

DAFTAR PUSTAKA

- Abd El-Hamid, I. S., A. N. M. Nour El-Din, A. A. Zaghloul, K. A. El-Bahrawy, I. I. Elshahawy, A. M. Allam, S. Z. EL-Zarkouny, and G. A. Hassan. 2016. Effects of calcium salts of fatty acids rich in palmitic and oleic fatty acids on reproduction and serum biochemistry in Barki ewes. *Small Ruminant Research* 144:113–118.
- Abdel-Hakim, H. H., A.-H. H. M, S. S. Tawfeek, and H. M. A. 2016. Effect of calcium soap of palm oil fatty acids on milk composition, ewe and lamb performance in a crossbred sheep. *Journal of Veterinary Medical Research* 23:46–60
- Agostoni, C., L. Moreno, and R. Shamir. 2016. Palmitic Acid and Health: Introduction. *Crit Rev Food Sci Nutr* 56:1941–1942.
- Alfhili, M. A., and G. S. Aljuraiban. 2021. Lauric acid, a dietary saturated medium-chain fatty acid, elicits calcium-dependent eryptosis. *Cells* 10.
- Ameena, M., M. Arumugham, K. Ramalingam, and R. Shanmugam. 2024. Biomedical applications of lauric acid: a narrative review. *Cureus* 16:1–10.
- AOAC. 1990. *Official Methods of Analysis of The Association of Official Analytical Chemists* (K Helrich, Ed.). 15th Edition. Association of Official Analytical Chemists, Inc., Arlington, Virginia.
- AOAC. 2005. *Official methods of analysis of AOAC International*. 18th Edition. AOAC International, Maryland, USA.
- Aprianto, M. A., Muhlisin, A. Kurniawati, C. Hanim, B. Ariyadi, and M. Al Anas. 2023. Effect supplementation of black soldier fly larvae oil (*Hermetia illucens L.*) calcium salt on performance, blood biochemical profile, carcass characteristic, meat quality, and gene expression in fat metabolism broilers. *Poult Sci* 102.
- Argov-Argaman, N., T. Glasser, H. Muklada, O. Hadaya, R. Mesilati-Stahy, C. Raz, and S. Y. Landau. 2021. Lipidome changes, with a focus on phospholipids, due to feeding systems and processing in goat milk. *Food Chem* 340.
- Bain, A., N. Santy Asminaya, and I. N. Safitri. 2022. Feed Intake and Milk Production Performance of Local Sultra Ettawa Crossbreed Goats Fed Ration Containing Soybean Oil Calcium Soap. *Adv Biol Sci Res* 20:96–100.
- Baltić, B., M. Starčević, J. Dorđević, B. Mrdović, and R. Marković. 2017. Importance of medium chain fatty acids in animal nutrition. in IOP Conference Series: Earth and Environmental Science.
- Behan, A. A., T. C. Loh, S. Fakurazi, U. Kaka, A. Kaka, and A. A. Samsudin. 2019. Effects of supplementation of rumen protected fats on rumen ecology and digestibility of nutrients in sheep. *Animals* 9.

- Beltrão, L. G. C., G. R. B. Da Cruz, S. De Sousa, A. M. Da Silva Sant'ana, S. B. Da Fonseca, G. D. O. Salviano, N. L. Ribeiro, and R. O. de Andrade. 2022. Physicochemical profile of milk and cheese of goat feed with flashseed oil substituting the corn. *Food Sci Technol* 42.
- Benchaar, C., G. A. Romero-Pérez, P. Y. Chouinard, F. Hassanat, M. Eugene, H. V. Petit, and C. Côrtes. 2012. Supplementation of increasing amounts of linseed oil to dairy cows fed total mixed rations: Effects on digestion, ruminal fermentation characteristics, protozoal populations, and milk fatty acid composition. *J Dairy Sci* 95:4578–4590.
- Bianchi, A. E., V. de P. Macedo, A. S. Da Silva, A. L. F. da Silveira, J. A. G. Hill, T. Zortéa, R. M. Rossi, and R. Batista. 2018. Effect of the addition of protected fat from palm oil to the diet of dairy sheep. *Revista Brasileira de Zootecnia* 47.
- Bionaz, M., E. Vargas-Bello-Pérez, and S. Busato. 2020. Advances in fatty acids nutrition in dairy cows: from gut to cells and effects on performance. *J Anim Sci Biotechnol* 11.
- Božic, A. K., R. C. Anderson, G. E. Carstens, S. C. Ricke, T. R. Callaway, M. T. Yokoyama, J. K. Wang, and D. J. Nisbet. 2009. Effects of the methane-inhibitors nitrate, nitroethane, lauric acid, Lauricidin® and the Hawaiian marine algae *Chaetoceros* on ruminal fermentation in vitro. *Bioresour Technol* 100:4017–4025.
- Broering, V. E., O. Furlan Júnior, N. S. de Oliveira, R. D. Ollhoff, I. Vivian de Almeida, and E. A. R. Rosa. 2023. Bioprocessing of broiler feathers to produce biomethane. *Worlds Poult Sci J* 79:331–350.
- Buccioni, A., M. Decandia, S. Minieri, G. Molle, and A. Cabiddu. 2012. Lipid metabolism in the rumen: New insights on lipolysis and biohydrogenation with an emphasis on the role of endogenous plant factors. *Anim Feed Sci Tech* 174:1–25.
- Burdick, M., M. Zhou, L. L. Guan, and M. Oba. 2022. Effects of medium-chain fatty acid supplementation on performance and rumen fermentation of lactating Holstein dairy cows. *Animal* 16.
- Chilliard, Y., A. Ferlay, R. M. Mansbridge, M. Doreau, and Y. Chilliard. 2000. Ruminant milk fat plasticity: nutritional control of saturated, polyunsaturated, trans and conjugated fatty acids.
- Chilliard, Y., A. Ferlay, J. Rouel, and G. Lamberet. 2003. A review of nutritional and physiological factors affecting goat milk lipid synthesis and lipolysis. Pages 1751–1770 in *Journal of Dairy Science*. American Dairy Science Association.
- Choudhury, P. K., R. Jena, S. K. Tomar, and A. K. Puniya. 2022. Reducing Enteric Methanogenesis through Alternate Hydrogen Sinks in the Rumen. *Methane* 1:320–341.
- Christie, W. W., and X. Han. 2012. Preparation of derivatives of fatty acids. Pages 145–158 in *Lipid Analysis*. Elsevier.

- Culbertson, R. L., P. Uzun, N. Seneviratne, A. B. P. Fontoura, A. N. Davis, and J. W. Mcfadden. 2024. Effects of Dietary Glycerol Monolaurate Supplementation on Milk Production and Methane Emissions in Holstein Dairy Cows. *Animal Nutrition and Farm Systems*
- Dabbou, S., A. Lauwaerts, I. Ferrocino, I. Biasato, F. Sirri, M. Zampiga, S. Bergagna, G. Pagliasso, M. Gariglio, E. Colombino, C. G. Narro, F. Gai, M. T. Capucchio, L. Gasco, L. Cocolin, and A. Schiavone. 2021. Modified black soldier fly larva fat in broiler diet: Effects on performance, carcass traits, blood parameters, histomorphological features and gut microbiota. *Animals* 11.
- Daemen, S., M. Kutmon, and C. T. Evelo. 2013. A pathway approach to investigate the function and regulation of SREBPs. *Genes Nutr* 8:289–300.
- DeBose-Boyd, R. A., and J. Ye. 2018. SREBPs in Lipid Metabolism, Insulin Signaling, and Beyond. *Trends Biochem Sci* 43:358–368.
- Devendra, C., and G. F. W. Haenlein. 2021. Dairy Goat breeds. Pages 77–97 in *Encyclopedia of Dairy Sciences: Third edition*. Elsevier.
- Dohme, F., A. Machmüller, A. Wasserfallen, and M. Kreuzer. 2000. Comparative efficiency of various fats rich in medium-chain fatty acids to suppress ruminal methanogenesis as measured with RUSITEC. *Can J Anim Sci*:473–482.
- Džermeikaitė, K., J. Krištolaitytė, and R. Antanaitis. 2024. Relationship between Dairy Cow Health and Intensity of Greenhouse Gas Emissions. *Animals* 14.
- Eknæs, M., Y. Chilliard, K. Hove, R. A. Inglingstad, L. Bernard, and H. Volden. 2017. Feeding of palm oil fatty acids or rapeseed oil throughout lactation: Effects on energy status, body composition, and milk production in Norwegian dairy goats. *J Dairy Sci* 100:7588–7601.
- Eknæs, M., K. Kolstad, H. Volden, and K. Hove. 2006. Changes in body reserves and milk quality throughout lactation in dairy goats. *Small Ruminant Research* 63:1–11.
- English, G., G. Wanger, and S. M. Colombo. 2021. A review of advancements in black soldier fly (*Hermetia illucens*) production for dietary inclusion in salmonid feeds. *J Agric Food Res* 5.
- Faciola, A. P., and G. A. Broderick. 2014. Effects of feeding lauric acid or coconut oil on ruminal protozoa numbers, fermentation pattern, digestion, omasal nutrient flow, and milk production in dairy cows. *J Dairy Sci* 97:5088–5100.
- Fatmawati, M., L. T. Suwanti, Mufasirin, W. Hambarrukmi, L. E. Sukesu, Rofiah, E. Novianto, and B. K. Wahyutyas. 2022. A comparative study among dairy goat breeds in Lumajang and Malang (East Java, Indonesia) based on milk organoleptic and milk composition. *Biodiversitas* 23:2899–2903.

- Favreau-Peigné, A., O. Dhumez, C. Ginane, and H. W. Erhard. 2024. Saanen and Alpine goats experience neophobia when offered novel feeds. *Small Ruminant Research* 230.
- Ferro, M. M., L. O. Tedeschi, and A. S. Atzori. 2017. The comparison of the lactation and milk yield and composition of selected breeds of sheep and goats. *Transl Anim Sci* 1:498–506.
- Fiorentini, G., I. P. C. Carvalho, J. D. Messana, R. C. Canesin, P. S. Castagnino, J. F. Lage, P. B. Arcuri, and T. T. Berchielli. 2015. Effect of lipid sources with different fatty acid profiles on intake, nutrient digestion and ruminal fermentation of feedlot Nellore steers. *Asian-Australas J Anim Sci* 28:1583–1591.
- Folch, J., M. Lees, and G. H. S. Stanley. 1957. A Simple Method For The Isolation and Purification Of Total Lipides From Animal Tissues. *Journal of Biological Chemistry* 226:497–509.
- Ghoniem, A. H., and S. E. S. Atia. 2020. Effect of Addition Protected Fatty Acids in Ruminant Rations on Productive Performance of Suffolk X Ossimi Crossbred Ewes During Different Production Stages. *Egyptian J. Nutrition and Feeds* 23:369–383.
- Ginane, C., R. Baumont, and A. Favreau-Peigné. 2011. Perception and hedonic value of basic tastes in domestic ruminants. *Physiol Behav* 104:666–674.
- Gomes, L. C., C. R. Alcalde, U. Cecato, G. C. Mari, S. M. de A. Santos, and J. G. Mazziere. 2016. Effect of calcium salts of fatty acids on the nutritive value of diets, feeding behavior, and serum blood parameters of lactating Saanen goats grazing on stargrass. *Revista Brasileira de Zootecnia* 45:466–477.
- Greco, L. F., J. T. N. Neto, A. Pedrico, R. A. Ferrazza, F. S. Lima, R. S. Bisinotto, N. Martinez, M. Garcia, E. S. Ribeiro, G. C. Gomes, J. H. Shin, M. A. Ballou, W. W. Thatcher, C. R. Staples, and J. E. P. Santos. 2015. Effects of altering the ratio of dietary n-6 to n-3 fatty acids on performance and inflammatory responses to a lipopolysaccharide challenge in lactating Holstein cows. *J Dairy Sci* 98:602–617.
- Guo, J., S. Chen, Y. Zhang, J. Liu, L. Jiang, L. Hu, K. Yao, Y. Yu, and X. Chen. 2024. Cholesterol metabolism: physiological regulation and diseases. *MedComm (Beijing)* 5.
- Haenlein, G. F. W. 2004. Goat milk in human nutrition. Pages 155–163 in *Small Ruminant Research*. Elsevier.
- Handojo, L. A., A. Indarto, D. Shofinita, N. G. Stanley, Karen, I. David, and Jorgensen. 2020. Calcium soap from Palm Fatty Acid Distillate (PFAD) for ruminant feed: The effect of CaO quality on reaction temperature. in *IOP Conf Series: Materials Science and Engineering* 823.
- Hervás, G., Y. Boussalia, Y. Labbouz, A. Della Badia, P. G. Toral, and P. Frutos. 2022. Insect oils and chitosan in sheep feeding: Effects on in vitro ruminal biohydrogenation and fermentation. *Anim Feed Sci Technol* 285.

- Hristov, A. N., C. Lee, T. Cassidy, M. Long, K. Heyler, B. Corl, and R. Forster. 2011. Effects of lauric and myristic acids on ruminal fermentation, production, and milk fatty acid composition in lactating dairy cows. *J Dairy Sci* 94:382–395.
- Jadhav, H. B., and U. S. Annapure. 2022. Triglycerides of medium-chain fatty acids: a concise review. *J Food Sci Technol*.
- Jenkins, T. C., and D. L. Palmquist. 1984. Effect of Fatty Acids or Calcium Soaps on Rumen and Total Nutrient Digestibility of Dairy Rations. *J Dairy Sci* 67:978–986.
- Joch, M., M. Vadroňová, M. Češpiva, P. Zabloudivá, A. Výborná, Y. Tyrolová, V. Kudrna, D. Tichá, V. Plachý, and Z. Hroncová. 2023. Capric and lauric acid mixture decreased rumen methane production, while combination with nitrate had no further benefit in methane reduction. *Annals of Animal Science* 23:799–808.
- Kadegowda, A. K. G., L. S. Piperova, P. Delmonte, and R. A. Erdman. 2008. Abomasal infusion of butterfat increases milk fat in lactating dairy cows. *J Dairy Sci* 91:2370–2379.
- Kandi, M., M. Kazemi-Bonchenari, M. HosseinYazdi, and M. Mirzaei. 2020. Effects of Ca-salt of linseed oil supplementation and protein content in diet on performance, ruminal fermentation, microbial protein yield, and blood metabolites in young lambs. *Small Ruminant Research* 193.
- Kang, H. J., J. Lee, S. J. Park, D. Jung, S. W. Na, H. J. Kim, and M. Baik. 2020. Effects of cold temperature and fat supplementation on growth performance and rumen and blood parameters in early fattening stage of Korean cattle steers. *Anim Feed Sci Technol* 269.
- Kang, H. J., M. Y. Piao, S. J. Park, S. W. Na, H. J. Kim, and M. Baik. 2019. Effects of ambient temperature and rumen-protected fat supplementation on growth performance, rumen fermentation and blood parameters during cold season in Korean cattle steers. *Asian-Australas J Anim Sci* 32:657–664.
- Kessler, E. C., J. J. Gross, R. M. Bruckmaier, and C. Albrecht. 2014. Cholesterol metabolism, transport, and hepatic regulation in dairy cows during transition and early lactation. *J Dairy Sci* 97:5481–5490.
- Khan, T. A., C. Bianchi, M. Ruel, P. Voisine, and F. W. Sellke. 2004. Mitogen-activated protein kinase pathways and cardiac surgery. *Journal of Thoracic and Cardiovascular Surgery* 127:806–811.
- Kim, Y. B., D. H. Kim, S. B. Jeong, J. W. Lee, T. H. Kim, H. G. Lee, and K. W. Lee. 2020. Black soldier fly larvae oil as an alternative fat source in broiler nutrition. *Poult Sci* 99:3133–3143.
- Kim, D. H., K. M. Mizinga, J. C. Kube, K. G. Friesen, K. R. McLeod, and D. L. Harmon. 2014. Influence of monensin and lauric acid distillate or palm oil on in vitro fermentation kinetics and metabolites produced using forage and high concentrate substrates. *Anim Feed Sci Technol* 189:19–29.

- Klop, G., S. Van Laar-Van Schuppen, W. F. Pellikaan, W. H. Hendriks, A. Bannink, and J. Dijkstra. 2017. Changes in in vitro gas and methane production from rumen fluid from dairy cows during adaptation to feed additives in vivo. *Animal* 11:591–599.
- Kustyorini, T. I. W. 2018. Pengaruh suplementasi minyak ikan terproteksi terhadap pencernaan nutrien bahan kering (bk) dan bahan organik (bo) pada kambing peranakan ettawa (pe). *Jurnal Sains Peternakan* 6:57–62.
- Lashkari, S., M. Bonefeld Petersen, and S. Krogh Jensen. 2020. Rumen biohydrogenation of linoleic and linolenic acids is reduced when esterified to phospholipids or steroids. *Food Sci Nutr* 8:79–87.
- Lekshmi Sheela, D., P. A. Nazeem, A. Narayanankutty, J. J. Manalil, and A. C. Raghavamenon. 2016. In Silico and Wet Lab Studies Reveal the Cholesterol Lowering Efficacy of Lauric Acid, a Medium Chain Fat of Coconut Oil. *Plant Foods for Human Nutrition* 71:410–415.
- Lérias, J. R., L. E. Hernández-Castellano, A. Suárez-Trujillo, N. Castro, A. Poulis, and A. M. Almeida. 2014. The mammary gland in small ruminants: Major morphological and functional events underlying milk production - A review. *Journal of Dairy Research* 81:304–318.
- Leroux, C., F. Le Provost, E. Petti, L. Bernard, Y. Chilliard, and P. Martin. 2003. Real-time RT-PCR and cDNA macroarray to study the impact of the genetic polymorphism at the *cs1*-casein locus on the expression of genes in the goat mammary gland during lactation. *Reprod Nutr Dev* 43:459–469.
- Liao, G. qin, H. lei Han, T. cai Wang, H. ru Li, Y. zhong Qian, M. xun Zhu, Q. Jia, and J. Qiu. 2024. Comparative analysis of the fatty acid profiles in goat milk during different lactation periods and their interactions with volatile compounds and metabolites. *Food Chem* 460.
- Lohrenz, A. K., K. Duske, F. Schneider, K. Nürnberg, B. Losand, H. M. Seyfert, C. C. Metges, and H. M. Hammon. 2010. Milk performance and glucose metabolism in dairy cows fed rumen-protected fat during mid lactation. *J Dairy Sci* 93:5867–5876.
- Lu, C. D., J. R. Kawas, and O. G. Mahgoub. 2008. Recent advancements in Fiber Digestion and Utilization In Goats. *Tropical and Subtropical Agroecosystems* 9:65–72
- Machmüller, A. 2006. Medium-chain fatty acids and their potential to reduce methanogenesis in domestic ruminants. Pages 107–114 in *Agriculture, Ecosystems and Environment*.
- Machmüller, A., C. R. Soliva, and M. Kreuzer. 2002. In vitro ruminal methane suppression by lauric acid as influenced by dietary calcium. *Can. J. Anim. Sci.* 82 (2).

- Mai, H. C., N. D. Dao, T. D. Lam, B. V. Nguyen, D. C. Nguyen, and L. G. Bach. 2019. Purification Process, Physicochemical Properties, and Fatty Acid Composition of Black Soldier Fly (*Hermetia illucens* Linnaeus) Larvae Oil. *JAOCS, Journal of the American Oil Chemists' Society* 96:1303–1311.
- Manriquez, D., L. Chen, P. Melendez, and P. Pinedo. 2019. The effect of an organic rumen-protected fat supplement on performance, metabolic status, and health of dairy cows. *BMC Vet Res* 15.
- Marcinkoniene, L., and I. Ciprovica. 2023. Fatty Acid Composition of Different Breed Goat Milk. *Rural Sustainability Research* 49:35–39.
- Marten, B., M. Pfeuffer, and J. Schrezenmeir. 2006. Medium-chain triglycerides. *Int Dairy J* 16:1374–1382.
- Martin, C., M. Coppa, H. Fougère, A. Bougouin, R. Baumont, M. Eugène, and L. Bernard. 2021. Diets supplemented with corn oil and wheat starch, marine algae, or hydrogenated palm oil modulate methane emissions similarly in dairy goats and cows, but not feeding behavior. *Anim Feed Sci Technol* 272.
- Melle, M., A. Buccioni, A. Serra, Antongiovanni. M., and P. Secchiari. 2008. *Dairy Goats Feeding And Nutrition* (A Cannas and G Pulina, Eds.). CAB International, Italy.
- Millen, D. D., M. D. B. Arrigoni, and R. D. L. Pacheco. 2016a. *Rumenology* (DD Millen, MDB Arrigoni, and RDL Pacheco, Eds.). Springer, Brazil.
- Millen, D. D., M. De Beni Arrigoni, and R. D. L. Pacheco. 2016b. *Rumenology* (DD Millen, MDB Arrigoni, and RDL Pacheco, Eds.). Springer International, Brazil.
- Mohan, K., P. Sathishkumar, D. K. Rajan, J. Rajarajeswaran, and A. R. Ganesan. 2023. Black soldier fly (*Hermetia illucens*) larvae as potential feedstock for the biodiesel production: Recent advances and challenges. *Science of The Total Environment* 859:160235.
- Mohd Nor, M. F., N. D. Rusli, K. Mat, C. H. Hasnita, and P. Mira. 2020. Milk composition and milk quality of saanen crossbreed goats supplemented by mineral blocks. *Tropical Animal Science Journal* 43:169–175.
- Molina, B. S. de L., C. R. Alcalde, B. Hygino, S. M. de A. Santos, L. C. Gomes, and G. Tadeu dos Santos. 2015. Inclusion of Protected Fat in Diets on The Milk Production and Composition of Saanen Goats. *Animal Science and Veterinary* 39:164–172.
- Mollica, M. P., G. Trinchese, F. Cimmino, E. Penna, G. Cavaliere, R. Tudisco, N. Musco, C. Manca, A. Catapano, M. Monda, P. Bergamo, S. Banni, F. Infascelli, P. Lombardi, and M. Crispino. 2021. Milk fatty acid profiles in different animal species: Focus on the potential effect of selected pufas on metabolism and brain functions. *Nutrients* 13.

- Mu, T., H. Hu, Y. Ma, X. Feng, J. Zhang, and Y. Gu. 2021. Regulation of Key Genes for Milk Fat Synthesis in Ruminants. *Front Nutr* 8.
- Nekrasov, R. V., G. A. Ivanov, M. G. Chabaev, A. A. Zelenchenkova, N. V. Bogolyubova, D. A. Nikanova, A. A. Sermyagin, S. O. Bibikov, and S. O. Shapovalov. 2022a. Effect of Black Soldier Fly (*Hermetia illucens* L.) Fat on Health and Productivity Performance of Dairy Cows. *Animals* 12.
- Nekrasov, R. V., G. A. Ivanov, M. G. Chabaev, A. A. Zelenchenkova, N. V. Bogolyubova, D. A. Nikanova, A. A. Sermyagin, S. O. Bibikov, and S. O. Shapovalov. 2022b. Effect of Black Soldier Fly (*Hermetia illucens* L.) Fat on Health and Productivity Performance of Dairy Cows. *Animals* 12.
- Nichols, K. 2019. Whole-body and mammary gland metabolism in dairy cattle Impact of postabsorptive energetic substrates and amino acid profiles.
- Ningsih, R. H. C., A. D. Ramadani, D. J. Raynissa, D. Diapari, D. M. Fassah, D. A. Astuti, and A. Sudarman. 2023. Effects of Black Soldier Fly oil and calcium soap supplementation on rumen fermentability of Garut Sheep.in IOP Conference Series: Earth and Environmental Science. Institute of Physics.
- NRC. 2007. Nutrient Requirement of Small Ruminants. Washington, D.C.
- Nurachma, S., A. A. Nurmeidiansyah, T. Dhalika, and D. Ramdani. 2019. Utilization of Fermented Complete Feed Based on Mixed Pennisetum Purpureum and Indigofera Sp on Performance of Garut Male Lambs.in IOP Conference Series: Earth and Environmental Science. Institute of Physics Publishing.
- Panth, N., K. A. Abbott, C. B. Dias, K. Wynne, and M. L. Garg. 2018. Differential effects of medium- and long-chain saturated fatty acids on blood lipid profile: A systematic review and meta-analysis. *American Journal of Clinical Nutrition* 108:675–687.
- Pegolo, S., C. Dadousis, N. MacH, Y. Ramayo-Caldas, M. Mele, G. Conte, S. Schiavon, G. Bittante, and A. Cecchinato. 2017. SNP co-association and network analyses identify E2F3, KDM5A and BACH2 as key regulators of the bovine milk fatty acid profile. *Sci Rep* 7.
- Pérez-Barbería, F. J. 2020. The Ruminant: Life History and Digestive Physiology of a Symbiotic Animal.Pages 19–45 in SpringerBriefs in Applied Sciences and Technology. Springer.
- Perfield, J., E. Lilly, A. L. Lock, D. E. Bauman, J. W. Perfield, M. J. De Veth, and A. L. Lock. 2003. New perspectives on lipid digestion and metabolism in ruminants.
- Pollard, R. D., B. Fulp, M. G. Sorci-Thomas, and M. J. Thomas. 2016. High-Density Lipoprotein Biogenesis: Defining the Domains Involved in Human Apolipoprotein A-I Lipidation. *Biochemistry* 55:4971–4981.

- Prachumchai, R., and A. Cherdthong. 2023. Black Soldier Fly Larva Oil in Diets with Roughage to Concentrate Ratios on Fermentation Characteristics, Degradability, and Methane Generation. *Animals* 13.
- Pramono, A., Kustono, Widayati, P. P. Putro, E. Handayanta, and H. Hartadi. 2013. Evaluasi Proteksi Sabun Kalsium Sebagai Pakan Suplemen Berdasarkan Kecernaan Bahan Kering, Kecernaan Bahan Organik dan pH In Vitro di dalam Rumen dan Pasca Rumen. *Sains Peternakan* 11:70–78.
- Pramono, Ahmad., K. Kustono, D. T. Widayati, P. P. Putro, E. Handayanta, and H. Hartadi. 2017. Evaluasi Proteksi Sabun Kalsium Sebagai Pakan Suplemen Berdasarkan Kecernaan Bahan Kering, Kecernaan Bahan Organik dan pH In Vitro di dalam Rumen dan Pasca Rumen. *Sains Peternakan* 11:70.
- Prosser, C. G. 2021. Compositional and functional characteristics of goat milk and relevance as a base for infant formula. *J Food Sci* 86:257–265.
- Purwati, C. S. 2016. Proteksi Minyak Ikan Lemuru, Minyak Kelapa Sawit, Dan Bungkil Sawit Terhadap pH Dan Nh3 dalam Rumen Sapi Peranakan Ongole. *Buletin Peternakan* 40:20.
- Ranaweera, K. K. T. N., M. B. P. K. Mahipala, and W. M. P. B. Weerasinghe. 2020. Influence of rumen bypass fat supplementation during early lactation in tropical crossbred dairy cattle. *Trop Anim Health Prod* 52:1403–1411.
- Röhrl, C., and H. Stangl. 2018. Cholesterol metabolism—physiological regulation and pathophysiological deregulation by the endoplasmic reticulum. *Wiener Medizinische Wochenschrift* 168:280–285.
- Roopashree, P. G., S. S. Shetty, and N. Suchetha Kumari. 2021. Effect of medium chain fatty acid in human health and disease. *J Funct Foods* 87.
- Roques, S., G. Martinez-Fernandez, Y. Ramayo-Caldas, M. Popova, S. Denman, S. J. Meale, and D. P. Morgavi. 2024. Annual Review of Animal Biosciences Recent Advances in Enteric Methane Mitigation and the Long Road to Sustainable Ruminant Production. *Annu. Rev. Anim. Biosci.* 12:321–343
- Rusdiana, S., L. Praharani, and D. Sumanto. 2013. Kualitas dan Produktivitas Susu Kambing Perah Persilangan di Indonesia. *J. Litbang Pert* 32.
- Savoini, G., F. O. Zorini, G. Farina, A. Agazzi, D. Cattaneo, and G. Invernizzi. 2019. Effects of fat supplementation in dairy goats on lipid metabolism and health status. *Animals* 9.
- Scano, P., and P. Caboni. 2022. Seasonal Variations of Milk Composition of Sarda and Saanen Dairy Goats. *Dairy* 3:528–540.
- Scherer, R., K. Gerlach, and K. H. Südekum. 2019. Decision-making of goats when exposed to choice feeding: Triggered by taste or smell? *Appl Anim Behav Sci* 210:46–51.

- Sebtiarini, E., E. R. Dewi, and L. Dewanti. 2016. Goat Milk Utilization as Complementary Feeding of Children after Six Month to Reduce Undernourished Rate in Indonesia. *Nursing and Health* 4:24–28.
- Setyaningrum, A., S. Soeparno, L. M. Yusiati, and K. Koestantinah. 2015a. Performance and Meat Quality of Thin Tailed Sheep in Supplementary Feeding Lemuru Fish Oil Protected By Saponification with Different NaOH Concentration. *Anim Prod* 17:177.
- Setyaningrum, A., Soeparno, L. M. Yusiati, and Kustantinah. 2015b. Performance and Meat Quality of Thin Tailed Sheep in Supplementary Feeding Lemuru Fish Oil Protected By Saponification with Different NaOH Concentration. *Anim Prod* 17:177–185.
- Sitaula, S., and T. P. Burris. 2016. Cholesterol and Other Steroids. Pages 173–179 in *Encyclopedia of Cell Biology*. Elsevier Inc.
- Šlyžius, E., L. Anskien, G. Palubinskas, V. Juozaitien, R. Juodžentyt, and L. Laučien. 2023. Associations between Somatic Cell Count and Milk Fatty Acid and Amino Acid Profile in Alpine and Saanen Goat Breeds. *Animals* 13.
- Sonnay, S., A. Chakrabarti, J. Thevenet, A. Wiederkehr, N. Christinat, and M. Masoodi. 2019. Differential metabolism of medium-chain fatty acids in differentiated human-induced pluripotent stem cell-derived astrocytes. *Front Physiol* 10.
- De Souza, R., C. R. Alcalde, C. A. Lopes De Oliveira, B. Susan De Labio Molina, F. De, A. Fonseca De Macedo, L. Couto Gomes, B. Hygino, A. Paula, and S. Possamai. 2014. Lactation curves and economic results of Saanen goats fed increasing dietary energy levels obtained by the addition of calcium salts of fatty acids. *Revista Brasileira de Zootecnia* 43:73–79
- de Souza, R., C. Regina Alcalde, B. Hygino, B. Susan de Labio Molina, G. Tadeu dos Santos, and L. Couto Gomes. 2014. Effects of Dietary Energy Level Using Calcium Salts of Fatty Acids on Nutritive Value of Diets and Milk Quality in Peripartum Dairy Goats. *Ciênc. Agrotec* 38:286–294.
- Steevens, B. J., and R. T. Marshall. 1914. Testing Milk by the Babcock Procedure. in *Columbia*.
- Stoffel, C. M., P. M. Crump, and L. E. Armentano. 2015a. Effect of dietary fatty acid supplements, varying in fatty acid composition, on milk fat secretion in dairy cattle fed diets supplemented to less than 3% total fatty acids. *J Dairy Sci* 98:431–442.
- Stoffel, C. M., P. M. Crump, and L. E. Armentano. 2015b. Effect of dietary fatty acid supplements, varying in fatty acid composition, on milk fat secretion in dairy cattle fed diets supplemented to less than 3% total fatty acids. *J Dairy Sci* 98:431–442.
- Sugino, T., A. Tateno, G. Ueno, K. Kawashima, T. Okimura, H. Hirabayashi, A. Suzuki, S. Asakuma, H. Kobayashi, N. Isobe, T. Obitsu, and S. Kushibiki. 2014. Effects of calcium salts of medium-chain fatty acids on plasma metabolite and

- hormone concentrations in early lactating dairy cows. *Anim Prod Sci* 54:1699–1702.
- Sun, Y., D. P. Bu, J. Q. Wang, H. Cui, X. W. Zhao, X. Y. Xu, P. Sun, and L. Y. Zhou. 2013. Supplementing different ratios of short- and medium-chain fatty acids to long-chain fatty acids in dairy cows: Changes of milk fat production and milk fatty acids composition. *J Dairy Sci* 96:2366–2373.
- Suranindyah, Y. Y., D. H. A. Khairy, N. Firdaus, and Rochijan. 2018. Milk production and composition of Etawah crossbred, Sapera and Saperong dairy goats in Yogyakarta, Indonesia. *International Journal of Dairy Science* 13:1–6.
- Szumacher-Strabel, M., M. El-Sherbiny, A. Cieslak, J. Szczechowiak, and H. Winiarska. 2015. Bioactive lipid components from ruminant milk and meat: The new face of human health. Pages 599–629 in *Biotechnology of Bioactive Compounds: Sources and Applications*. Gupta, V.K., Tuohy, M.G., eds. Wiley Blackell, Oxford, UK.
- Tian, Z., Y. Zhang, H. Zhang, Y. Sun, Y. Mao, Z. Yang, and M. Li. 2022. Transcriptional regulation of milk fat synthesis in dairy cattle. *J Funct Foods* 96.
- Tilley, J. M. A., and R. A. Terry. 1980. A two-stage technique for the in vitro digestion of forage crops. *J. Brit. Grassland Soc* 18.
- Titi, H. 2011. Effects of varying levels of protected fat on performance of Shami goats during early and mid lactation. *Turk J Vet Anim Sci* 35:67–74.
- Tseten, T., R. A. Sanjorjo, M. Kwon, and S. W. Kim. 2022. Strategies to Mitigate Enteric Methane Emissions from Ruminant Animals. *J Microbiol Biotechnol* 32:269–277.
- Ushakova, N. A., E. S. Brodskii, A. A. Kovalenko, A. I. Bastrakov, A. A. Kozlova, and D. S. Pavlov. 2016. Characteristics of lipid fractions of larvae of the black soldier fly *Hermetia illucens*. *Dokl Biochem Biophys* 468:209–212.
- Vadroňová, M., A. Šťovíček, K. Jochová, A. Výborná, Y. Tyrolová, D. Tichá, P. Homolka, and M. Joch. 2023. Combined effects of nitrate and medium-chain fatty acids on methane production, rumen fermentation, and rumen bacterial populations in vitro. *Sci Rep* 13.
- Vargas-Bello-Pérez, E., N. C. Pedersen, J. Khushvakov, Y. Ye, R. Dhakal, H. H. Hansen, L. Ahrné, and B. Khakimov. 2022. Effect of Supplementing Dairy Goat Diets With Rapeseed Oil or Sunflower Oil on Performance, Milk Composition, Milk Fatty Acid Profile, and in vitro Fermentation Kinetics. *Front Vet Sci* 9.
- Vargas-Bello-pérez, E., L. E. Robles-Jimenez, R. Ayala-Hernández, J. Romero-Bernal, N. Pescador-Salas, O. A. Castelán-Ortega, and M. González-Ronquillo. 2020. Effects of calcium soaps from palm, canola and safflower oils on dry matter intake, nutrient digestibility, milk production, and milk composition in dairy goats. *Animals* 10:1–14.

- Varlyakov, I., T. Slavov, V. Radev, I. Nedeva, and G. Nikolov. 2018. Milking behaviour of saanen goats. *Bulgarian Journal of Agricultural Science* 24:109–118.
- De Vasconcelos, A. M., J. J. Osterno, M. C. P. Rogério, D. A. E. Façanha, A. V. Landim, A. A. Pinheiro, R. M. F. Silveira, and J. B. Ferreira. 2021. Adaptive profile of Saanen goats in tropical conditions. *Biol Rhythm Res* 52:748–758.
- Vituro, E., M. Koenning, A. Kroemer, G. Schlamberger, S. Wiedemann, M. Kaske, and H. H. D. Meyer. 2009. Cholesterol synthesis in the lactating cow: Induced expression of candidate genes. *Journal of Steroid Biochemistry and Molecular Biology* 115:62–67.
- Vučić, V., and Z. Cvetković. 2015. Cholesterol: Absorption, Function and Metabolism. Pages 47–52 in *Encyclopedia of Food and Health*. Elsevier Inc.
- Vulić, A., N. Kudumija, T. Lešić, S. Tanković, V. Jelušić, J. Ferizbegović, N. Bilandžić, and J. Pleadin. 2021. Chemical composition and fatty acid profile of Alpine and Saanen goat milk from Bosnia and Herzegovina. *Veterinarska Stanica* 52:13–21.
- Vyas, D., B. B. Teter, and R. A. Erdman. 2012. Milk fat responses to dietary supplementation of short- and medium-chain fatty acids in lactating dairy cows. *J Dairy Sci* 95:5194–5202.
- Wang, Z., Q. Wang, C. Tang, J. Yuan, C. Luo, D. Li, T. Xie, X. Sun, Y. Zhang, Z. Yang, C. Guo, Z. Cao, S. Li, and W. Wang. 2023. Medium chain fatty acid supplementation improves animal metabolic and immune status during the transition period: A study on dairy cattle. *Front Immunol* 14.
- Weld, K. A., and L. E. Armentano. 2017. The effects of adding fat to diets of lactating dairy cows on total-tract neutral detergent fiber digestibility: A meta-analysis. *J Dairy Sci* 100:1766–1779.
- Widayati, D. T., P. P. Putro, E. H. Iii, and D. H. Hartadi. 2013. Evaluasi Proteksi Sabun Kalsium Sebagai Pakan Suplemen Berdasarkan Kecernaan Bahan Kering, Kecernaan Bahan Organik dan pH In Vitro di dalam Rumen dan Pasca Rumen. 11:70–78.
- Wina, E., and I. Susana. 2013. Manfaat Lemak Terproteksi Untuk Meningkatkan Produksi dan Reproduksi Ternak Ruminansia. *WARTAZOA* 23:176–184.
- Xia, J., P. Yu, Z. Zeng, M. Ma, G. Zhang, D. Wan, D. Gong, S. Deng, and J. Wang. 2021. High Dietary Intervention of Lauric Triglyceride Might be Harmful to Its Improvement of Cholesterol Metabolism in Obese Rats. *J Agric Food Chem* 69:4453–4463.
- Xu, W., J. Vervoort, E. Saccenti, B. Kemp, R. J. van Hoeij, and A. T. M. van Knegsel. 2020. Relationship between energy balance and metabolic profiles in plasma and milk of dairy cows in early lactation. *J Dairy Sci* 103:4795–4805.

- Yahfoufi, N., Z. El Amine, J. F. Mauger, and P. Imbeault. 2018. White adipose tissue metabolic responses to hypoxia. Pages 213–223 in *The Molecular Nutrition of Fats*. Elsevier.
- Yanza, Y. R., M. Szumacher-Strabel, A. Jayanegara, A. M. Kasenta, M. Gao, H. Huang, A. K. Patra, E. Warzych, and A. Cieślak. 2021. The effects of dietary medium-chain fatty acids on ruminal methanogenesis and fermentation in vitro and in vivo: A meta-analysis. *J Anim Physiol Anim Nutr (Berl)* 105:874–889.
- Yurchenko, S., A. Sats, V. Tatar, T. Kaart, H. Mootse, and I. Jõudu. 2018. Fatty acid profile of milk from Saanen and Swedish Landrace goats. *Food Chem* 254:326–332.
- Zahera, R., M. I. Pratiwi, A. Fitri, S. Koike, I. G. Permana, and Despal. 2024. Coconut Fatty Acid Distillate Ca-Soap with Different Calcium Sources: Effects of Varied Proportions of Protected and Unprotected Fat Supplementation in Dairy Rations. *Dairy* 5:542–554 Available at <https://www.mdpi.com/2624-862X/5/3/41>.
- Zali, A., O. Ramezani-Afarani, V. Azimzadeh, S. Alaei, and S. M. Nasrollahi. 2020. Short term effects of feeding calcium salts of poultry oil as fat supplement on feed intake, total-tract digestibility, chewing activity, and milk production of dairy cows. *Journal of the Saudi Society of Agricultural Sciences* 19:76–80.
- Zentek, J., S. Buchheit-Renko, F. Ferrara, W. Vahjen, A. G. Van Kessel, and R. Pieper. 2011. Nutritional and physiological role of medium-chain triglycerides and medium-chain fatty acids in piglets. *Animal health research reviews / Conference of Research Workers in Animal Diseases* 12:83–93.
- Zhao, Y., X. Nan, L. Yang, S. Zheng, L. Jiang, and B. Xiong. 2020. A review of enteric methane emission measurement techniques in ruminants. *Animals* 10:1–15.
- Zhou, X., L. Meile, M. Kreuzer, and J. O. Zeitz. 2013. The effect of saturated fatty acids on methanogenesis and cell viability of *Methanobrevibacter ruminantium*. *Archaea* 2013.