

7. DAFTAR PUSTAKA

- Abdelrahman MM, Hunaiti DA. 2008. The effect of dietary yeast and protected methionine on performance and trace minerals status of growing Awassi lambs. *Livest Sci* 115:235-241.
- Abe F, Ishibashi N, Shimamura S. 1995. Effect of administration of *bifidobacteria* and lactic acid bacteria to newborn calves and piglets. *J Dairy Sci* 78:2838-2846.
- Adams MC, Luo J, Rayward D, King S, Gibson R, Moghaddam GH. 2008. Selection of a novel direct-fed microbial to enhance weight gain in intensively reared calves. *Anim Feed Sci and Tech* 145:41-52.
- Agustin F. 2010. Manfaat kromium organik dari fungi *Ganoderma lucidum* dalam meningkatkan efisiensi metabolisme dan performa produksi ternak ruminansia [disertasi]. Bogor: Program Pascasarjana, Institut Pertanian Bogor.
- Chrens KES, Peter A, Marten B, Weber P, Timm W, Acil Y, Gluer CC, Schrezenmeir J. 2007. Prebiotics, probiotics, and synbiotics affect mineral absorption, bone mineral content, and bone structure. *J Nutr* 137: 838-846.
- Akin DE, Benner R. 1988. Degradation of polysaccharides and lignin by ruminal bacteria and fungi. *J Appl and Environ Microbiol* 54 (5): 1117-1125.
- Akin DE. 1989 Histological and physical factors affecting digestibility of forages. *J Agric* 81: 17-25.
- Anin M. 1997. Pengaruh penggunaan *Saccharomyces cerevisiae* dan *Aspergillus oryzae* dalam ransum pada populasi mikroba, aktivitas fermentasi rumen, pencernaan dan pertumbuhan sapi perah dara [Tesis]. Bogor: Program Pascasarjana Institut Pertanian Bogor.
- Anandan S, Dey A, Deb SM, Kumar S, Harbola PC. 1999. Effect of curds as probiotic supplement on performance of Cheghu crossbred kids. *Small Rum Res* 32(1) : 93-96.
- Anggorodi R. 1994. *Ilmu Makanan Ternak Umum*. Jakarta: PT. Gramedia.
- [AOAC] Association of Official Analytical Chemist. 1990. Methods of Analysis of the Association of Analytical Chemist. 16th Ed. Association of Official Analytical Chemist, Arlington, VA.
- Aritonang. 1986. Perkebunan kelapa sawit, sumber pakan ternak di Indonesia. *J Penelitian dan Pengembangan Pertanian* 5 (4): 93-95.
- Arora DS, Sharma RK. 2011. Effect of different supplements on bioprocessing of wheat straw by *Phlebia brevispora*: Changes in its chemical composition, in vitro digestibility and nutritional properties. *J Bioresource Tech* 102 : 8085-8091
- Berman A. 2005. Estimates of heat stress relief needs for Holstein dairy cows. *J Anim Sci* 83: 1377-1384.
- Bhattacharya NK, Mullick DN. 1965. Comparative study of mechanical factors in ruminants digestion: Part II. Pattern of rumen movements in ox and buffalo under similar dietary conditions. *Indian J of Exp Bio* 21: 255-259.
- Barry EE, Allaway WH. 1971. Determination of chromium in plants and other biological materials. *J Agric Food Chem* 19: 1159-1167.



- Cheng KJ, Forsberg CW, Minato H, Costerton JW. 1989. *Microbial Ecology and Physiology of Feed Degradation Within The Rumen*. Proceedings of VII International Symposium on Ruminant Physiology; Sendai, Japan: New York Academic Press. hlm 515–539.
- Cruywagen CW, Jordan I, Venter L. 1996. Effect of *Lactobacillus acidophilus* supplementation of milk replacer on preweaning performance of dairy calves. *J Dairy Sci* 79: 483-486.
- Dalgaard P, Ross T, Kamperman L, Neumeyer K, McMeekin TA. 1994. Estimation of bacterial growth rates from turbidimetric and viable count data. *J Food Microbiol* 23 (34): 391-404.
- Darmono. 2007. Penyakit defisiensi mineral pada ternak ruminansia dan upaya pencegahannya. *J Litbang Pertanian* 26 (3): 104-108
- Davis CL, Drackley JK. 1998. *The Development, Nutrition, And Management of The Young Calf*. USA: Iowa State Press.
- DeBruijn FJ, Rademaker J, Schneider M. 1996. *Rep-PCR Genomic Fingerprinting of Plant Associated Bacteria And Computer Assisted Phylogenetic Analyses*. In: Proceedings of the 8th International Congress of Molecular Plant-Microbe Interactions. APS Press. hlm 497-502.
- Deplano A, *et al.* 2000. Multicenter evaluation of epidemiological typing of methicillin-resistant *Staphylococcus aureus* strains by repetitive element PCR analysis. *J of Clin Microbiol* (38): 3527-3533.
- Desnoyers M, Reverdin SG, Bertin G, Ponter CD, Sauvant D. 2009. Meta-analysis of the influence of *Saccharomyces cerevisiae* supplementation on ruminal parameters and milk production of ruminants. *J Dairy Sci* 92: 1620-1632.
- Dezfouli MRM, Tajik P, Bolourchi M, Mahmoudzadeh H. 2007. Effects of probiotics supplementation in daily milk intake of new born calves on body weight gain, body weight, diarrhea occurrence and health condition. *Pakistan J of Bio Sci* 10 (18): 3136-3140.
- Dutta TK, Kundu SS, Kumar M. 2009. Potential of direct fed microbials on lactation performance in ruminants. A critical review. *Livest Res Rural Dev* 10: 219-227.
- El-Serafy AM, El-Ashry MA. 1989. *The Nutrition of Egyptian Water Buffaloes From Birth to Milk and Meat Production*. Proceedings of the International Symposium on the Constraints of Ruminant Production in the Dry Subtropics; Cairo, 5–7 Nov 1988. Egypt: EAAP Pub. 38: 230–243.
- Erasmus LJ, Botha PM, Kistner A. 1992. Effect of yeast culture supplement on production, rumen fermentation and duodenal nitrogen flow in dairy cows. *J Dairy Sci* 75: 3056-3065.
- [FAO] Food and Agriculture Organization. 1974. *The Husbandry and Health of The Domestic Buffalo*; Food and Agriculture organization of the united nations, Rome.
- Felix AP, Netto MVT, Murakami FY, Brito CBM, Oliveira SG, Maiorka A. 2010. Digestibility and fecal characteristics of dogs fed with *Bacillus subtilis* in diet [Thesis]. Curitiba Brasil: Universidade Federal do Paraná.
- Franson RD. 1992. *Anatomi dan Fisiologi Ternak*. Yogyakarta: Gadjah Mada University Press.

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- Fuller R. 1989. Probiotics in man and animals. A review. *J of App Bact* 66: 365–378
- Ghose TK. 1987. Measurement of cellulase activities. *J Pure and Appl Chem* 59(2): 257-268.
- Girindra A. 1988. *Biokimia Patologi Hewan*. Bogor: Pusat Antar Universitas. IPB.
- Gylswyk V. 1970. The effect of supplementing a low protein hay on the cellulolytic bacteria in the rumen of sheep and on the digestibility of cellulose and hemicellulose. *J Agric Sci* 74: 169-180.
- Haddad SG, Goussous SN. 2005. Effect of yeast culture supplementation on nutrient intake, digestibility and growth performance of Awassi lambs. *J Anim Feed Sci Tech* 118: 343-348.
- Hartley RD, Ford CW. 1989. *Phenolic Constituents of Plant Cell Walls and Wall Biodegradability*. USA: American Chemical Society.
- Hoover WH, Miller TK. 1992. *Rumen Digestive Physiology and Microbial Ecology*. Agric Forestry Exp. Virginia: Station West Virginia University.
- Howard RL, Abotsi E, Resburg ELJ, Howard S. 2003. Lignocellulose biotechnology: issues of bioconversion and enzym production. *Afr J Biotechnol* 2: 602-619
- Longate ID. 1996. *The Rumen And Its Microbes*. London: Academic Press.
- Mahphonani JS, Sidhu GS. 1966. Effect of urea on voluntary intake of wheat straw in zebu cattle and the buffalo. *Indian J Vet* 43: 880-886.
- Mubbari S, Eslami M, Chaji M, Mohammadabadi T, Bojarpour M. 2010. *The Comparison of In Vitro Digestibility of Wheat Straw By Rumen Microorganism of Khuzestani Buffalo and Hostein Cow*; International Conference on Biology, Environment and Chemistry PCBEE 1. Singapore: IACSIT Press.
- Njang D, Oh Y, Piao HK, Choi LG, Yun HB, Kim JH, Yong Y. 2009. Evaluation of Probiotics as an Alternative to Antibiotic on Growth Performance, Nutrient Digestibility, Occurrence of Diarrhea and Immune Response in Weaning Pigs. *J Anim Sci Tech* 51: 751-759.
- Jatkauskas J, Vrotniakiene V. 2010. Effects of probiotic dietary supplementation on diarrhoea patterns, faecal microbiota and performance of early weaned calves. *Vet Med* 55 (10): 494–503.
- Jin F, Toda K. 1988. Isolation of new anaerobic, thermophilic and cellulolytic bacteria JT strains and their cellulase production. *J of Ferm Tech* 66 (4) 389–395.
- Mahmud MF, Shahzad MA, Sarwar M, Rehman AU, Sharif M, Mukhtar N. 2011. Probiotics and lamb performance: A review. *Afric J of Agric Research* 6 (23): 5198-5203.
- Min-Hong KS, Jung KH, Park H. 1991. Hyper *CMCase* producing mutants of *Bacillus* sp. 79-23 induced by gamma radiation. *J of Micro and biotech* 9: 518-521
- Moesno SB. 1996. *Imunologi : Diagnosis dan Prosedur Laboratorium*. Jakarta: Fakultas Kedokteran Universitas Indonesia.
- Oh YJ, Kim BK, Lee BH, Jo KI, Lee NK, Chung CH, Lee YC, Lee JW. 2008. Purification and characterization of cellulase produced by *Bacillus amyoliquefaciens* DL-3 utilizing rice hull. *Bioresource Tech* 99: 378–386.

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- Lubis DA. 1963. *Ilmu Makanan Ternak*. Ed. 2. Jakarta: PT. Pembangunan.
- Mariyono. 2003. Evaluasi kadar protein ransum pemula untuk pedet sapi perah pada kondisi penyapihan dini [Tesis]. Bogor: Program Pascasarjana. Institut Pertanian Bogor.
- Mattjik AH, Sumertajaya M. 2002. *Rancangan Percobaan dengan Aplikasi SAS dan Minitab*. Bogor: Institut Pertanian Bogor Press.
- McCowen KC, Bistran BR. 2003. Immunonutrition : problematic or problem solving. *Am J Clin Nutr* 77: 764-770
- McDowell LR. 1992. *Minerals and Human Nutrition*. London: Academic Press.
- Meryandini A. 2007. Characterization of Xylanase from *Streptomyces* spp. Strain C1-3. *J Hayati of Biosci* 14 (3) 115-118
- Minato H, Miyagawa E, Suto T. 1990. Techniques for analysis of rumen microbial ecosystem. In : *The Rumen Ecosystem*, (Eds : Hoshino S, Onodera R, Minato H, Itabashi H). Tokyo: Japan Science Press hlm 3-12.
- Moniruzzaman M, Malek M. A, Choudhury NA. 1990. Growth and cellulolytic activity of five locally isolated aerobic bacteria. *Bang J of Sci Research* Vol. 8 (1): 37-42
- Morgavi DP, Beauchemin KA, Nereko VL, Rode LM, Iwaasa AD, Yang WZ, McAllister T. A, Wang Y. 2000. Synergy between ruminal fibrolytic enzymes and enzymes from *Trichoderma longibrachiatum*. *J Dairy Sci* 83: 1310–1321.
- Musa HH, We SL, Zhu CH, Seri HI, Zhu GQ. 2009. The potential benefits of probiotics in animal production and health. *J Anim Vet Adv* 8: 313-321.
- [NRC] National Research Council. 2001. *Nutrient Requirements of Dairy Cattle*. 7th Ed. Washington: National Academy Press,
- [NRC] National Research Council. 1981. *The Water Buffalo : New Prospects for An Under Utilized Animal*. Washington: National Academi Press.
- Obrink KJ. 1954. A modified conway unit for microdiffusion analysis. *Chem Rev* 34: 367-369
- Ogimoto K, Imai S. 1981. *Atlas of Rumen Microbiology*. Tokyo: Japan Science Press
- Osborne JM, Dehority BA. 1989. Synergism in degradation and utilization of intact forage cellulose, hemicellulose, and pectin by three pure cultures of ruminal bacteria. *J Appl Environ Microbiol* 55: 2247–2250.
- Oyetayo VO, Oyetayo FL. (2005). Potential of probiotics as biotherapeutic agents targeting the innate immune system. *Afr J Biotech* 4: 123-127.
- Pandya PR, Singh KM, Parnerkar S, Tripathi AK, Mehta HH, Rank DN, Kothari RK, Joshi CG. 2010. Bacterial diversity in the rumen of Indian Surti buffalo (*Bubalus bubalis*), assessed by 16S rDNA analysis. *J Appl Gen* 51 (3): 395–402
- Pandya PR, Singh KM, Parnerkar S, Tripathi AK, Mehta HH, Rank DN, Kothari RK, Joshi CG. 2010. Bacterial diversity in the rumen of Indian Surti buffalo (*Bubalus bubalis*), assessed by 16S rDNA analysis. *J Appl Genet* 51(3): 395–402
- Parakkasi A. 1999. *Ilmu Nutrisi dan Makanan Ternak Ruminansia*. Jakarta: Universitas Indonesia Press.

- Pradhan K. 1994. Rumen ecosystem in relation to cattle and buffalo nutrition. In: Wanapat, M. And K. Sommart (Eds.). *Proceeding. First Asian Buffalo Association Congress*; Thailand: Khon Kaen Publ 17-21 (221-42).
- Prihantoro I, Sari Y, Riyanti L, Sasmita TE, Evvyernie D, Suryani, Abdullah L, Toharmat T. 2012. Nutritive value of forages using a mixed bacteria isolated from the rumen liquor of buffalo. Jakarta: *Proceeding of the 2nd International Seminar on Animal Industry*. hlm 454-458
- Prihantoro I, Toharmat T, Evvyernie D, Suryani, Abdullah L. 2012. Kemampuan isolat bakteri pencerna serat asal rumen kerbau pada berbagai sumber hijauan pakan. *JITV*. 17 (3) : 189-200
- Prihantoro I. 2006. *Dinamika Komunitas Bakteri Dalam Tanah Tercemar Minyak Bumi Yang Diremediasi*. [Tesis]. Universitas Gadjah Mada. Yogyakarta.
- Quigley J. 1996. Influence of weaning method on growth, intake and selected blood metabolites in Jersey calves. *J Dairy Sci* 79:2255-2260
- Quigley J. 2001. Predicting calf starter intake in holstein calves. *Calf Note* 55. *Calf Notes.com*. (<http://calfnotes.com>)
- Rinoso E, Bettera S, Odierno L, Bogni C. 2007. *Rep-PCR of Staphylococcus aureus* strains isolated from bovine mastitis in Argentina. *Braz J Vet Res anim Sci* (44): 115-121
- Robinson PH. 2002. Yeast products for growing and lactating dairy cattle: Impact on rumen fermentation and performance. *Dairy Rev* 9: 1-4.
- Sohlh FJ. 2000. *NTSYSpc Numerical Taxonomy and Multivariate Analysis System Version 2.1*. User Guide. Department of Ecology and Evolution. State University of New York. New York: Stony Brook, NY 11794-5245
- Schneegurt MA, Kulpa CF. 1998. Review: The application of molecular techniques in environmental biotechnology for monitoring microbial systems. *Biotech and App Biochemis* 27: 73-79
- Selly. 1994. Peningkatan kualitas pakan serta berkualitas rendah dengan amoniasi dan inokulasi digesta rumen. Bogor: Fakultas Peternakan. Institut Pertanian Bogor.
- Sinha RN, Ranganathan B. 1983. Cellulolytic bacteria in buffalo rumen. *J of App Bact* 54: 1-6.
- Siregar SB. 1992. *Sapi Perah: Jenis, Teknik Pemeliharaan dan Analisa Usaha*. Jakarta: Penebar Swadaya.
- Smith JB, Mangkoewidjojo. 1988. *Pemeliharaan, Pembiakan dan Penggunaan Hewan Percobaan di Daerah Tropis*. Jakarta: UI Press.
- Sofyan LA, Sriharini IS. 1986. Taraf pemberian onggok dan tepung daun ubi kayu untuk domba yang mendapat ransum basal jerami padi. Laporan Penelitian. Fakultas Peternakan. Bogor: Institut Pertanian Bogor.
- Sonjaya H. 1996. Respons profil makro mineral darah terhadap suplementasi mineral pada sapi bali jantan muda yang berasal dari tiga daerah berbeda. Makasar: *Bul Peternakan*. Fakultas peternakan Universitas Hasanuddin.
- Stangl GL, Schwarz FJ, Muller H, Kichgessner M. 2000. Evaluation of the cobalt requirement of beef cattle based on vitamin B₁₂ Folate, homocysteine and methylmalonic acid. *J Nutr* 84: 645-653
- Steel RGD, Torrie JH. 2003. *Principles and Procedures of Statistics*. New York: McGraw-Hill Book Co.Inc.

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- Sugito MW, Astuti DA, Handharyani E, Cherul. 2007. Efek cekaman panas dan pemberian ekstrak heksan tanaman jalloh (*Salix tetrasperma* Roxb) terhadap kadar kortisol, triioditironin dan profil hematologi ayam broiler. *JITV* 12(3) : 175-182
- Suryahadi, Piliang WG, Djuwita L, Widiastuti Y. 1996. DNA recombinant technique for producing transgenic rumen microbes in order to improve fiber utilization. *Indo J Top Agric* 7 (1): 5-9
- Sutardi T. 1980. *Landasan Ilmu Nutrisi*. Bogor: Departemen Ilmu Makanan Ternak. Fakultas Peternakan. Institut Pertanian Bogor.
- Swinney-Floyd D, Gardner BA, Owens FN, Rehberger T, Parrot T. 1999. Effect of inoculation with either Propionibacterium strain P-63 alone or combined with *Lactobacillus acidophilus* strain LA53545 on performance of feedlot cattle. *J Anim Sci* 1: 77-87.
- Tajima K, Aminov RI, Nagamine T, Matsui H. 2001. Diet-dependent shifts in the bacterial population of the rumen revealed with real-time PCR. *Appl Environ Microbiol* 67: 2766-2774.
- Takumi S, Kobayashi Y. 2007. Localization of ruminal cellulolytic bacteria on plant fibrous materials as determined by fluorescence in situ hybridization and real-time PCR. *J Appl Environ Microbiol* 73(5):1646-1652.
- Thalib A, Widiawati Y, Hamid H. Mulyani. 2000. *Identifikasi morfologis dan uji aktivitas mikroba rumen dari hewan-hewan ruminansia yang telah teradaptasi pada substrat selulosa dan hemiselulosa*. Seminar Nasional Peternakan dan Veteriner. hlm 341-348.
- Tilley JMA, Terry RA. 1963. A two stage technique for the in vitro digestion of forage crops. *J Br Grassl Soc* 18: 104-111.
- Toharmat T, Evvyernie D, Suryani, Supriyati, Prihantoro I, Agustin F. 2009. Upaya pencegahan kematian dini dan peningkatan utilisasi nutrisi pada pedet melalui pengembangan probiotik asal rumen kerbau dengan pendekatan sidik jari DNA menggunakan PCR-RISA. Laporan Penelitian. Bogor: LPPM IPB.
- Toharmat T, Nursasih E, Nazilah R, Hotimah N, Noerzihad TQ, Sigit NA, Retnani Y. 2006. Sifat fisik pakan kaya serat dan pengaruhnya terhadap konsumsi dan pencernaan nutrisi ransum pada kambing. *Med Pet* 29: 146-154
- Underwood EJ, Suttle NF. 1999. *The Mineral Nutrition of Livestock*. 3rd Ed. UK USA: CABI Publishing.
- Wahyudi A, Hendraningsih L, Malik A. 2010. Potency of fibrolytic bacteria isolated from Indonesian sheep's colon as inoculum for biogas and methane production. *Afric J of Biotech* 9 (20): 2994-2999.
- Wallace RJ, Newbold CJ. 1993. Rumen fermentation and its manipulation: the development of yeast culture as feed additives. In: *Biotechnology In The Feed Industry*, Lyons, (ed.). Kentucky: Alltech Technical Publications hlm 173-192.
- Wanapat M, Ngarmsang A, Korkhantot S, Nontaso N, Wachirapakorn C, Beakes G, Rowlinson P. 2000. A comparative study on the rumen microbial population of cattle and swamp buffalo raised under traditional village conditions in the northeast of Thailand. *Asian-Aust J Anim Sci* 13 (7):478-482.

- Wanapat M, Rowlinson P. 2007. Nutrition and feeding of swamp buffalo: *Feed resources and rumen approach. Presented at the VIII World Buffalo Congress, Organized by The International Buffalo Federation; Caserta Italy, 19–22 October 2007*
- Wanapat M, Sommart K, Wachirapakorn C, Uriyapongson S, Wattanachant C. 1994. *Recent Advance in Swamp Buffalo Nutrition and Feeding*. Proc. The 1st Asian buffalo Association Congress; Khon Kaen University, January 17-21.
- Wanapat M. 1989. Comparative aspects of digestive physiology and nutrition in buffaloes and cattle. In proceeding of Ruminant Physiology and Nutrition in Asia. *Jap Soc Zootech Sci* 27-43.
- Wanapat M. 2001. *Swamp Buffalo Rumen Ecology and Its Manipulation*, Paper presented at National workshop on swamp buffalo development; Hanoi <http://www.mekarn.org/procbuf/wanapat.htm>
- Widada J, Nojiri H, Omori T. 2002. Recent development in molecular techniques for identification and monitoring of xenobiotik-degrading bacteria and their catabolic genes in bioremediation. *J Appl Microbiol Biotech* 60: 45-59.
- Wu S, Baldwin RL, Li W, Li C, Connor EE, Li RW. 2012. The bacterial community composition of the bovine rumen detected using pyrosequencing of 16s rRNA genes. *Metagenomics* 1 : 1-11
- Yang WZ, Beauchemin KA, Vedres DD. 2002. Effects of pH and fibrolytic enzymes on digestibility, bacterial protein synthesis, and fermentation in continuous culture. *Anim Feed Sci and Tech* 102 : 137–150

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