

DAFTAR PUSTAKA

- Abrar, A., A. Fariani, dan Fatonah. 2019. Pengaruh proporsi bagian tanaman terhadap kualitas fisik silase rumput gajah (*Pennisetum Purpureum*). Jurnal Peternakan Sriwijaya, 8(1), 21–27.
- Adeleke, B. S., O. Olaniyi, and B. J. Akinyele. 2017. Isolation and screening of bacteria associated with fermented cassava peels for linamarase production. Int. J. Appl. Microbial. Biotechnol. Res. 5: 20-26.
- Adesogan, A.T. and Y.C. Newman. 2010. Silage harvesting, storing, and feeding. Edis, 2010(7).
- Adesogan, A. T., M.B. Salawu, A.B. Ross, D.R Davies and A.E Brooks. 2003. Effect of *Lactobacillus buchneri*, *Lactobacillus fermentum*, *Leuconostoc mesenteroides* inoculants, or a chemical additive on the fermentation, aerobic stability, and nutritive value of crimped wheat grains. J. Dairy Sci. 86(5), 1789–1796.
- Adogla-Bessa, T. and E. Owen. 1995. Ensiling of whole-crop wheat with cellulose-hemicellulase based enzyme. 1. Effect of crop growth stage and enzyme on silage composition and stability. Anim. Feed Sci. and Technol. 55: 335-347.
- Agbor-Egbe, T. and I. Lape-Mbome. 2006. The effects of processing techniques in reducing cyanogen levels during the production of some *Cameroonian* cassava foods. J. Food Composition and Analysis 19(4):354-363.
- Al-Beiruty, R. Z. A., S. H. Cheyed, and M. H. Hashim. 2020. Hazards of toxic hydrocyanic acid (HCN) in sorghum and ways to control it: a review. Plant Archives, 20, 2726–2731.
- Alvianto, A., Muhtarudin, dan Erwanto. 2015. Pengaruh penambahan berbagai jenis sumber karbohidrat pada silase limbah sayuran terhadap kualitas fisik dan tingkat palatabilitas silase. Jurnal Ilmiah Peternakan Terpadu, 3(1), 196–200.
- Amer, S., F. Hassanat, R. Berthiaume, P. Seguin, and A. F. Mustafa. 2012. Effects of water soluble carbohydrate content on ensiling characteristics, chemical composition and *in vitro* gas production of forage millet and forage sorghum silages. J. Anim. Feed. Sci. 177:23-29
- Andrada, E., A. Marquez, E. P. Chagra Dib, P. Gauffin-Cano, and R. B. Medina. 2023. Corn Stover Silage Inoculated with Ferulic Acid Esterase Producing *L. johnsonii*, *L. plantarum*, *L. fermentum*, and *L. brevis* Strains: Fermentative and Nutritional Parameters. Fermentation, 9(4).
- Anésio, A. H. C., M. V. Santos, L. D. Silva, R. R. Silveira, T. G. S. Braz, and R. C. Pereira. 2017. Effects of ensiling density on chemical and microbiological characteristics of sorghum silage. J. Anim. and Feed. Sci. 65–69.
- Anitasari, A. 2010. Pemanfaatan senyawa bioaktif kembang sepatu (*Hibiscus*

rosa-sinensis) untuk menekan produksi gas metan pada ternak ruminansia. IPB. Bogor.

Arnold, M., C. Gaskill, S.R Smith and G.D. Lacefield. 2014. Cyanide poisoning in ruminants cyanide. UKnowledge agriculture and natural resources publications cooperative extension service.

Arriola, K. G., S.C. Kim, C. M. Huisden and A.T. Adesogan. 2012. Stay-green ranking and maturity of corn hybrids: 1. Effects on dry matter yield, nutritional value, fermentation characteristics, and aerobic stability of silage hybrids in Florida. J. Dairy Sci, 95(2), 964–974.

Arriola, K. G., A. S. Oliveira, Z. X. Ma, I. J. Lean, M. C. Giurcanu and A. T. Adesogan. 2017. A meta-analysis on the effect of dietary application of exogenous fibrolytic enzymes on the performance of dairy cows. J. Dairy. Sci. 100 : 4513-4527.

Association of Official Analytical Chemists. 2005. Official Methods of Analysis, 18th ed. AOAC International: Washington DC, USA.

Astuti, D., B. Suhartanto, N. Umami dan A. Agus. 2018. Pengaruh dosis pupuk urea dan umur panen terhadap hasil hijauan sorgum (*Sorghum bicolor* (L.) Moench). J. Agrinova.1(2), 45–51.

Babaeinasab, Y., Y. Rouzbehan, H. Fazaeli, and J. Rezaei. 2015. Chemical composition, silage fermentation characteristics, and *in vitro* ruminal fermentation parameters of potato-wheat straw silage treated with molasses and lactic acid bacteria and corn silage. J. Anim Sci, 93(9), 4377–4386.

Bangar, S. P., S. Suri, M. Trif, and F. Ozogul. 2022. Organic acids production from lactic acid bacteria: A preservation approach. J. Food Bioscience, 46, 101615.

Basso, F. C., T. F. Bernardes, A. Paula de Toledo P. R, C. Henrique, S. R, A. C. Ruggieri, and R. A. Reis. 2012. Revista brasileira de zootecnia short communication fermentation and aerobic stability of high-moisture corn silages inoculated with different levels of *Lactobacillus buchneri*. R. Bras. Zootec V.41, N.11 2369–2373.

Bedrosian, M. C. Der, K. E. Nestor Jr., and L. Kung Jr. 2012. The effects of hybrid, maturity, and length of storage on the composition and nutritive value of corn silage. J. Dairy Sci, 95(9), 5115–5126.

Belim, S. Y., H. H. Savsani, M. R. Chavda, M. D. Odedra, Y. G. Kansagara, dan P. H. Agravat. 2023. Influence of bacterial inoculants and xylanase on silage fermentation characteristics of wheat straw and green. Ind J Vet Sci and Biotech., 19, 23–26.

Bernardes, T. F., J. L. P. Daniel, A. T. Adesogan, T. A. McAllister, P. Drouin, L. G. Nussio, P. Huhtanen, G. F. Tremblay, G. Bélanger, and Y. Cai. 2018. Silage review: unique challenges of silages made in hot and cold regions. J, Dairy Sci, 101(5), 4001–4019.

- Beauchemin, K. A., and S. M. Mcginn. 2006. Methane emissions from beef cattle : effects of fumaric acid, essential oil, and canola oil. *J. Anim. Sci.*, 84, 1489–1496.
- Campana, M., J. Prudêncio, G. De. Moraes, E. Capucho, T. M. Garcia, and C. A. Pedrini. 2023. Fibrolytic enzymes increase fermentation losses and reduce fiber content of sorghum silage. *Ann. Anim. Sci.* 23(1), 165–172.
- Carlson, M. P., and B. Anderson. 2013. Cyanide poisoning. USA. University of Nebraska Lincoln.
- Chahrour, W., Y. Merzouk, J. Henni, M. Haddaji, and M. Kihal. 2013. Screening and identification of lactic acid bacteria isolated from sorghum silage processes in west Algeria. *Afr. J. Biotechnol.* 12(14), 1703–1709.
- Chávez-González, M. L., Rodríguez-Duran, L. V., Buenrostro-Figueroa, J. J., Sepúlveda-Torre, L., Ascacio-Valdés, J. A., Rodríguez-Herrera, R., & Aguilar, C. N. 2018. Tannin Degrading Enzymes: Catalytic Properties and Technological Perspectives: Improvements and Innovations. 978-981-13-1933-4
- Chen, L., G. Guo, X. Yuan, J. Zhang, J. Li, T. Shao. 2015. Effects of applying molasses, lactic acid bacteria and propionic acid on fermentation quality, aerobic stability and *in vitro* gas production of total mixed ration silage prepared with oat-common vetch intercrop on the Tibetan Plateau. *J. Sci. Food Agric.* 96(5), 1678–1685.
- Chotimah, Q., M. Nada, E. D. Rahayu, D. H. V. Paradhipta, H. L. Sanjaya, A. R. D. Wardani, dan Moh. Sofi'ul A. 2023. Effects of *Achatina fulica mucus* as an antimicrobial additive on chemical compositions, fermentation quality, and *in vitro* digestibility of elephant grass silage. *Vet Integr Sci.* 22(2) 667-681.
- Crovetto, G. M., S. Colombini, G. Galassi, and L. Rapetti. 2007. Nutritive value of different hybrids of sorghum forage determined *in vitro* Nutritive value of different hybrids of sorghum forage determined *in vitro*. *Ital. J. Anim. Sci.* 6: 289–292.
- Dalié, D. K. D., A. M. Deschamps, and F. Richard-Forget. 2010. Lactic acid bacteria - potential for control of mould growth and mycotoxins: a review. *J. Food Con.* 21(4), 370–380.
- Danner, H., M. Holzer, E. Mayrhuber, and R. Braun. 2003. Acetic acid increases stability of silage under aerobic conditions. *AEM* 69(1), 562–567.
- Das, L. K., S. S. Kundu, D. Kumar, and C. Datt. 2015. Fractionation of carbohydrate and protein content of some forage feeds of ruminants for nutritive evaluation. *Veterinary World* 8(2)197-202
- David, L. A., B. Bagau, dan M. M. Telleng. 2021. Pengaruh lama pemeraman berbeda terhadap kualitas fisik dan pH silase sorgum varietas Samurai 2 Ratun ke satu. *Zootec*, 41(2), 464-471.

- Dewi, M. A., Mubarik, N. R., Desniar, dan Budiarti, S. 2022. Aplikasi bakteri asam laktat dari inasua sebagai biopreservatif ikan Patin (*Pangasius sp.*). JPHPI. 25(1),39206.
- Diepersloot, E. C., M. R. Pupo, L. G. Ghizzi, and J. O. Gusmão. 2021. Effects of microbial inoculation and storage length on fermentation profile and nutrient composition of whole-plant sorghum silage of different varieties. Front. Microbiol. 12(April), 1–16.
- Dolci, P., E. Tabacco, L. Cocolin, and G. Borreani. 2011. Microbial dynamics during aerobic exposure of corn silage stored under oxygen barrier or polyethylene films. AEM, 77(21), 7499–7507.
- Dong, J., Li, S., X. Chen, Z. Sun, Y. Sun, Y. Zhen, G. Qin, and T. Wang. 2022. Effects of *Lactiplantibacillus plantarum* inoculation on the quality and bacterial community of whole - crop corn silage at different harvest stages. Chem. Biolo. Technol. Agric. 1–16.
- Doyle, N., P. Mbandlwa, W. J. Kelly, G. Attwood, Y. Li, R. P. Ross, C. Stanton, S. Leahy, E. M. Hebert, and T. J. Snelling. 2019. Use of Lactic Acid Bacteria to Reduce Methane Production in Ruminants, a Critical Review General Characteristics of Lactic Acid. Front. Microbiol. 10:2207.
- Ekma, N., M. H. Rosly, A. M. Marini, N. Idayusni. 2018. Lactic acid bacteria as microbial inoculant for *Acacia mangium*. Mal. J. Anim. Sci. 21 (2) : 91–97.
- Ellis, J. L., A. Bannink, I. K. Hindrichsen, R. D. Kinley, W. F. Pellikaan, N. Milora, and J. Dijkstra. 2016. The effect of lactic acid bacteria included as a probiotic or silage inoculant on *in vitro* rumen digestibility, total gas and methane production. J. Anim. Feed. Sci. Technol. 211, 61–74.
- Ferrero, F., S. Piano, E. Tabacco, and G. Borreani. 2018. Effects of conservation period and *Lactobacillus hilgardii* inoculum on the fermentation profile and aerobic stability of whole corn and sorghum silages. J. Sci. Food. Agric. 9463
- Ferrero, F., and E. Tabacco. 2021. Temperature during conservation in laboratory silos affects fermentation profile and aerobic stability of corn silage treated with *Lactobacillus buchneri*, *Lactobacillus hilgardii*, and their combination. J. Dairy. Sci. 104 : 1696–1713.
- Gang, G., S. Chen, L. Qiang, Z. Shuan-lin, S. Tao, W. Cong, W. Yong xin, X. Qing-fang, and H. Wen-jie. 2020. The effect of lactic acid bacteria inoculums on *in vitro* rumen fermentation, methane production, ruminal cellulolytic bacteria populations and cellulase activities of corn stover silage. J. Integr. Agric, 19(3): 838–847.
- Getachew, G., D.H. Putnam, C.M. De Ben and E. J. De Peters. 2016. Potential of sorghum as an alternative to corn forage. Am. J. Plant. Sci, 7, 1106–1121.
- Gunawan, S., S. Sijid, and Hafsani. 2017. Sorghum for food self-sufficiency in Indonesia (A review). Biology for Life, November, 49–54.

- Guo, X. S., W. C. Ke, W. R. Ding, L. M. Ding, D. M. Xu, W. W. Wang, and P. Zhang. 2018. Profiling of metabolome and bacterial community dynamics in ensiled *Medicago sativa* inoculated without or with *Lactobacillus plantarum* or *Lactobacillus buchneri*. *Scientific Reports* 8:357 1–11.
- Handriati, L. N., B. Suhartanto, S. Widodo, M. P. Dewi, dan N. Umami. 2019. Effect of sorghum varieties and molasses addition on prussic acid content and of silage quality. *IOP Conference Series: Earth and Environmental Science*, 387(1).
- Hanifah, W., D. Febrina, P.Z. Jati, and A. Fatah. 2023. Physical Quality of Sago Waste Silage with Different Concentrations of Cattle's Rumen Liquid. *Jurnal Peternakan*. 20(2) : 57–64.
- Herlinae., Yemima., dan Rumiasih. 2015. Pengaruh aditif em4 dan gula merah terhadap karakteristik silase rumput gajah (*Pennisetum purpureum*). *Jurnal Ilmu Hewani Tropika*, 4(1), 27–30.
- Herrmann, C., C. Idler, and M. Heiermann. 2015. Improving aerobic stability and biogas production of maize silage using silage additives. *Bioresource Technology*, 197, 393–403.
- Hidayah, N. 2016. Pemanfaatan senyawa metabolit sekunder tanaman (tanin dan saponin) dalam mengurangi emisi metan ternak ruminansia. *Jurnal Sain Peternakan Indonesia* 11(2): 89-98.
- Indarjulianto, S., A. Nururrozi, dan H. Purnamaningsih. 2019. Review : hidrogen sianida dan implikasinya pada ternak. *Jurnal Ilmu dan Teknologi Peternakan Tropis*. 6(2) : 214-224.
- Ismail, Y. S., C. Yulvizar, dan Putriani. 2017. Isolasi, karakterisasi dan uji aktivitas antimikroba bakteri asam laktat dari fermentasi biji kakao (*Theobroma cacao* L.). *Bioleuser*. 1(2) : 45-33.
- J. Escarião da Nóbrega Jr, F. Riet-Correa, R. M. T. Medeiros, and e. A. F. M. Dantas. 2017. Poisoning by *Sorghum halepense* (*Poaceae*) in cattle in the Brazilian semiarid. *Pesq. Vet. Bras*. 26(4) : 201-204.
- Jalč, D., A. Lauková, M. Simonová, Z. Váradyová, and P. Homolka. 2009. The use of bacterial inoculants for grass silage: Their effects on nutrient composition and fermentation parameters in grass silages. *Czech. J. Anim. Sci.* 54(2), 84–91.
- Jayanegara, A., M. Ridla, E. B. Laconi, dan Nahrowi. 2019. *Komponen Antinutrisi pada Pakan*. IPB Press.
- Jiang, Y., D. Kim, X. Li, M. C. M. Gonçalves, D. Vyas, and A. T. Adesogan. 2017. Meta-analysis of effects of inoculation with homofermentative and facultative heterofermentative lactic acid bacteria on silage fermentation, aerobic stability, and the performance of dairy cows. *J. Dairy. Sci.* 100(6), 4587–4603.

- Joo, Y. H., Kim, D. H., Paradhipta, D. H. V., Lee, H. J., Amanullah, S. M., Kim, S. B., Chang, J. S., & Kim, S. C. 2018. Effect of microbial inoculants on fermentation quality and aerobic stability of sweet potato vine silage. *Asian Australas J. Anim. Sci.* 31(12), 1897–1902.
- Kaiser, A. G. 2004. Silage additives. New South Wales. Department of Primary Industries, Wagga Wagga Agricultural Institute, Wagga Wagga.
- Kardeş, Y. M., M. Kaplan, H. Kale, M. F. Yılmaz, K. Karaman and R. Temizgül. 2021. Biochemical composition of selected lines from sorghum (*Sorghum bicolor* L.) landraces. *Planta*, 254(2), 1–13.
- Kellems, R. O. and D. C. Church. 2010. Roughages. In: *Livestock Feeds and Feeding*. 6th edition. Pearson Prentice Hall. New Jersey. pp. 140-158.
- KepmentanRI. 2014. Pelepasan Galur Sorgum Patir 4 sebagai varietas unggul dengan nama Samurai 2. Menteri Pertanian RI.
- Kobawila, S. C., D. Louembe, S. Keleke, J. Hounhouigan, and C. Gamba. 2005. Reduction of the cyanide content during fermentation of cassava roots and leaves to produce bikedi and ntoba mbodi , two food products from Congo. *Afr. J. Biotechnol.* 4: 689–696.
- Krabi, R. E., A. A. Assamoi, F. A. Ehon, and L. Niamke. 2015. screening of lactic acid bacteria as potential starter for the production of attiéké, a fermented cassava food. *Food and Environment Safety*, Vol. XIV, 21 – 29
- Kumar, R., R. Gill, B. L. Kumhar, and S. Jat. 2017. Year Round Forage Availability Through Forage Preservation. *Pop. Kheti.* 5(12):31-34
- Kung, L., R. D. Shaver, R. J. Grant, and R. J. Schmidt. 2018. Silage review: Interpretation of chemical, microbial, and organoleptic components of silages. *J. Dairy Sci.* 101(5), 4020–4033.
- Kurnianingtyas, I. B., P. R. Pandansari, I. Astuti, S. D. Widyawati, dan W. P. S. Suprayogi. 2012. Pengaruh Macam Akselerator terhadap Kualitas Fisik dan Kimiawi Silase Rumpun Kolonjono. *Tropical Animal Husbandry*, 1(1), 7–14.
- Kusuma, A. P., S. Chuzaemi, dan Mashudi. 2019. Pengaruh lama waktu fermentasi limbah buah nanas (*Ananas comosus* L. Merr) terhadap kualitas fisik dan kandungan nutrisi menggunakan *Aspergillus niger*. *Jurnal Nutrisi Ternak Tropis*, 2(1), 1–1.
- Le, S., J. Josse, and F. Husson. 2014. Factominer: an R package for multivariate analysis. *J. Stat. Softw.* 25, 1–18.
- Li, F., S. Usman, W. Huang, M. Jia, Z. A. Kharazian, T. Ran, F. Li, Z. Ding, and X. Guo. 2023. Effects of inoculating feruloyl esterase-producing *Lactiplantibacillus plantarum* A1 on ensiling characteristics, *in vitro* ruminal fermentation and microbiota of alfalfa silage. *J. Anim. Sci. Biotechnol.*

- Li, Mao, X. Zi, H. Zhou, R. Lv, J. Tang and Y. Cai. 2019. Silage fermentation and ruminal degradation of cassava foliage prepared with microbial additive. *AMB Express*, 9(1).
- Li, Maoya, S. Zhou, X. Tang, C. Liao, P. Li, Y. Xie, Q. Cheng and C. Chen. 2023. Effect of co-inoculation of *Lactobacillus plantarum* and *Lentilactobacillus buchneri* on aerobic stability and microbial community composition of perennial sorghum silage. *Biomass and Bioenergy*, 173(March), 106801.
- Li, Y., F. Wang, dan N. Nishino. 2016. Lactic acid bacteria in total mixed ration silage containing soybean curd residue: their isolation, identification and ability to inhibit aerobic deterioration. *Asian Australas J. Anim Sci* 29(4), 516–522.
- Liu, Y., T. Chen, R. Sun, X. Zi, and M. Li. 2022. Effects of *Lactobacillus plantarum* on silage fermentation and bacterial community of three tropical forages. *Frontiers in Animal Science*, 3(May), 1–9.
- Lv, X., L. Chen, C. Zhou, G. Zhang, J. Xie, J. Kang, Z. Tan, S. Tang, Z. Kong, Z. Liu, and Z. Du. 2023. Application of different proportions of sweet sorghum silage as a substitute for corn silage in dairy cows. *J. Food. Sci. Nutri.* 11(6), 3575–3587.
- Mahardika, E., A. Purnawisda, B. Ayuningsih, A. R. Tarmidi, dan I. Hernaman. 2022. Pengaruh ransum yang mengandung biji durian (*Durio zibethinus* Murr.) terhadap fermentabilitas dan pencernaan secara *in vitro*. *Jurnal Ilmu Peternakan Terapan*, 5 (2)(200), 57–62.
- Mahmood, S., H. Ali, F. Ahmad, and Z. Iqbal. 2014. Estimation of tannins in different sorghum varieties and their effects on nutrient digestibility and absorption of some minerals in caged white leghorn layers. *Int. J. Agric. Biol*, 16(1), 217–221.
- Makkar, H. P. S. 2003. Quantification of tannins in tree and shrub foliage : a laboratory manual. Kluwer Academic Publ.
- Manyawu, G., I. Chakoma, K. Gwezuva, L. Gwiriri and S. Moyo. 2016. Principles of silage making in the subtropics. ILRI extension brief.
- Mccary, C. L., D. Vyas. A. P. Faciola, and L. F. Ferraretto. 2020. Graduate Student Literature Review : Current perspectives on whole-plant sorghum silage production and utilization by lactating dairy cows. *J. Dairy Sci.* 103:5783–5790.
- McDonald, P., R. A. Edwards, J. F. D. Greenhalgh, C. A. Morgan, L. A. Sinclair, and R. G. Wilkinson. 2011. *Animal nutrition*. 7th ed. Pearson. Canada.
- Mergedus, A., M. Psenkovv, and M. Janzekovic. 2020. Tannins and their Effect on Production Efficiency of Ruminants. *Agricultura*, 12(1–2), 1–11.
- Miron, J., E. Zuckerman, G. Adin, R. Solomon, E. Shoshani, M. Nikbachat, E.

- Yosef, A. Zenou, Z.G. Weinberg, Y. Chen, I. Halachmi, and D. Ben-Ghedalia. 2007. Comparison of two forage sorghum varieties with corn and the effect of feeding their silages on eating behavior and lactation performance of dairy cows. *J. Anim. Feed Sci. Technol.* 139(1–2), 23–39.
- Morgavi, D. P., E. Forano, C. Martin, C. J. Newbold. 2010. Microbial ecosystem and methanogenesis in ruminants. *Animal*, 4(7), 1024–1036.
- Muck, R. E. 2010. Silage microbiology and its control through additives. *Revista Brasileira de Zootecnia*, 39(suppl spe), 183–191.
- Mullik, Y. M., M. Ridla, I. Prihantoro, and M. L. Mullik. 2016. Anaerobic fermentation effectively reduces concentration of total tannins in *Chromolaena odorata*. *Jurnal Ilmu Ternak dan Veteriner*, 21(1), 19.
- Murugan, K., Yashotha, K. Sekar, and S. Al-Sohaibani. 2014. Detoxification of cyanides in cassava flour by linamarase of *Bacillus subtilis* KM05 isolated from cassava peel. *Afr. J. Biotechnol.*
- Mustika, L. M., dan H. Hartutik. 2021. Kualitas Silase Tebon Jagung (*Zea mays* L.) dengan Penambahan Berbagai Bahan Aditif Ditinjau dari Kandungan Nutrisi. *Jurnal Nutrisi Ternak Tropis*, 4(1), 55–59.
- Nahak, O. R., P. K. Tahuk, G. F. Bira, dan Y. B. Ambone. 2021. The *in vitro* digestibility of complete silage from (*Sorghum bicolor* (L.) Moench) ingredient using different additives. *Bulletin of Animal Science* 45(May), 90–94.
- Najam, A., L. Abdullah, P.D.M.H. Karti, dan S. Hoeman. 2021. Potensi produksi dan mutu benih serta biomassa sebagai bahan pakan *Sorghum bicolor* varietas samurai 2 pada umur panen berbeda. *Jurnal Ilmu Nutrisi dan Teknologi Pakan*, 19(3), 79–84.
- Nugroho, L. B., F. S. Pranata, dan L. E. Purwijantiningsih. 2022. Biopreservasi santan kelapa (*Cocos nucifera* L.) dengan serbuk bakteriosin dari *Lactobacillus plantarum*. *Biota : Jurnal Ilmiah Ilmu-Ilmu Hayati*, 160–171.
- Nur, F., Hafsani, dan A. Wahdiniar. 2015. Isolasi bakteri asam laktat berpotensi probiotik pada dangke, makanan tradisional dari susu kerbau di Curio Kabupaten Enrekang. *Biogenesis: Jurnal Ilmiah Biologi*, 3(1), 60–65.
- Nussio, L. G. 2005. Silage production from tropical forages. 14th Intl. Silage Conf, Belfast, UK. Wageningen Academic Publishers. Wageningen. Netherlands. Pages 97–107.
- Nwokoro, O. 2016. Linamarase production by some microbial isolates and a comparison of the rate of degradation of cassava cyanide by microbial and cassava linamarases. *Hem. Ind.* 70: 129–136.
- Mole, T. A., T. F. Santos, L. R. Pereira, H. M. Passos, R. P. Rezende, and C. C. Romano. 2017. Functional profile evaluation of *Lactobacillus fermentum* TCUESC01: a new potential probiotic strain isolated during cocoa

fermentation. Biomed Research International. Vol, 207, 5165916.

Oliveira, B. S., L. Gustavo, R. Pereira, J. Augusto, and G. Azevêdo. 2018. Silage quality of six sorghum cultivars for sheep. *Pesq. Agropec. Bras.* 53(2) : 256-264.

Pahlow, G., R. E. Muck, F. Driehuis, S. J. W. H. Oude Elferink, and S. F. Spoelstra. 2015. Microbiology of ensiling. *Silage Science and Technology*, 31–93.

Paradhipta, D. H. V., Y. H. Joo, H. J. Lee, S. S. Lee, D. H. Kim, J. D. Kim, and S. C. Kim. 2019. Effects of inoculant application on fermentation quality and rumen digestibility of high moisture sorghum-sudangrass silage. *J. Appl. Anim. Res.* 47(1), 486–491.

Paradhipta, D. H. V., Y. H. Joo, H. J. Lee, S. S. Lee, H. T. Noh, J. S. Choi, J. Kim, H. G. Min, and S. C. Kim. 2021. Effects of inoculants producing antifungal and carboxylesterase activities on corn silage and its shelf life against mold contamination at feed-out phase. *Microorganisms*, 9(3), 1–16.

Paradhipta, D. H. V., S. S. Lee, B. Kang, Y. H. Joo, H. J. Lee, Y. Lee, J. Kim, and S. C. Kim. 2020. Dual-purpose inoculants and their effects on corn silage. *Microorganisms*, 8:765.

Prachumchai, R., A. Cherdthong, and M. Wanapat. 2021. Screening of cyanide-utilizing bacteria from rumen and *in vitro* evaluation of fresh cassava root utilization with pellet containing high sulfur diet. *Veterinary Sciences*, 8(1), 1–14.

Pratiwi, I., F. Fathul, dan Muhtarudin. 2015. Pengaruh penambahan berbagai starter pada pembuatan silase ransum terhadap kadar serat kasar, lemak kasar, kadar air, dan bahan ekstrak tanpa nitrogen silase. *Jurnal Ilmiah Peternakan Terpadu*. 3(3), 116–120.

Puntillo, M., M. Gaggiotti, J. M. Oteiza, A. Binetti, A. Massera, and G. Vinderola. 2020. Potential of lactic acid bacteria isolated from different forages as silage inoculants for improving fermentation quality and aerobic stability. *Front. Microbiol.* 11: 586716.

Puspitasari, G., D. Kastono, S. Sumarmo, dan Karsono. 2012. Pertumbuhan dan hasil sorgum manis (*Sorghum bicolor* (L.) Moench) tanam baru dan ratoon pada jarak tanam berbeda growth. *Vegetalika*, 1, 4.

Queiroz, O. C. M., A. T. Adesogan, K. G. Arriola, and M. F. S. Queiroz. 2012. Effect of a dual-purpose inoculant on the quality and nutrient losses from corn silage produced in farm-scale silos. *J. Dairy Sci.* 95: 3354–3362.

Rad, S. V., S. A. R. Valadabadi, M. Pouryousef, S. Saifzadeh, H. R. Zakrin, and A. Mastinu. 2020. Quantitative and qualitative evaluation of *Sorghum bicolor* L. under intercropping with legumes and different weed control methods. *Horticulturae*, 6(4), 1–15.

- Reuter, W. M., I. PerkinElmer, and CT, Shelton. 2015. The Analysis of a Broad Range of Organic Acids by HPLC with UV Detection. PerkinElmer, Inc. USA.
- Roozeboom, K., D. Mengel, D. Blasi, and J. Holman. 2012. Prussic acid poisoning. AS. Kansas State University.
- Sadarman, F. D., T. Wahyono, R. Mulianda, N. Qomariyah, R. A. Nurfitriani, F. Khairi, D. N. A. Adli, S. D. Romli, Zulkarnain, and A. B. Prastyo. 2022. Kualitas fisik silase rumput gajah dan ampas tahu segar dengan penambahan sirup komersial afkir. *Jurnal Ilmu Nutrisi dan Teknologi Pakan*, 20(2), 73–77.
- Salminen, S., A. von Wright, and A. Ouwehand. 2004. Lactic acid bacteria: microbiology and functional aspects, 3rd edn. Marcel Dekker Inc.
- Santos, C. G. y, L. Bettucci, S. Brambillasca, and C. Cajarville. 2020. Storage time and condensed tannin content of high-moisture sorghum grains: effects on *in vitro* fermentation and mold populations. *Animal Nutrition*, 92-97.
- Saun, R. J. V. and J. Heinrichs. 2008. Troubleshooting silage problems: How to identify potential problems. In: *Proceedings of The Mid-Atlantic Conference*, May 26-28.
- Setiarto, R. H. B., and N. Widhyastuti. 2016. Reduction of tannin and phytic acid on sorghum flour by using fermentation of *Rhizopus oligosporus*, *Lactobacillus plantarum* and *Saccharomyces cerevisiae*. *Berita biologi*, 15(2).
- Seveline, H. Oktafiana, W. M. Indriatama, dan M. Taufik. 2021. Pengaruh penambahan bakteri asam laktat terhadap karakteristik kimia dan organoleptik tepung sorgum fermentasi. *Agrointek* : 15, 106–114.
- Shabbir, G., A. Sher, M. Ansar, and M. A. Malik. 2012. Hydrocyanic acid content variation amongst sorghum cultivars grown with varying seed rates and nitrogen levels. *Int. J. Agric. Biol*, 14, 5.
- Shao, T., T. Wang, M. Shimojo, and Y. Masuda. 2005. Effect of ensiling density on fermentation quality of Guinea grass (*Panicum maximum jacq.*) silage during the early stage of ensiling. *Asian Australas J. Anim. Sci.* Vol 18, No. 9 :1273–1278.
- Si, H., H. Liu, Z. Li, W. Nan, C. Jin, Y. Sui, and G. Li. 2018. Effect of *Lactobacillus plantarum* and *Lactobacillus buchneri* addition on fermentation, bacterial community and aerobic stability in lucerne silage. *Anim. Produc. Sci.* 59: 1528-1536.
- Soejono, S. M., dan S. P. S. Budhi. 2006. Kehilangan bahan kering dan bahan organik silase rumput gajah pada umur potong dan level aditif yang berbeda. *J. Indon. Trop. Anim. Agric.* 31(1), 62–68.
- Steel, R. G. D., and J. H. Torrie. 1993. Prinsip dan prosedur statistika. Suatu pendekatan biometrik. Jakarta: PT Gramedia Pustaka Utama.

- Su jiang, Z., A. S. Chaudhry, D. Ramdani, A. Osman, Guo X. feng, G. R. Edwards, dan L. Cheng. 2016. Chemical composition and *in vitro* fermentation characteristics of high sugar forage sorghum as an alternative to forage maize for silage making in Tarim Basin, China. *Journal of Integrative Agriculture*, 15(1), 175–182.
- Su, R., K. Ni, T. Wang, X. Yang, J. Zhang, Y. Liu, W. Shi, L. Yan, C. Jie, and J. Zhong. 2019. Effects of ferulic acid esterase-producing *Lactobacillus fermentum* and cellulase additives on the fermentation quality and microbial community of alfalfa silage. *PeerJ* 7:e7712.
- Sucu, E., H. Kalkan, O. Canbolat, and I. Filya. 2016. Effects of ensiling density on nutritive value of maize and sorghum silages. *Revista Brasileira de Zootecnia*, 45(10), 596–603.
- Sudarmadji, S., B. Haryono, & Suhardi. 1997. *Prosedur Analisa Bahan Makanan dan Pertanian*. Liberty. Yogyakarta
- Sugoro, I. 2004. Pengaruh tanin dan penambahan PEG terhadap produksi gas secara *in vitro*. Jakarta. Puslitbang Teknologi Isotop dan Radiasi BATAN.
- Suhendra, D., G. T. Anggiati, S. Sarah, A. F. Nasrullah, A. Thimoty, dan D. W. C. Utama. 2015. Tampilan kualitas susu sapi perah akibat imbalanced konsentrat dan hijauan yang berbeda. *Jurnal Ilmu-Ilmu Peternakan*, 25(1), 42–46.
- Sun, L., N. Na, X. Li, Z. Li, C. Wang, X. Wu, Y. Xiao, G. Yin, S. Liu, Z. Liu, Y. Xue, and F. Yang. 2021. Impact of packing density on the bacterial community, fermentation, and *in vitro* digestibility of whole-crop barley silage. *Agriculture (Switzerland)*, 11(7).
- Suryani, H., D. Marya, D. Sinaga, dan N. Usman. 2023. Uji daya simpan inokulum dan ketahanan *Lactobacillus plantarum* terhadap pH rendah sebagai agensia direct fed microbials untuk ternak ruminansia. *Jurnal Peternakan Terapan*, 5(2), 82–87.
- Suwayvia, N. 2017. Produksi bakteorisin asal *Lactobacillus plantarum* FNCC 0020 sebagai antimikroba dan stabilitasnya pada variasi suhu pemanasan, suhu penyimpanan dan pH. Malang. Universitas Islam Negeri Maulana Malik Ibrahim.
- Syahrir, S., S. Rasjid, M. Z. Mide, dan Harfiah. 2014. Perubahan terhadap kadar air, berat segar dan berat kering silase pakan lengkap berbahan dasar jerami padi dan biomassa murbei. *Buletin Nutrisi dan Makanan Ternak*, 10.
- Tahuk, P. K., G. F. Bira, and H. Taga. 2020. Physical characteristics analysis of complete silage made of sorghum forage, king grass and natural grass. *IOP Conf, Ser.: Earth Environ Sci.* 465 012022.
- Tilley, J., and R. Terry. 1963. A two-stage technique for the *in vitro* digestion of forage crops. *J. Brit. Grassland Soc.* 18:104-11, 1963. *J. Brit. Grassland Soc.*, 18(37), 1980–1980.

- Utomo, R. 2015. Konsevasi hijauan pakan dan peningkatan kualitas bahan pakan berserat tinggi. Gadjah Mada University Press. Yogyakarta
- Vargas, J. A. C., T. C. de Araujo, and R. Mezzomo. 2020. A protocol for the extraction, identification, and quantification of short-chain fatty acids (SCFAs) in silages using Reverse Phase-High Performance Liquid Chromatography with Diode Array Detector (RP-HPLC-DAD). Creative commons. USA.
- Wahyono, T., W. Sasongko, D. Priyoatmojo, and Firsoni. 2018. *In vitro* degradability profile of sorghum from mutation radiation breeding. Prosiding Seminar Nasional APISORA.
- Wan, J. C., K. Y. Xie, Y. X. Wang, L. Liu, Z. Yu, and B. Wang. 2021. Effects of wilting and additives on the ensiling quality and *in vitro* rumen fermentation characteristics of sudangrass silage. Anim. Biosci. 34(1), 56–65.
- Wang, Yan-lu, W. K. Wang, Q. C. Wu, F. Zhang, W. J. Li, Z. M. Yang, Y. K. Bo and H. J. Yang. 2022. The effect of different lactic acid bacteria inoculants on silage quality, phenolic acid profiles, bacterial community and *in vitro* rumen fermentation characteristic of whole corn silage. MDPI. Fermentation, 8(285).
- Wang, Yi, C. Wang, W. Zhou, F. Yang, X. Chen, Q. Zhang, and X. Chen. 2018. Effects of wilting and *Lactobacillus plantarum* addition on the fermentation quality and microbial community of *Moringa oleifera* leaf silage. Front. Microbiol, 9:18:17
- Wardono, H. P., A. Agus, A. Astuti, and N. Ngadiyono. 2022. The effect of fermentation time on the nutritional value of Sago Hampas. Advances in Biological Sciences Research, Vol. 18
- Widyastuti, Y. 2008. Fermentasi silase dan manfaat probiotik silase bagi ruminansia. Media Peternakan. 31(3), 225–232.
- Yuliatun, S. 2021. Quality and nutrition value of silage from sweet sorghum leaves for forage. Indonesian Sugar Research Journal, 1(2), 78–88.
- Zhao, J., X. Yin, S. Wang, and J. Li. 2022. Changes in the fermentation products, taxonomic and functional profiles of microbiota during high-moisture sweet sorghum silage fermentation. Front. Microbiol. 13 : 967624.
- Zhou, Y., P. Drouin, and C. Lafrenière. 2019. Effects on microbial diversity of fermentation temperature (10°C and 20°C), long-term storage at 5°C, and subsequent warming of corn silage. 32(10), Asian Australas J. Anim. Sci. 1528–1539.
- Zi, X., Li, M., Y. Chen, R. Lv, H. Zhou, and J. Tang. 2021. Effects of citric acid and *Lactobacillus plantarum* on silage quality and bacterial diversity of king grass silage. Front. Microbiol, 12:631096.
- Zielińska, K., and A. Fabiszewska. 2018. Improvement of the quality of maize grain silage by a synergistic action of selected lactobacilli strains. World J.

Microbiol. Biotechnol. 34(1).

Zubaili, Y. Usman, dan S. Wajizah. 2017. Evaluasi pencernaan *in vitro* pakan komplit fermentasi berbahan dasar ampas sagu dengan lama pemeraman berbeda. Jurnal Ilmiah Mahasiswa Pertanian Unsyiah, 2, 350–358.