UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abdelhadi, L.O., F.J. Santini, and G.A. Gagliostro. 2005. Corn silase of high moisture corn supplements for beef heifers grazing temperate pasture effects on performance ruminal fermentation and in situ pasture digestion. Anim. Feed Sci. Technol. 118: 63 – 78.

Addah, W., J. Baah, E.K. Okine, and T.A. McAllister. 2012. A third-generation esterase inoculant alters fermentation pattern and improves aerobic stability of barley silage and the efficiency of body weight gain of growing feedlot cattle. J. Anim. Sci. 90: 1541 – 1552.

Addah, W., J. Baah, E.K. Okine, F.N. Owens, and T.A. McAllister. 2014. Effects of chop-length and a ferulic acid esterase-producing inoculant on fermentation and aerobic stability of barley silage, and growth performance of finishing feedlot steers. Anim. Feed Sci. Technol. 197: 34 – 46.

Adesoji, A.T., A.A. Ogunjubi, O.E. Fagede, and O.J. Babayemi. 2010. Effect of *Lactobacillus plantarum* starter culture on the microbial succesion, chemical composition, aerobic stability, and acceptability by ruminants of fermented *Paniccum maximum* grass. AU J. Technol. 14: 11 – 24.

Aganga, A.A., and S.O. Tshwenyane. 2003. Lucerne, Lablab and *Leucaena leucocephala* forages: Production and utilization for livestock production. Pak. J. Nutr. *2*: 46 – 53.

Agarwal, N., D.V. Kamra, and L.C. Chaudhary. 2015. Rumen microbial ecosystem of domesticated ruminants. In: Rumen Microbiology: From Evolution to Revolution. A. K. Puniya, R. Singh, and D.N. Kamra (Eds). Springer India.

Agriculture and Food Research Council. 1992. Requirements of Ruminant Animal: Protein Nutrition. Abstract Review series B. 62: 787 – 835.

Agus, A. 2007. Membuat Pakan Ternak Secara Mandiri. Cetakan Pertama. PT. Citra Adji Parama. Yogyakarta.

Angthong, W., B. Cheva-isarakul, and S. Promma. 2007. Beta-carotene, mimosin and Quality of Leucaena silage kept at different duration. Kasetsart J. (Nat. Sci). 287: 282 – 287.

Antaribaba, M.A., N.K. Terro, B.T. Hariadi, and B. Santoso. 2009. Effect of inoculum level of lactic acid bacteria from fermented seaweed extract against the king grass silage fermentation quality. JITV. 14: 278 – 283.

Aquilina, G., G.A. Chesson, P.S. Coccencelli, J. de Knecht, N.A. Dierick, M.A. Gralak, J. Gropp, I. Halle, C. Hogstrand, R. Kroker, L. Leng, S.L. Puente, A.L. Haldorsen, A. Mantovani, G. Martelli, M. Mezes, D. Renshaw, M. Saarela, K. Sejren, and J. Westendorf. 2012. Scientific opinion on the safety and efficacy of *Lactobacillus plantarum* (NCIBM 41028) and *Lactobacillus plantarum* (NCIBM 30148) as silage additives for all animal species. EFSA. J. 10: 1 – 10.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Aragón, Y.A., J. Jatkauskas, and V. Vrotniakiene. 2012. The effect of a silage inoculant on silage quality, aerobic stability, and meat production on farm scale. ISRN. Vet. Sci. 1 – 6.

Ashbell, G., T. Kipnis, M. Titterton, Y. Hen, A. Azrieli, and Z.G. Weinberg. 2001. Examination of a technology for silage making in plastic bags. Anim. Feed Sci. Technol. 91: 213 – 222.

Association of Official Analytical Chemist. 2005. Official method of Analysis. 18th edn. The Association of Official Analytical Chemist. Washington, DC.

Aswandi., C.I., M. Sutrisno, Arifin, and A. Joelal. 2012. Effect *Complete feed* containing starch tubers of different varieties of banana plant on pH, NH_3, and VFA of kacang Goat. JITV. 2: 99 – 109.

Axelsson, L. 2004. Lactic Acid Bacteria: Classification and Physiology. In: Lactic Acid Bacteria: Microbiological and Functional Aspec. 3rd edn. Seppo Salminen, Atte Von Wright and Arthur Ouwehand (eds.). Marcel Dekker Inc.

Ba, N.X., N.H. Van, L.D. Ngoan, C.M. Leddin, and P.T. Doyle. Effects of amount of concentrate supplement on forage intake, diet digestibility and live weight gain in Yellow cattle in Vietnam. Asian - Aust. J. Anim Sci. 2: 1736 - 1744.

Bach, A., S. Calsamiglia, and M.D. Stern. 2005. Nitrogen metabolism in the rumen. J. Dairy Sci. (E. Suppl) 88: E9 – E21.

Bachruddin, Z., dan N. Umami. 2005. Peranan bakteri asam laktat pada industri peternakan. Prosiding Problema dan strategi pengembangan peternakan sapi perah rakyat. Fakultas Peternakan Universitas Gadjah Mada, Yogyakarta.

Baker, S.B., and W.H. Summerson. 1941. The colorimetric determination of lactic acid in biological material. J. Biol. Chem. 138: 346 - 554.

Barnes, R.F., C.J. Nelson, K.J. Moore, and M. Collins. 2007. Forages the Science of Grassland Agriculture. Blackwell Publishing. Iowa.

Barros-Rodríguez, M.A., F.J. Solorio-Sánchez, C.A. Sandoval-Castro, A. Klieve, R.A. Rojas-Herrera, E.G. Briceño-Poot, and J.C. Ku-Vera. 2015. Rumen function in vivo and in vitro in sheep fed *Leucaena leucocephala*. Trop. Anim. Healt Prod. 47: 757 – 764.

Basso, F.C., A.T. Adesogan, E.C. Lara, C.H. S. Rabelo, T.T. Berchielli, I.A.M.A. Teixeira, G.R. Siquera, and R.A. Reis. 2014. Effects of feeding corn silage inoculated with microbial additives on the ruminal fermentation, microbial protein yield, and growth performance of lambs. J. Anim. Sci. 92: 5640 – 5650.

Blümmel, M., and E.R. Ørskov. 1993. Comparison of in-vitro gas production and nylon bag degradability roughages in prediction of feed intake in cattle. Anim. Feed Sci. Technol. 40: 109 – 229.

Bocarov-Stancic, A., S. Stankovic, J. Levic, S. Jankovic, M. Adamovic, Z. Novakovic, and J. Kuzevski. 2014. Presense of mycobiota and

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

mycotoxins in silage. In: Proceed XVI International Symposium “Feed Technology”. University of Novi Sad, Serbia.

Borreani, G., A.R. Chion, S. Colombini, M. Odoardi, R. Paoletti, and E. Tobacco. 2009. Fermentative profiles of field pea (*Pisum sativum*) and white lupin (*Lupinus albus*) silages as affected by wilting and inoculation. Anim. Feed Sci. Technol. 151: 316 – 323.

Boufaïed, H.P., Y. Chouinard, G.F. Tremblay, H.V. Petit, R. Michaud, and G. Bélanger. 2003. Fatty acids in forages. I. Factors affecting concentrations. Can J. Anim Sci. 83: 501 – 511.

Cavallarin, L., S. Antoniazzi, G. Borreani, and E. Tabacco. 2005. Effects of wilting and mechanical conditioning on proteolysis in sainfoin (*Onobrychis viciifolia Scop*) wilted herbage and silage. J. Sci. Food Agric. 85: 831 – 838.

Cao, Y., Y. Cai, T. Takahashi, N. Yoshida, M. Tohno, R. Uegaki, K. Nonaka, and F. Terada. 2011. Effects of lactic acid bacteria inoculant and beet pulp addition on fermentation characteristics and *in vitro* ruminal digestion of vegetable residu silage. J. Dairy Sci. 94: 3902 – 3912.

Chaney, A.L., and E.P. Marbach. 1962. Modified reagent for determination urea and ammonia. Clin. Chem. 8: 130 – 132.

Chaoui, A., M. Farid, and R. Belchen. 2003. Effect of natural starters used for sourdough bread in morocco on phytate biodegradation. East Mediter Health J. 9: 141 – 147.

Charmley, E., J.A. Small, and K.B. McRae. 1999. Influence of post-calving supplemental protein on calf performance and reproductive efficiency for beef cows fed silage. Can J. Anim Sci. 79: 97 106.

Charmley, E. 2001. Towards improved silage quality – A review. Can. J. Anim. Sci. 81: 157 – 168.

Cheeke, P.R. 2005. Applied Animal Nutrition Feeds and Feeding. Prentice Hall. New Jersey.

Choudhury, P.K., A.Z. M. Salem, R. Jena, S. Kumar, R. Singh, and A.K. Puniya. 2015. Rumen microbiology: An overview. In: Rumen Microbiology: From Evolution to Revolution. A.K. Puniya, R. Singh, and D.N. Kamra (Eds). Springer India.

Comino, L., E. Tobacco, F. Righi, A. Revello-chion, A. Quarantelli, and G. Borreani. 2014. Effects of an inoculant containing a *Lactobacillus buchneri* that produces ferulate-esterase on fermentation products, aerobic stability, and fibre digestibility of maize silage harvested at different stages of maturity. Anim. Feed Sci. Technol. 198: 94 – 106.

Contreras-govea, F.E., R.E. Muck, D.R. Mertens, and P. J. Weimer. 2011. Microbial inoculant effect on silage and *in vitro* ruminal fermentation, and microbial biomass estimation for alfafa, bmr corn, and corn silages. Anim. Feed Sci. Technol. 163: 2 – 10.

Dehghani, M.R., M.R. Weisbjerga, T. Hvelplunda, and N.B. Kristensen. 2012. Effect of enzyme addition to forage at ensiling on silage chemical

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

composition and NDF degradation characteristics. Livestock Sci. 150: 51 – 58.

Dehority, B.A., P.A. Tirabasso, and A.P. Grifo Jr. 1989. Most-probable number procedures for enumerating ruminal bacteria, including the simultaneous estimation of total and cellulolytic numbers in one medium. Appl. Environ. Microbiol. 55: 2789 – 2792.

Despal., I.G. Permana, S.N. Safarina, dan A.J. Tatra. 2011. Penggunaan berbagai sumber karbohidrat terlarut air untuk meningkatkan kualitas silase Daun rami. Med. Pet. 34: 69 – 76.

Elferink, S.J.W.H.O., F. Driehuis, J.C. Gottschal, and S.F. Spoelstra. 2000. Silage fermentation processes and their manipulation. FAO Electronic Conference on Tropical Silage. 1 – 28.

Ellis, J.L., A. Bannink, I.K. Hindrichsen, R.D. Kinley, W.F. Pellikaan, N. Milora, and J. Dijksrta. 2016. The effect of lactic acid bacteria included as a probiotic or silage inoculant on *in vitro* rumen digestibility, total gas and methane production. Anim. Feed Sci. Technol. 211: 61 – 74.

Ervanila. 2012. Potensi Bahan Organik Rumput Lapangan Di Tanjung Karang Kota Mataram. Skripsi. Ilmu Nutrisi dan Makanan Ternak. Fakultas Peternakan Universitas Mataram, Mataram-NTB.

Fellner, V., L.E. Phillip, S. Sebastian, and E.S. Idziak. 2001. Effects of a bacterial inoculant and propionic acid on preservation of high-moisture ear corn, and on rumen fermentation, digestion and growth performance of beef cattle. Can. J. Anim. Sci. 81: 273 – 280.

Ferreira, G., and D.R. Mertens. 2005. Chemical and physical characteristics of corn silages and their effects on *in vitro* dissappearance. J. Dairy Sci. 88: 4414 – 4425.

Filipčev B. 2011. Sugar beet molasses: an ingredient to enhance micronutrients and functionality in bread. Food and Feed. Res. 38: 95 – 100.

Filípek, J., and R. Dvořák. 2009. Determination of the volatile fatty acid content in the rumen liquid: comparison of gas chromatography and capillary isotachophoresis. Acta Vet. Brno. 78: 627 – 633.

Filipovic, V., B. Loncar, M. Nicetin, V. Knezevic, D. Suput, and T. Kuljanin. 2014. osmotic dehydration of chicken meat in sugar beet molasses. In: Proceed The II international congress food technology, quality and safety. novi sad: institute of food technology. 94 – 99.

Filya, I. 2003. The Effect of *Lactobacillus buchneri* and *Lactobacillus plantarum* on the fermentation, aerobic stability, and ruminal degradability of low dry matter corn and sorgum silages. J. Dairy Sci. 86: 3575 – 3581.

Foroughbakhch, P. R., A. C. Parra, A. R. Estrada, M. A. A. Vazquez, and M. L. C. Avila. 2012. Nutrien content and *in vitro* dry matter digestibility of *Gliricidia sepium* (Jacq.) Walp. and *Leucaena leucocephala* (Lam. De Wit). J. Anim. Vet. Adv. 11: 1708 – 1712.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

France, J., and J. Dijkstra. 2005. Volatille Fatty Acid Production. In: Quantitative Aspect of Ruminant Digestion and Metabolism. 2nd Edn. Dijkstra, J., J. M. Forbes, and J. France (Eds). CABI Publishing. Wallingfords, UK.

Galindo, J., Y. Marrero, T.E. Ruiz, N. González, A. Díaz, A.I. Aldama, O. Moreira, J.L. Hernández, V. Torres, and L. Sarduy. 2009. Effect of a multiple mixture of herbaceous legumes and *Leucaena leucocephala* on the microbial population and fermentative products in the rumen of Zebu upgraded yearling steers. Cuban J. Agric. Sci. 43: 251 – 257.

Gallo, M., L. Rajcakova, and R. Mlynar. 2006. Effect of different dry matter and biological additives application on fermentation in red clover silages. Slovak J. Anim. Sci. 39: 89 – 92.

Giang, N.T.T., M. Wanapat, K. Phesatcha, and S. Kang. 2016. Level of *Leucaena* silage feeding on intake, rumen fermentation, and nutrient digestibility in dairy steers.

Gibson, J.D. 2009. Grasses and Grassland Ecology. Oxford University Press Inc, New York. 67 – 69.

Gunawan. 2014. Teknologi Pakan Mendukung Pengembangan Sapi Potong di Indonesia. Gadjah Mada University Press. Yogyakarta.

Gul, M., M.A. Yoruk, M. Karouglu, and M. Macit. 2008. Influence of microbial inoculation and molases and their combination on fermentation characteristics and ruminal degradability of grass silage. Ataturk Univ. Ziraat Fak. Derg. 39: 201 – 208.

Gusha, J., T.E. Halimani, N.T. Ngongoni, and S. Ncube. 2015. Effect of feeding cactus-Legum silages on nitrogen retention, digestibility and microbial protein synthesis in goats. Anim. Feed Sci. Technol. 206: 1 – 7.

Gusha, J., S. Katsande, P.I. Zvinorova, and S. Ncube .2013. *Opuntia ficus indica*-legum mixed silage. J. Anim. Feed Res. 3: 116 – 120.

Haghparvar, R., K. Shojaian, E. Rowghani, S. Parsaei, and M.Y. Ellahi. 2012. The effects of *Lactobacillus plantarum* on chemical composition, rumen degradability, *in vitro* gas production and energy content of whole-plant corn ensiled at different stages of maturity. Iranian. J. Vet. Res. 13: 8 – 15.

Hapsari S.S., Suryahadi, and H.A. Sukria. 2016**.** Improvement on the Nutritive Quality of Napier Grass Silage through Inoculation of *Lactobacillus plantarum* and formic acid. Med. Pet. 39: 125 – 133.

Hartadi. H., S. Reksohadiprojo, dan A.D. Tillman. 2005. Tabel Komposisi Pakan Untuk Indonesia. Gadjah Mada University Press. Yogyakarta.

Hasan, S. 2012. Hijauan Pakan Tropik. Cetakan Pertama. PT Penerbit IPB Press. Bogor.

Hassan, A.B., I. A. M. Ahmed, N.M. Osman, M.M. Eltayeb, G.A. Osman, and E.E Babiker. 2006. Effect of processing treatments followed by fermentation on protein content and digestibility of pearl millet (Pennisetum typhoideum) cultivars. Pak J. Nutr. 5: 86 – 89.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Hassanat, F., A.F. Mustafa, and P. Seguin. 2007. Effects of inoculation on ensiling characteristics, chemical composition and aerobic stability of regular and brown midrib millet silages. Anim. Feed Sci. Technol. 139: 125 – 140.

Haque, N., S. Toppo, M.L. Saraswat, and M.Y. Khan. 2008. Effect of feeding Leucaena leucocephala leaves and twigs on energy utilization by goats. Anim. Feed Sci. Technol. 142: 330 – 338.

Heinritz, S.N., S.D. Martens, P. Avila, and S. Hoedtke. 2012. The effect of inoculant and sucrose addition on the silage quality of tropical forage legumes with varying ensilability. Anim. Feed Sci. Technol. 174: 201 – 210.

Hess, H. D., I.M. Monsalve, C.E. Lascano, C.E. Carulla, T.E. Diaz, and M. Kreuzer. 2003. Supplementation of a tropical grass diet with forage legumes and *Sapindus saponaria* fruits: effects of *in vitro* ruminal nitrogen turnover and methanogenensis. Aust. J. Agric. Res. 54: 703 – 713.

Hobson, P.N., and C.S. Stewart. 1997. The Rumen Microbial Ecosystem. Blackie Academics & Professional, London, UK.

Hristov, A.N., J. Oh, J.L. Firkins, J. Dijkstra, E. Kebreab, G. Waghorn, H.P.S. Makkar, A.T. Adesogan, W. Yang, C. Lee, P.J. Gerber, B. Henderson, and J.M. Tricarico. 2013. Mitigation of methane and nitrous oxide emissions from animal operations: I. A review of enteric methane mitigation options. J. Anim. Sci. 91: 5045 – 5069.

Hu, W., R.J. Schmidt, E.E. McDonell, C.M. Klingerman, and L. Kung Jr. 2008. The effect of *Lactobacillus buchneri* 40788 or *Lactobacillus plantarum* MTD-1 on the fermentation and aerobic stability of corn silages ensiled at two dry matter contents. J. Dairy. Sci. 92: 3907 – 3914.

Hungate, R.E. 1966. The Ruminant and It's Microbes. Agricultural Experimental Station, University of California. Academic Press. New York. 197.

Imran., S.P.S. Budhi, N. Ngadiyono, dan Dahlanuddin. 2012. Pertumbuhan pedet sapi bali lepas sapih yang diberi rumput lapangan dan disuplementasi daun turi (*Sesbania grandiflora*). Agrinimal. 2: 55 - 60.

Jaelani, A., S. Djaya, and T. Rostini. 2014. Characteristic and nutrition silage Duckweed (family *Lemnaceae*) addition with different additives. Int. J. Biosci. 5: 144 – 150.

Jalc, D., A. Laukova, M. Simonova, Z. Varadyova, and P. Homolka. 2009. The use of bacterial inoculants for grass silage: their effects on nutrien composition and fermentation parameters in grass silages. Czech. J. Anim. Sci. 54: 84 – 91.

Jalč, D., Z. Váradyová, K. Mihaliková, V. Ledecký, and S. Kišidayová. 2013. Enterococci inoculated silages: Effect on rumen fermentation and lipid metabolism *in vitro*. African J. Microbiol Res. 7: 4191 – 4199.

Jatkaukas, J., and V. Vrotniakiene. 2008. Effect of *Lactobacillus plantarum*, *Pediacoccus acidilactici*, *Enterococcus faecium*, and *Lactobacillus lactis* microbial supplementation of grass silage on the fermentation characteristic in rumen dairy cows. Vet. Zootech. 40: 29 – 34.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Jones, C.M., A.J. Heinrichs, R.W. Roth, and V.A. Issler. 2004. From Harvest to Feed: Understanding Silage Management. Pensylvania State University. Pensylvania.

Kamal, M. 1997. Kontrol Kualitas Pakan Ternak. Laboratorium Makanan Ternak. Jurusan Nutrisi Makanan Ternak, Fakultas Peternakan, Universitas Gadjah Mada, Yogyakarta.

Kamra, D.N. 2005. Rumen microbial ecosystem. Current Sci. 89: 124 – 135.

Kaplan, M. 2013. The effect of variety on chemical composition and ensiling characteristics of shorgum plant. KSU. J. Nat. Sci. 16: 34 – 38.

Keles, G., and U. Demirci. 2011. The effect of homofermentative and heterofermentative lactic acid bacteria on conservation characteristics of baled triticale–Hungarian vetch silage and lamb performance. Anim. Feed Sci. technol. 164: 21 – 28.

Kim, D-H., S.D. Amanullah, H-J. Lee, Y-H. Joo, H. Yun, S-S. Lee, Y-M. Song, H-Y. Kim, and S-C. Kim. 2015. Effects of *L. plantarum* Application on Chemical Composition, Fermentation Indices and Fatty Acid Profiles of Barley Silage. J. Agric. Life Sci. 49: 157 – 167.

Konca, Y., S.B. Beyzi, T. Ayasan, M. Kaliber, and A.B. Kiraz. 2016. The effect of freezing and supplemtation of molases and inoculants on chemical and nurtional composition of Sunflower silage. Asian-Aus. J. Anim. Sci. 29: 965 - 970.

Kristensen, N.B., K.H. Sloth, O. Højberg, N.H. Spliid, C. Jensens, and R. Thøgersen§. 2010. Effect of microbial inoculant on corn silage fermentation, microbial content, aerobic stability, and milk production under field conditions. J. Dairy Sci. 93: 3764 – 3774.

Krueger, N.A., A.T. Adesogan, C.R. Staples, W.K. Krueger, D.B. Dean, and R.C. Littell. 2008. The potential to increase digestibility of tropical grasses with a fungal, ferulic acid esterase enzyme preparation. Anim. Feed Sci. Technol. 145: 95 – 108.

Kubkomawa, H., H.U. Olowuye, L.J. Krumah, E.B. Etuk, and I.C. Okoli. Nutrient requirements and feed resource avaibility for pastoral cattle in the tropic Africa: A review. J. Agric. Crop Res. 3: 100 - 116.

Kung, L., R.S. Martin, and C.J. Lin. 2003. Silage additives. In: Silage Science and Technology. D.R. Buxton, R.E. Muck, J.H. Harrison (Eds.). American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI, USA.

Kurnianingtyas, I.B., P.R. Pandansari, I. Astuti, S.D. Widyawati, dan W.P.S. Suprayogi. 2012. Pengaruh macam akselerator terhadap kualitas fisik, kimiawi dan biologi silase rumput kolonjono. Trop. Anim. Husb. 1: 7 – 14.

Laini, P. 2012. Dinamika Produksi Rumput Lapangan Di Tanjung Karang Kota Mataram. Skripsi. Ilmu Nutrisi dan Makanan Ternak. Fakultas Peternakan Universitas Mataram, Mataram-NTB.

Lima, R., M. Lourenco, R.F. Díaz, A. Castro, and V. Fievez. 2010. Effect of combined ensiling of sorghum and soybean with or without molasses and

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

lactobacillion silage quality and *in vitro* rumen fermentation. Anim. Feed Sci. Technol. 155: 122 – 131.

Lopez, J. 2000. Probiotic in animal nutrition. Asian-Aust J. Anim. Sci. 13: 12−26.

Lynch, J.P., D. Prema, J.D. Van Hamme, J.S. Church, and K.A. Beauchemin. 2014. Fiber degradability, chemical composition, and conservation characteristic of alfafa haylage ensiled with exogenous fibrolytic enzymes and a ferulic acid esterase-producing inoculant. Can. J. Anim. Sci. 94: 697 – 704.

Masitah, S., R. Utomo, and C.T. Noviandi. 2016. Nutrients quality of fermented complete feed based on by-product of Sago (*Metroxylon sp.*) and Cassava (*Mannihot esculenta cranz*). The 17th Asian-Australian Association of Animal Production Societies Animal Science Congress (Proc). 22 – 25 agustus, Fakuoka Japan. 742 – 745.

McDonald, P., R.A. Edwards, J.F.D. Greenhalgh, C.A. Morgan, L.A. Sinclair, and R.G. Wilkinson. 2011. Animal Nutrition. 7th edn. Prentice Hall, Harlow, London.

McDonald, P., A.R. Henderson, and S.J.E. Heron. 1991. The Biochemistry of Silage. 2nd edn. Chalcombes Publications, Aberystwyth, UK.

Meng-zhen, Q., and S. Yi-zin. 2013. Effect of application of a bacteria inoculant and wheat bran on fermentation quality of peanut vine ensiled alone or with corn stover. J. Integ. Agric. 12: 556 – 560.

Min, B.R., W.C. McNabb, T.N. Barry, and J.S. Peters. 2000. Solubilization and degradation of ribulose-1,5-bisphosphate carboxylase / oxygenase (*EC* 4.1.1.39; Rubisco) protein from white clover (*Trifolium repens*) and *Lotus corniculatus* by rumen microorganisms and the effect of condensed tanins on these processes. J. Agric. Sci. 134: 305 – 317.

Min, B. R., G.T. Attwood, K. Reilly, W. Sun, J.S. Peters, T.N. Barry, and W.C. McNabb. 2002. *Lotus corniculatus* condensed tannins decrease *in vivo* populations of proteolytic bacteria and affect nitrogen metabolism in the rumen of sheep. Can. J. Anim. Sci. 48: 911 – 921.

Moran, J. 2005. Forage Conservation. Making Quality Silage and Hay In Australia. Acmedia A division of daratech Pty Ltd. East Melbourne, Victoria.

Muck, R.E. 2010. Silage microbiology and its control through additives. Rev. Bras. Zoo. 39: 183 – 191.

Mudita, I.M., I.G.N. Kayana, and I.W. Wirawan. 2016. Rumen fermentation of Bali cattle fed basal diet with biosupplement of cattle colon and organic waste bacteria consortium. Int. J. Agric. Environ. Res. 2: 1899 – 1908.

Mugiawati, R.E., Suwarno, dan N. Hidayat. 2013. Kadar air dan pH silase rumput gajah pada hari ke - 21 dengan penambahan jenis additive dan bakteri asam laktat. J. Ilmiah Pet. 1: 201 – 207.

Munier, F. F. 2011. Evaluasi karakteristik silase campuran kulit jagung dan daun lamtoro (*Leucaena leucocephala*) tanpa dan dengan molases. Prosiding

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Seminar Nasional Teknologi Peternakan dan Veteriner. Bogor 7 – 8 Juni. 515 – 521.

Muwakhid, B. 2010. Kualitas silase hijauan gamelina (*gmelina arborea*) yang dibuat menggunakan inokulum bakteri asam laktat berbeda. Seminar Nasional Teknologi Peternakan dan Veteriner. 182 – 189.

Muwakhid, B., O. Sjofjan, dan Aulani'Am. 2013. Komposisi kimiawi dan kecernaan in vitro silase hijauan Gembilina (*Gmelina arborea*) menggunakan inokulum *Lactobacillus collinoides dan Lactobacillus delbrueckii*. Pastura. 3: 38 – 43.

Nadeau, E., D.R. Buxton, J.R. Russell, M.J. Allison, and J.W. Young. 2000. Enzyme, bacterial inoculant, and formic acid effects on silage composition of Orchardgrass and Alfalfa. J. Dairy Sci. 83: 1487 – 1502.

Nahm, K.H. 1992. Practical Guide to Feed, Forage and Water Analysis. Yoo Han Publisher, Seoul.

Niderkorn, V., I. Mueller-Harvey, A.L. Morvan, and J. Aufrere. 2012. Synergistic effects of mixing cocksfoot and sainfoin on *in vitro* rumen fermentation. Role of condensed tanins. Anim. Feed Sci. Technol. 178: 48 – 56.

Nkosi, B.D., and I.B. Groenewald. 2012. Effects of whey and a bacterial inoculant on the fermentation quality and aerobic stability of ensiled Fallen Mango (*Mangifera indica*) leaves. J. Anim. Sci. Adv. 2: 134 – 140.

Noviandi, C.T., K. Neal, J.-S. Eun, M.D. Peel, B.L. Waldron, D.R. ZoBell, and B.R. Min. 2014. Comparison of alfafa, birdsfoot trefoil, and cicer milkvetch in combination with 25, 50, or 75% tall fescue in continuous culture system. The Prof. Anim. Sci. 30: 23 – 32.

Noviandi, C.T. 2014. Improving nutritive value of tropical forages using various alkaline treatments. Procc. The 16th AAAP Animal Science Congress. Gadjah Mada University, Yogyakarta 10 – 14 November. 2: 1847 – 1850.

NRC. 1996. Nutrient Requirements of Beef Cattle. 7th rev. eds. Natl. Acad. Press. Washington, DC.

Nulik, J., D. Kana Hau, P.T. Fernandez, dan S. Ratnawati. 2004. Adaptasi beberapa *Leucaena* species di pulau Timor dan Sumba, Nusa Tenggara Timur. Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner. Bogor 4 – 5 Agustus. 825 – 831.

Ohmomo, S., S. Nitisinprasart, and S. Hiranpradit. 2002. Silage making and recent trend of dairy farming in Thailand. JARQ. 36: 227 - 234.

Ohshima, M., E. Kimura, and H.O. Yokota. 1997. A method of making good quality silage from direct cut alfafa by spraying previously fermented juice. Anim. Feed. Sci Technol. 66: 129 – 137.

Omed, H.M., D.K. Lovett, and R.F.E Axford. 2000. Faeces as a source of microbial enzymes for estimating digestibility. In: Forage Evaluation In Ruminant Nutrition. D.I Given, E, Owen, R.F.E Axford, and H.M. Omed (eds.). Cab International.

Orskov, E.R. 1992. Protein Nutrition of Ruminants. 2nd edn. Academic Press, London.

UNIVERSITAS
GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Pahlow, G., R.E. Muck, F. Driehuis, S.J.W.H.O. Elferink, and S.F. Spoelstra. 2003. Microbiology of Ensiling. in: Silage Science and Technology. D.R. Buxton, R.E. Muck, and J.H. Harriso (eds). American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI, USA.

Pamungkas, D., Y.N. Anggraeni, A. Priyanti, dan N.H. Krishna. 2007. Pola pertumbuhan pedet sapi Bali lepas sapih yang diberi hijauan pakan berbeda. Prosiding Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner. 86 – 92.

Pamungkas, D., Y.N. Anggraeni, Kusmartono, dan N.H. Krishna. 2008. Produksi asam lemak terbang dan ammonia rumen sapi bali pada imbangan daun Lamtoro (*L. leucocephala*) dan pakan lengkap yang berbeda. Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner. 197 – 204.

Pang, D.G., H.J. Yang, B.B. Cao, T.T. Wu, and J.Q. Wang. 2014. The beneficial effect of *Enterococcus faecium* on *in vitro* ruminal fermentation rate and extent of three typical total mixed ration in Northern China. Livestock Sci. 167: 154 – 160.

Pathak, A.K. 2008. Various factors affecting microbial protein synthesis in the rumen. Vet. World. 1: 186 – 189.

Patra, A.K., B.R. Min, and J. Saxena. 2012. Dietary tanins on microbial ecology of the gastrointestinal tract in ruminants. In: Dietary Phytochemicals and Microbes. A.K. Patra (eds). Springer, New York, NY.

Piltz, J.W., and H.M. Burns. 2006. Making quality silage and hay from pastures containing weeds. The Grassland Society of NSW Inc. 21st Annual Conference. Wagga wagga : 71 – 75.

Plummer, D.T. 1971. An Introduction Practical Biochemistry. McGraw-Hill Book Company LTD., Bombay, New Delhi.

Prabowo, A., A.E. Susanti, dan J. Karman. 2013. Pengaruh penambahan bakteri asam laktat terhadap pH dan penampilan fisik silase jerami kacang tanah. Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner. Medan 3 – 5 September. 495 – 499.

Puastuti, W. 2009. Manipulasi bioproses dalam rumen untuk meningkatkan penggunaan pakan berserat. Wartazoa. 19: 180 – 190.

Purbajanti, E.D. 2013. Rumput dan Legum Sebagai Makanan Ternak. Edisi pertama. Graha Ilmu. Yogyakarta.

Putra, R.A. 2012. Komposisi Botani dan Kandungan Protein Kasar Hijauan Pakan Kuda Penarik Cidomo di Kabupaten Lombok Barat. Skripsi. Ilmu Nutrisi dan Makanan Ternak. Fakultas Peternakan Universitas Mataram, Mataram-NTB.

Raes, K., S. De Smet, and D. Demeyer. 2004. Effect of dietary fatty acids on incorporation of long chain polyunsaturated fatty acids and conjugated linoleic acid in lamb, beef and pork meat; a review. Anim. Feed Sci. Technol. 113: 199 – 221.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Raharjo, A.T.W., W. Suryapratama, dan T. Widiyastuti. 2013. Pengaruh imbangan rumput lapang – konsentrat terhadap kecernaan bahan kering dan bahan organik secara *in vitro*. J. Ilmiah. Pet. 1: 795 – 803.

Ramírez, R.G., H. González-Rodríguez, R. Morales-Rodríguez, A. Cerrillo-Soto, A. Juárez-Reyes, G.J. García-Dessommes, and M. Guerrero-Cervantes. 2009. Chemical composition and dry matter digestion of some native and cultivated grasses in Mexico. Czech J. Anim. Sci. 54: 150 – 162.

Reksohadiprodjo, S. 1988. Pakan Ternak Gembala. BPFE, Yogyakarta.

Rezaei, J., Y. Rouzbehan, H. Fazaeli, and M. Zahedifar. 2014. Effects of substituting amaranth silage for corn silage on intake, growth performance, diet digestibility, microbial protein, nitrogen retention and ruminal fermentation in fattening lambs. Anim. Feed Sci. Technol. 192: 29 – 38.

Ridwan, R., I. Rusmana, Y. Widyastuti, K.G. Wiryawan, B. Prasetya, M. Sakamoto, and M. Ohkuma. 2014. Methane mitigation and microbial diversity of silage diets containing *Calliandra calothyrsus* in a rumen *in vitro* fermentation system. Med. Pet. 37: 121 – 128.

Rodriguez, R., P. Frutos, and M. Fondevil. 2015. A new index to estimate reactivity and biological effect of tannins, using tropical browse legumes as a model. Anim. Feed. Sci Technol. 205: 42 – 48.

Robinson, P.H., E. Charmley, and R.E. McQueen. 1992. Protein supplementation of high protein alfalfa silage fed to lactating dairy-cows. Can. J. Anim. Sci. 72: 831 – 841.

Rusdy, M. 2015. Effects of additives on fermentation characteristics and chemical composition of ensiled *Chromolaena odorata* leaves. Livestock Research for Rural Development. 27, Article #60. Available from http://www.lrrd.org/lrrd27/4/rusd27060.html

Sandi, S., E.B. Laconi, A. Sudarman, K.G. Wiryawan, dan D. Mangundjaja. 2010. Kualitas nutrisi silase berbahan baku singkong yang diberi enzim cairan rumen sapi dan *Leuconostoc mesenteroides*. Med. Pet. 3: 25 – 30.

Santoso, B., T.J. Hariadi, H. Manik, dan H. Abubakar. 2009. Kualitas rumput unggul tropika hasil ensilase dengan aditif bakteri asam laktat dari ekstrak rumput terfermentasi. Med. Pet. 32: 137 – 144.

Santos, E.M., O.G. Perira, R. Garcia, C.L.L. Ferreira, J.S. Oliveira, and T.C. da Silva. 2014. Effect of regrowth interval and a microbial inoculant on the fermentation profile and dry matter recovery of guinea grass silages. J. Dairy Sci. 97: 1 – 10.

Santos, E.M., T.C. da Silva, C.H.O. Macedo and F.S. Campos. 2013. Lactic acid bacteria in tropical grass silages. Lactic Acid Bacteria - R & D for Food, Health and Livestock Purposes. Chapter 14: 335 – 362.

Saqifah, N., E. Purbowati, dan E. Rianto. 2010. Pengaruh ampas teh dalam pakan konsentrat terhadap konsentrasi VFA dan NH_3 cairan rumen untuk mendukung pertumbuhan sapi Peranakan Ongole. Seminar Nasional Teknologi Peternakan dan Veteriner: 205 – 210.

UNIVERSITAS
GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Schroeder, J.W. 2013. Silage fermentation and preservation. Rev eds. ND State University. Extension Service. 1254: 1 – 8.

Schmidt, R.J., and L. Kung Jr. 2010. The effects of *Lactobacillus buchneri* with or without a homolactic bacterium on the fermentation and aerobic stability of corn silages made at different locations. J. Dairy Sci. 93: 1616 – 1624.

Shingfield, K.J., S. Jaakkola, and P. Huhtanen. 2002. Effect of forage conservation method, concentrate level and *propylene glycol* on the diet digestibility, rumen fermentation, blood metabolite concentrations and nutrient utilisation of dairy cows. Anim. Feed Sci. Technol. 97: 1 – 21.

Steel, R.G.D., and J.H. Torrie. 1993. Prinsip dan Prosedur Statistika. Suatu Pendekatan Biometrik. PT Gramedia Pustaka Utama, Jakarta.

Subekti, G., Suwarno, dan N. Hidayat. 2013. Penggunaan beberapa aditif dan bakteri asam laktat terhadap karakteristik fisik silase rumput gajah pada hari ke-14. Jurnal Ilmiah Peternakan. 1: 835 – 841.

Sudirman. 2013. Evaluasi Pakan Tropis dari Konsep ke Aplikasi (Metode *in vitro* Feses). Pustaka Reka Cipta, Bandung.

Suhubdy. 2013. Perilaku makan ruminansia sebagai bioindikator fenologi dan dinamika padang penggembalaan. Pastura. 3: 1 - 4.

Sukanten, I.W., S. Uchida., I.M. Nitis., K. Lana, and S. Putra. 1995. Chemical composition and nutritive value of the gliricidia sepium provenances in dryland farming area in Bali, Indonesia. Asian-Aust J. Anim Sci. 8: 231–239.

Sukarini, I.A.M., D. Sastradipradja, T. Sutardi, I. G. Mahardika, I. G. A. Budiarta. 2000. Nutrient Utilization, body composition and lactation performance of first lactation Bali cows (*Bos sondaicus*) on Grass-Legume based diets. Asian-Aust. J. Anim Sci. 13: 1681 – 1690.

Sukria, H.A dan Krisnan, R. 2009. Sumber Dan Ketersediaan Bahan Baku Pakan di Indonesia. Penerbit IPB Press. Bogor.

Surono, M., Soejono, and S.P.S. Budhi. 2006. The dry matter and organic matter loss of napier grass silage at different age of defoliation and level of additive. J. Indon. Trop. Anim. Agric. 31: 62 – 67.

Sun, Z.H., S.M. Liu, G.O. Tayo, S.X. Tang, Z.L. Tan, and B. Lin. 2009. Effects of cellulase or lactic acid bacteria on silage fermentation and *in vitro* gas production of several morphological fractions of maize stover. Anim. Feed. Sci Technol. 152: 219 – 231.

Syahrir, S., K.G. Wiryawan, A. Parakkasi, M. Winugroho, dan O.N.P. Sari. 2009. Efektivitas daun Murbei sebagai pengganti konsentrat dalam sistem rumen *in Vitro*. Med. Pet. 32: 112 – 119.

Tan, H.Y., C.C. Sieo, N. Abdullah, J.B. Liang, X.D. Huang, and Y.W. Ho. 2011. Effects of condensed tannins from *Leucaena* on methane production, rumen fermentation and populations of methanogens and protozoa *in vitro*. Anim. Feed Sci. Technol. 169: 185 – 193.

Tamminga, S. 1996. A review on environmental impacts of nutritional strategies in ruminants. J. Anim. Sci. 74: 3112 – 3124.

UNIVERSITAS GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Tilley, J.M.A. and R.A. Terry. 1963. A two-stage technique for the *in vitro* digestion of forage crop. J. British Grassl. Soc. 18: 104 – 111.

Tillman, A.D., H. Hartadi, S. Reksohadiprodjo, dan S. Lebdosoekojo. 1998. Ilmu Makanan Ternak Dasar. Gadjah Mada University Press. Yogyakarta.

Tobacco, E., F. Righi, A. Quarantelli, and G. Borreani. 2011. Dry matter and nutritional losses during aerobic deterioration of corn and sorghum silages as influenced by different lactic acid bacteria inocula. J. Dairy. Sci. 94: 1409 – 1419.

Utami, P. 2008. Buku Pintar Tanaman Obat. PT Agromedia Pustaka, Jakarta.

Utomo, R. 2003. Penyediaan pakan di daerah tropik: Problematika, kontinuitas dan kualitas. Pidato pengukuhan sebagai guru besar pada Fakultas Peternakan Universitas Gadjah Mada, Yogyakarta.

Utomo, R. 2012. Evaluasi Pakan dengan Metode Noninvasif. Penerbit Citra Aji Parama. Yogyakarta.

Utomo, R. 2015. Konservasi Hijauan Pakan dan Peningkatan Kualitas Bahan Pakan Berserat Tinggi. Gadjah Mada University Press. Yogyakarta. Indonesia.

Van Soest, P.J. 1994. Function of the ruminant forestomach. In Nutritional Ecology of the Ruminant. ed. Van Soest, Cornell University Press. Ithaca, N.Y. USA.

Wahyuni, I.M.D., A. Muktiani, dan M. Christianto. 2014. Penentuan dosis tanin dan saponin untuk defaunasi dan peningkatan fermentabilitas pakan. Jurnal Ilmu Ternak dan Veteriner. 3: 133 – 140.

Wargiono, J., and B. Sudaryanto. 2002. Cassava leaves and forage crop for ruminant feed in the establishment of sustainable cassava farming system in Indonesia. In: Cassava Research and Development In Asia: Exploring New Opportunities for an Ancien Crop. Proceed of the Seventh Regional Workshop. 496 – 503. 28 oct – 1 Nov, Bangkok- Thailand.

Ward, R. 2011. Analyzing Silage Crops for Quality: What Is Most Important? In: Proc. Western Alfalfa dan Forage Conference, Las Vegas, NV.

Weinberg, Z.G., and R.E. Muck. 1996. New trends and opportunities in the development and use of inoculants for silage. FEMS. Microbiol Rev. 19: 53 – 68.

Weinberg Z.G., R.E. Muck, and P.J. Weimer. 2003. The survival of silage inoculant lactic acid bacteria in rumen fluid. J. Appl. Microbiol. 94: 1066 – 1071.

Widiyastuti, T., N. Hidayat, and D. Indrasanti. 2014. Nutrien content of Napier Grass (*Pennisetum purpureum*) silage made with various additive and modified *atmosphere* in the Silo. Anim. Prod. 16: 11 – 17.

Yamamoto Y., Y. Deguchi, M. Mizutani, S. Urakawa, H. yamada, H. Hiraoka, K. Inui, S. Kouno, and M. Goto. 2004. Improvement of fermentation quality and DM digestibility of rice whole crop silage treated with fermented juice of epiphytic lactic acid bacteria and mechanical processing. Grassl. Sci. 49: 665 – 668.

UNIVERSITAS
GADJAH MADA
KUALITAS DAN KECERNAAN IN VITRO SILASE RUMPUT LAPANGAN DENGAN SUPLEMENTASI LAMTORO (Leucaena leucocephala) DAN INOKULASI Lactobacillus plantarum
RYAN ARYADIN PUTRA, Cuk Tri Noviandi, S.Pt., M.Anim, St., Ph.D; Nafiatul Umami, S. Pt., M.P., Ph.D
Universitas Gadjah Mada, 2017 | Diunduh dari http://etd.repository.ugm.ac.id/

Yahaya, M.S., M. Goto, W. Yimiti, S. Karita, B. Smerjai, and Y. Kawamoto. 2004. Additives effect of fermented juice of epiphytic lactic acid bacteria and acetic acid on silo fermentation and ruminal degradability of tropical elephant grass. J. Anim. Vet. Adv. 3: 116 – 122.

Yildiz, C., I. Ozturk, and Y. Erkmen. 2010. Effects of chopping length and compaction values on the feed qualities of sunflower silage. Sci. Res. Essays. 5: 2051 – 2054.

Yuan, X., G. Guo, A. Wen, S.T. Desta, J. Wang, Y. Wang, and T. Shao. 2015. The effect of different additives on the fermentastion quality, *in vitro* digestibility and aerobic stability of a total mixed ration silage. Anim. Feed. Sci Technol. (In Press).

Yunus, M. 2009. Pengaruh pemberian daun lamtoro (*Leucaena leucocephala*) terhadap kualitas silase rumput gajah (*Pennisetum purpureum*) yang diberi molases. Agripet. 9: 38 – 42.

Yusmadi. 2008. Kajian mutu dan palatabilitas silase dan hay ransum komplit berbasis sampah organik primer pada kambing PE. Tesis. Program Pascasarjana. Institut Pertanian Bogor, Bogor.