ternak Unggas. Penebar Swadaya, Jakarta.
- Tabeidian, S. A., M. Ghafoori, Y. Bahrami, S. Chekani-Azhar and M. Toghyani. 2010. Effect of Different Levels of Dietary Fat on Broiler Performance and Production Cost with Emphasis on Calcium and Phosphorus Absorption. Global Veterinaria, 5(1): 54-60

- Tactacan, G.B., S. Cho, J.H. Cho, and I. H. Kim. 2016. Performance Responses, Nutrient Digestibility, Blood Characteristics, and Measures of Gastrointestinal Health in Weanling Pigs Fed Protease Enzyme. *Asian-Australasian J Anim Sci.*, 29(7): 998-1003
- Tampubolon dan P.P. Bintang. 2012. Pengaruh Imbangan Energi dan Protein Ransum terhadap Energi Metabolis dan Retensi Nitrogen Ayam Broiler. *Jurnal Fakultas Peternakan Universitas Padjadjaran, Bandung.*
- Tancharoenrat, P., V. Ravindran, F. Zaefarian, G. Ravindran. 2013. Influence of Age on the Apparent Metabolisable Energi and Total Tract Apparent Fat Digestibility of Different Fat Sources for Broiler Chickens. *Animal Feed Science and Technology*, 186: 186-192
- Tejeda, O.J., and W.K. Kim. 2001. Role of Dietary Fiber in Poultry Nutrition: Review. *Animals*, 11(2):461.
- Tillman, A.D., H. Hartadi, S. Reksohadiprodjo, S. Prawirokusumodan, dan S. Lebdosoekojo. 1991. *Ilmu Makanan Ternak Dasar*. Gadjah Mada University Press. Yogyakarta.
- Tistiana, H., O. Sjojfan, E. Widodo, I.H. Djunaidi, H. Natsir. 2018. Efek Penambahan Enzim Xilanase Dengan Level Serat Pakan Berbeda Terhadap Penampilan Produksi Ayam Pedaging. *Journal of Tropical Animal Production*, 19(1): 27-31
- Trobos.2019. Kecernaan Nutrisi Penurunan Biaya Protein Dalam Pakan. <http://troboslivestock.com/detailberita/2019/09/01/85/12047> (diakses pada 5 November 2021).
- Wahyu, J. 1988. *Ilmu Nutrisi Unggas*. Gadjah Mada University Press, Yogyakarta.
- Wahyu, J. 1997. *Ilmu Nutrisi Unggas*. Cetakan IV. Gadjah Mada University Press. Yogyakarta.
- Walsh, K., P. O'Kiely, H.Z. Taweel, A.P. Moloney, T. Boland. 2008. Intake, Digestibility, Rumen Fermentation and Performance of Beef Cattle Fed Diets Based on Whole-Crop Wheat or Barley Harvested at Two Cutting Heights Relative to Maize Silage or ad Libitum Concentrates. *Anim. Feed Sci. Technol.*, 144 (3): 257-278.
- Widodo, E. 2018. *Ilmu Nutrisi Unggas*. UB Press. Malang.

Yamauchi, K., and Isshiki, Y., 1991. Scanning Electron Microscopis Obsevation on the Intestinal Vili in Growing White Leghorn and Broiler Chicken From 1 to 30 Days of Age. *Br Poult Sci.*, 32(1):67-78.

Yuwanta, T. 2004. *Dasar Ternak Unggas*. Penerbit Kanisius. Yogyakarta.

Zulfanita, E.M. Roisu, dan D.P. Utami. 2011. Pembatasan Ransum Berpengaruh Terhadap Pertambahan Bobot Ayam Broiler Pada Periode Pertumbuhan. *Jurnal Ilmu-Ilmu Pertanian*, 7(1): 59-60.

LAMPIRAN

Lampiran 1. Analisis Ragam Konsumsi Pakan

Descriptive Statistics

Dependent Variable:Konsumsi

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	1978.600	113.519	3
	E1	2027.000	96.011	3
	E2	1985.300	88.844	3
	E3	1953.800	105.459	3
	Total	1986.200	90.731	12
K1	E0	1953.600	9.786	3
	E1	2059.300	84.912	3
	E2	1999.300	98.997	3
	E3	1795.800	297.418	3
	Total	1952.000	172.034	12
K2	E0	2070.700	81.923	3
	E1	1982.400	102.817	3
	E2	2126.300	67.209	3
	E3	2086.900	38.317	3
	Total	2066.600	85.152	12
K3	E0	2019.300	127.252	3
	E1	2113.600	27.175	3
	E2	2030.400	110.484	3
	E3	2123.100	64.076	3
	Total	2071.600	91.974	12
Total	E0	2005.500	93.101	12
	E1	2045.600	86.832	12
	E2	2035.300	97.744	12
	E3	1989.900	192.750	12
	Total	2019.100	123.432	48

Tests of Between-Subjects Effects

Dependent Variable:Konsumsi

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	309675.014 ^a	15	20645.001	1.626	0.122
Intercept	195700000	1	195700000	15410	0
Kopra	127148.135	3	42382.712	3.337	0.031
Enzim	24014.087	3	8004.696	0.63	0.601
Kopra * Enzim	158512.792	9	17612.532	1.387	0.235
Error	406389.903	32	12699.684		
Total	196400000	48			
Corrected Total	716064.917	47			

a. R Squared = .432 (Adjusted R Squared = .166)

Konsumsi

Duncan ab

Taraf Kopra	N	Subset	
		1	2
K1	12	1952.000	
K0	12	1986.200	1986.200
K2	12		2066.600
K3	12		2071.600
Sig.		0.463	0.088

Lampiran 2. Analisis Ragam Pertambahan Berat Badan

Descriptive Statistics

Dependent Variable:PBB

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	1082.900	47.719	3
	E1	1124.600	34.034	3
	E2	1158.800	22.220	3
	E3	1121.200	103.953	3
	Total	1121.900	58.873	12
K1	E0	1095.400	40.492	3
	E1	1138.800	45.894	3
	E2	1152.600	110.482	3
	E3	1060.100	186.058	3
	Total	1111.700	103.191	12
K2	E0	1137.900	61.356	3
	E1	1122.100	26.260	3
	E2	1251.200	31.325	3
	E3	1163.800	2.500	3
	Total	1168.800	60.874	12
K3	E0	1175.400	73.499	3
	E1	1214.600	66.583	3
	E2	1185.400	74.176	3
	E3	1112.400	130.871	3
	Total	1171.900	86.137	12
Total	E0	1122.900	61.923	12
	E1	1150.000	55.550	12
	E2	1187.000	71.792	12
	E3	1114.400	113.380	12
	Total	1143.600	81.569	48

Tests of Between-Subjects Effects

Dependent Variable:PBB

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	106292.710 ^a	15	7086.181	1.099	0.396
Intercept	62770000	1	62770000	9731	0
Kopra	35077.916	3	11692.639	1.813	0.165
Enzim	38491.783	3	12830.594	1.989	0.135
Kopra * Enzim	32723.011	9	3635.89	0.564	0.816
Error	206422.611	32	6450.707		
Total	63090000	48			
Corrected Total	312715.321	47			

a. R Squared = .340 (Adjusted R Squared = .030)

Lampiran 3. Analisis Ragam Konversi Pakan

Descriptive Statistics

Dependent Variable:FCR

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	1.830	0.128	3
	E1	1.800	0.036	3
	E2	1.717	0.092	3
	E3	1.750	0.113	3
	Total	1.774	0.096	12
K1	E0	1.787	0.072	3
	E1	1.810	0.020	3
	E2	1.740	0.106	3
	E3	1.700	0.104	3
	Total	1.759	0.084	12
K2	E0	1.823	0.038	3
	E1	1.763	0.050	3
	E2	1.700	0.026	3
	E3	1.793	0.031	3
	Total	1.770	0.057	12
K3	E0	1.720	0.026	3
	E1	1.740	0.096	3
	E2	1.717	0.060	3
	E3	1.927	0.201	3
	Total	1.776	0.135	12
Total	E0	1.790	0.080	12
	E1	1.778	0.058	12
	E2	1.718	0.068	12
	E3	1.793	0.140	12
	Total	1.770	0.094	48

Tests of Between-Subjects Effects

Dependent Variable:FCR

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.164 ^a	15	0.011	1.383	0.215
Intercept	150.344	1	150.344	19060	0
Kopra	0.002	3	0.001	0.085	0.967
Enzim	0.044	3	0.015	1.848	0.158
Kopra * Enzim	0.118	9	0.013	1.66	0.14
Error	0.252	32	0.008		
Total	150.76	48			
Corrected Total	0.416	47			

a. R Squared = .393 (Adjusted R Squared = .109)

Lampiran 4. Analisis Ragam Konsumsi Protein

Descriptive Statistics

Dependent Variable:Konsumsi Protein

Taraf Kopra	Taraf Enzim	Mean	Std. Deviation	N
K0	E0	18.059	1.036	3
	E1	18.969	0.898	3
	E2	18.912	0.846	3
	E3	18.511	0.999	3
	Total	18.613	0.894	12
K1	E0	18.548	0.093	3
	E1	19.582	0.807	3
	E2	18.156	0.899	3
	E3	16.750	2.774	3
	Total	18.259	1.670	12
K2	E0	18.764	0.742	3
	E1	18.321	0.950	3
	E2	20.070	0.634	3
	E3	19.909	0.366	3
	Total	19.266	0.981	12
K3	E0	19.398	1.222	3
	E1	19.490	0.251	3
	E2	18.810	1.024	3
	E3	19.588	0.591	3
	Total	19.322	0.798	12
Total	E0	18.692	0.906	12
	E1	19.091	0.846	12
	E2	18.987	1.029	12
	E3	18.690	1.825	12
	Total	18.865	1.191	48

Tests of Between-Subjects Effects

Dependent Variable:Konsumsi Protein

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	17113.663 ^a	16	1069.604	966.645	0.000
Kopra	9.599	3	3.200	2.892	0.051
Enzim	1.518	3	0.506	0.457	0.714
Kopra * Enzim	20.160	9	2.240	2.024	0.069
Error	35.408	32	1.107		
Total	17149.071	48			

a. R Squared = .998 (Adjusted R Squared = .997)

Konsumsi Protein

Duncan

Level Kopra	N	Subset	
		1	2
K1	12	18.259	
K0	12	18.613	18.613
K2	12		19.266
K3	12		19.322
Sig.		0.416	0.128

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1.107.

Lampiran 5. Analisis Ragam Konsumsi Lemak Kasar

Descriptive Statistics

Dependent Variable:Konsumsi Lemak Kasar

Taraf Kopra	Taraf Enzim	Mean	Std. Deviation	N
K0	E0	5.523	0.319	3
	E1	5.837	0.274	3
	E2	5.583	0.250	3
	E3	5.983	0.323	3
	Total	5.732	0.317	12
K1	E0	5.937	0.032	3
	E1	6.330	0.262	3
	E2	6.190	0.305	3
	E3	5.257	0.870	3
	Total	5.928	0.594	12
K2	E0	6.270	0.252	3
	E1	5.747	0.296	3
	E2	6.633	0.211	3
	E3	6.277	0.114	3
	Total	6.232	0.383	12
K3	E0	6.010	0.380	3
	E1	5.980	0.076	3
	E2	5.933	0.321	3
	E3	6.410	0.197	3
	Total	6.083	0.305	12
Total	E0	5.935	0.367	12
	E1	5.973	0.311	12
	E2	6.085	0.464	12
	E3	5.982	0.619	12
	Total	5.994	0.444	48

Tests of Between-Subjects Effects

Dependent Variable:Konsumsi Lemak Kasar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.749 ^a	15	0.383	3.477	0.001
Intercept	1724.402	1	1724.402	15640.000	0.000
Kopra	1.651	3	0.550	4.993	0.006
Enzim	0.148	3	0.049	0.448	0.721
Kopra * Enzim	3.950	9	0.439	3.982	0.002
Error	3.527	32	0.110		
Total	1733.679	48			
Corrected Total	9.277	47			

a. R Squared = .620 (Adjusted R Squared = .442)

Konsumsi Lemak Kasar

Duncan

Level Kopra	N	Subset		
		1	2	3
K0	12	5.7317		
K1	12	5.9283	5.9283	
K3	12		6.0833	6.0833
K2	12			6.2317
Sig.		0.157	0.261	0.282

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .110.

Lampiran 6. Analisis Ragam Konsumsi Energi Metabolisme

Descriptive Statistics

Dependent Variable:Konsumsi Energi Metabolisme

Taraf Kopra	Taraf Enzim	Mean	Std. Deviation	N
K0	E0	296.820	17.027	3
	E1	308.470	14.614	3
	E2	300.260	13.435	3
	E3	299.500	16.166	3
	Total	301.260	13.876	12
K1	E0	296.710	1.486	3
	E1	313.950	12.949	3
	E2	308.600	15.280	3
	E3	273.470	45.292	3
	Total	298.180	26.661	12
K2	E0	314.910	12.460	3
	E1	299.220	15.519	3
	E2	325.080	10.274	3
	E3	318.040	5.844	3
	Total	314.310	13.967	12
K3	E0	307.590	19.385	3
	E1	320.780	4.122	3
	E2	309.960	16.863	3
	E3	324.840	9.802	3
	Total	315.790	14.047	12
Total	E0	304.010	14.637	12
	E1	310.600	13.569	12
	E2	310.980	15.282	12
	E3	303.960	29.599	12
	Total	307.390	19.099	48

Tests of Between-Subjects Effects

Dependent Variable:Konsumsi Energi Metabolisme

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7725.803 ^a	15	515.054	1.750	0.090
Intercept	4535391.903	1	4535391.903	15410.000	0.000
Kopra	2890.474	3	963.491	3.274	0.034
Enzim	556.401	3	185.467	0.630	0.601
Kopra * Enzim	4278.928	9	475.436	1.615	0.153
Error	9418.125	32	294.316		
Total	4552535.831	48			
Corrected Total	17143.928	47			

a. R Squared = .451 (Adjusted R Squared = .193)

Konsumsi Energi Metabolisme

Duncan

Taraf Kopra	N	Subset	
		1	2
K1	12	298.18	
K0	12	301.26	301.26
K2	12		314.31
K3	12		315.79
Sig.		0.663	0.057

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 294.316.

Lampiran 7. Analisis Ragam Kecernaan Protein Kasar

Descriptive Statistics

Dependent Variable:Kecernaan Protein

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	59.958	6.541	3
	E1	63.937	10.276	3
	E2	67.705	5.842	3
	E3	61.601	5.961	3
	Total	63.300	6.991	12
K1	E0	66.216	10.120	3
	E1	63.518	4.364	3
	E2	58.235	1.272	3
	E3	59.174	4.002	3
	Total	61.786	6.063	12
K2	E0	58.088	5.971	3
	E1	57.599	2.527	3
	E2	60.422	4.303	3
	E3	66.430	1.246	3
	Total	60.635	4.974	12
K3	E0	63.987	6.548	3
	E1	56.814	1.665	3
	E2	56.324	5.540	3
	E3	56.962	1.658	3
	Total	58.522	5.030	12
Total	E0	62.062	7.205	12
	E1	60.467	6.003	12
	E2	60.672	5.977	12
	E3	61.042	4.863	12
	Total	61.061	5.904	48

Tests of Between-Subjects Effects

Dependent Variable:Kecernaan Protein

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	641.881 ^a	15	42.792	1.374	0.219
Intercept	178963.018	1	178963.02	5746	0
Kopra	146.005	3	48.668	1.563	0.218
Enzim	18.08	3	6.027	0.193	0.9
Kopra * Enzim	477.796	9	53.088	1.705	0.129
Error	996.641	32	31.145		
Total	180601.539	48			
Corrected Total	1638.521	47			

a. R Squared = .392 (Adjusted R Squared = .107)

Lampiran 8. Analisis Ragam Kecernaan Serat Kasar

Descriptive Statistics

Dependent Variable:Kecernaan Serat Kasar

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	23.900	12.522	3
	E1	24.143	3.811	3
	E2	29.947	5.082	3
	E3	24.323	15.126	3
	Total	25.578	9.187	12
K1	E0	22.573	12.375	3
	E1	18.417	13.716	3
	E2	32.170	3.713	3
	E3	8.653	1.446	3
	Total	20.453	11.946	12
K2	E0	29.610	4.127	3
	E1	25.653	5.498	3
	E2	18.507	7.801	3
	E3	25.527	16.328	3
	Total	24.824	9.251	12
K3	E0	27.533	3.632	3
	E1	26.210	4.244	3
	E2	6.173	15.610	3
	E3	17.730	4.190	3
	Total	19.412	11.503	12
Total	E0	25.904	8.393	12
	E1	23.606	7.485	12
	E2	21.699	13.399	12
	E3	19.058	11.942	12
	Total	22.567	10.557	48

Tests of Between-Subjects Effects

Dependent Variable:Kecernaan Serat Kasar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2337.897 ^a	15	155.860	1.720	0.097
Intercept	24444.665	1	24444.665	269.690	0.000
Kopra	343.040	3	114.347	1.262	0.304
Enzim	303.357	3	101.119	1.116	0.357
Kopra * Enzim	1691.500	9	187.944	2.074	0.063
Error	2900.472	32	90.640		
Total	29683.033	48			
Corrected Total	5238.369	47			

a. R Squared = .446 (Adjusted R Squared = .187)

Lampiran 9. Analisis Ragam Kecernaan Lemak Kasar

Descriptive Statistics

Dependent Variable:Kecernaan Lemak Kasar

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	76.653	3.445	3
	E1	83.410	5.508	3
	E2	87.543	1.599	3
	E3	83.590	3.221	3
	Total	82.799	5.171	12
K1	E0	84.013	2.830	3
	E1	87.250	4.794	3
	E2	81.717	3.160	3
	E3	83.633	1.293	3
	Total	84.153	3.474	12
K2	E0	85.290	4.533	3
	E1	70.687	16.660	3
	E2	84.633	4.566	3
	E3	88.113	2.178	3
	Total	82.181	10.429	12
K3	E0	84.067	4.714	3
	E1	80.760	2.656	3
	E2	74.593	11.590	3
	E3	80.833	2.809	3
	Total	80.063	6.634	12
Total	E0	82.506	4.912	12
	E1	80.527	10.122	12
	E2	82.122	7.465	12
	E3	84.043	3.452	12
	Total	82.299	6.860	48

Tests of Between-Subjects Effects

Dependent Variable:Kecernaan Lemak Kasar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1025.745 ^a	15	68.383	1.845	0.072
Intercept	325111.336	1	325111.34	8772	0
Kopra	104.411	3	34.804	0.939	0.433
Enzim	75.062	3	25.021	0.675	0.574
Kopra * Enzim	846.272	9	94.03	2.537	0.025
Error	1185.944	32	37.061		
Total	327323.025	48			
Corrected Total	2211.689	47			

a. R Squared = .464 (Adjusted R Squared = .212)

Lampiran 10. Analisis Ragam Rasio Efisiensi Protein

Descriptive Statistics

Dependent Variable: Rasio Efisiensi Protein

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	2.860	0.207	3
	E1	2.823	0.051	3
	E2	2.923	0.162	3
	E3	2.883	0.185	3
	Total	2.873	0.144	12
K1	E0	2.813	0.107	3
	E1	2.767	0.025	3
	E2	3.020	0.195	3
	E3	3.013	0.197	3
	Total	2.903	0.174	12
K2	E0	2.887	0.055	3
	E1	2.917	0.086	3
	E2	2.970	0.044	3
	E3	2.783	0.045	3
	Total	2.889	0.088	12
K3	E0	2.887	0.047	3
	E1	2.970	0.166	3
	E2	3.000	0.105	3
	E3	2.700	0.275	3
	Total	2.889	0.190	12
Total	E0	2.862	0.109	12
	E1	2.869	0.118	12
	E2	2.978	0.124	12
	E3	2.845	0.206	12
	Total	2.889	0.149	48

Tests of Between-Subjects Effects

Dependent Variable:Rasio Efisiensi Protein

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.398 ^a	15	0.027	1.306	0.255
Intercept	400.496	1	400.496	19700.000	0.000
Kopra	0.006	3	0.002	0.094	0.963
Enzim	0.133	3	0.044	2.175	0.110
Kopra * Enzim	0.260	9	0.029	1.420	0.221
Error	0.651	32	0.020		
Total	401.545	48			
Corrected Total	1.049	47			

a. R Squared = .380 (Adjusted R Squared = .089)

Lampiran 11. Analisis Ragam Panjang Relatif Duodenum

Descriptive Statistics

Dependent Variable: Panjang usus Duodenum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	1.917	0.107	3
	E1	1.867	0.101	3
	E2	1.867	0.160	3
	E3	1.947	0.421	3
	Total	1.899	0.205	12
K1	E0	1.723	0.144	3
	E1	1.767	0.190	3
	E2	1.987	0.230	3
	E3	2.023	0.127	3
	Total	1.875	0.204	12
K2	E0	2.120	0.386	3
	E1	1.893	0.563	3
	E2	2.077	0.081	3
	E3	2.037	0.140	3
	Total	2.032	0.312	12
K3	E0	2.077	0.303	3
	E1	1.990	0.130	3
	E2	1.930	0.226	3
	E3	1.983	0.280	3
	Total	1.995	0.215	12
Total	E0	1.959	0.276	12
	E1	1.879	0.276	12
	E2	1.965	0.177	12
	E3	1.998	0.233	12
	Total	1.950	0.240	48

Tests of Between-Subjects Effects

Dependent Variable: Panjang usus Duodenum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	183.104 ^a	16	11.444	169.331	0.000
Kopra	0.203	3	0.068	1.000	0.405
Enzim	0.091	3	0.030	0.449	0.720
Kopra * Enzim	0.251	9	0.028	0.412	0.919
Error	2.163	32	0.068		
Total	185.266	48			

a. R Squared = .988 (Adjusted R Squared = .982)

Lampiran 12. Analisis Ragam Panjang Relatif Jejenum

Descriptive Statistics

Dependent Variable: Panjang Jejenum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	4.767	0.911	3
	E1	4.313	0.421	3
	E2	4.517	0.280	3
	E3	5.153	1.539	3
	Total	4.688	0.858	12
K1	E0	4.517	0.711	3
	E1	4.513	0.321	3
	E2	4.620	0.201	3
	E3	4.817	0.367	3
	Total	4.617	0.399	12
K2	E0	4.810	0.265	3
	E1	5.170	1.829	3
	E2	5.920	0.617	3
	E3	4.480	0.458	3
	Total	5.095	1.020	12
K3	E0	4.990	1.193	3
	E1	4.680	0.870	3
	E2	4.843	0.292	3
	E3	5.313	0.909	3
	Total	4.957	0.788	12
Total	E0	4.771	0.739	12
	E1	4.669	0.952	12
	E2	4.975	0.668	12
	E3	4.941	0.869	12
	Total	4.839	0.798	48

Tests of Between-Subjects Effects

Dependent Variable: Panjang Jejenum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1131.216 ^a	16	70.701	99.791	0.000
Kopra	1.821	3	0.607	0.857	0.473
Enzim	0.748	3	0.249	0.352	0.788
Kopra * Enzim	4.701	9	0.522	0.737	0.672
Error	22.672	32	0.708		
Total	1153.887	48			

a. R Squared = .980 (Adjusted R Squared = .971)

Lampiran 13. Analisis Ragam Panjang Relatif Ileum

Descriptive Statistics

Dependent Variable: Panjang Ileum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	5.180	0.996	3
	E1	4.553	0.304	3
	E2	4.313	0.251	3
	E3	4.800	0.680	3
	Total	4.712	0.636	12
K1	E0	4.523	0.415	3
	E1	4.390	0.468	3
	E2	4.617	0.315	3
	E3	5.270	0.521	3
	Total	4.700	0.513	12
K2	E0	5.247	0.834	3
	E1	5.263	1.295	3
	E2	5.357	0.383	3
	E3	4.867	0.598	3
	Total	5.183	0.749	12
K3	E0	4.927	0.805	3
	E1	4.780	0.419	3
	E2	5.457	0.713	3
	E3	5.737	1.400	3
	Total	5.225	0.873	12
Total	E0	4.969	0.737	12
	E1	4.747	0.715	12
	E2	4.936	0.636	12
	E3	5.168	0.841	12
	Total	4.955	0.728	48

Tests of Between-Subjects Effects

Dependent Variable: Panjang Ileum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1186.328 ^a	16	74.146	138.944	0.000
Kopra	2.991	3	0.997	1.868	0.155
Enzim	1.074	3	0.358	0.671	0.576
Kopra * Enzim	3.766	9	0.418	0.784	0.632
Error	17.076	32	0.534		
Total	1203.405	48			

a. R Squared = .986 (Adjusted R Squared = .979)

Lampiran 14. Analisis Ragam Berat Relatif Duodenum

Descriptive Statistics

Dependent Variable:Berat Duodenum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	0.330	0.061	3
	E1	0.263	0.057	3
	E2	0.277	0.049	3
	E3	0.250	0.035	3
	Total	0.280	0.054	12
K1	E0	0.287	0.085	3
	E1	0.240	0.040	3
	E2	0.323	0.119	3
	E3	0.397	0.072	3
	Total	0.312	0.093	12
K2	E0	0.283	0.060	3
	E1	0.310	0.052	3
	E2	0.283	0.012	3
	E3	0.273	0.038	3
	Total	0.288	0.040	12
K3	E0	0.343	0.015	3
	E1	0.320	0.036	3
	E2	0.273	0.057	3
	E3	0.383	0.091	3
	Total	0.330	0.064	12
Total	E0	0.311	0.059	12
	E1	0.283	0.053	12
	E2	0.289	0.064	12
	E3	0.326	0.087	12
	Total	0.302	0.067	48

Tests of Between-Subjects Effects

Dependent Variable:Berat Duodenum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	4.477 ^a	16	0.280	74.904	0.000
Kopra	0.019	3	0.006	1.683	0.190
Enzim	0.014	3	0.005	1.241	0.311
Kopra * Enzim	0.058	9	0.006	1.718	0.125
Error	0.120	32	0.004		
Total	4.596	48			

a. R Squared = .974 (Adjusted R Squared = .961)

Lampiran 15. Analisis Ragam Berat Relatif Jejenum

Descriptive Statistics

Dependent Variable:Berat Jejenum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	0.513	0.188	3
	E1	0.550	0.053	3
	E2	0.643	0.074	3
	E3	0.440	0.056	3
	Total	0.537	0.120	12
K1	E0	0.573	0.100	3
	E1	0.443	0.047	3
	E2	0.680	0.324	3
	E3	0.730	0.199	3
	Total	0.607	0.204	12
K2	E0	0.627	0.156	3
	E1	0.617	0.146	3
	E2	0.467	0.127	3
	E3	0.550	0.046	3
	Total	0.565	0.127	12
K3	E0	0.527	0.067	3
	E1	0.433	0.035	3
	E2	0.413	0.047	3
	E3	0.577	0.296	3
	Total	0.488	0.149	12
Total	E0	0.560	0.125	12
	E1	0.511	0.107	12
	E2	0.551	0.193	12
	E3	0.574	0.189	12
	Total	0.549	0.155	48

Tests of Between-Subjects Effects

Dependent Variable:Berat Jejenum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	14.868 ^a	16	0.929	40.995	0.000
Kopra	0.090	3	0.030	1.326	0.283
Enzim	0.027	3	0.009	0.391	0.760
Kopra * Enzim	0.286	9	0.032	1.401	0.229
Error	0.725	32	0.023		
Total	15.593	48			

a. R Squared = .953 (Adjusted R Squared = .930)

Lampiran 16. Analisis Ragam Berat Relatif Ileum

Descriptive Statistics

Dependent Variable:Berat Ileum

Level Kopra	Level Enzim	Mean	Std. Deviation	N
K0	E0	0.5533	0.18009	3
	E1	0.4867	0.09292	3
	E2	0.5333	0.16197	3
	E3	0.48	0.03	3
	Total	0.5133	0.11594	12
K1	E0	0.5367	0.02887	3
	E1	0.4767	0.04041	3
	E2	0.53	0.34117	3
	E3	0.6233	0.17098	3
	Total	0.5417	0.17304	12
K2	E0	0.49	0.06928	3
	E1	0.6133	0.08505	3
	E2	0.46	0.13	3
	E3	0.4467	0.06351	3
	Total	0.5025	0.10358	12
K3	E0	0.57	0.09	3
	E1	0.4567	0.06506	3
	E2	0.48	0.03606	3
	E3	0.5233	0.09074	3
	Total	0.5075	0.07759	12
Total	E0	0.5375	0.09678	12
	E1	0.5083	0.08993	12
	E2	0.5008	0.17417	12
	E3	0.5183	0.11191	12
	Total	0.5162	0.11962	48

Tests of Between-Subjects Effects

Dependent Variable:Berat Ileum

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	12.923 ^a	16	0.808	47.663	0.000
Kopra	0.011	3	0.004	0.217	0.884
Enzim	0.009	3	0.003	0.179	0.910
Kopra * Enzim	0.110	9	0.012	0.722	0.685
Error	0.542	32	0.017		
Total	13.465	48			

RIWAYAT HIDUP



Masking Daud lahir di Pare-pare pada tanggal 31 Desember 1980, anak ke tujuh dari sembilan bersaudara dari pasangan Bapak Muh. Daud dan Ibu lkommi. Pada tahun 1993 penulis menyelesaikan pendidikan dasar di Sekolah Dasar Negeri 11 Parepare, pada tahun 1996 menyelesaikan pendidikan pertama di Sekolah Menengah Pertama Negeri 1 Parepare, dan pada tahun 1996 menyelesaikan pendidikan menengah di Sekolah Menengah Umum Negeri 1 Parepare. Pada tahun 2000 penulis diterima sebagai mahasiswa di jurusan Nutrisi dan Makanan, Ternak Fakultas Peternakan, Universitas Hasanuddin dan lulus pada tahun 2005. Pada tahun 2020 penulis melanjutkan pendidikan pada Program Magister Ilmu dan Teknologi Peternakan, Fakultas Peternakan, Universitas Hasanuddin. Saat ini penulis bekerja sebagai staf Quality Control pada *Feedmill* PT Sinar Terang Madani, Makassar.