

DAFTAR PUSTAKA

- Acamovic, T. 2001. Commercial applications of enzyme technology for poultry production. *World's. Poult. Sci. J.* 57: 225-243.
- Ademark, P., M. Larsson, F.Tjerneld,. and H. Stalbrand. 2001. Multiple α -galactosidases from *Aspergillus niger*: purification, characterization and substrate specifications. *Enzyme and Microbial.Tech.* 29: 441-448.
- Aftab, U. and M. Ashraf, 2009. Methionine+cystine requirement of broiler chickens fed low-density diets under tropical conditions. *Trop. Anim. Health Prod.* 41: 363-369.
- Ajinomoto. 2014. Feedstuff amino acid database. Tersedia pada: <http://ajinomoto-eurolysine.com/feedstuffs-amino-acid-database.html>. Diakses pada 20 Februari, 2015.
- Angel, C., W. Saylor, S. Vieira, and N. Ward. 2011. Effects of a monocomponent protease on performance and protein utilization in 7-to 22-day-old broiler chickens. *Poult. Sci.* 90:2281–2286.
- Annison, G., J.L. Corbet, M. Choct, J.V. Nolan, and J.B. Rowie. 1997 The use of exogenous enzymes in ruminant diets. *Anim. Nut. in Aust.* 8-16.
- Aviagen. 2014. Broiler Management Handbook. Ross an. Aviagen, US. 40-41.
- Baas, T. C. and P. A. Thacker. 1996. Impact of gastric pH on dietary enzyme activity and survivability in swine fed β -glucanase supplemented diets. *Can. J. Anim. Sci.* 36:245-252.
- Bahreiny, E., P. Dadvar, M. Morovat, and M. Bujarpoor. 2013. Effect of different level of energy to protein ratio and breeding system on performance and carcass characteristics of male and female broilers. *Int. J. Agri.* 3: 597-607.
- Baker, D.H., A.B. Batal, T.M. Parr, N.R. Augspurger, and C.M. Parsons. 2002. Ideal ratio (relative to lysine) of tryptophan, threonine, isoleucine, and valine for chicks during the second and third weeks posthatch. *Poult. Sci.* 81:485-494.
- Barekatin,M.R., C. Antipatis, M. Choct, and P. A. Iji. 2013. Interaction between protease and xylanase in broiler chicken diets containing sorghum distillers' dried grains with solubles. *Anim. Feed Sci. Tech.* 182:71– 81.
- Bandegan, A., E. Kiarie, R. L. Payne, G. H. Crow, W. Guenter, and C. M. Nyanchoti. 2010. Standardized ileal amino acid digestibility in dry-extruded expelled soybean meal, extruded canola seed-pea, feather meal, and poultry by-product meal for broiler chickens. *Poult.Sci.* 89:2626-2633.

- Bedford, M. R. and H. Schulze.1998. Exogenous enzymes for pigs and Poultry (Review). *Nutr. Res. Rev.* 11: 91-114.
- Bender, D.A., R.K. Murray, K.M. Botham, P.J. Kennelly, V.W. Rodwell., and P.A. Weil. 2009. *Harper's illustrated biochemistry. A Lange Medical Book.* London.
- Brake, J., C.V.Williams, and B.A. Lenfestey. 2003 Optimization of dietary phosphorus for broiler breeders and their progeny. *Proceedings of Alltech's 19th Annual Symposium, Lexington, KY: 77-83.* Nottingham Univ. Press, Nottingham, United Kingdom.
- Brenes, A., M. Smith, W. Guenter, and R.R. Marquardt. 1993. Effect of enzyme supplementation on the performance and digestive tract size of broiler chickens fed wheat and barley based diets. *Poult. Sci.* 72:1731-1739.
- Brufau, J., M, Francesch, and A.M. Perez-vendrell. 2002. Exogenous enzymes in poultry feeding. Recent developments. In 2002 Annual Animal Nutrition Conference; Fayetteville: Arkansas, USA.
- Campbell, GL. and Bedford MR. 1992. Enzyme applications for monogastric feeds: A Review. *Can. J. Anim. Sci.* 72: 449–466.
- Chesson, A. 2001. Nonstarch polysaccharide degrading enzymes in poultry diets: influence of ingredients on the selection on the selection of activities. *World. Poult. Sci.* 57:251-263.
- Cowieson, A.J., D.N. Singh, and O. Adeola. 2006. Prediction of ingredient quality and the effect of a combination of xylanase, amylase, protease and phytase in the diets of broiler chicks. 2. Energy and nutrient utilisation. *Brit. Poult. Sci.* 47:490–500.
- Cowieson, A.J. and V. Ravindran. 2008. Effect of exogenous enzymes in maize-based diets varying in nutrient density for young broilers: Growth performance and digestibility of energy, minerals and amino acids. *Brit. Poult. Sci.* 49:37–44.
- Dale, N.M., and A. Batal. 2003. Mineral composition of distillers dried grains with solubles. *J. App. Poult. Res.* 12: 400-403.
- D'Mello, J.P.F. 2003. Amino acids as multifunctional molecules. In: *Amino Acids in Animal Nutrition 1-14.* CABI Publishing. Wallingford.
- Dono, N.D. 2012. Nutritional strategies to improve enteric health and growth performance of poultry in the post antibiotic era. *Disertasi. Medical, Veterinary and Life Sciences, University of Glasgow.*
- Doskovic, V., S. Bogosavljevic-boskovic., Z. Pavlovski., B. Milosevic., Z. Skrbic., S.Rakonjac., V.Petricevic. 2013. Enzymes in broiler diets with special references to protease. *World. Poult. Sci.* 69:343–359.

- Favero, A., A. Maiorka, C. Rocha, M.D. Appelt, and J.O.B. Sorbara. 2009. Effect of protease enzyme on performance and ileal digestibility of broilers grown to 42 days of age in floor pens. International Poultry Scientific Forum, Atlanta, Georgia.
- Fidelis, F., A. Kluenter, M. Fischer, and K. Pontoppidan. 2010. A feed serine protease improves broiler performance and increases protein and energy digestibility. J. Poult. Sci. 4: 239-246.
- Fischer, M., V. Glitsoe, D. Petterson, and F. Fru. 2009. Efficacy of a novel feed protease on a variety of protein ingredients. Inter. Poult. Sci. 60-67.
- Frietas, D.M., S.L. Vieira, C.R. Angel, A. Favero, and A. Maiorka. 2011. Performance and nutrient utilization of broilers fed diets supplemented with a novel mono-component protease. J. of Applied. Poult. Res. 20: 322-334.
- Friesen, OD., W. Guenter, R.R. Marquardt, and B.A. Roter. 1992. The effect of enzyme supplementation on the apparent metabolizable energy and nutrient digestibilities of wheat, barley, oats, and rye for the young broiler chick. Poult. Sci 71:1710–1721.
- Gang, G., C. Jie, W. Jungao, H. Qiu-xia, and L. Ke-chun. 2013. A two-step biotechnological process for improving nutrition value of feather meal by *Bacillus licheniformis* S6. J. North. Agric. Uni. 3:71-77.
- Ghazi, S., J.A. Rooke, and H. Galbraith. 2003. Improvement of the nutritive value of soybean meal by protease and α -galactosidase treatment in broiler cockerels and broiler chicks. Brit. Poult. Sci. 44:410–418.
- Grootwassink, J. W. D., G. L. Campbell, and H. L. Classen. 1989. Fractionation of crude pentosanase for improvement of the nutritional value of rye diets for broiler chickens. J. Sci. Food Agric. 46:289-300.
- Halder, G. and B. Roy. 2007. Effect of Herbal or synthetic methionine on performance, cost benefit ratio, meat and feather quality of broiler chicken. Int. J. Agric. Res. 12: 987-996.
- Hartadi, H., S. Reksohadiprojo, S. Lebdosukojo, A.D. Tillman. 1980. Table of feed composition for Indonesia. Internasional Feedstuffs Institute, Utah Agricultural Experiment Station, Utah State University, Logan, Utah.
- Heidari, M.D., M. Omid, and A. Akram. 2011. Energy efficiency and econometric analysis of broiler production farm. Energy. 36: 6536-6541.
- Iyayi, E.A., F.A. Aderemi, O.O. Ladele, and A.S. Popoola. 2014. Effects of low protein diets supplemented with high amino acids (methionine or lysine) on performance of broilers. American J. Exp. Agr. 4: 525-531.
- Kalmendal, R. and R. Tauson. 2012. Effects of a xylanase and protease, individually or in combination, and an ionophore coccidiostat on

performance, nutrient utilization, and intestinal morphology in broiler chickens fed a wheat–soybean meal-based diet. *Poult. Sci.* 91: 1387–1393.

Kaps, M. and W. Lamberson. 2004. *Biostatistics for animal science*. CABI Publishing. Oxfordshire.

Khetani, T.L., T.T. Nkukwana, M.Chimonyo, and V.Muchenje. 2009. Effect of quantitative feed restriction on broiler performance. *Trop. Anim. Health Prod.* 41: 379-384.

Kidd, M.T., J.W. Taylor, C.M. Page, B.D. Lott, and T.N. Chamblee. 2007. Hatchery feeding of starter diets to broiler chicks. *J. Appl. Poult. Res.* 16: 234-239.

Kirkpinar, F., Z. Acikgo., M. Bozkurt., V. Ayhan. 2004. Effects of inclusion of poultry by-product meal and enzyme-prebiotic supplementation in grower diets on performance and feed digestibility of broilers. *Brit. Poult. Sci.* 45: 273–280.

Leeson, S., J.D. Summers. 2002. *Commercial Poultry Nutrition*. University Book. Ontario.

Lesson, S. and J.D. Summers. 2005. *Commercial Poultry Nutrition*. 3rd ed. University Books, Ontario. 92–95.

Lilburn, M.S. 1998. Practical aspect of early nutrition for poultry. *J. Appl. Poult. Res.* 7: 420-424.

Longo, F.A., J.F.M. Menten, A.A. Pedroso, A.N. Figueiredo, A.M.C. Racanicci, and J.O.B. Sorbara. 2007. Performance and carcass composition of broilers fed different carbohydrate and protein sources in the prestarter phase. *J. Appl. Poult. Res.* 16: 171-177.

Ma, W.F., X.F. Zeng, X.T. Liu, C.Y. Xie, G.J. Zhang, S.H. Zhang, and S.Y. Qiao. 2015. Estimation of standardized ileal digestible lysine requirement and the ideal ratio of threonine to lysine for late finishing gilts fed low crude protein diets supplemented with crystalline amino acids. *Anim. Feed Sci. Tech.* 201: 46-56.

Maenz, D.D. 2001. Enzymatic characteristics of phytases as they relate to their use in animal feed. In: *Enzymes in Farm Animal Nutrition*. Bedford M. R. and G. G. Partridge. CABI Publisher. Wallingford.

Marquardt, R.R., Brenes. A, Zhang .Z, Boros. D. 1996. Use of enzymes to improve nutrient availability in poultry feedstuffs. *Anim. Feed. Sci. Tech.* 60:321–330.

Marsman, G.J.P., H. Gruppen, A.F.B. Van der Poel, J.W. Resink, M.W.A. Verstegen, and A.G.J. Voragen. 1995. The effect of shear forces and addition of a mixture of a protease and a hemicellulase on chemical, physical and physiological parameters during extrusion of soybean

meal. Anim. Feed Sci. Technol. 56:21–35.

- McClea, B. V. and M. Glennie-Holmes.1985. Enzymatic quantification of (1-3) (1-4) beta-glucan in barley and malt. J. Inst. Brew. 91:285-295.
- Moritz, J.S., A.S. Parsons, N.P. Buchanan, N.J. Baker, J. Jaczynski, O.J. Gekara, and W.B. Bryan. 2005. Synthetic methionine and feed restriction effects on performance and meat quality of organically reared broiler chickens. J. Appl. Poult. Res. 14: 521-535.
- Mysie, S.M., R.F. Bertolo, S. Moehn, and R.O. Ball. 2014. Barley does not change threonine requirement in growing pigs fed a barley-casein-based diet compared to a casein-based diet, as determined by the indicator amino acid oxidation method. Livest. Sci. 170: 108-115.
- NRC. 1994. Nutrient requirements of poultry: ninth revised edition. National Academy Press, Washington, D.C.
- Odetallah, N.H., J.J. Wang, J.D. Garlich, and J.C.H. Shih. 2003. Keratinase in starter diets improves growth of broiler chicks. Poult. Sci. 82: 664-670.
- Olanrewaju, H.A., J.P. Thaxton, W.A. Dozier III, J. Purswell, W.B. Roush, and S.L. Branton. 2006. A review of lighting programs for broiler production. Int. J. Poult. Sci. 5: 301-308.
- Pedersen, M.B.,S. Yu., P. Plumstead.,and S. Dalsgaard. 2012. Comparison of four feed proteases for improvement of nutritive value of poultry feather meal. J. Anim. Sci. 90:350–352.
- Peek, H. W., J. D. van der Klis, B. Vermeulenc, and W. J. M. Landmana. 2009. Dietary protease can alleviate negative effects of a coccidiosis infection on production performance in broiler chickens . Anim. Feed Sci. Technol. 150:151–159.
- Pelezar,M.J., E.C.S. Jr. Chan. 2006. Dasar-Dasar Mikrobiologi. 1st ed. Universitas Indonesia Press, Jakarta.
- Sahraei, M., H. Janmohammadi, S. Lashkari, M.D. Torkamani, A. Gituee. 2012. Evaluation of protein quality in hydrolyzed protein meals by biological assay methods in broiler chickens. Int. J. Agr. 4:352-356.
- Salehifar, E., M. Shivazad, F. Foroudi, M. Chamani, and R.B. Kashani. 2012. Reevaluation of digestible amino acid requirements of male and female broilers based on different ideal amino acids ratios in starter period. Livest. Sci. 147: 154-158.
- Sheppy, C. 2001. The current feed enzyme market and likely trends. In: M. R. Bedford and G. G. Partridge. Enzymes in Farm Animal Nutrition. CABI Publishing: 1-10.

- Soeparno. 2009. Ilmu dan teknologi daging. Gadjah Mada University Press, Yogyakarta. 11-12.
- Sonjaya, H. 2012. Dasar Fisiologi Ternak. Institut Pertanian Bogor Press. Bogor.
- Sugiharto, S. 2014. Role of nutraceuticals in gut health and growth performance of poultry. Tersedia pada <http://dx.doi.org/10.1016/j.jssas.2014.06.001>. Diakses pada 20 Mei, 2015.
- Światkiewicz, S., and J. Koreleski. 2008. The use of distillers dried grains with solubles (DDGS) in poultry nutrition. *World.Poult. Sci. J.* 64:257-266.
- Tangendjaja, B. 2007. Inovasi teknologi pakan menuju kemandirian usaha ternak unggas. *Wartazoa.* 17: 12-20.
- Tesseraud, S., R.A.E. Pym, E. Le Bihan-Duval, and M.J. Duclos. 2003. Response of broiler selected in carcass quality of dietary protein supply: live performance, muscle development, and circulating insulin-like growth factors (IGF-I and IGF-II). *J. Poult. Sci.* 82: 1011-1016.
- Thorpe, J., and J. D. Beal. 2001. Vegetable protein meals and the effect of enzymes. *Farm. Anim.* 1-10.
- Trisyulianti, E., H. Hardjomidjojo, Y. Arkeman, and A. Saefuddin. 2005. Desain Sistem Pakar untuk Kontrol Kualitas Pakan. Institut Pertanian Bogor. Bogor.
- Tuoying, A. 2005. Exogenous enzymes and organic acids in the nutrition of broiler chicks: effects on growth performance and in vitro and in vivo digestion. Dissertation. University of Kentucky, Lexington, Kentucky.
- Wang, X. and C. M. Parsons. 1998. Effect of raw material source, processing systems, and processing temperatures on amino acid digestibility of meat and bone meals. *Poult. Sci.* 77:834–841.
- Wang, Y.Z., Z.R. Xu, and J. Feng. 2004. The effect of betaine and dl-methionine on growth performance and carcass characteristics in meat ducks. *Anim. Feed Sci. Tech.* 116: 151-159.
- Wang, Z., S. Cerrate, C. Coto, F. Yan, and P.W. Waldroup. 2007. Utilization of distillers dried grains with solubles (DDGS) in broiler diets using a standardized nutrient matrix. *J. Poult. Sci.* 7: 470-477.
- Wijten, P.J.A., A. Lemme, and D.J. Langhout. 2004. Effect of dietary ideal protein levels on male and female broiler performance during different phases of life, single phases effects, carryover effects, and interactions between phases. *Poult. Sci.* 83: 2005-2015.

- Yin, Y.L., Baidoo S.K, Boychuck J.L.L. 2000. Effect of enzyme supplementation on the performance of broiler fed maize, wheat, barley or micronized dehulled barley diets. *J. Anim. Feed. Sci.* 9:493–504.
- Yong, Z., H Chun-xiao, Z. Yu-jing, J. Wen-yan, and S. Cai-mei. 2012. Effect of coated on growth performance, blood biochemical indices and nutrient apparent ileal digestibility in broilers. *Anim. Husb. Feed Sci.* 4: 182-186.
- Yuan, J., A.J. Karimi, S.D. Goodgame, C. Lu, F.J. Mussini, and P.W. Waldroup. 2012. Evaluation of herbal methionine source in broiler diets. *Int. J. Poult. Sci.* 11:247-250.
- Yuwanta, T. 2004. *Dasar Ternak Unggas*. Kanisius, Yogyakarta. 92–93.