DAFTAR PUSTAKA

Abdisa, T. 2017. Review on practical guidance of veterinary clinical diagnostic approach. International Journal of Veterinary Science and Research, 3(2): 006-025. https://dx.doi.org/10.17352/ijvsr.000020

Abduch, N.G., B.V. Pires, L. L. Souza, R. R. Vicentini, L. E. F. Zadra, B. O. Fragomeni, R. M. O. Silva, F. Baldi, C. C. P. Paz, and N. B. Stafuzza. 2022. Effect of thermal stress on thermoregulation, hematological and hormonal characteristics of Caracu beef cattle. Animals, 12(24): 3473. https://doi.org/10.3390/ani12243473

Adam, M., T. M. Lubis, B. Abdyad, N. Asmilia, Muttaqien and Fakhrurazy. 2015. Total erythrocytes count and haematocrit valueof Aceh and Bali cattle in Leumbah Seulawah, Aceh Besar. Jurnal Medika Veterinaria, 9 (2): 115-118. https://doi.org/10.21157/j.med.vet..v9i2.3810

Aldersey, J. E., T. S. Sonstegard, J. L. Williams, and C. D. K. Bottema. 2020. Understanding the effects of the bovine POLLED variants. Animal Genetics, 51(2): 166-176. https://doi.org/10.1111/age.12915

Angel, S. P., J. P. Amitha, V. P Rashamol, G. D. Vandana, S.T Savitha, A. Afsal, M. Bagath, G. Krishnan, and V. Sejian. 2018. Climate change and cattle production: impact and adaptation. Journal of Veterinary Medicine and Research, 5(4): 1134 (1-10).

Aritonang, S. B., R. Yuniati, Abinawanto, M. Imron, and A. Bowolaksono. 2017a. Studies of adaptive traits of Bali cattle in Buleleng District, Bali and Barru District, South Sulawesi. AIP Conference Proceedings, 1844: 060003. https://doi.org/10.1063/1.4983443

Aritonang, S. B., R. Yuniati, Abinawanto, M. Imron, and A. Bowolaksono. 2017b. Effect of thermal stress on HSP90 expression of Bali cattle in Barru District, South Sulawesi. AIP Conference Proceedings, 1862: 030104. https://doi.org/10.1063/1.4991208

Atkins, I., N. Cook, M. Mondaca, and C. Choi. 2018. Continuous respiration rate measurement of heat-stressed dairy cows and relation to environment, body temperature and lying time. Transactions of the ASABE. 61: 1475-85. https://doi.org/10.13031/trans.12451

Baco S. 2011. Konservasi sapi Bali sebagai plasma nutfah ternak Indonesia. Jurnal Peternakan, 40: 12 –21.

Baco, S., R. Malaka, Zulkharnaim, and M. Hatta. 2020a. The body condition and reproduction performances of Bali cattle cows through the improved feeding in the intensive management system. IOP Conference Series: Earth and Environmental Science, 492: 012101. https://doi.org/10.1088/1755-1315/492/1/012101

Baco, S., Zulkharnain, R. Malaka, and G. R. Moekti. 2020b. Polled Bali cattle and potentials for the development of breeding industry in Indonesia. Hasanuddin Journal of Animal Science (HAJAS), *2*(1): 23–33.

Benezra, R. M.V. 1954. A new index for measuring the adaptability of cattle to tropical conditions. J. Anim. Sci., 13: 1015.

Berian, S., S. K. Gupta, S. Sharma, I. Ganai, S. Dua, and N. Sharma. 2019. Effect of heat stress on physiological and hemato-biochemical profile of cross bred dairy cattle. Journal of Animal Research, 9 (1): 95 – 101. https://doi.org/10.30954/2277940X.01.2019.13

Berihulay, H., A. Abied, X. He, L. Jiang, and Y. Ma. 2019. Adaptation mechanisms of small ruminants to environmental heat stress. Animals, 9(3):75. https://doi.org/10.3390/ani9030075

Bernabucci, U., N. Lacetera, L. H. Baumgard, and R. P. Rhoads. 2010. Metabolic and hormonal acclimation to heat stress in domesticated ruminants. Animal, 4(7), 1167-1183. https://doi.org10.1017/S175173111000090X

Bezerra, L. R, W. D. C. Oliveira, T. P.D. Silva, J. N. C. Torreão, C. A. T. Marques, M. J. Araújo, and R. L. Oliveira. 2017. Comparative hematological analysis of Morada Nova and Santa Inês ewes in all reproductive stages. Pesquisa Veterinária Brasileira, 37(4):408-414. https://doi.org/10.1590/s0100-736x2017000400017

Brown-Brandl, T. M., J. A Nienaber, R. A. Eigenberg, T. L. Mader, J. L. Morrow, and J. W Dailey. 2006. Comparison of heat tolerance of feedlot heifers of different breeds. Livestock Science, 105 (1-3): 19-26. https://doi.org/10.1016/j.livsci.2006.04.012

Brunel, H. S. S., B. S. L. Dallago, A. M. B de Almeida, A. Z. de Assis, R.J.B Calzada, A.B.B de Alvarenga, A.M. Menezes, J.P. Barbosa, P.R. Lopes, F.H.D. Gonzalez, C. McManus, D. Broom, and F.E.M Bernal. 2018. Hemato-biochemical profile of meat cattle submitted to different types of pre-loading handling and transport times. International Journal of Veterinary Science and Medicine, 6: 90-96. https://doi.org/10.1016/j.ijvsm.2018.04.002

Bulitta, F. S., S. Aradom, and G. Gebresenbet. 2015. Effect of transport time of up to 12 hours on welfare of cows and bulls. Journal of Science and Management, 8: 161-182. http://dx.doi.org/10.4236/jssm.2015.82019

Burton, D. A., K. Stokes, and G. H. Hall. 2004. Physiological effects of exercise. Continuing Education in Anaesthesia Critical Care & Pain 4(6):185-188. https://doi.org/10.1093/bjaceaccp/mkh050

Coelho, L. A., A. Sasa, S. D. Bicudo, and J. C. C. Balieiro . 2008. Concentrações plasmáticas de testosterona, triiodotironina (T3) e tiroxina (T4) em bodes submetidos ao estresse calórico. Arquivo Brasileiro de Medicina Veterinária e Zootecnia. 60:1338–1345. https://doi.org/10.1590/S0102-09352008000600007

Collier, R. J., J.L Collier, R. P. Rhoads, and Baumgard. 2008. Invited review: genes involved in the bovine heat stress response. Journal of Dairy Science, 91(2), 445-454.

Collier, R. J., L. H. Baumgard, R. S. Zimbelman, and Y. Xiao. 2019. Heat stress: physiology of acclimation and adaptation. Animal Frontiers, 9(1): 12-19. https://doi.org/10.1093/af/vfy031

Cummins, E. P., M. J, Strowitzki, and C. T. Taylor. 2020. Mechanisms and consequences of oxygen and carbondioxide sensing in mammals.

Physiological Reviews. 100 (1): 463 - 488. https://doi.org/10.1152/physrev.00003.2019

da Silva, W. E., J. H. G. M. Leite, J. E. R. de Sousa, W. P. Costa, W. S. T. da Silva, M. M. Guilhermino, and D. A. E. Façanha. 2017. Daily rhythmicity of the thermoregulatory responses of locally adapted Brazilian sheep in a semiarid environment. International Journal of Biometerology, 61: 1221-1231. https://doi.org/10.1007/s00484-016-1300-2

Das, M. R., R. K. Sarma, R. Saikia, V. S. Kale, M. V. Shelke, and P. Sengupta. 2011. Synthesis of silver nanoparticles in an aqueous suspension of graphene oxide sheets and its antimicrobial activity. Colloids and Surfaces B: Biointerfaces, 83:16-22. https://doi.org/10.1016/j.colsurfb.2010.10.033

Dewi, A. K. S, I. G. Mahardika, dan N. S. Dharmawan. 2018. Total eritrosit, kadar hemoglobin, nilai hematokrit sapi Bali lepas sapih diberi pakan kandungan protein dan energi berbeda. Indonesia Medicus Veterinus, 413-421. https://doi.org/10.19087/imv.2018.7.4.413

Dikmen, S., P. J. Hansen, and K. Isik. 2014. Effects of heat stress on endocrine and physiological responses in dairy cows. International Journal of Dairy Science, 9(4):191-202.

Diparayoga, I. M. G., I M. Dwinata, and N. S. Dharmawan. 2014. Erythrocytes total, hemoglobin, pack cell volume, and erythrocytes index of Bali cattle infected with *Cysticercus bovis.* Indonesia Medicus Veterinus, 3(3): 206-212.

Dos Santos, M. M, J. B. F Souza-Junior, M. R. T. Dantas, and L. L. de Macedo Costa. 2021. An updated review on cattle thermoregulation: physiological responses, biophysical mechanisms, and heat stress alleviation pathways. Environmental Science and Pollution Research, 28(24): 30471-30485. https://doi.org/10.1007/s11356-021-14077-0

Fitrohdin, A., M. Samsi, dan D. Indrasanti. 2014. Indeks eritrosit pada itik betina Tegal, Mojosari dan Magelang yang pakannya di suplementasi probiotik dengan level yang berbeda. Jurnal Ilmiah Peternakan, 2(1): 42-51.

Frandson, R. D., W. L. Wike and A. D. Fails. 2009. Anatomy and Physiology of Farm Animals. 7 th Ed. Wiley-Blackell, Ames, Lowa

Ganaie, A.H., G. Shanker, N. A. Bumla, R. S. Ghasura, N.A. Mir, S. A. Wani, and G. B. Dudhatra. 2013. Biochemical and physiological changes during thermal stress in bovines. Journal of Veterinary Science and Technology, 4(1): 1-6. https://doi.org/10.4172/2157-7579.1000126

Gaughan, J. B., T. L. Mader, S. M. Holt, M. L. Sullivan, and G. L. Hahn. 2010. Assessing the heat tolerance of 17 beef cattle genotypes. International Journal of Biometeorology, 54(6):617-627. https://doi.org/10.1007/s00484-009-0233-4

Gehrke, L. J., A. Capitan, C. Scheper, S. König, M. Upadhyay, K. Heidrich, I. Russ, D. Seichter, T. Tetens, I. Medugorac, and G. Thaller. 2020. Are scurs in heterozygous polled (Pp) cattle a complex quantitative trait? Genetics Selection Evolotion, 52(1): e6. https://doi.org/10.1186/s12711-020-0525-z

Ghassemi, N. J., M. Kazemi-Bonchenari, A. Mirzaei, and M. Vatankhah. 2017. The effect of heat stress on cortisol and oxidative stress in Holstein lactating dairy cows. Tropical Animal Health and Production, 49(4): 803-809.

Glatzer, S., N. J. Merten, C. Dierks, A. Wöhlke, U. Philipp, and O. Distl. 2013. A single nucleotide polymorphism within the interferon *gamma receptor* 2 gene perfectly coincides with polledness in Holstein cattle. PLoS One 8(6): 1-7. https://doi.org/10.1371/journal.pone.0067992

Godyń D, Herbut P, Angrecka S (2019) Measurements of peripheral and deep body temperature in cattle – a review. Journal of Thermal Biology, 79:42–49. https://doi.org/10.1016/j.jtherbio.2018.11.011

Grobler, R., C. Visser, A. Capitan, and E. Van Marle-Köster. 2018. Validation of the POLLED Celtic variant in South African Bonsmara and Drakensberger beef cattle breeds. Livestock Science, 217: 136–139. https://doi.org/10.1016/j.livsci.2018.10.003

Gupta M., S. Kumar, S. S. Dangi, and B. L. Jangir. 2013. Physiological, biochemical and molecular responses to thermal stress in goats. International Journal of Livestock Research 3:27-38. https://doi.org/10.5455/ijlr.20130502081121

Guyton, A. C. and J. E. Hall. 2006. Textbook of Medical Physiology. 11th Ed. Elsevier Saunders, Philadelpia.

Habeeb A. A., A. E Gad, and M. A. Atta. 2018.Temperature-humidity indices as indicators to heat stress of climatic conditions with relation to production and reproduction of farm animals. International Journal of Biotechnology and Recent Advances, 1(1): 35-50. https://doi.org/10.18689/ijbr-1000107

Hasbi, H., K. I. Prahesti, H. Sonjaya, S. Baco, W. Wildayanti, S. Gustina. 2021. Characteristics of libido and testosterone concentrations of Bali polled and horned bulls. IOP Conf. Ser.: Earth Environ. Sci., 788: 012141 https://doi.org/10.1088/1755-1315/788/1/012141

Henry, B., E. Charmley, R. Eckard, J. B. Gaughan, and R. Hegarty. 2012. Livestock production in a changing climate: adaptation and mitigation research in Australia. Crop and Pasture Science, 63: 191– 202. https://doi.org/10.1071/CP11169

Herbut, P., S. Angrecka, D. Godyń, and G. Hoffmann. 2019. The physiological and productivity effects of heat stress in cattle – a review. Annals of Animal Science, 19(3): 579–594 https://doi.org/10.2478/aoas-2019-0011

Hermawansyah, Salundik and R. Priyanto. 2020. Physiological response of reared Bali cattle based on different peat land characterstic. Chalaza Journal of Animal Husbandry, 5(1):12-21. https://dx.doi.org/10.31327/chalaaza.v5i1.1254

Hsia, C. C. W., A. Schmitz, M. Lamvertz, S. F. Perry, and J. N. Maina. 2013. Evolution of air breathing: oxygen homeostasis and the transition from water to land and sky. Comprehensive Physiology, 3(2):849-915. https://doi.org/10.1002/cphy.c120003

Idris, M., J. Uddin, M. Sullivan, D. M. McNeil, and C. J. C. Philips. 2021. Non-invasive physiological indicators of heat stress in cattle. Animals (Basel), 11(1): e71. https://doi.org/10.3390/ani11010071

Ihedioha, J.I, J.I Ugwuja, O. A. Noel-Uneke, I. J. Udeani, and G. Daniel-Igwe. 2012. Reference values for the haematology profile of conventional grade outbred albino mice (Mus musculus) in Nsukka, Eastern Nigeria. Animal Research International, 9(2): 1601-1612.

Indu, S. and Pareek A. 2015. A review: Growth and physiological adaptability of sheep to heat stress under semi–arid environment. International Journal of Emerging Trends in Science and Technology, 2(9): 3188-3198. http://dx.doi.org/10.18535/ijetst/v2i9.09

Intergovermental Panel on Climate Change (IPCC). 2014. Climate change 2014: impacts, adaptation, and vulnerability. part A: global and sectoral aspects. In: Field, C. B., V. R. Barros, D. J. Dokken, K. J. Mach, M. D. Mastrandrea, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, and L. L. White, editors. Contribution of working group II to the fifth assessment report of the intergovernmental panel on climate change. Cambridge (UK)/New York (NY): Cambridge University Press; p. 1132. https://doi.org/10.1017/CBO9781107415379

Juniartini, W. S., I. N. Sulabda, and N.S. Dharmawan. 2022. Erythrocyte index of Bali cattle bull after transported to pesanggaran slaughter house of Denpasar, Bali. Indonesia Medicus Veterinus, 11(1):95-104. https://doi.org/10.19087/imv.2022.11.1.95

Kadzere, C. T., M. R. Murphy, N. Silanikove, and E. Maltz. 2002. Heat stress in lactating dairy cows: a review. Livestock Production Science, 77(1): 59-91.

Kasahara, Y., C. Yoshida, M. Saito, and Y. Kimura. 2021. Assessments of heart rate and sympathetic and parasympathetic nervous activities of normal mouse fetuses at different stages of fetal development using fetal electrocardiography. Frontiers in Physiology, 12: 652828. https://doi.org/10.3389/fphys.2021.652828

Kementerian Pertanian Republik Indonesia [Kementan]. 2010. Penetapan Rumpun Sapi Bali. Keputusan Menteri Pertanian nomor 325/Kpts/OT.140/1/2010. Menteri Pertanian, Jakarta.

Kubkomawa, I. H., O. O. Emenalom, and I. C. Okoli. 2015. Body condition score, rectal temperature, respiratory, pulse and heart rates of tropical indigenous zebu cattle. International Journal of Agriculture Innovations and Research, 4(3): 448-454.

Lawrence, K. E., S. F. Forsyth, B. L. Vaatstra, A. M. J. McFadden, D. J. Pulford, K. Govindaraju, and W. E. Pomroy. 2017. Clinical haematology and biochemistry profiles of cattle naturally infected with Theileria orientalis Ikeda type in New Zealand. New Zealand Veterinary Journal, 66(1): 21-29. https://doi.org/10.1080/00480169.2017.1391142

Lees, A. M., J. C. Lees, V. Sejian, M.L. Sullivan and J. B. Gaughan. 2020. Influence of shade on panting score and behavioural responses of

Bos taurus and Bos indicus feedlot cattle to heat load. Animal Production Science, 60 (2): 305-315. https://doi.org/10.1071/AN19013

Lees, A. M., V. Sejian, A. L. Wallage, C. C. Steel, T. L. Mader, J. C. Lees, and J. B. Gaughan. 2019. The impact of heat load on cattle. Animals, 9(6), 322. https://doi.org/10.3390/ani9060322

Mader TL. 2013. Environmental stress in confined beef cattle. Journal of Animal Science, 91(2), 871-880.

Mader, T. L., M. S. Davis, and T. Brown-Brandl. 2006. Environmental factors influencing heat stress in feedlot cattle. Journal of Animal Science, 84 (3): 712-719. https://doi.org/10.2527/2006.843712x

Marai, I. F. M., A. A. El-Darawany, A. Fadiel, M. A. M. Abdel-Hafez. 2007. Physiological traits as affected by heat stress in sheep. a review. Small Ruminant Research, 71 (1-3): 1–12. https://doi.org/10.1016/j.smallrumres.2006.10.003

Marcone, G., T. Kaart, P. Piirsalu, D.R. Arney. 2021. Panting scores as a measure of heat stress evaluation in sheep with access and with no access to shade. Applied Animal Behaviour Science, 240: 105350, https://doi.org/10.1016/j.applanim.2021.105350

Mariana, E., C. Sumantri, D. A. Astuti, A. Anggraeni, and A. Gunawan. 2019. Thermoregulation, haematological profile and productivity of Holstein Friesian under heat stress at different land elevations. Buletin Peternakan, 43 (1): 8-16. https://doi.org/10.21059/buletinpeternak.v43i1.37648

Mazzullo, G., C. Rifici, F. Cammarata, G. Caccamo, M. Rizzo, and G. Piccione. 2014. Effect of different environmental conditions on some haematological parameters in cow. Annals of Animal Science, 14(4): 947–954 https://doi.org/10.2478/aoas-2014-0049

McKinley, M., D. Trevaks, F. Weissenborn, and R. McAllen. 2017. Interaction between thermoregulation and osmoregulation in domestic animals. Revista Brasileira de Zootecnia, 46(9):783-790. https://doi.org/10.1590/S1806-92902017000900011

McLean, J., A. Downie, C. Jones, D. Stombaugh, and C. Glasbey. 1983. Thermal adjustments of steers (*Bos taurus*) to abrupt changes in environmental temperature. The Journal of Agricultural Science, 100(2), 305-314. https://doi.org/10.1017/S0021859600033451

Medugorac, I., D. Seichter, A. Graf, I. Russ, H. Blum, K.H. Göpel, S. Rothammer, M. Förster, and S. Krebs. 2012. Bovine polledness--an autosomal dominant trait with allelic heterogeneity. PLoS One. 7(6): e39477. https://doi.org/10.1371/journal.pone.0039477

Merdana, I. M., I. N. Sulabda, N. M. W. A. Tiasnitha, I. W. N. F. Gunawan, and I. W. Sudira. 2020. Erythrocyte, hemoglobin and hematocrit profle of Bali cattle during the various periods of parturition. Journal of Animal Health and Production, 8(2): 75-79. http://dx.doi.org/10.17582/journal.jahp/2020/8.2.75.79

Mirzadeh, Kh., S. Tabatabaei, M. Bojarpour and M. Mamoei. 2010. Sex, physiological status and season in Iranian cattle. Journal of Animal and Veterinary Advances, 9(16): 2123-2127. http://dx.doi.org/

10.3923/javaa.2010.2123.2127
Mohamad, K., M. Olsson, G. Andersson, B. Purwantara, H.T.A. van Tol, H. Rodriguez-Martinez, B. Colenbrander, and J. A. Lenstra. 2011. The origin of indonesian cattle and conservation genetics of the Bali cattle breed. Reproduction in Domestic Animals, 47 (Suppl. 1), 1–4 https://doi.org/10.1111/j.1439-0531.2011.01960.x
Mohanty, J.G., E. Nagababu, abd J. M. Rifkind. 2014. Red blood cell oxidative stress impairs oxygen delivery and induces red blood cell aging. Frontiers in Physiology, 5:84. https://doi.org/10.3389/fphys.2014.00084
Mota-Rojas, D., C. G. Titto, A. de Mira Geraldo, J. Martínez-Burnes, J. Gómez, I. Hernández-Ávalos, A. Casas, A. Domínguez, N. José, Aldo Bertoni, B. Reyes, and A. M. F. Pereira. 2021. Efficacy and function of feathers, hair, and glabrous skin in the thermoregulation strategies of domestic animals. Animals, 11: 3472. https://doi.org/10.3390/ani11123472
Nardone, A., B. Ronchi, N. Lacetera, M.S. Ranier, U. Bernabucci. 2010. Effects of climate change on animal production and sustainability of livestock systems. Livestock Science, 130: 57–69. https://doi.org/10.1016/j.livsci.2010.02.011
Nawaan, S. 2006. Daya tahan panas sapi Peranakan Simmental, Peranakan Ongole dan Sapi Pesisir. Jurnal Peternakan Indonesia, 11(2):158-166. https://doi.org/10.25077/jpi.11.2.158-166.2006
Nienaber, J. A. and G.L. Hahn. 2007. Livestock production system management responses to thermal challenges. International Journal of Biometeorology, 52:149–157. https://doi.org/10.1007/s00484-007-0103-x
Novanty, N. P. G., I N. Sulabda and N. S. Dharmawan. 2022. Total leukocytes and differential leukocytes of male Bali cattle after transportation to the pesanggaran slaughterhouse Denpasar. Indonesia Medicus Veterinus, 11(1):21-29. https://doi.org/10.19087/imv.2022.11.1.21
Nugraha, A. K., R. Afnan, E. Taufik, and A. S. Satyaningtijas. 2020. Study of Bali cattle physiological parameters during sea transport on camara nusantara ships. Jurnal Ilmu-ilmu Peternakan, 30(3): 190-197. https://doi.org/10.21776/ub.jiip.2020.030.03.03
Nuriyasa I.M., G.A.M. K., Dewi, N.L.G. Budiari 2015. Indeks kelembaban suhu dan respon fisiologi sapi bali yang dipelihara secara feed lot pada ketinggian berbeda. Majalah Ilmiah Peternakan, 18(1): 5-10, https://doi.org/10.24843/MIP.2015.v18.i01.p02
Nussa, H. T., S. B. Aritonang, S. A. Puteri, A. F. Rahmani, A. Bowolaksono, and R. Lestar. 2018. Thermal stress effect on ATP1A1 gene expression in Bali cattle (*Bos sondaicus*) in Barru District, South Sulawesi. AIP Conference Proceedings, 2023: 020152. https://doi.org/10.1063/1.5064149
Ondruska, L., J. Rafay, A. B. Okab, M. A. Ayoub, A. A. Al-Haidary, E. M. Samara, V. Parkanyi, L. Chrastinova, R. Jurcik, P. Massanyi, N. Lukac, and P. Supuka. 2011. Influence of elevated ambient

temperature upon some physiological measurements of New Zealand White rabbits. Veterinarni Medicina, 56, 2011 (4): 180–186. https://doi.org/10.17221/3150-VETMED

Pamungkas, F. A., B. P. Purwanto, W. Manalu, A. Yani, and R. G. Sianturi. 2020. Use of infrared thermography for identifying physiological and hematological conditions of young Sapera dairy goats. Jurnal Ilmu Ternak dan Veteriner (JITV), 25(3): 120-130. http://dx.doi.org/10.14334/jitv.v25i3.2522

Pandey, P., O. K. Hooda, and S. Kumar. 2017. Impact of heat stress and hypercapnia on physiological, hematological, and behavioral profile of Tharparkar and Karan Fries heifers. Veterinary World, 10(9): 1146-1155. https://doi.org/10.14202/vetworld.2017.1146-1155

Parés-Casanova, P. M. and M. Caballero. 2014. Possible tendency of polled cattle towards larger ears. Revista Colombiana de Ciencias Pecuarias, 27: 221-225.

Perumal, P., A. K. De, D. Bhattacharya, J. Sunder, and A. Kundu. 2022. Hematology and biochemical profiles of endangered local cattle of Andaman and Nicobar Islands. Indian Journal of Animal Sciences, 92 (1): 82-88. http://dx.doi.org/10.56093/ijans.v92i1.120930

Prahesti, K. I., R, Malaka, and S. Baco. 2021. Stamina prediction of cows and goats to exercise changes by measuring body temperature, heart rate, and respiratory rate. Hasanuddin Journal of Animal Science (HAJAS), 3(1) : 1-7 https://doi.org/10.20956/hajas.v3i1.14130

Prasanna, J. S., S.T. V. Rao, M. G. Prakash, S. Rathod, P. Kalyani, and B. R. Reddy. 2022. Indian Journal of Animal Research, 56(10): 1202-1205. https://doi.org/10.18805/IJAR.B-4700

Purwantara, B., R. R. Noor, G. Andersson, and H. R. Martinez. 2012. Banteng and Bali cattle in Indonesia: status and forecasts. Reproduction of Domestic Animals, 47(1): 2-6 https://doi.org/10.1111/j.1439-0531.2011.01956.x

Putra, T. D., P. Panjono, S. Bintara, D. T. Widayati, E. Baliarti, and B. Putra. 2021. Characteristics of skin coat as well as the physiological status of F1 crossing Bali (Bos Sondaicus) x Angus (Bos Taurus) for early identification of adaptability in tropical environment. MOJ Ecology and Environmental Sciences, 6(3):82-86. https://doi.org/10.15406/mojes.2021.06.00219

Putra, T.D., S. Bintara, D. T. Widayati, Panjono, and E. Baliarti. 2019. Physiological conditions of Bali cattle based on oil palm plantation. IOP Conf. Ser.: Earth Environ. Sci.: 012125 https://doi.org/10.1088/1755-1315/387/1/012125

Rachma, A. B. S., H. Harada, and T. Ishida. 2011. The estimation of growth curve of Bali cattle at Bone and Barru Districts, South Sulawesi , Indonesia using ten body measurements. Journal of the Indonesian Tropical Animal Agriculture, 36(4): 228–236. https://doi.org/10.14710/jitaa.36.4.228-236

Rahardja, D. P. and V. S. Lestari. 2019. Lingkungan Ternak. Universitas Terbuka, Tangerang Selatan.

Randhawa, I. A. S., B. M Burns, M. R. McGowan, L. R. Porto-Neto, B. J. Hayes, R. Ferretti, K. M. Schutt, and R. E Lyons. 2020. Optimized genetic testing for polledness in multiple breeds of cattle. G3 (Genes, Genome, Genetics), 10(2): 539-544. https://doi.org/10.1534/g3.119.400866

Rashamol, V. P., V.Sejian, M. Bagath, G. Krishnan, P. R. Archana, and R. Bhatta. 2018. Physiological adaptability of livestock to heat stress: an updated review. Journal of Animal Behaviour and Biometeorology, 6(3): 62–71. https://doi.org/10.31893/2318-1265JABB.V6N3P62-71

Reece, W. O. 2015. The composition and functions of blood. In: Dukes' Physiology of Domestic Animals, 13th ed. (Editor: W.O. Reece; Assosiate editor: (H. Erickson, J. P. Goff, E. E. Uemura). Iowa, USA: John Wiley & Sons, Inc.

Renaudeau, D., A. Collin, S. Yahav, V. de Basilio, J. L. Gourdine, and R. J. Collier. 2012. Adaptation to hot climate and strategies to alleviate heat stress in livestock production. Animal, 6(5): 707–728. https://doi.org/10.1017/S1751731111002448

Reuter, R.R., J. A. Carroll, L. E. Hulbert, J. W. Dailey, and M. L. Galyean. 2010. Technical note: Development of a self-contained, in dwelling rectal temperature probe for cattle research. Journal of Animal Science, 88(10):3291-3295. https://doi.org/10.2527/jas.2010-3093

Rhoad, A. O. 1944. The Iberia heat tolerance test for cattle. Trop. Agr., 21(9):162-164.

Ribeiro, M. N., N. L. Ribeiro, R. Bozzi, and R. G. Costa. 2018. Physiological and biochemical blood variables of goats subjected to heat stress – a review. Journal of Applied Animal Research, 46(1): 1036-1041. https://doi.org/10.1080/09712119.2018.1456439

Roland, L., M. Drillich, and M. Iwersen. 2014. Hematology as a diagnostic tool in bovine medicine. Journal of Veterinary Diagnostic Investigation, 26 (5): 592-598. https://doi.or/10.1177/1040638714546490

Romanovsky, A.A. 2014. Skin temperature: its role in thermoregulation. Acta Physiologica, 210: 498-507. https://doi.org/10.1111/apha.12231

Sarangi, S. 2018. Heat adaptability in livestock in the tropics: a scenario. The Pharma Innovation Journal, 7(3): 345-350.

Seixas, L., C. B. de Melo, C. B. Tanure, V. Peripolli, and C. Mc. Manus. 2017. Heat tolerance in Brazilian hair sheep. Asian-Australasian Journal of Animal Science, 30(4): 593-601. https://doi.org/10.5713/ajas.16.0191

Sejian, V., V. P. Maurya, and S. M. Naqvi. 2010. Adaptability and growth of Malpura ewes subjected to thermal and nutritional stress. Tropical Animal Health and Production, 42(8): 1763-1770. https://doi.org/10.1007/s11250.010.9633.z

Septiarini A. A. I. A., N. K. Suwiti, and I G. A. A. Suartini. 2020. Hematological value of total erythrocytes and hemoglobin level of Bali cattle with organic forage feed. Buletin Veteriner Udayana, 12(2): 144-149. https://doi.org/10.24843/bulvet.2020.v12.i02.p07

Shilja, S., V. Sejian, M. Bagath, A. Mech, C. G David, E. K. Kurien, G. Varma, and R. Bhatta. 2016. Adaptive capability as indicated by behavioral and physiological responses, plasma HSP70 level, and PBMC HSP70 mRNA expression in Osmanabadi goats subjected to combined (heat and nutritional) stressors. International Journal of Biometerology, 60 (9): 1311-23. https://doi.org/ 10.1007/s00484-015-1124-5

Siswanto. 2011. The erytrocyte profile of the female Bali cattle (sloughter house study). Buletin Veteriner Udayana, 3(2): 99-105.

Sonjaya, H. 2012. Dasar Fisiologi Ternak. IPB Press, Bogor.

Srikandakumar, A., and E. H. Johnson. 2004. Effect of Heat Stress on Milk Production, Rectal Temperature, Respiratory Rate and Blood Chemistry in Holstein, Jersey and Australian Milking Zebu Cows. Tropical Animal Health and Production, 36: 685–692. https://doi.org/10.1023/B:TROP.0000042868.76914.a9

Starling, J. M.C., R. G. Silva, J. A. Negrão, A. S. C. Maia, and A. R. Bueno. 2005. Variação estacional dos hormônios tireoideanos e do cortisol em ovinos em ambiente tropical. Revista Brasileira de Zootecnia. 34:2064–2073. https://doi.org/10.1590/S1516-35982005000600032

Suharti, S., 1 L. Khotijah, A. R. Nasution, D. W. Warmadewi, I. G. L. O. Cakra, C. Arman and K. G. Wiryawan. 2017. Productive and reproductive performances and blood profile of Bali cows supplemented with calcium soap-soybean oil. Pakistan Journal of Nutrition, 16: 882-887. https://dx.doi.org/10.3923/pjn.2017.882.887

Tamzil, M.H., R.R. Noor, P.S. Hardjosworo, W. Manalu, and C. Sumantri. 2014. Hematological response of chickens with different Heat Shock Protein 70 genotypes to acute heat stress. International Journal of Poultry Science, 13(1): 14-20. https://dx.doi.org/10.3923/ijps.2014.14.20

Terrien, J., M. Perret, and F. Aujard. 2011. Behavioral thermoregulation in mammals: a review. Frontiers in Bioscience, 16:1428-1444. https://doi.org/10.2741/3797

Thompson, I. M. and G. E. Dahl. 2012. Dry-period seasonal effects on the subsequent lactation. Professional Animal Scientists, 28(6): 628-631. https://doi.org/10.15232/S1080-7446(15)30421-6

Todini, L., A. Malfatti, A. Valbonesi, M. Trabalza-Marinucci, and A. Debenedetti. 2007. Plasma total T3 and T4 concentrations in goats at different physiological stages, as affected by the energy intake. Small Rumin Res. 68:285–290. https://doi.org/10.1016/j.smallrumres.2005.11.018

Vaidya, M. M., V. B. Dongre, S. A. Dhenge, L. S. Kokate, V. N. Khandait, and S. V. Singh. 2022. Comparative efficacy of three different heat tolerance indices for thermo-adaptability during heat stress in bovines. Indian J Dairy Sci 7 5(5): 453-457. https://doi.org/10.33785/IJDS.2022.v75i05.009

Wang, J., J. Li, F. Wang, J. Xiao, Y. Wang, H. Yang, S. Li, and Z. Cao. 2020. Heat stress on calves and heifers: a review. Journal of Animal

Science and Biotechnology 11(79): 1 - 8. https://doi.org/10.1186/s40104-020-00485-8

Wiedemar, N., J. Tetens, V. Jagannathan, A. Menoud, S. Neuenschwander, R. Bruggmann, G. Thaller, and C. Drögemüller. 2014. Independent polled mutations leading to complex gene expression differences in cattle. PLoS One, 9(3): e93435. https://doi.org/10.1371/journal.pone.0093435

Yani, A., H. Suhardiyanto, R. Hasbullah & B.P. Purwanto. 2007. Analisis dan simulasi distribusi suhu udara pada kandang sapi perah menggunakan *computational fluid dynamics (*CFD). Media Peternakan, 30(3): 218−228

Yosi, F., S. B. K. Prajoga, and E. M. Natawiria. 2019. Heat tolerance identification on adult Madura breeds cow according to Rhoad and Benezra Coefficient. Ecodevelopment Journal, 2(2): 73-76. https://doi.org/10.24198/ecodev.v2i2.39107

Zulkharnaim, S. Baco, M. Yusuf, and L. Rahim. 2017. Comparison of body dimension of Bali polled and horned cattle in South Sulawesi. International Journal of Sciences: Basic and Applied Research, *36*(5), 133–139.

Zulkharnaim, S. Baco, M. Yusuf, and L. Rahim. 2020a. Morphological and mating behavioral characteristics polled Bali cattle. IOP Conference Series: Earth and Environmental Science, 492: 012105. https://doi.org/10.1088/1755-1315/492/1/012105

Zulkharnaim, S. Baco, L. Rahim and M. Yusuf. 2020b. Identification of qualitative characteristic Bali polled cattle. Hasanuddin Journal of Animal Science (HAJAS), 2(2): 70-75.

LAMPIRAN

DAFTAR LAMPIRAN

Lampiran 1. Analisis SPSS Data Parameter Mikroklimat

Group Statistics

Periode Pengukuran		N	Mean	Std. Deviation	Std. Error Mean
Suhu Lingkungan	Pagi	4	24.2000	0.52281	0.26141
	Siang	4	32.9000	1.08012	0.54006
Kelembaban	Pagi	4	93.2500	1.75594	0.87797
	Siang	4	67.5000	8.49510	4.24755
Temperature Humidity Index	Pagi	4	74.8575	0.73821	0.36911
	Siang	4	85.1850	0.70623	0.35312

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Suhu Lingkungan	Equal variances assumed	3.097	0.129	-14.500	6	0.000	-8.70000	0.60000	-10.16815	-7.23185
	Equal variances not assumed			-14.500	4.333	0.000	-8.70000	0.60000	-10.31663	-7.08337
Kelembaban	Equal variances assumed	61.038	0.000	5.937	6	0.001	25.75000	4.33734	15.13692	36.36308
	Equal variances not assumed			5.937	3.256	0.008	25.75000	4.33734	12.54052	38.95948
Temperature Humidity Index	Equal variances assumed	0.276	0.618	-20.218	6	0.000	-10.32750	0.51081	-11.57742	-9.07758
	Equal variances not assumed			-20.218	5.988	0.000	-10.32750	0.51081	-11.57801	-9.07699

Lampiran 2. Analisis SPSS Data Parameter Fisiologis

Descriptive Statistics					
Sapi Bali			Mean	Std. Deviation	N
Suhu Rektal	Bertanduk	pagi	37.3500	0.23805	4
		siang	38.3000	0.21602	4
		Total	37.8250	0.54968	8
	Polled	pagi	37.6750	0.26300	4
		siang	38.7250	0.23629	4
		Total	38.2000	0.60710	8
	Total	pagi	37.5125	0.29001	8
		siang	38.5125	0.30909	8
		Total	38.0125	0.59203	16
Suhu Kulit	Bertanduk	pagi	35.6250	0.41932	4
		siang	36.8000	0.08165	4
		Total	36.2125	0.68752	8
	Polled	pagi	35.6750	0.34034	4
		siang	37.3000	0.20000	4
		Total	36.4875	0.90623	8
	Total	pagi	35.6500	0.35456	8
		siang	37.0500	0.30237	8
		Total	36.3500	0.78994	16
Frekuensi Napas	Bertanduk	pagi	21.2500	1.70783	4
		siang	35.2500	0.95743	4
		Total	28.2500	7.59229	8
	Polled	pagi	21.5000	1.73205	4
		siang	37.5000	1.29099	4
		Total	29.5000	8.66850	8
	Total	pagi	21.3750	1.59799	8
		siang	36.3750	1.59799	8
		Total	28.8750	7.89831	16
Denyut Nadi	Bertanduk	pagi	54.7500	8.65544	4
		siang	93.5000	1.91485	4
		Total	74.1250	21.51038	8
	Polled	pagi	55.0000	5.09902	4
		siang	97.5000	5.06623	4
		Total	76.2500	23.19945	8
	Total	pagi	54.8750	6.57783	8
		siang	95.5000	4.14039	8
		Total	75.1875	21.64014	16
Panting Score	Bertanduk	pagi	0.2500	0.50000	4
		siang	1.5000	0.57735	4
		Total	0.8750	0.83452	8
	Polled	pagi	0.5000	0.57735	4
		siang	2.2500	0.50000	4
		Total	1.3750	1.06066	8
	Total	pagi	0.3750	0.51755	8
		siang	1.8750	0.64087	8
		Total	1.1250	0.95743	16

Tests of Between-Subjects Effects						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Suhu Rektal	4.572[a]	3	1.524	26.701	0.000
	Suhu Kulit	8.345[b]	3	2.782	32.887	0.000
	Frekuensi Napas	910.250[c]	3	303.417	142.784	0.000
	Denyut Nadi	6633.688[d]	3	2211.229	67.907	0.000
	Panting Score	10.250[e]	3	3.417	11.714	0.001
Intercept	Suhu Rektal	23119.203	1	23119.203	405007.927	0.000
	Suhu Kulit	21141.160	1	21141.160	249944.749	0.000
	Frekuensi Napas	13340.250	1	13340.250	6277.765	0.000
	Denyut Nadi	90450.563	1	90450.563	2777.752	0.000
	Panting Score	20.250	1	20.250	69.429	0.000
SapiBali	Suhu Rektal	0.563	1	0.563	9.854	0.009
	Suhu Kulit	0.302	1	0.302	3.576	0.083
	Frekuensi Napas	6.250	1	6.250	2.941	0.112
	Denyut Nadi	18.063	1	18.063	0.555	0.471
	Panting Score	1.000	1	1.000	3.429	0.089
Waktu	Suhu Rektal	4.000	1	4.000	70.073	0.000
	Suhu Kulit	7.840	1	7.840	92.690	0.000
	Frekuensi Napas	900.000	1	900.000	423.529	0.000
	Denyut Nadi	6601.563	1	6601.563	202.735	0.000
	Panting Score	9.000	1	9.000	30.857	0.000
SapiBali * Waktu	Suhu Rektal	0.010	1	0.010	0.175	0.683
	Suhu Kulit	0.202	1	0.202	2.394	0.148
	Frekuensi Napas	4.000	1	4.000	1.882	0.195
	Denyut Nadi	14.063	1	14.063	0.432	0.523
	Panting Score	0.250	1	0.250	0.857	0.373
Error	Suhu Rektal	0.685	12	0.057		
	Suhu Kulit	1.015	12	0.085		
	Frekuensi Napas	25.500	12	2.125		
	Denyut Nadi	390.750	12	32.563		
	Panting Score	3.500	12	0.292		
Total	Suhu Rektal	23124.460	16			
	Suhu Kulit	21150.520	16			
	Frekuensi Napas	14276.000	16			
	Denyut Nadi	97475.000	16			
	Panting Score	34.000	16			
Corrected Total	Suhu Rektal	5.257	15			
	Suhu Kulit	9.360	15			
	Frekuensi Napas	935.750	15			
	Denyut Nadi	7024.438	15			
	Panting Score	13.750	15			
a. R Squared = .870 (Adjusted R Squared = .837)						
b. R Squared = .892 (Adjusted R Squared = .864)						
c. R Squared = .973 (Adjusted R Squared = .966)						
d. R Squared = .944 (Adjusted R Squared = .930)						
e. R Squared = .745 (Adjusted R Squared = .682)						

Suhu Rektal

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05		
		1	2	3
Bertanduk-Pagi	4	37.3500		
Polled-pagi	4	37.6750		
Bertanduk-siang	4		38.3000	
polled-siang	4			38.7250
Sig.		.078	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Suhu Permukaan Kulit

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05		
		1	2	3
Bertanduk-Pagi	4	35.6250		
Polled-pagi	4	35.6750		
Bertanduk-siang	4		36.8000	
polled-siang	4			37.3000
Sig.		.812	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Frekuensi Napas

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05		
		1	2	3
Bertanduk-Pagi	4	21.2500		
Polled-pagi	4	21.5000		
Bertanduk-siang	4		35.2500	
polled-siang	4			37.5000
Sig.		.812	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Panting Score

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05	
		1	2
Bertanduk-Pagi	4	.2500	
Polled-pagi	4	.5000	
Bertanduk-siang	4		1.5000
polled-siang	4		2.2500
Sig.		.525	.073

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Lampiran 3. Analisis SPSS Data Parameter Indeks Toleransi Panas

Group Statistics

Sapi Bali		N	Mean	Std. Deviation	Std. Error Mean
IHTC	Sapi Bali Bertanduk	4	82.9000	2.32379	1.16190
	Sapi Bali Polled	4	81.1000	2.32379	1.16190
BCA	Sapi Bali Bertanduk	4	2.6925	0.11087	0.05543
	Sapi Bali Polled	4	2.7750	0.12014	0.06007

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
IHTC	Equal variances assumed	0.000	1.000	1.095	6	0.315	1.80000	1.64317	-2.22069	5.82069
	Equal variances not assumed			1.095	6.000	0.315	1.80000	1.64317	-2.22069	5.82069
BCA	Equal variances assumed	0.003	0.957	-1.009	6	0.352	-0.08250	0.08174	-0.28251	0.11751
	Equal variances not assumed			-1.009	5.962	0.352	-0.08250	0.08174	-0.28282	0.11782

Lampiran 4. Analisis SPSS Data Parameter Hematologis

Descriptive Statistics					
	Sapi Bali	Periode Pengukuran	Mean	Std. Deviation	N
Eritrosit	Bertanduk	pagi	5.4675	.30325	4
		siang	5.2925	.39685	4
		Total	5.3800	.34008	8
	Polled	pagi	7.1075	.39025	4
		siang	6.0625	.34316	4
		Total	6.5850	.65402	8
	Total	pagi	6.2875	.93442	8
		siang	5.6775	.53606	8
		Total	5.9825	.80050	16
Hemoglobin	Bertanduk	pagi	11.6250	.54391	4
		siang	11.2500	1.05987	4
		Total	11.4375	.80523	8
	Polled	pagi	17.2250	.40311	4
		siang	14.3325	1.08730	4
		Total	15.7788	1.72243	8
	Total	pagi	14.4250	3.02596	8
		siang	12.7913	1.92429	8
		Total	13.6081	2.59091	16
Hematokrit	Bertanduk	pagi	33.9250	1.30480	4
		siang	32.8250	2.41713	4
		Total	33.3750	1.89190	8
	Polled	pagi	43.8250	3.20975	4
		siang	40.9500	3.85962	4
		Total	42.3875	3.62784	8
	Total	pagi	38.8750	5.75742	8
		siang	36.8875	5.26781	8
		Total	37.8813	5.42884	16
MCV	Bertanduk	pagi	62.2500	3.41614	4
		siang	62.2000	3.93446	4
		Total	62.2250	3.41122	8
	Polled	pagi	61.8250	5.87445	4
		siang	67.7500	6.91881	4
		Total	64.7875	6.73317	8
	Total	pagi	62.0375	4.45451	8
		siang	64.9750	5.99589	8
		Total	63.5063	5.32334	16
MCH	Bertanduk	pagi	21.2250	.83417	4
		siang	21.2000	1.20277	4
		Total	21.2125	.95833	8
	Polled	pagi	24.2500	1.04083	4
		siang	23.6250	1.63580	4
		Total	23.9375	1.31251	8
	Total	pagi	22.7375	1.83765	8
		siang	22.4125	1.85660	8
		Total	22.5750	1.79239	16
MCHC	Bertanduk	pagi	34.2250	.93586	4
		siang	34.2000	1.32162	4
		Total	34.2125	1.06024	8
	Polled	pagi	39.4500	3.22955	4
		siang	35.0500	1.39164	4
		Total	37.2500	3.29111	8
	Total	pagi	36.8375	3.55606	8
		siang	34.6250	1.33604	8
		Total	35.7312	2.83542	16
Leukosit	Bertanduk	pagi	12.6500	3.80745	4
		siang	11.7250	3.35298	4
		Total	12.1875	3.35791	8
	Polled	pagi	13.5500	2.05020	4
		siang	13.2500	2.93087	4
		Total	13.4000	2.34703	8
	Total	pagi	13.1000	2.87154	8
		siang	12.4875	3.02723	8
		Total	12.7938	2.86786	16

Tests of Between-Subjects Effects						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
;Corrected Model	Eritrosit	8.053[a]	3	2.684	20.670	0.000
	Hemoglobin	92.400[b]	3	30.800	44.575	0.000
	Hematokrit	343.852[c]	3	114.617	14.002	0.000
	MCV	96.482[d]	3	32.161	1.175	0.360
	MCH	30.485[e]	3	10.162	6.887	0.006
	MCHC	75.627[f]	3	25.209	6.727	0.006
	Leukosit	7.772[g]	3	2.591	0.269	0.847
Intercept	Eritrosit	572.645	1	572.645	4409.200	0.000
	Hemoglobin	2962.897	1	2962.897	4288.008	0.000
	Hematokrit	22959.826	1	22959.826	2804.753	0.000
	MCV	64528.701	1	64528.701	2356.585	0.000
	MCH	8154.090	1	8154.090	5526.635	0.000
	MCHC	20427.556	1	20427.556	5451.285	0.000
	Leukosit	2618.881	1	2618.881	271.862	0.000
SapiBali	Eritrosit	5.808	1	5.808	44.721	0.000
	Hemoglobin	75.386	1	75.386	109.101	0.000
	Hematokrit	324.901	1	324.901	39.690	0.000
	MCV	26.266	1	26.266	0.959	0.347
	MCH	29.703	1	29.703	20.132	0.001
	MCHC	36.906	1	36.906	9.849	0.009
	Leukosit	5.881	1	5.881	0.610	0.450
Waktu	Eritrosit	1.488	1	1.488	11.460	0.005
	Hemoglobin	10.677	1	10.677	15.451	0.002
	Hematokrit	15.801	1	15.801	1.930	0.190
	MCV	34.516	1	34.516	1.261	0.284
	MCH	0.423	1	0.423	0.286	0.602
	MCHC	19.581	1	19.581	5.225	0.041
	Leukosit	1.501	1	1.501	0.156	0.700
SapiBali * Waktu	Eritrosit	0.757	1	0.757	5.828	0.033
	Hemoglobin	6.338	1	6.338	9.172	0.010
	Hematokrit	3.151	1	3.151	0.385	0.547
	MCV	35.701	1	35.701	1.304	0.276
	MCH	0.360	1	0.360	0.244	0.630
	MCHC	19.141	1	19.141	5.108	0.043
	Leukosit	0.391	1	0.391	0.041	0.844
Error	Eritrosit	1.559	12	0.130		
	Hemoglobin	8.292	12	0.691		
	Hematokrit	98.233	12	8.186		
	MCV	328.588	12	27.382		
	MCH	17.705	12	1.475		
	MCHC	44.968	12	3.747		
	Leukosit	115.598	12	9.633		
Total	Eritrosit	582.257	16			

	Hemoglobin	3063.589	16			
	Hematokrit	23401.910	16			
	MCV	64953.770	16			
	MCH	8202.280	16			
	MCHC	20548.150	16			
	Leukosit	2742.250	16			
Corrected Total	Eritrosit	9.612	15			
	Hemoglobin	100.692	15			
	Hematokrit	442.084	15			
	MCV	425.069	15			
	MCH	48.190	15			
	MCHC	120.594	15			
	Leukosit	123.369	15			

a. R Squared = .838 (Adjusted R Squared = .797)

b. R Squared = .918 (Adjusted R Squared = .897)

c. R Squared = .778 (Adjusted R Squared = .722)

d. R Squared = .227 (Adjusted R Squared = .034)

e. R Squared = .633 (Adjusted R Squared = .541)

f. R Squared = .627 (Adjusted R Squared = .534)

g. R Squared = .063 (Adjusted R Squared = -.171)

Eritrosit

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05		
		1	2	3
Bertanduk-siang	4	5.2925		
Bertanduk-Pagi	4	5.4675		
polled-siang	4		6.0625	
Polled-pagi	4			7.1075
Sig.		.505	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Hemoglobin

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05		
		1	2	3
Bertanduk-siang	4	11.2500		
Bertanduk-Pagi	4	11.6250		
polled-siang	4		14.3325	
Polled-pagi	4			17.2250
Sig.		.535	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Hematokrit

Duncan[a]

Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05	
		1	2
Bertanduk-siang	4	32.8250	
Bertanduk-Pagi	4	33.9250	
polled-siang	4		40.9500
Polled-pagi	4		43.8250
Sig.		.597	.181

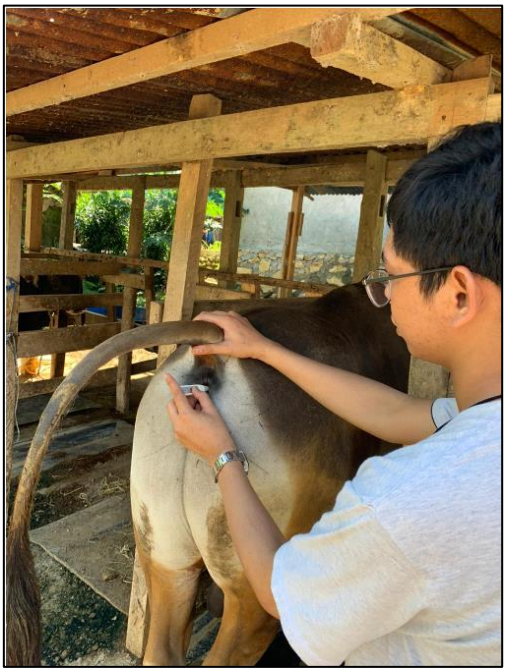
Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

MCH			
Duncan[a]			
Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05	
		1	2
Bertanduk-siang	4	21.2000	
Bertanduk-Pagi	4	21.2250	
polled-siang	4		23.6250
Polled-pagi	4		24.2500
Sig.		.977	.481
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 4.000.			

MCHC			
Duncan[a]			
Sapi Bali dan Periode Pengukuran	N	Subset for alpha = 0.05	
		1	2
Bertanduk-siang	4	34.2000	
Bertanduk-Pagi	4	34.2250	
polled-siang	4	35.0500	
Polled-pagi	4		39.4500
Sig.		.566	1.000
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 4.000.			

Lampiran 5. Dokumentasi Penelitian

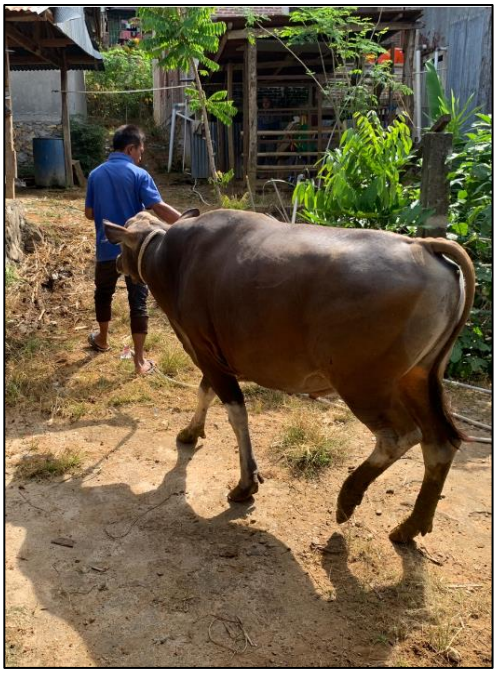



1. Pengukuran Suhu Rektal


2. Pengukuran Suhu Permukaan Kulit

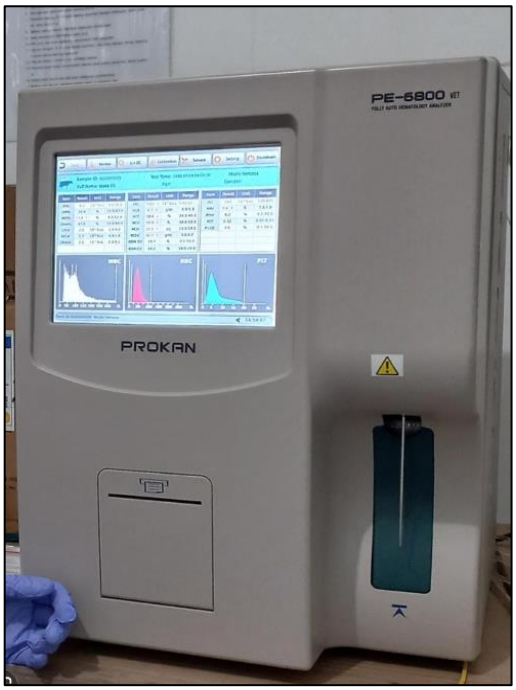
3. Pengukuran Frekuensi Napas dan Pengamatan *Panting Score*

4. Pengukuran Denyut Nadi



5. *Exercise* sapi Bali bertanduk dan *polled* pada siang hari


6. Pengambilan Koleksi Sampel Darah



7. Alat *Hematology Analyzer* (Prokan Model PE-6800 Vet)

RIWAYAT HIDUP

A. DATA PRIBADI

Nama	:	Sukandi
Tempat, Tanggal lahir	:	Takalar, 27 Oktober 1994
Alamat	:	Makassar
Suku	:	Makassar
Kewarganegaraan	:	Indonesia

B. RIWAYAT PENDIDIKAN

1. Tamat SD Tahun 2006 di SD Inpres No. 117 Buludoang, Kabupaten Jeneponto
2. Tamat SLTP Tahun 2009 di SMP Negeri 2 Mangarabombang, Kabupaten Takalar
3. Tamat SLTA Tahun 2012 di SMA Negeri 3 Takalar
4. Sarjana (S1) Tahun 2016 di Program Studi Peternakan Fakultas Peternakan Universitas Hasanuddin
5. Magister (S2) Tahun 2023 di Program Magister Ilmu dan Teknologi Peternakan, Fakultas Peternakan, Universitas Hasanuddin, Makassar

C. RIWAYAT PEKERJAAN

1. Supervisor Produksi pada Poultry Breeding Division, PT. Japfa Comfeed Indonesia Tbk. (2017-2021)
2. Aparatur Sipil Negara (ASN) pada Dinas Peternakan dan Kesehatan Hewan Provinsi Sulawesi Selatan (2022-sekarang)

D. KARYA ILMIAH YANG TELAH DIPUBLIKASIKAN

1. Sukandi S, Rahardja DP, Sonjaya H, Hasbi H, Baco S, Gustina S, Adiputra KDD (2023). Effect of heat stress on the physiological and hematological profiles of horned and polled Bali cattle. Adv. Anim. Vet. Sci., 11(6):893-902
2. Adiputra KKD, Sukandi S, Farida S, Sonjaya H, Hasbi H (2023). Progressive motility, DNA fragmentation, intact plasma membrane, and acrosome status of frozen semen Bali and Simmental bulls. Hasanuddin J. Anim. Sci., 4(2):109-118