



DAFTAR PUSTAKA

- A. F. Kertz. 2010. Review: Urea Feeding to Dairy Cattle: A Historical Perspective and Review. *The Professional Animal Scientist* 26(2010): 257-272.
- American Society for Testing and Materials. 2020. ASTM E18-20a: Standard Test Methods for Rockwell Hardness of Metallic Materials. ASTM International.
- Amir, H.S., M.H. Mohammad, S.K. Azizul, A.K. Shahneaz, H. Ahasanul, I. Nurul, and B.H. Mohammad. 2012. Non-protein nitrogen compound poisoning in cattle. *Journal of Zoology, Rajshahi University* 31(1): 65-68.
- Andini, L. S. an Sasongko, W. T. 2004. In Vitro Test of Feed Supplements Quality in Urea Multi nutrient Molase Block (UMMB) Derived from Several Areas.
- Arthington, J. D., dan Ranches, J. 2021. Trace Mineral Nutrition of Grazing Beef Cattle.
- Arthington, J. D., Ranches, J. 2021. Trace Mineral Nutrition of Grazing Beef Cattle. *Animals* 2021 11: 2767.
- Azis, I. U., Agus, A., Astuti, A., Yusiaty, L. M. dan Anas, M. A. 2023. Effect of Mineral Premix Supplementation on Intake and Digestibility of Repeat Breeder Cows. In IOP Conference Series: Earth and Environmental Science 1183(1) 120-121
- B. Mappangaja dan Restu, M. 2005. Produksi polong dan biji tanaman gamal (*Glirisidia sepium*) dari berbagai provenansi dengan pemupukan NPK. <http://journal.unhas.ac.id/index.php/pertanian/article/download/12/9>.
- Bryden, WL. 2012. Mycotoxin contamination of the feed supply chain: Implications for animal productivity and feed security. *Anim Feed Sci Technol.* 173:134-158.
- Chuzaemi, S., M.H. Natsir, O. Sjofjan, A. Muttaqin, Y.F. Nuningtyas, dan A.N. Huda. 2020. UMMB temulawak (*Curcuma xanthorrhiza*) sebagai suplemen pakan ternak ruminansia. *Jurnal Nutrisi Ternak Tropis* 3(1): 23-29.
- Crosby, T. F., Boland, T. M., Brophy, P. O., Quinn, P. J., Callan, J. J., dan Joyce, D. 2004. The effects of offering mineral blocks to ewes pre-mating and in late pregnancy on block intake, pregnant ewe performance and immunoglobulin status of the progeny. *Animal Science* 79(03): 493–504.
- Daning, D. 2017. Kualitas nutrisi *Calliandra calothrysus* dan *Gliricidia sepium* pada bagian morfologi tanaman yang berbeda. *Seminar Nasional Hasil Penelitian Universitas Kanjuruhan Malang* 5(1): 152-158.
- Devi, L.P., A.K. Tyagi, P.K. Tyagi, and J. Prasad. 2017. Effect of feeding urea molasses mineral block and bypass fat on nutrient utilization and blood metabolites in crossbred cattle. *Indian Journal of Animal Nutrition* 34(1): 48-53.



- Doan D. V., Cuong, L. X., Dung, C. A., dan Hai, P. H. 1999. Use of urea±molasses±multinutrient block and urea-treated rice straw for improving dairy cattle productivity in Vietnam. Preventive Veterinary Medicine 38: 187-193.
- El-Hassane, A., E.A., Aziz, and D. Bouchra. 2021. Effects of thermal stress on reproductive performance of goats: A review. Animal Production Science 61(3): 219-227.
- Gunawan, A.W., H. Syarifuddin, dan A.S. Lubis. 2016. Kandungan sianida dan perilaku ingesta pada sapi yang diberi pakan tepung singkong hasil perlakuan berbeda. Jurnal Sain Peternakan Indonesia 11(2): 88-96.
- Halili, A. 2014. Kandungan selulosa, hemiselulosa dan lignin pakan lengkap berbahan jerami padi, daun gamal dan urea mineral molases liquid. Skripsi, Fakultas peternakan Universitas Hasanuddin, Makassar.
- Handayani, I.S., B.I.M. Tampoebolon, A. Subrata, R.I. Pujaningsih, dan Widiyanto. 2019. Evaluasi organoleptik multinutrien blok yang dibuat dengan menggunakan metode dingin pada perbedaan level molases. Jurnal Ilmu Nutrisi dan Teknologi Pakan 17(3): 64-68.
- Hartadi, H., S. Reksohadiprodjo, dan S. Lebdosukojo. 1980. Tabel-tabel dari komposisi bahan makanan ternak untuk Indonesia. *International Feedstuffs Institute*. Logan, Utah.
- Haryanto, B. 2012. Perkembangan penelitian nutrisi ruminansia. Wartazoa 22(4): 169-177.
- Hendratno, C., Nolan, J. V., dan Leng, R. A. 1991. The importance of urea-molasses multinutrient blocks for ruminant production in Indonesia. In Isotope and related techniques in animal production and health.
- Herdian, H. 2005. Evaluasi penggunaan program LIPI mix dalam membuat formulasi premix mineral untuk pakan ternak. Buletin Peternakan 29(3): 123-130.
- Hossain, M.D., S.S. Islam, M.S. Islam, and M.J. Uddin. 2020. Effects of urea molasses block supplementation on growth, carcass traits and economics of fattening Black Bengal goats. Bangladesh Journal of Animal Science 49(2): 111-117.
- Hou, Y., Wu, S., and Gao, X. (2018). "Effect of Molasses on the Properties of Corn Starch-Based Edible Film." Food Science and Technology Research, 24(6), 907-914.
- Ishola, T.A, R.A. Busari, O.T. Aiyewumi, and E.A. Alhassan. 2021. Development of a urea molasses multi-nutrient block machine for sustainable livestock production. J. Res. Information Civil Engineer. 18(2): 4135-4148.
- Jayasuriya, M.C.N. and K.K.D.S. Ranaweera. 2019. Cassava as an alternative feed source for livestock in Asia. In Sustainable Agriculture Reviews 34: Animal Husbandry and Nutrition (pp. 141-166). Springer.
- Kamal, M. 1997. Kontrol Kualitas Pakan Ternak. Fakultas Peternakan, Universitas Gadjah Mada, Yogyakarta.



- Kertz, A. F. 2010. Review: Urea Feeding to Dairy Cattle: A Historical Perspective and Review. *The Professional Animal Scientist* 26(3): 257–272.
- Kushartono, Bambang. (2002). *Manajemen Pengelolaan Pakan*. Bogor: balai Penelitian Ternak.
- Lestari, C.M.S. dan Y. Widystuti. 2019. Pengaruh penambahan dedak padi terhadap kadar bahan kering, kadar abu, kadar protein kasar, kadar serat kasar, dan kadar ekstrak etanol daun lamtoro. *Jurnal Riset dan Inovasi Peternakan* 3(1): 22-27.
- Lima, L.S., J.A. Nascimento, J.H. Silva, and M.N. Ribeiro. 2018. Molasses in animal nutrition: A review. *Asian Journal of Agriculture and Biology* 6(4): 407-414.
- Makkar, H. P., Sánchez, M. dan Speedy, A. W. 2007. Feed supplementation blocks: urea-molasses multinutrient blocks: simple and effective feed supplement technology for ruminant agriculture (No. 164). *Food & Agriculture Orang*.
- Makkar, H. P., Sánchez, M., dan Speedy, A. W. 2007. Feed supplementation blocks: urea-molasses multinutrient blocks: simple and effective feed supplement technology for ruminant agriculture.
- Martindah, S. dan Bahri, S. 2016. Kontaminasi mikotoksin pada rantai makanan. *Balai Besar Peneltiian Veteriner*. Wartazoa 26(3):115-124.
- Mehta, P.K. dan Monteiro, P.J (2014). *Concrete: Microstructure, Properties, and Materials*. McGraw-Hill Education.
- Mengistu, G., dan Hassen, W. 2017. Review on: Supplementary Feeding of Urea Molasses Multi-Nutrient Blocks to Ruminant Animals for Improving Productivity. *International Journal of Animal Husbandry and Veterinary Science* 2(6): 2455-8567.
- Mira, P., Wan Z M., Rusli, N. D. Rusli., dan Mat, K. 2018. Effects of Non-Medicated and Medicated Urea Molasses Multi- nutrient Blocks on Dry Matter Intake, Growth Performance, Body Condition Score and Feed Conversion Ratio of Saanen Lactating Does Fed Conventional Diets. *Tropical Agricultural Science* 41 (2): 729 – 740.
- Mubi, A., A. Kibon A., and D. Mohammad. 2013. Formulation and production of multinutrient blocks for ruminants in the Guinea Savanna Region of Nigeria. *Agric Biology Journal of North America* 4(3): 205-215.
- Muhammed, I. D., Baulube, M., dan Adeyinka, I. A. 2007. Multinutrient blocks 1: Formulation and production under a semiarid environment of North East Nigeria. *Journal of Biological Sciences* 7(2):389-392.
- Muralidharan, J., Jayachandran, S., Thiruvenkadan, A. K., Singh, D. dan Sivakumar, K., 2015. Effect of concentrate and urea molasses mineral block supplementation on the blood biochemistry of off season Mecheri lambs. *Indian Journal of Animal Research* 49(3) 409-412.
- Neville, A. M. (2011). *Properties of Concrete*. Pearson Education Limited.



- Nista, D., H. Natalia, dan A. Taufik. 2010. Teknologi Pengolahan Pakan. Direktorat Jendral Bina Produksi Peternakan. Palembang.
- Nurfadilah, S., et al. (2020). "The Effects of Rice Bran and Cassava Leaf Meal Mixture as a Feed Supplement on Broiler Chicken Performance and Carcass Characteristics." IOP Conference Series: Earth and Environmental Science, 415(1), 012043.
- Omoniyi, L.A., O.A. Isah, O.O. Adewumi, O.M. Arigbede, and C.F. Onwuka. 2013. Physico-chemical properties and storability of urea molasses multi-nutrient feed-block (UMMB) as dry season supplement for ruminants. Journal of Applied Agricultural Research 5(1): 113-121.
- Patil, A. K., Katole, S., dan Agrawal, V. 2017. Urea Molasses Mineral Supplement For Enhancing Livestock Productivity. Veterinary Research International.
- Rashid, M.H., M.T. Islam, M.M. Hossain, M.R.U. Miah, and M.R. Islam. 2021. Effect of feeding different types of organic feeds on milk production, composition, and economics of keeping dairy sheep in Bangladesh. Journal of Animal Physiology and Animal Nutrition 105(2): 298-306.
- Saebah S, 2013. Determinasi Kadar Gross Energy (GE) Pakan Sapi Bal. Laporan Skripsi, Fakultas Peternakan Universitas Mataram. Santosa, P. B.
- Senthilkumar, S., T. Suganya, K. Deepa, J. Muralidharan, and K. Sasikala. 2016. Supplementation of molasses in Livestock Feed International. Journal of Science, Environmental and Technology 5(3): 1243-1250.
- Sihag, Z.S., Punia, B.S., Berwal, R.S. and Sihag, S. 2009. Influence of Feeding Urea Molasses Mineral Blocks (UMMB) on Blood Parameters in Buffaloes. Indian Journal of Animal Nutrition 26(1) 56-60.
- Soedjana, T.D. 2011. Peningkatan konsumsi daging ruminansia kecil dalam rangka diversifikasi pangan daging mendukung PSDSK 2014. In: Workshop Nasional Diversifikasi Pangan Daging Ruminansia Kecil (pp. 17-26).
- Steel, R.G.D. and B. O'Donovan, (2016). Principles and procedures of statistics: a biometrical approach. McGraw-Hill Education.
- Supriyati, S. and B. Suwignyo. 2014. Kandungan nutrisi dan pemanfaatan onggok sebagai pakan ternak. Buletin Peternakan 38(1): 37-42.
- Surdirman, Suhubdy, Hasan, S. D., Dilaga, S. H., dan Karda, I. W. 2015. Kandungan Neutral Detergent Fibre (NDF) dan Acid Detergent Fibre (ADF) bahan pakan lokal ternak sapi yang dipelihara pada kandang kelompok. Jurnal Ilmu dan Teknologi Peternakan Indonesia Volume 1 (1) : 77 – 81.
- Suwignyo, B. and S. Supriyati. 2015. Pengaruh penggunaan onggok sebagai pakan tambahan terhadap kecernaan nutrien dan kinerja sapi perah. Jurnal Ilmu-Ilmu Peternakan dan Veteriner 25(2): 93-99.
- Syafari, M., Hidayati, N., dan Umar, M. 2022. Kualitas Fisik dan Kualitas Kimia UMB (Urea Molases Block) yang Diberi Isi Rumen Sapi Pada Masa Simpan yang Berbeda. Maduranch: Jurnal Ilmu Peternakan 7(1): 17-25.



- Syamsi, A., H.S. Widodo, Y. Subagyo, dan P. Soediarto. 2021. Indeks sinkronisasi protein-energi dari beberapa konsentrat sumber protein bagi ruminansia. Seminar Teknologi dan Agribisnis Peternakan.
- Togtokhbayar, N., S.D. Lee, J. Hwangbo, and C.J. Yang. 2019. Effects of dietary energy sources on growth performance, carcass characteristics, meat quality, and blood metabolites of Korean native steers. Asian-Australasian Journal of Animal Sciences 32(6): 857-864.
- Turangan, G. G., Tulung, B., Tulung, Y. R. L., dan Waani, M. R. 2018. Kecernaan ndf dan adf yang mendapat suplementasi urea molasses multinutrient block (ummb) dari beberapa jenis limbah pertanian dan rumput lapang pada sapi peranakan ongole (po). Zootec, 38(2), 320-328.
- Utomo, A. J. 2010. Palatabilitas Serta Rasio Konsumsi Pakan dan air Minum Kelinci Jantan Lokal Peranakan New Zealand White yang diberi Pellet atau Silase Ransum Komplit. Institut Pertanian Bogor, Bogor. (Skripsi).
- Valencia, D.G., D.R. Mertens, and D.P. Casper. 2016. Effects of protein and energy supplementation of forages on feed intake, digestion, and performance of beef cattle. Journal of Animal Science 94(1): 200-214.
- Vu, D. D., Dung, C. A., dan Hai, P. H. 1999. Use of urea molasses multinutrient block and urea-treated rice straw for improving dairy cattle productivity in Vietnam. Preventive Veterinary Medicine, 38(2-3): 187-193.
- Wadhwa, M. dan Bakshi, M. P. S. 2014. Nutritional evaluation of urea molasses multi-nutrient blocks containing agro-industrial wastes in buffaloes. Indian Journal of Animal Sciences 84(5) 544-548.
- Wahyono, T., M. M. Sholikin, Y. Konca, T. Obitsu, S. Sadarman, and A. Jayanegara. 2022. Effects of urea supplementation on ruminal fermentation characteristics, nutrient intake, digestibility, and performance in sheep: A meta-analysis. National Library of Medicine 15(2):331-340.
- Wahyuni, I. M. D., Muktiani, A., dan Christiyanto, M. 2014. Kecernaan bahan kering dan bahan organik dan degradabilitas serat pada pakan yang disuplementasi tannin dan saponin. Program Studi Magister Ilmu Ternak Program Pascasarjana Fakultas Peternakan dan Pertanian Universitas Diponegoro Semarang. Vol. 2(2): 115-124.
- Widiastuti, R. 2013. Kualitas Pellet berbasis Sisa Pangan Foodcourt dan Limbah Sayuran Fermentasi sebagai Bahan Pakan Fungsional Ayam Broiler. Universitas Diponegoro, semarang. (Tesis).
- Widodo, W. 2005. Tanaman Beracun dalam Kehidupan Ternak, Penerbit Universitas Muhammadiyah. Malang.
- Yanuartono, A. Nururrozi, S. Indarjulianto, H. Purnamaningsih, N. Haribowo, dan A.D. Oktawan. 2017. Effect supplementation of urea molasse multinutrient block (UMMB) on the weight gain average of Heifers Peranakan Ongole breed Life Sciences (2018) 1: 39–43.
- Yanuartono, Indarjulianto S, Purnamaningsih H, Raharjo S. 2014. Evaluasi Klinis dan Laboratoris pada Kejadian Sapi Ambruk Tahun I. Laporan Penelitian.



Yogyakarta. Penelitian Unggulan Perguruan Tinggi (PUPT), Universitas Gadjah Mada. Kementerian Riset, Teknologi, dan Pendidikan Tinggi.

Yanuartono, Indarjulianto S, PurnamaningsihH, Raharjo S. 2014. Evaluasi Klinis dan Laboratoris pada Kejadian Sapi AmbrukTahun I. Laporan Penelitian. Yogyakarta. Penelitian Unggulan Perguruan Tinggi(PUPT), Universitas Gadjah Mada.Kementerian Riset, Teknologi, danPendidikan Tinggi.

Yanuartono, Nururrozi, A., Indarjulianto, S., Purnamaningsih, H., Haribowo, N., dan Oktawan, A. D. 2018. Effect supplementation of Urea Molasses Multinutrient Block (UMMB) on the weight gain average of Heifers Peranakan Ongole breed. UGM Digital Press Life Sciences: Vol. 1. Proceeding of the 2nd International Conference on Tropical Agriculture, (39–43).

Yanuartono, S. I., Nururrozi, A., Purnamaningsih, H. dan Raharjo, S. 2019. Urea molasses multinutrien blok sebagai pakan tambahan pada ternak ruminansia. J. Veteriner 20(3) 445-451.

Yanuartono, S. Indarjulianto, A. Nururrozi, H. Purnamaningsih, dan S. Raharjo. 2019. Urea molases multinutrient blok sebagai pakan tambahan pada ternak ruminansia. Jurnal Veteriner 20(3): 445-451.

Zewdu, A. 2019. Urea molasses multi-nutrient block as a feed supplement for livestock: A review. African Journal of Agricultural Research 14(3): 92-99.

Zhang, S., Cheng, L., Guo, X., Ma, C., Guo, A. and Moonsan, Y. 2016. Effects of urea supplementation on rumen fermentation characteristics and protozoa population in vitro. Journal of Applied Animal Research 44(1) 1-4.