Adkins, P. R. F., S. Dufour, J. N. Spain, M. J. Calcutt, T. J. Reilly, G. C. Stewart, and J. R. Middleton. 2018. Molecular characterization of non-*aureus* *Staphylococcus* spp. from heifer intramammary infections and body sites. J. Dairy Sci. 101(6):5388-5403.

Adkins, P. R. F., L. M. Placheta, M. R. Borchers, J. M. Bewley, and J. R. Middleton. 2022. Distribution of staphylococcal and mammaliicoccal species from compost-bedded pack or sand-bedded freestall dairy farms. J Dairy Sci 105(7):6261-6270.

Albino, R. L., J. L. Taraba, M. I. Marcondes, E. A. Eckelkamp, and J. M. Bewley. 2018. Comparison of bacterial populations in bedding material, on teat ends, and in milk of cows housed in compost bedded pack barns J. Animal Production Science 58(9):1686-1691.

Alcock, B. P., A. R. Raphenya, T. T. Y. Lau, K. K. Tsang, M. Bouchard, A. Edalatmand, W. Huynh, A. V. Nguyen, A. A. Cheng, S. Liu, S. Y. Min, A. Miroshnichenko, H. K. Tran, R. E. Werfalli, J. A. Nasir, M. Oloni, D. J. Speicher, A. Florescu, B. Singh, M. Faltyn, A. Hernandez-Koutoucheva, A. N. Sharma, E. Bordeleau, A. C. Pawlowski, H. L. Zubyk, D. Dooley, E. Griffiths, F. Maguire, G. L. Winsor, R. G. Beiko, F. S. L. Brinkman, W. W. L. Hsiao, G. V. Domselaar, and A. G. McArthur. 2020. CARD 2020: antibiotic resistome surveillance with the comprehensive antibiotic resistance database. Nucleic Acids Res 48(D1):D517-d525.

Alexander, T. W., L. J. Yanke, E. Topp, M. E. Olson, R. R. Read, D. W. Morck, and T. A. McAllister. 2008. Effect of subtherapeutic administration of antibiotics on the prevalence of antibiotic-resistant *Escherichia coli* bacteria in feedlot cattle. Appl Environ Microbiol 74(14):4405-4416.

Andrade, R. R., I. F. F. Tinôco, F. A. Damasceno, G. Ferraz, L. Freitas, C. F. S. Ferreira, M. Barbari, F. J. F. Baptista, and D. J. R. Coelho. 2022. Spatial distribution of bed variables, animal welfare indicators, and milk production in a closed compost-bedded pack barn with a negative tunnel ventilation system. J Therm Biol 105:103111.

Andrews, T., C. E. Jeffrey, R. E. Gilker, D. A. Neher, and J. W. Barlow. 2021. Design and implementation of a survey quantifying winter housing and bedding types used on Vermont organic dairy farms. J. Dairy Sci. 104(7):8326-8337.

Åvall-Jääskeläinen, S., J. Koort, H. Simojoki, and S. Taponen. 2013. Bovine-associated CNS species resist phagocytosis differently. BMC Veterinary Research 9(1):227.

Åvall-Jääskeläinen, S., S. Taponen, R. Kant, L. Paulin, J. Blom, A. Palva, and J. Koort. 2018. Comparative genome analysis of 24 bovine-associated *Staphylococcus* isolates with special focus on the putative virulence genes. PeerJ 6:e4560.

Bagcigil, A. F., S. Taponen, J. Koort, B. Bengtsson, A.-L. Myllyniemi, and S. Pyörälä. 2012. Genetic basis of penicillin resistance of *S. aureus* isolated in bovine mastitis. Acta Veterinaria Scandinavica 54(1):69.

Bankevich, A., S. Nurk, D. Antipov, A. A. Gurevich, M. Dvorkin, A. S. Kulikov, V. M. Lesin, S. I. Nikolenko, S. Pham, A. D. Prjibelski, A. V. Pyshkin, A. V. Sirotkin, N. Vyahhi, G. Tesler, M. A. Alekseyev, and P. A. Pevzner. 2012. SPAdes: a new genome assembly algorithm and its applications to single-cell sequencing. J Comput Biol 19(5):455-477.

Barberg, A., M. Endres, and K. Janni. 2007a. Compost Dairy Barns in Minnesota: A Descriptive Study. Applied Engineering in Agriculture 23:231-238.

Barberg, A. E., M. I. Endres, J. A. Salfer, and J. K. Reneau. 2007b. Performance and welfare of dairy cows in an alternative housing system in Minnesota. J Dairy Sci 90(3):1575-1583.

Barkema, H. W., Y. H. Schukken, T. J. Lam, M. L. Beiboer, G. Benedictus, and A. Brand. 1998. Management practices associated with low, medium, and high somatic cell counts in bulk milk. J. Dairy Sci 81(7):1917-1927.

Barkema, H. W., M. A. von Keyserlingk, J. P. Kastelic, T. J. Lam, C. Luby, J. P. Roy, S. J. LeBlanc, G. P. Keefe, and D. F. Kelton. 2015. Invited review: Changes in the dairy industry affecting dairy cattle health and welfare. J Dairy Sci 98(11):7426-7445.

Bennedsgaard, T. W., S. M. Thamsborg, F. M. Aarestrup, C. Enevoldsen, M. Vaarst, and A. B. Christoffersen. 2006. Resistance to penicillin of *Staphylococcus aureus* isolates from cows with high somatic cell counts in organic and conventional dairy herds in Denmark. Acta Vet Scand 48(1):24.

Berge, A. C., W. B. Epperson, and R. H. Pritchard. 2005. Assessing the effect of a single dose florfenicol treatment in feedlot cattle on the antimicrobial resistance patterns in faecal *Escherichia coli*. Vet Res 36(5-6):723-734.

Bewley, J., J. Taraba, G. Day, R. Black, and F. Damasceno. 2012. Compost Bedded Pack Barn Design: Features and Management Considerations. University of Kentucky Cooperative Extension Service Publication ID.

Bewley, J. M., L. M. Robertson, and E. A. Eckelkamp. 2017. A 100-Year Review: Lactating dairy cattle housing management. J. Dairy Sci. 100(12):10418-10431.

Bickert, W. G., B. Holmes, K. A. Janni, D. Kammel, R. Stowell, and J. M. Zulovich. 2000. Dairy freestall housing and equipment. Pages 27–45 in Designing Facilities for the Milking Herd. 7th ed., Mid-West Plan Service, Iowa State University, Ames.

Black, R. A., J. L. Taraba, G. B. Day, F. A. Damasceno, and J. M. Bewley. 2013. Compost bedded pack dairy barn management, performance, and producer satisfaction. J Dairy Sci 96(12):8060-8074.

Black, R. A., J. L. Taraba, G. B. Day, F. A. Damasceno, M. C. Newman, K. A. Akers, C. L. Wood, K. J. McQuerry, and J. M. Bewley. 2014. The relationship between compost bedded pack performance, management, and bacterial counts. J Dairy Sci 97(5):2669-2679.

Bolger, A. M., M. Lohse, and B. Usadel. 2014. Trimmomatic: a flexible trimmer for Illumina sequence data. Bioinformatics 30(15):2114-2120.

Bombyk, R. A., A. L. Bykowski, C. E. Draper, E. J. Savelkoul, L. R. Sullivan, and T. J. Wyckoff. 2008. Comparison of types and antimicrobial susceptibility of *Staphylococcus* from conventional and organic dairies in west-central Minnesota, USA. J Appl Microbiol 104(6):1726-1731.

Bonin, N., E. Doster, H. Worley, L. J. Pinnell, J. E. Bravo, P. Ferm, S. Marini, M. Prosperi, N. Noyes, P. S. Morley, and C. Boucher. 2023. MEGARes and AMR++, v3.0: an updated comprehensive database of antimicrobial resistance determinants and an improved software pipeline for classification using high-throughput sequencing. Nucleic Acids Res 51(D1):D744-d752.

Bortolaia, V., R. S. Kaas, E. Ruppe, M. C. Roberts, S. Schwarz, V. Cattoir, A. Philippon, R. L. Allesoe, A. R. Rebelo, A. F. Florensa, L. Fagelhauer, T. Chakraborty, B. Neumann, G. Werner, J. K. Bender, K. Stingl, M. Nguyen, J. Coppens, B. B. Xavier, S. Malhotra-Kumar, H. Westh, M. Pinholt, M. F. Anjum, N. A. Duggett, I. Kempf, S. Nykäsenoja, S. Olkkola, K. Wieczorek, A. Amaro, L. Clemente, J. Mossong, S. Losch, C. Ragimbeau, O. Lund, and F. M. Aarestrup. 2020. ResFinder 4.0 for predictions of phenotypes from genotypes. J Antimicrob Chemother 75(12):3491-3500.

Breyne, K., S. De Vliegher, A. De Visscher, S. Piepers, and E. Meyer. 2015. Technical note: a pilot study using a mouse mastitis model to study differences between bovine associated coagulase-negative staphylococci. J Dairy Sci 98(2):1090-1100.

Burgstaller, J., J. Raith, S. Kuchling, V. Mandl, A. Hund, and J. Kofler. 2016. Claw health and prevalence of lameness in cows from compost bedded and cubicle freestall dairy barns in Austria. The Veterinary Journal 216.

Busato, A., P. Trachsel, M. Schällibaum, and J. W. Blum. 2000. Udder health and risk factors for subclinical mastitis in organic dairy farms in Switzerland. Prev Vet Med 44(3-4):205-220.

Calamari, L., F. Calegari, and L. Stefanini. 2009. Effect of different free stall surfaces on behavioural, productive and metabolic parameters in dairy cows. Applied Animal Behaviour Science 120:9-17.

Call, D. R., M. A. Davis, and A. A. Sawant. 2008. Antimicrobial resistance in beef and dairy cattle production. Anim Health Res Rev 9(2):159-167.

Camacho, C., G. Coulouris, V. Avagyan, N. Ma, J. Papadopoulos, K. Bealer, and T. L. Madden. 2009. BLAST+: architecture and applications. BMC Bioinformatics 10(1):421.

Cameron, M., H. W. Barkema, J. De Buck, S. De Vliegher, M. Chaffer, J. Lewis, and G. P. Keefe. 2017. Identification of bovine-associated coagulase-negative staphylococci by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry using a direct transfer protocol. J. Dairy Sci. 100(3):2137-2147.

Chambers, H. F. 2001. Antimicrobial agents: General considerations. Pages 1143-1170 in Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e. J. G. Hardman, Limbird, L.E., ed. McGraw-Hill Education, New York, NY.

Chen, L., D. Zheng, B. Liu, J. Yang, and Q. Jin. 2016. VFDB 2016: hierarchical and refined dataset for big data analysis—10 years on. Nucleic Acids Research 44(D1):D694-D697.

Cicconi-Hogan, K. M., N. Belomestnykh, M. Gamroth, P. L. Ruegg, L. Tikofsky, and Y. H. Schukken. 2014. Short communication: Prevalence of methicillin resistance in coagulase-negative staphylococci and *Staphylococcus aureus* isolated from bulk milk on organic and conventional dairy farms in the United States. J Dairy Sci 97(5):2959-2964.

Condas, L. A. Z., J. De Buck, D. B. Nobrega, D. A. Carson, S. Naushad, S. De Vliegher, R. N. Zadoks, J. R. Middleton, S. Dufour, J. P. Kastelic, and H. W. Barkema. 2017a. Prevalence of non-*aureus* staphylococci species causing intramammary infections in Canadian dairy herds. J Dairy Sci 100(7):5592-5612.

Condas, L. A. Z., J. De Buck, D. B. Nobrega, D. A. Carson, J. P. Roy, G. P. Keefe, T. J. DeVries, J. R. Middleton, S. Dufour, and H. W. Barkema. 2017b. Distribution of non-*aureus* staphylococci species in udder quarters with low and high somatic cell count, and clinical mastitis. J Dairy Sci 100(7):5613-5627.

Cook, N. B. 2002. Influence of Barn Design on Dairy Cow Hygiene, Lameness and Udder Health. American Association of Bovine Practitioners Conference Proceedings:97-103.

Cook, N. B., T. B. Bennett, and K. V. Nordlund. 2005. Monitoring Indices of Cow Comfort in Free-Stall-Housed Dairy Herds. J. Dairy Sci. 88(11):3876-3885.

Cook, N. B., J. P. Hess, M. R. Foy, T. B. Bennett, and R. L. Brotzman. 2016. Management characteristics, lameness, and body injuries of dairy cattle housed in high-performance dairy herds in Wisconsin. J Dairy Sci 99(7):5879-5891.

Costa, J. H. C., T. A. Burnett, M. A. G. von Keyserlingk, and M. J. Hötzel. 2018. Prevalence of lameness and leg lesions of lactating dairy cows housed in southern Brazil: Effects of housing systems. J Dairy Sci 101(3):2395-2405.

Cuny, C., P. Arnold, J. Hermes, T. Eckmanns, J. Mehraj, S. Schoenfelder, W. Ziebuhr, Q. Zhao, Y. Wang, A. T. Feßler, G. Krause, S. Schwarz, and W. Witte. 2017. Occurrence of cfr-mediated multiresistance in staphylococci from veal calves and pigs, from humans at the corresponding farms, and from veterinarians and their family members. Vet Microbiol 200:88-94.

The Dairyland Initiative: School of Veterinary Medicine, Univeristy of Wisconsin-Madison. Housing Module: Adult Cow Housing, Bedded Packs. University of Wisconsin-Madison. Accessed March 18, 2024. https://thedairylandinitiative.vetmed.wisc.edu/home/housing-module/adult-cow-housing/bedded-pack/.

De Buck, J., V. Ha, S. Naushad, D. B. Nobrega, C. Luby, J. R. Middleton, S. De Vliegher, and H. W. Barkema. 2021. Non-*aureus* Staphylococci and Bovine Udder Health: Current Understanding and Knowledge Gaps. Frontiers in Veterinary Science 8.

de Campos, J. L., A. Kates, A. Steinberger, A. Sethi, G. Suen, J. Shutske, N. Safdar, T. Goldberg, and P. L. Ruegg. 2021. Quantification of antimicrobial usage in adult cows and preweaned calves on 40 large Wisconsin dairy farms using dose-based and mass-based metrics. J Dairy Sci 104(4):4727-4745.

de Pinho Manzi, M., D. B. Nóbrega, P. Y. Faccioli, M. Z. Troncarelli, B. D. Menozzi, and H. Langoni. 2012. Relationship between teat-end condition, udder cleanliness and bovine subclinical mastitis. Res Vet Sci 93(1):430-434.

De Visscher, A., S. Piepers, F. Haesebrouck, and S. De Vliegher. 2016. Intramammary infection with coagulase-negative staphylococci at parturition: Species-specific prevalence, risk factors, and effect on udder health. J Dairy Sci 99(8):6457-6469.

De Visscher, A., S. Piepers, F. Haesebrouck, K. Supre, and S. De Vliegher. 2017. Coagulase-negative *Staphylococcus* species in bulk milk: Prevalence, distribution, and associated subgroup- and species-specific risk factors. J Dairy Sci 100(1):629-642.

de Vries, M., E. A. Bokkers, C. G. van Reenen, B. Engel, G. van Schaik, T. Dijkstra, and I. J. de Boer. 2015. Housing and management factors associated with indicators of dairy cattle welfare. Prev Vet Med 118(1):80-92.

Dimitri, C. and R. Nehring. 2022. Thirty years of organic dairy in the United States: the influences of farms, the market and the organic regulation. Renewable Agriculture and Food Systems 37(6):588-602.

Dohmen, W., F. Neijenhuis, and H. Hogeveen. 2010. Relationship between udder health and hygiene on farms with an automatic milking system. J Dairy Sci 93(9):4019-4033.

Dohoo, I., S. Andersen, R. Dingwell, K. Hand, D. Kelton, K. Leslie, Y. Schukken, and S. Godden. 2011. Diagnosing intramammary infections: Comparison of multiple versus single quarter milk samples for the identification of intramammary infections in lactating dairy cows. J. Dairy Sci. 94(11):5515-5522.

Dolder, C., B. H. P. van den Borne, J. Traversari, A. Thomann, V. Perreten, and M. Bodmer. 2017. Quarter- and cow-level risk factors for intramammary infection with coagulase-negative staphylococci species in Swiss dairy cows. J Dairy Sci 100(7):5653-5663.

Dufour, S., I. R. Dohoo, H. W. Barkema, L. Descôteaux, T. J. Devries, K. K. Reyher, J. P. Roy, and D. T. Scholl. 2012. Epidemiology of coagulase-negative staphylococci intramammary infection in dairy cattle and the effect of bacteriological culture misclassification. J Dairy Sci 95(6):3110-3124.

Eberhart, R. J. 1984. Coliform Mastitis. Veterinary Clinics of North America: Large Animal Practice 6(2):287-300.

Eckelkamp, E. A., J. L. Taraba, K. A. Akers, R. J. Harmon, and J. M. Bewley. 2016a. Sand bedded freestall and compost bedded pack effects on cow hygiene, locomotion, and mastitis indicators. Livestock Science 190:48-57.

Eckelkamp, E. A., J. L. Taraba, K. A. Akers, R. J. Harmon, and J. M. Bewley. 2016b. Understanding compost bedded pack barns: Interactions among environmental factors, bedding characteristics, and udder health. Livestock Science 190:35-42.

Elmoslemany, A. M., G. P. Keefe, I. R. Dohoo, and B. M. Jayarao. 2009. Risk factors for bacteriological quality of bulk tank milk in Prince Edward Island dairy herds. Part 1: overall risk factors. J Dairy Sci 92(6):2634-2643.

European Commission: Organic production and products. 2024. Accessed June 7, 2024. https://agriculture.ec.europa.eu/farming/organic-farming/organic-production-and-products\_en.

Fairchild, T. P., B. J. McArthur, J. H. Moore, and W. E. Hylton. 1982. Coliform Counts in Various Bedding Materials. J. Dairy Sci. 65(6):1029-1035.

FARM. 2020. Farmers Asssuring Responsible Management: Milk and dairy beef drug residue prevention reference manual 2020. Accessed July 15, 2024. https://nationaldairyfarm.com/wp-content/uploads/2018/10/DRM2020-Web.pdf.

Fávero, S., F. V. R. Portilho, A. C. R. Oliveira, H. Langoni, and J. C. F. Pantoja. 2015. Factors associated with mastitis epidemiologic indexes, animal hygiene, and bulk milk bacterial concentrations in dairy herds housed on compost bedding. Livestock Science 181:220-230.

Feldgarden, M., V. Brover, N. Gonzalez-Escalona, J. G. Frye, J. Haendiges, D. H. Haft, M. Hoffmann, J. B. Pettengill, A. B. Prasad, G. E. Tillman, G. H. Tyson, and W. Klimke. 2021. AMRFinderPlus and the Reference Gene Catalog facilitate examination of the genomic links among antimicrobial resistance, stress response, and virulence. Sci Rep 11(1):12728.

Fergestad, M. E., A. De Visscher, T. L'Abee-Lund, C. N. Tchamba, J. G. Mainil, D. Thiry, S. De Vliegher, and Y. Wasteson. 2021a. Antimicrobial resistance and virulence characteristics in 3 collections of staphylococci from bovine milk samples. J. Dairy Sci. 104(9):10250-10267.

Fergestad, M. E., F. Touzain, S. De Vliegher, A. De Visscher, D. Thiry, C. Ngassam Tchamba, J. G. Mainil, T. L’Abee-Lund, Y. Blanchard, and Y. Wasteson. 2021b. Whole Genome Sequencing of Staphylococci Isolated From Bovine Milk Samples. Frontiers in Microbiology 12.

Feßler, A., K. Kadlec, Y. Wang, W.-J. Zhang, C. Wu, J. Shen, and S. Schwarz. 2018. Small Antimicrobial Resistance Plasmids in Livestock-Associated Methicillin-Resistant *Staphylococcus aureus* CC398. Frontiers in Microbiology 9.

Fitzgerald, J. R., W. J. Meaney, P. J. Hartigan, C. J. Smyth, and V. Kapur. 1997. Fine-structure molecular epidemiological analysis of *Staphylococcus aureus* recovered from cows. Epidemiology and Infection 119(2):261-269.

Foley, J. E., S. J. Spier, J. Mihalyi, N. Drazenovich, and C. M. Leutenegger. 2004. Molecular epidemiologic features of *Corynebacterium pseudotuberculosis* isolated from horses. Am J Vet Res 65(12):1734-1737.

França, A., V. Gaio, N. Lopes, and L. D. R. Melo. 2021. Virulence Factors in Coagulase-Negative Staphylococci. Pathogens 10(2):170.

Fregonesi, J. A. and J. D. Leaver. 2001. Behaviour, performance and health indicators of welfare for dairy cows housed in strawyard or cubicle systems. Livestock Production Science 68(2):205-216.

Freu, G., B. L. Garcia, T. Tomazi, G. S. Di Leo, L. S. Gheller, V. Bronzo, P. Moroni, and M. V. Dos Santos. 2023. Association between Mastitis Occurrence in Dairy Cows and Bedding Characteristics of Compost-Bedded Pack Barns. Pathogens. doi:10.3390/pathogens12040583.

Freu, G., T. Tomazi, A. F. S. Filho, M. B. Heinemann, and M. V. Dos Santos. 2022. Antimicrobial Resistance and Molecular Characterization of *Staphylococcus aureus* Recovered from Cows with Clinical Mastitis in Dairy Herds from Southeastern Brazil. Antibiotics 11(4):424.

Frey, Y., J. P. Rodriguez, A. Thomann, S. Schwendener, and V. Perreten. 2013. Genetic characterization of antimicrobial resistance in coagulase-negative staphylococci from bovine mastitis milk. J. Dairy Sci. 96(4):2247-2257.

Fry, P. R., J. R. Middleton, S. Dufour, J. Perry, D. Scholl, and I. Dohoo. 2014. Association of coagulase-negative staphylococcal species, mammary quarter milk somatic cell count, and persistence of intramammary infection in dairy cattle. J Dairy Sci 97(8):4876-4885.

Fukiya, S., H. Mizoguchi, T. Tobe, and H. Mori. 2004. Extensive genomic diversity in pathogenic *Escherichia coli* and *Shigella* Strains revealed by comparative genomic hybridization microarray. J Bacteriol 186(12):3911-3921.

Garmo, R. T., S. Waage, S. Sviland, B. I. Henriksen, O. Østerås, and O. Reksen. 2010. Reproductive Performance, Udder Health, and Antibiotic Resistance in Mastitis Bacteria isolated from Norwegian Red cows in Conventional and Organic Farming. Acta Veterinaria Scandinavica 52(1):11.

Garrine, M., S. S. Costa, A. Messa, S. Massora, D. Vubil, S. Ácacio, T. Nhampossa, Q. Bassat, I. Mandomando, and I. Couto. 2023. Antimicrobial resistance and clonality of *Staphylococcus aureus* causing bacteraemia in children admitted to the Manhiça District Hospital, Mozambique, over two decades. Frontiers in Microbiology 14.

Gillespie, B. E., S. I. Headrick, S. Boonyayatra, and S. P. Oliver. 2009. Prevalence and persistence of coagulase-negative *Staphylococcus* species in three dairy research herds. Vet Microbiol 134(1-2):65-72.

Godkin, M. A. and K. E. Leslie. 1993. Culture of bulk tank milk as a mastitis screening test: A brief review. Can Vet J 34(10):601-605.

Gonçalves, J. L., C. Kamphuis, H. Vernooij, J. P. Araújo, R. C. Grenfell, L. Juliano, K. L. Anderson, H. Hogeveen, and M. V. Dos Santos. 2020. Pathogen effects on milk yield and composition in chronic subclinical mastitis in dairy cows. The Veterinary Journal 262:105473.

Grodkowski, G., M. Gołębiewski, J. Slósarz, K. Grodkowska, P. Kostusiak, T. Sakowski, and K. Puppel. 2023. Organic Milk Production and Dairy Farming Constraints and Prospects under the Laws of the European Union. Animals 13(9):1457.

Hamilton, C., U. Emanuelson, K. Forslund, I. Hansson, and T. Ekman. 2006. Mastitis and related management factors in certified organic dairy herds in Sweden. Acta Vet Scand 48(1):11.

Hand, K. J., A. Godkin, and D. F. Kelton. 2012. Milk production and somatic cell counts: A cow-level analysis. J. Dairy Sci. 95(3):1358-1362.

Hardeng, F. and V. L. Edge. 2001. Mastitis, Ketosis, and Milk Fever in 31 Organic and 93 Conventional Norwegian Dairy Herds. J. Dairy Sci. 84(12):2673-2679.

Haveri, M., A. Roslöf, L. Rantala, and S. Pyörälä. 2007. Virulence genes of bovine *Staphylococcus aureus* from persistent and nonpersistent intramammary infections with different clinical characteristics. J Appl Microbiol 103(4):993-1000.

Haveri, M., S. Taponen, J. Vuopio-Varkila, S. Salmenlinna, and S. PyöRäLä. 2005. Bacterial Genotype Affects the Manifestation and Persistence of Bovine *Staphylococcus aureus* Intramammary Infection. Journal of Clinical Microbiology 43(2):959-961.

Haw, S. R., P. R. F. Adkins, V. Bernier Gosselin, S. E. Poock, and J. R. Middleton. 2024. Intramammary infections in lactating Jersey cows: Prevalence of microbial organisms and association with milk somatic cell count and persistence of infection. J. Dairy Sci. 107(5):3157-3167.

Heikkilä, A. M., E. Liski, S. Pyörälä, and S. Taponen. 2018. Pathogen-specific production losses in bovine mastitis. J. Dairy Sci. 101(10):9493-9504.

Heins, B. J., L. S. Sjostrom, M. I. Endres, M. R. Carillo, R. King, R. D. Moon, and U. S. Sorge. 2019. Effects of winter housing systems on production, economics, body weight, body condition score, and bedding cultures for organic dairy cows. J Dairy Sci 102(1):706-714.

Hogan, J. and K. L. Smith. 2012. Managing environmental mastitis. Vet Clin North Am Food Anim Pract 28(2):217-224.

Hogan, J. S. and K. L. Smith. 1997. Bacteria counts in sawdust bedding. J Dairy Sci 80(8):1600-1605.

Hogan, J. S., K. L. Smith, K. H. Hoblet, D. A. Todhunter, P. S. Schoenberger, W. D. Hueston, D. E. Pritchard, G. L. Bowman, L. E. Heider, B. L. Brockett, and H. R. Conrad. 1989. Bacterial Counts in Bedding Materials Used on Nine Commercial Dairies. J. Dairy Sci. 72(1):250-258.

Hogan, J. S., D. G. White, and J. W. Pankey. 1987. Effects of teat dipping on intramammary infections by staphylococci other than *Staphylococcus aureus*. J Dairy Sci 70(4):873-879.

Holly, M. A., P. J. Kleinman, R. B. Bryant, D. L. Bjorneberg, C. A. Rotz, J. M. Baker, M. V. Boggess, D. K. Brauer, R. Chintala, G. W. Feyereisen, J. D. Gamble, A. B. Leytem, K. F. Reed, P. A. Vadas, and H. M. Waldrip. 2018. Short communication: Identifying challenges and opportunities for improved nutrient management through the USDA's Dairy Agroecosystem Working Group. J Dairy Sci 101(7):6632-6641.

Huebner, R., R. Mugabi, G. Hetesy, L. Fox, S. De Vliegher, A. De Visscher, J. W. Barlow, and G. Sensabaugh. 2021. Characterization of genetic diversity and population structure within *Staphylococcus chromogenes* by multilocus sequence typing. PLoS One 16(3):e0243688.

Hwang, S. M., M. S. Kim, K. U. Park, J. Song, and E. C. Kim. 2011. Tuf gene sequence analysis has greater discriminatory power than 16S rRNA sequence analysis in identification of clinical isolates of coagulase-negative staphylococci. J Clin Microbiol 49(12):4142-4149.

Hyvönen, P., S. Käyhkö, S. Taponen, A. von Wright, and S. Pyörälä. 2009. Effect of bovine lactoferrin on the internalization of coagulase-negative staphylococci into bovine mammary epithelial cells under in-vitro conditions. J Dairy Res 76(2):144-151.

Janni, K., M. Endres, J. Reneau, and W. Schoper. 2007. Compost Dairy Barn Layout and Management Recommendations. Applied Engineering in Agriculture 23(1):97-102.

Jayarao, B. M., S. R. Pillai, A. A. Sawant, D. R. Wolfgang, and N. V. Hegde. 2004. Guidelines for monitoring bulk tank milk somatic cell and bacterial counts. J Dairy Sci 87(10):3561-3573.

Jayarao, B. M. and D. R. Wolfgang. 2003. Bulk-tank milk analysis. A useful tool for improving milk quality and herd udder health. Vet Clin North Am Food Anim Pract 19(1):75-92, vi.

Jeffrey, C. E., T. Andrews, S. M. Godden, D. A. Neher, and J. W. Barlow. 2024. Relationship Between Facility Type and Bulk Tank Milk Bacteriology, Udder Health, Udder Hygiene, and Milk Production on Vermont Organic Dairy Farms. J. Dairy Sci.

Jenkins, S. N., E. Okello, P. V. Rossitto, T. W. Lehenbauer, J. Champagne, M. C. T. Penedo, A. G. Arruda, S. Godden, P. Rapnicki, P. J. Gorden, L. L. Timms, and S. S. Aly. 2019. Molecular epidemiology of coagulase-negative *Staphylococcus* species isolated at different lactation stages from dairy cattle in the United States. PeerJ 7:e6749.

Khachatryan, A. R., T. E. Besser, and D. R. Call. 2008. The streptomycin-sulfadiazine-tetracycline antimicrobial resistance element of calf-adapted *Escherichia coli* is widely distributed among isolates from Washington state cattle. Appl Environ Microbiol 74(2):391-395.

Khachatryan, A. R., T. E. Besser, D. D. Hancock, and D. R. Call. 2006a. Use of a nonmedicated dietary supplement correlates with increased prevalence of streptomycin-sulfa-tetracycline-resistant *Escherichia coli* on a dairy farm. Appl Environ Microbiol 72(7):4583-4588.

Khachatryan, A. R., D. D. Hancock, T. E. Besser, and D. R. Call. 2004. Role of calf-adapted *Escherichia coli* in maintenance of antimicrobial drug resistance in dairy calves. Appl Environ Microbiol 70(2):752-757.

Khachatryan, A. R., D. D. Hancock, T. E. Besser, and D. R. Call. 2006b. Antimicrobial drug resistance genes do not convey a secondary fitness advantage to calf-adapted *Escherichia coli*. Appl Environ Microbiol 72(1):443-448.

Khazandi, M., A. A. Al-Farha, G. W. Coombs, M. O'Dea, S. Pang, D. J. Trott, R. R. Aviles, F. Hemmatzadeh, H. Venter, A. D. Ogunniyi, A. Hoare, S. Abraham, and K. R. Petrovski. 2018. Genomic characterization of coagulase-negative staphylococci including methicillin-resistant *Staphylococcus* *sciuri* causing bovine mastitis. Vet Microbiol 219:17-22.

Kim, S. J., D. C. Moon, S. C. Park, H. Y. Kang, S. H. Na, and S. K. Lim. 2019. Antimicrobial resistance and genetic characterization of coagulase-negative staphylococci from bovine mastitis milk samples in Korea. J Dairy Sci 102(12):11439-11448.

Klaas, I. C. and R. N. Zadoks. 2018. An update on environmental mastitis: Challenging perceptions. Transbound Emerg Dis 65 Suppl 1:166-185.

Klement, E., M. Chaffer, G. Leitner, A. Shwimmer, S. Friedman, A. Saran, and N. Shpigel. 2005. Assessment of accuracy of disk diffusion tests for the determination of antimicrobial susceptibility of common bovine mastitis pathogens: a novel approach. Microb Drug Resist 11(4):342-350.

KoboCollect: Simple, Robust and Powerful Tools for Data Collection. 2019 http://www.kobotoolbox.org.

Kolar, Q. K., J. L. Goncalves, R. J. Erskine, and P. L. Ruegg. 2024. Comparison of Minimum Inhibitory Concentrations of Selected Antimicrobials for Non-*Aureus* Staphylococci, Enterococci, Lactococci, and Streptococci Isolated from Milk Samples of Cows with Clinical Mastitis. Antibiotics 13(1):91.

Kumar, S., G. Stecher, M. Li, C. Knyaz, and K. Tamura. 2018. MEGA X: Molecular Evolutionary Genetics Analysis across Computing Platforms. Mol Biol Evol 35(6):1547-1549.

Lam, T. J., M. C. DeJong, Y. H. Schukken, and A. Brand. 1996. Mathematical modeling to estimate efficacy of postmilking teat disinfection in split-udder trials of dairy cows. J Dairy Sci 79(1):62-70.

Lange, C., M. Cardoso, D. Senczek, and S. Schwarz. 1999. Molecular subtyping of *Staphylococcus aureus* isolates from cases of bovine mastitis in Brazil. Vet Microbiol 67(2):127-141.

Langford, F. M., D. M. Weary, and L. Fisher. 2003. Antibiotic Resistance in Gut Bacteria from Dairy Calves: A Dose Response to the Level of Antibiotics Fed in Milk. J. Dairy Sci. 86(12):3963-3966.

Langmead, B. and S. L. Salzberg. 2012. Fast gapped-read alignment with Bowtie 2. Nature Methods 9(4):357-359.

Le Maréchal, C., N. Seyffert, J. Jardin, D. Hernandez, G. Jan, L. Rault, V. Azevedo, P. François, J. Schrenzel, M. van de Guchte, S. Even, N. Berkova, R. Thiéry, J. R. Fitzgerald, E. Vautor, and Y. Le Loir. 2011. Molecular basis of virulence in *Staphylococcus aureus* mastitis. PLoS One 6(11):e27354.

LeJeune, J. T. and N. P. Christie. 2004. Microbiological quality of ground beef from conventionally-reared cattle and "raised without antibiotics" label claims. J Food Prot 67(7):1433-1437.

Leso, L., M. Barbari, M. A. Lopes, F. A. Damasceno, P. Galama, J. L. Taraba, and A. Kuipers. 2020. Invited review: Compost-bedded pack barns for dairy cows. J Dairy Sci 103(2):1072-1099.

Levison, L. J., E. K. Miller-Cushon, A. L. Tucker, R. Bergeron, K. E. Leslie, H. W. Barkema, and T. J. DeVries. 2016. Incidence rate of pathogen-specific clinical mastitis on conventional and organic Canadian dairy farms. J Dairy Sci 99(2):1341-1350.

Li, H., B. Handsaker, A. Wysoker, T. Fennell, J. Ruan, N. Homer, G. Marth, G. Abecasis, and R. Durbin. 2009. The Sequence Alignment/Map format and SAMtools. Bioinformatics 25(16):2078-2079.

Lipsitch, M. and M. H. Samore. 2002. Antimicrobial use and antimicrobial resistance: a population perspective. Emerg Infect Dis 8(4):347-354.

Lobeck, K., M. Endres, K. Janni, S. Godden, and J. Fetrow. 2012. Environmental Characteristics and Bacterial Counts in Bedding and Milk Bulk Tank of Low Profile Cross-Ventilated, Naturally Ventilated, and Compost Bedded Pack Dairy Barns. Applied Engineering in Agriculture 28:117-128.

Lobeck, K. M., M. I. Endres, E. M. Shane, S. M. Godden, and J. Fetrow. 2011. Animal welfare in cross-ventilated, compost-bedded pack, and naturally ventilated dairy barns in the upper Midwest. J Dairy Sci 94(11):5469-5479.

López-Lozano, J. M., D. L. Monnet, A. Yagüe, A. Burgos, N. Gonzalo, P. Campillos, and M. Saez. 2000. Modelling and forecasting antimicrobial resistance and its dynamic relationship to antimicrobial use: a time series analysis. Int J Antimicrob Agents 14(1):21-31.

Lowrance, T. C., G. H. Loneragan, D. J. Kunze, T. M. Platt, S. E. Ives, H. M. Scott, B. Norby, A. Echeverry, and M. M. Brashears. 2007. Changes in antimicrobial susceptibility in a population of *Escherichia coli* isolated from feedlot cattle administered ceftiofur crystalline-free acid. Am J Vet Res 68(5):501-507.

Lücken, A., N. Wente, Y. Zhang, S. Woudstra, and V. Krömker. 2021. Corynebacteria in Bovine Quarter Milk Samples-Species and Somatic Cell Counts. Pathogens 10(7).

Mathew, A. G., R. Cissell, and S. Liamthong. 2007. Antibiotic resistance in bacteria associated with food animals: a United States perspective of livestock production. Foodborne Pathog Dis 4(2):115-133.

McDougall, S., J. Penry, and D. Dymock. 2021. Antimicrobial susceptibilities in dairy herds that differ in dry cow therapy usage. J. Dairy Sci. 104(8):9142-9163.

McPherson, S. E. and E. Vasseur. 2020. Graduate Student Literature Review: The effects of bedding, stall length, and manger wall height on common outcome measures of dairy cow welfare in stall-based housing systems. J Dairy Sci 103(11):10940-10950.

Mork, T., H. J. Jorgensen, M. Sunde, B. Kvitle, S. Sviland, S. Waage, and T. Tollersrud. 2012. Persistence of staphylococcal species and genotypes in the bovine udder. Vet Microbiol 159(1-2):171-180.

Mullen, K. A. E., L. G. Sparks, R. L. Lyman, S. P. Washburn, and K. L. Anderson. 2013. Comparisons of milk quality on North Carolina organic and conventional dairies. J. Dairy Sci. 96(10):6753-6762.

Naqvi, S. A., J. De Buck, S. Dufour, and H. W. Barkema. 2018. Udder health in Canadian dairy heifers during early lactation. J. Dairy Sci. 101(4):3233-3247.

National Mastitis Council. 2019. Mastitis Control on Organic Dairies in the United States Fact Sheet. Accessed July 19, 2024. https://www.nmconline.org/wp-content/uploads/2019/02/final-mastitis-control-on-organic-dairies-in-the-us-for-nmc-posted-Feb.-2019.pdf.

Naushad, S., S. A. Naqvi, D. Nobrega, C. Luby, P. Kastelic John, W. Barkema Herman, and J. De Buck. 2019. Comprehensive Virulence Gene Profiling of Bovine Non-*aureus* Staphylococci Based on Whole-Genome Sequencing Data. mSystems 4(2):10.1128/msystems.00098-00018.

Neave, F. K., F. H. Dodd, and R. G. Kingwill. 1966. A method of controlling udder disease. Vet Rec 78(15):521-523.

NMC (National Mastitis Council). 2017. Laboratory Handbook on Bovine Mastitis. Third ed. National Mastitis Council, Inc., New Prague, MI.

Nobrega, D. B., S. Naushad, S. A. Naqvi, L. A. Z. Condas, V. Saini, J. P. Kastelic, C. Luby, J. De Buck, and H. W. Barkema. 2018. Prevalence and Genetic Basis of Antimicrobial Resistance in Non-*aureus* Staphylococci Isolated from Canadian Dairy Herds. Front Microbiol 9:256.

Nyman, A. K., C. Fasth, and K. P. Waller. 2018. Intramammary infections with different non-*aureus* staphylococci in dairy cows. J. Dairy Sci. 101(2):1403-1418.

O'Connor, A. M., J. M. Sargeant, I. R. Dohoo, H. N. Erb, M. Cevallos, M. Egger, A. K. Ersbøll, S. W. Martin, L. R. Nielsen, D. L. Pearl, D. U. Pfeiffer, J. Sanchez, M. E. Torrence, H. Vigre, C. Waldner, and M. P. Ward. 2016. Explanation and Elaboration Document for the STROBE-Vet Statement: Strengthening the Reporting of Observational Studies in Epidemiology-Veterinary Extension. J Vet Intern Med 30(6):1896-1928.

Olofsson, C., I. Toftaker, A. Rachah, O. Reksen, and C. Kielland. 2024. Pathogen-specific patterns of milking traits in automatic milking systems. J. Dairy Sci.

Palladini, G., C. Garbarino, A. Luppi, S. Russo, A. Filippi, N. Arrigoni, E. Massella, and M. Ricchi. 2023. Comparison between broth microdilution and agar disk diffusion methods for antimicrobial susceptibility testing of bovine mastitis pathogens. J Microbiol Methods 212:106796.

Pankey, J. W. 1989. Premilking Udder Hygiene. J. Dairy Sci. 72(5):1308-1312.

Pankey, J. W., R. L. Boddie, and S. C. Nickerson. 1985. Efficacy evaluation of two new teat dip formulations under experimental challenge. J Dairy Sci 68(2):462-465.

Pankey, J. W., E. E. Wildman, P. A. Drechsler, and J. S. Hogan. 1987. Field trial evaluation of premilking teat disinfection. J Dairy Sci 70(4):867-872.

Park, J. Y., L. K. Fox, K. S. Seo, M. A. McGuire, Y. H. Park, F. R. Rurangirwa, W. M. Sischo, and G. A. Bohach. 2011. Detection of classical and newly described staphylococcal superantigen genes in coagulase-negative staphylococci isolated from bovine intramammary infections. Veterinary Microbiology 147(1):149-154.

Park, Y. K., L. K. Fox, D. D. Hancock, W. McMahan, and Y. H. Park. 2012. Prevalence and antibiotic resistance of mastitis pathogens isolated from dairy herds transitioning to organic management. Journal of Veterinary Science 13(1):103.

Parker, E. M., G. A. Ballash, D. F. Mollenkopf, and T. E. Wittum. 2024. A complex cyclical One Health pathway drives the emergence and dissemination of antimicrobial resistance. American Journal of Veterinary Research 85(4):ajvr.24.01.0014.

Patel, K., S. M. Godden, E. Royster, B. A. Crooker, J. Timmerman, and L. Fox. 2019. Relationships among bedding materials, bedding bacteria counts, udder hygiene, milk quality, and udder health in US dairy herds. J. Dairy Sci. 102(11):10213-10234.

Payne, R. E., M. D. Lee, D. W. Dreesen, and H. M. Barnhart. 1999. Molecular epidemiology of *Campylobacter jejuni* in broiler flocks using randomly amplified polymorphic DNA-PCR and 23S rRNA-PCR and role of litter in its transmission. Appl Environ Microbiol 65(1):260-263.

Peeler, E. J., M. J. Green, J. L. Fitzpatrick, K. L. Morgan, and L. E. Green. 2000. Risk Factors Associated with Clinical Mastitis in Low Somatic Cell Count British Dairy Herds. J. Dairy Sci. 83(11):2464-2472.

Peña-Mosca, F., C. Dean, V. Machado, L. Fernandes, P. Pinedo, E. Doster, B. Heins, K. Sharpe, T. Ray, V. Feijoo, A. Antunes, C. Baumann, T. Wehri, N. Noyes, and L. Caixeta. 2023. Investigation of intramammary infections in primiparous cows during early lactation on organic dairy farms. J Dairy Sci 106(12):9377-9392.

Persson Waller, K., A. Aspán, A. Nyman, Y. Persson, and U. Grönlund Andersson. 2011. CNS species and antimicrobial resistance in clinical and subclinical bovine mastitis. Veterinary Microbiology 152(1-2):112-116.

Persson Waller, K., M. Myrenås, S. Börjesson, H. Kim, M. Widerström, T. Monsen, A. K. Sigurðarson Sandholt, E. Östlund, and W. Cha. 2023. Genotypic characterization of *Staphylococcus chromogenes* and *Staphylococcus* *simulans* from Swedish cases of bovine subclinical mastitis. J Dairy Sci 106(11):7991-8004.

Petzer, I. M., C. Labuschagne, L. Phophi, and J. Karzis. 2022. Species identification and cow risks of non-*aureus* staphylococci from South African dairy herds. Onderstepoort J Vet Res 89(1):e1-e10.

Phophi, L., I. M. Petzer, and D. N. Qekwana. 2019. Antimicrobial resistance patterns and biofilm formation of coagulase-negative *Staphylococcus* species isolated from subclinical mastitis cow milk samples submitted to the Onderstepoort Milk Laboratory. BMC Vet Res 15(1):420.

Piccart, K., J. Verbeke, A. De Visscher, S. Piepers, F. Haesebrouck, and S. De Vliegher. 2016. Local host response following an intramammary challenge with *Staphylococcus* *fleurettii* and different strains of *Staphylococcus chromogenes* in dairy heifers. Vet Res 47(1):56.

Piessens, V., S. De Vliegher, B. Verbist, G. Braem, A. Van Nuffel, L. De Vuyst, M. Heyndrickx, and E. Van Coillie. 2012. Characterization of coagulase-negative *Staphylococcus* species from cows' milk and environment based on bap, icaA, and mecA genes and phenotypic susceptibility to antimicrobials and teat dips. J Dairy Sci 95(12):7027-7038.

Piessens, V., E. Van Coillie, B. Verbist, K. Supre, G. Braem, A. Van Nuffel, L. De Vuyst, M. Heyndrickx, and S. De Vliegher. 2011. Distribution of coagulase-negative *Staphylococcus* species from milk and environment of dairy cows differs between herds. J Dairy Sci 94(6):2933-2944.

Pinho, M. G. 2008. Mechanisms of beta-lactam and glycopeptide resistance in *Staphylococcus aureus*. *Staphylococcus* molecular genetics:207-226.

Pol, M. and P. L. Ruegg. 2007a. Relationship between antimicrobial drug usage and antimicrobial susceptibility of gram-positive mastitis pathogens. J Dairy Sci 90(1):262-273.

Pol, M. and P. L. Ruegg. 2007b. Treatment practices and quantification of antimicrobial drug usage in conventional and organic dairy farms in Wisconsin. J Dairy Sci 90(1):249-261.

Progressive Dairy. 2023. U.S. Dairy Statistics. Accessed July 19, 2024. https://www.progressivepublish.com/downloads/2024/general/2023-pd-stats-lowres.pdf.

Quirk, T., L. K. Fox, D. D. Hancock, J. Capper, J. Wenz, and J. Park. 2012. Intramammary infections and teat canal colonization with coagulase-negative staphylococci after postmilking teat disinfection: species-specific responses. J Dairy Sci 95(4):1906-1912.

R Development Core Team. 2023. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria.

Raspanti, C. G., C. C. Bonetto, C. Vissio, M. S. Pellegrino, E. B. Reinoso, S. A. Dieser, C. I. Bogni, A. J. Larriestra, and L. M. Odierno. 2016. Prevalence and antibiotic susceptibility of coagulase-negative *Staphylococcus* species from bovine subclinical mastitis in dairy herds in the central region of Argentina. Rev Argent Microbiol 48(1):50-56.

Reneau, J. K., A. J. Seykora, B. J. Heins, M. I. Endres, R. J. Farnsworth, and R. F. Bey. 2005. Association between hygiene scores and somatic cell scores in dairy cattle. J Am Vet Med Assoc 227(8):1297-1301.

Reydams, H., B. Toledo-Silva, K. Mertens, S. Piepers, F. N. De Souza, F. Haesebrouck, and S. De Vliegher. 2023. Comparison of non-*aureus* staphylococcal and mammaliicoccal species found in both composite milk and bulk-tank milk samples of dairy cows collected in tandem. J. Dairy Sci. 106(11):7974-7990.

Richert, R. M., K. M. Cicconi, M. J. Gamroth, Y. H. Schukken, K. E. Stiglbauer, and P. L. Ruegg. 2013. Risk factors for clinical mastitis, ketosis, and pneumonia in dairy cattle on organic and small conventional farms in the United States. J Dairy Sci 96(7):4269-4285.

Rinehart, L. and A. Baier. 2011. U.S. Department of Agriculture; National Center for Appropriate Technology (NCAT), National Organic Program. Pasture for Organic Ruminant Livestock: Understanding and Implementing the National Organic Program (NOP) Pasture Rule. Accessed Oct. 30, 2023. https://www.ams.usda.gov/sites/default/files/media/NOP-UnderstandingOrganicPastureRule.pdf.

Robles, I., D. F. Kelton, H. W. Barkema, G. P. Keefe, J. P. Roy, M. A. G. von Keyserlingk, and T. J. DeVries. 2020. Bacterial concentrations in bedding and their association with dairy cow hygiene and milk quality. Animal 14(5):1052-1066.

Roesch, M., V. Perreten, M. G. Doherr, W. Schaeren, M. Schällibaum, and J. W. Blum. 2006. Comparison of antibiotic resistance of udder pathogens in dairy cows kept on organic and on conventional farms. J Dairy Sci 89(3):989-997.

Rowbotham, R. F. and P. L. Ruegg. 2016a. Associations of selected bedding types with incidence rates of subclinical and clinical mastitis in primiparous Holstein dairy cows. J Dairy Sci 99(6):4707-4717.

Rowbotham, R. F. and P. L. Ruegg. 2016b. Bacterial counts on teat skin and in new sand, recycled sand, and recycled manure solids used as bedding in freestalls. J Dairy Sci 99(8):6594-6608.

Rowe, S. M., S. M. Godden, E. Royster, J. Timmerman, B. A. Crooker, and M. Boyle. 2019. Cross-sectional study of the relationships among bedding materials, bedding bacteria counts, and intramammary infection in late-lactation dairy cows. J Dairy Sci 102(12):11384-11400.

Ruegg, P. L. 2009. Management of mastitis on organic and conventional dairy farms. J Anim Sci 87(13 Suppl):43-55.

Rushmann, R. University of Wisconsin-Madison; Division of Extension: Agriculture Water Quality. Managing manure to reduce negative water quality impacts: Composting on Wisconsin farms. Accessed Aug. 1, 2023. https://agwater.extension.wisc.edu/articles/managing-manure-to-reduce-negative-water-quality-impacts-composting-on-wisconsin-farms/.

Ruud, L. E., K. E. Bøe, and O. Osterås. 2010. Associations of soft flooring materials in free stalls with milk yield, clinical mastitis, teat lesions, and removal of dairy cows. J Dairy Sci 93(4):1578-1586.

Saini, V., R. G. Riekerink, J. T. McClure, and H. W. Barkema. 2011. Diagnostic accuracy assessment of Sensititre and agar disk diffusion for determining antimicrobial resistance profiles of bovine clinical mastitis pathogens. J Clin Microbiol 49(4):1568-1577.

Sampimon, O. 2009. Coagulase-negative staphylococci mastitis in Dutch dairy herds. Utrecht University.

Sant'anna, A. C. and M. J. Paranhos da Costa. 2011. The relationship between dairy cow hygiene and somatic cell count in milk. J Dairy Sci 94(8):3835-3844.

Sato, K., T. W. Bennedsgaard, P. C. Bartlett, R. J. Erskine, and J. B. Kaneene. 2004. Comparison of antimicrobial susceptibility of *Staphylococcus aureus* isolated from bulk tank milk in organic and conventional dairy herds in the midwestern United States and Denmark. J Food Prot 67(6):1104-1110.

Schepers, A. J., T. J. Lam, Y. H. Schukken, J. B. Wilmink, and W. J. Hanekamp. 1997. Estimation of variance components for somatic cell counts to determine thresholds for uninfected quarters. J Dairy Sci 80(8):1833-1840.

Schreiner, D. A. and P. L. Ruegg. 2002. Effects of tail docking on milk quality and cow cleanliness. J Dairy Sci 85(10):2503-2511.

Schreiner, D. A. and P. L. Ruegg. 2003. Relationship between udder and leg hygiene scores and subclinical mastitis. J Dairy Sci 86(11):3460-3465.

Schukken, Y. H., R. N. González, L. L. Tikofsky, H. F. Schulte, C. G. Santisteban, F. L. Welcome, G. J. Bennett, M. J. Zurakowski, and R. N. Zadoks. 2009. CNS mastitis: nothing to worry about? Vet Microbiol 134(1-2):9-14.

Schukken, Y. H., F. J. Grommers, J. A. Smit, D. Vandegeer, and A. Brand. 1989. Effect of freezing on bacteriologic culturing of mastitis milk samples. J Dairy Sci 72(7):1900-1906.

Schukken, Y. H., D. J. Wilson, F. Welcome, L. Garrison-Tikofsky, and R. N. Gonzalez. 2003. Monitoring udder health and milk quality using somatic cell counts. Vet Res 34(5):579-596.

Schutz, M. M., L. B. Hansen, G. R. Steuernagel, and A. L. Kuck. 1990. Variation of Milk, Fat, Protein, and Somatic Cells for Dairy Cattle1. J. Dairy Sci. 73(2):484-493.

Schwengers, O., L. Jelonek, M. A. Dieckmann, S. Beyvers, J. Blom, and A. Goesmann. 2021. Bakta: rapid and standardized annotation of bacterial genomes via alignment-free sequence identification. Microb Genom 7(11).

Sefton, A. M. 2002. Mechanisms of antimicrobial resistance: their clinical relevance in the new millennium. Drugs 62(4):557-566.

Shane, E., M. Endres, and K. Janni. 2010. Alternative Bedding Materials for Compost Bedded Pack Barns in Minnesota: A Descriptive Study. Applied Engineering in Agriculture 26:465-473.

Shook, G. E. 1982. Approaches to summarizing somatic cell count which improve interpretability. Page 150 in Proc. 21st Annual Mtg. Natl. Mastitis Council, Arlington, VA.

Simojoki, H., P. Hyvönen, C. Plumed Ferrer, S. Taponen, and S. Pyörälä. 2012. Is the biofilm formation and slime producing ability of coagulase-negative staphylococci associated with the persistence and severity of intramammary infection? Veterinary Microbiology 158(3):344-352.

Simojoki, H., T. Orro, S. Taponen, and S. Pyorala. 2009. Host response in bovine mastitis experimentally induced with *Staphylococcus chromogenes*. Veterinary Microbiology 134(1-2):95-99.

Smith, J. T., E. M. Eckhardt, N. B. Hansel, T. R. Eliato, I. W. Martin, and C. P. Andam. 2021. Genomic epidemiology of methicillin-resistant and -susceptible *Staphylococcus aureus* from bloodstream infections. BMC Infectious Diseases 21(1):589.

Sol, J., O. C. Sampimon, H. W. Barkema, and Y. H. Schukken. 2000. Factors associated with cure after therapy of clinical mastitis caused by *Staphylococcus aureus*. J Dairy Sci 83(2):278-284.

Souza, F. N., S. Piepers, A. Della Libera, M. B. Heinemann, M. Cerqueira, and S. De Vliegher. 2016. Interaction between bovine-associated coagulase-negative staphylococci species and strains and bovine mammary epithelial cells reflects differences in ecology and epidemiological behavior. J Dairy Sci 99(4):2867-2874.

Stabler, S. L., D. J. Fagerberg, and C. L. Quarles. 1982. Effects of oral and injectable tetracyclines on bacterial drug resistance in feedlot cattle. Am J Vet Res 43(10):1763-1766.

Stiglbauer, K. E., K. M. Cicconi-Hogan, R. Richert, Y. H. Schukken, P. L. Ruegg, and M. Gamroth. 2013. Assessment of herd management on organic and conventional dairy farms in the United States. J. Dairy Sci. 96(2):1290-1300.

Supré, K., F. Haesebrouck, R. N. Zadoks, M. Vaneechoutte, S. Piepers, and S. De Vliegher. 2011. Some coagulase-negative *Staphylococcus* species affect udder health more than others. J Dairy Sci 94(5):2329-2340.

Suriyasathaporn, W. 2010. Milk Quality and Antimicrobial Resistance against Mastitis Pathogens after Changing from a Conventional to an Experimentally Organic Dairy Farm. Asian-Australasian Journal of Animal Sciences 23:659-664.

Szafraniec, G. M., P. Szeleszczuk, and B. Dolka. 2020. A Review of Current Knowledge on *Staphylococcus agnetis* in Poultry. Animals (Basel) 10(8).

Taponen, S., A. Jantunen, E. Pyörälä, and S. Pyörälä. 2003. Efficacy of Targeted 5-day Combined Parenteral and Intramammary Treatment of Clinical Mastitis Caused by Penicillin-Susceptible or Penicillin-Resistant *Staphylococcus aureus*. Acta Veterinaria Scandinavica 44(1):53.

Taponen, S., J. Koort, J. Björkroth, H. Saloniemi, and S. Pyörälä. 2007. Bovine Intramammary Infections Caused by Coagulase-Negative Staphylococci May Persist Throughout Lactation According to Amplified Fragment Length Polymorphism-Based Analysis. J. Dairy Sci. 90(7):3301-3307.

Taponen, S., V. Myllys, and S. Pyörälä. 2022. Somatic cell count in bovine quarter milk samples culture positive for various *Staphylococcus* species. Acta Veterinaria Scandinavica 64(1).

Taponen, S., S. Nykäsenoja, T. Pohjanvirta, A. Pitkälä, and S. Pyörälä. 2016. Species distribution and in vitro antimicrobial susceptibility of coagulase-negative staphylococci isolated from bovine mastitic milk. Acta Veterinaria Scandinavica 58(1):12.

Taponen, S., H.-T. Tölli, and P. J. Rajala-Schultz. 2023. Antimicrobial susceptibility of staphylococci from bovine milk samples in routine microbiological mastitis analysis in Finland. Frontiers in Veterinary Science 10.

Tenhagen, B. A., K. Alt, B. Pfefferkorn, L. Wiehle, A. Käsbohrer, and A. Fetsch. 2018. Short communication: Methicillin-resistant *Staphylococcus aureus* in conventional and organic dairy herds in Germany. J Dairy Sci 101(4):3380-3386.

Tenhagen, B. A., G. Köster, J. Wallmann, and W. Heuwieser. 2006. Prevalence of mastitis pathogens and their resistance against antimicrobial agents in dairy cows in Brandenburg, Germany. J Dairy Sci 89(7):2542-2551.

Thakker, M., J. S. Park, V. Carey, and J. C. Lee. 1998. *Staphylococcus aureus* serotype 5 capsular polysaccharide is antiphagocytic and enhances bacterial virulence in a murine bacteremia model. Infect Immun 66(11):5183-5189.

Thorberg, B. M., M. L. Danielsson-Tham, U. Emanuelson, and K. Persson Waller. 2009. Bovine subclinical mastitis caused by different types of coagulase-negative staphylococci. J. Dairy Sci. 92(10):4962-4970.

Tikofsky, L. L., J. W. Barlow, C. Santisteban, and Y. H. Schukken. 2003. A comparison of antimicrobial susceptibility patterns for *Staphylococcus aureus* in organic and conventional dairy herds. Microb Drug Resist 9 Suppl 1:S39-45.

Tomazi, T., J. L. Gonçalves, J. R. Barreiro, M. A. Arcari, and M. V. Dos Santos. 2015. Bovine subclinical intramammary infection caused by coagulase-negative staphylococci increases somatic cell count but has no effect on milk yield or composition. J. Dairy Sci. 98(5):3071-3078.

Tong, S. Y., J. S. Davis, E. Eichenberger, T. L. Holland, and V. G. Fowler, Jr. 2015. *Staphylococcus aureus* infections: epidemiology, pathophysiology, clinical manifestations, and management. Clin Microbiol Rev 28(3):603-661.

Tremblay, Y. D. N., D. Lamarche, P. Chever, D. Haine, S. Messier, and M. Jacques. 2013. Characterization of the ability of coagulase-negative staphylococci isolated from the milk of Canadian farms to form biofilms. J. Dairy Sci. 96(1):234-246.

Tuchscherr, L. P., F. R. Buzzola, L. P. Alvarez, R. L. Caccuri, J. C. Lee, and D. O. Sordelli. 2005. Capsule-negative *Staphylococcus aureus* induces chronic experimental mastitis in mice. Infect Immun 73(12):7932-7937.

Tucker, C. B., D. Weary, M. Keyserlingk, and K. Beauchemin. 2009. Cow comfort in tie-stalls: Increased depth of shavings or straw bedding increases lying time. J. Dairy Sci. 92:2684-2690.

Tucker, C. B. and D. M. Weary. 2004. Bedding on geotextile mattresses: how much is needed to improve cow comfort? J Dairy Sci 87(9):2889-2895.

Unal, N. and O. D. Cinar. 2012. Detection of stapylococcal enterotoxin, methicillin-resistant and Panton-Valentine leukocidin genes in coagulase-negative staphylococci isolated from cows and ewes with subclinical mastitis. Trop Anim Health Prod 44(2):369-375.

USDA-AMS. 2024. Agricultural Marketing Service, Dairy Market News: U.S. Organic Dairy Fluid Overview. Accessed July 19, 2024. https://www.ams.usda.gov/mnreports/ams\_1594.pdf.

USDA-APHIS. 2021. Determining U.S. Milk Quality Using Bulk-Tank Somatic Cell Counts, 2019. Accessed April 2, 2024. https://www.aphis.usda.gov/sites/default/files/btscc\_2019infosheet.pdf.

USDA-NRCS (Natural Resources Conservation Service). NRCS Climate-Smart Mitigation Activities. Accessed Dec. 14, 2023. https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/climate/climate-smart-mitigation-activities.

USDA. 2009. Dairy 2007: Part V: Changes in Dairy Cattle Health and Management Practices in the United States, 1996-2007 Accessed July 14, 2024. https://www.aphis.usda.gov/sites/default/files/dairy07\_dr\_partv\_rev.pdf.

USDA. 2016. Dairy 2014: Milk Quality, Milking Procedures and Mastitis in the United States, 2014. Accessed July 12, 2024. https://www.aphis.usda.gov/sites/default/files/dairy14\_dr\_mastitis.pdf.

USDA. 2022. Certified Organic Survey, 2021 Summary. Accessed Nov. 10, 2023. https://downloads.usda.library.cornell.edu/usda-esmis/files/zg64tk92g/2z10z137s/bn99bh97r/cenorg22.pdf.

USDA. 2024. USDA Organic Regulations. Accessed June 7, 2024. https://www.ecfr.gov/current/title-7/subtitle-B/chapter-I/subchapter-M/part-205?toc=1.

Valckenier, D., S. Piepers, A. De Visscher, R. M. Bruckmaier, and S. De Vliegher. 2019. Effect of intramammary infection with non-*aureus* staphylococci in early lactation in dairy heifers on quarter somatic cell count and quarter milk yield during the first 4 months of lactation. J Dairy Sci 102(7):6442-6453.

Valckenier, D., S. Piepers, A. De Visscher, and S. De Vliegher. 2020. The effect of intramammary infection in early lactation with non-*aureus* staphylococci in general and *Staphylococcus chromogenes* specifically on quarter milk somatic cell count and quarter milk yield. J Dairy Sci 103(1):768-782.

Valckenier, D., S. Piepers, Y. H. Schukken, A. De Visscher, F. Boyen, F. Haesebrouck, and S. De Vliegher. 2021. Longitudinal study on the effects of intramammary infection with non-*aureus* staphylococci on udder health and milk production in dairy heifers. J Dairy Sci 104(1):899-914.

Valle, P. S., G. Lien, O. Flaten, M. Koesling, and M. Ebbesvik. 2007. Herd health and health management in organic versus conventional dairy herds in Norway. Livestock Science 112(1):123-132.

Vanacker, M., N. Lenuzza, and J. P. Rasigade. 2023. The fitness cost of horizontally transferred and mutational antimicrobial resistance in *Escherichia coli*. Front Microbiol 14:1186920.

Vanderhaeghen, W., S. Piepers, F. Leroy, E. Van Coillie, F. Haesebrouck, and S. De Vliegher. 2015. Identification, typing, ecology and epidemiology of coagulase negative staphylococci associated with ruminants. Vet J 203(1):44-51.

Verbeke, J., S. Piepers, K. Supré, and S. De Vliegher. 2014. Pathogen-specific incidence rate of clinical mastitis in Flemish dairy herds, severity, and association with herd hygiene. J. Dairy Sci. 97(11):6926-6934.

Walk, S. T., J. M. Mladonicky, J. A. Middleton, A. J. Heidt, J. R. Cunningham, P. Bartlett, K. Sato, and T. S. Whittam. 2007. Influence of antibiotic selection on genetic composition of *Escherichia coli* populations from conventional and organic dairy farms. Appl Environ Microbiol 73(19):5982-5989.

Walker, B. J., T. Abeel, T. Shea, M. Priest, A. Abouelliel, S. Sakthikumar, C. A. Cuomo, Q. Zeng, J. Wortman, S. K. Young, and A. M. Earl. 2014. Pilon: an integrated tool for comprehensive microbial variant detection and genome assembly improvement. PLoS One 9(11):e112963.

Walther, C. and V. Perreten. 2007. Letter to the Editor: Methicillin-Resistant *Staphylococcus* *epidermidis* in Organic Milk Production. J. Dairy Sci. 90(12):5351.

Wick, R. R., L. M. Judd, C. L. Gorrie, and K. E. Holt. 2017. Unicycler: Resolving bacterial genome assemblies from short and long sequencing reads. PLOS Computational Biology 13(6):e1005595.

Wolfe, T., E. Vasseur, T. J. DeVries, and R. Bergeron. 2018. Effects of alternative deep bedding options on dairy cow preference, lying behavior, cleanliness, and teat end contamination. J Dairy Sci 101(1):530-536.

Woudstra, S., N. Wente, Y. Zhang, S. Leimbach, M. K. Gussmann, C. Kirkeby, and V. Krömker. 2023. Strain diversity and infection durations of *Staphylococcus* spp. and Streptococcus spp. causing intramammary infections in dairy cows. J Dairy Sci 106(6):4214-4231.

Wuytack, A., A. De Visscher, S. Piepers, F. Boyen, F. Haesebrouck, and S. De Vliegher. 2020a. Distribution of non-*aureus* staphylococci from quarter milk, teat apices, and rectal feces of dairy cows, and their virulence potential. J Dairy Sci 103(11):10658-10675.

Wuytack, A., A. De Visscher, S. Piepers, F. Haesebrouck, and S. De Vliegher. 2020b. Fecal non-*aureus* Staphylococci are a potential cause of bovine intramammary infection. Vet Res 51(1):32.

Yan, S. S. and J. M. Gilbert. 2004. Antimicrobial drug delivery in food animals and microbial food safety concerns: an overview of in vitro and in vivo factors potentially affecting the animal gut microflora. Adv Drug Deliv Rev 56(10):1497-1521.

Zadoks, R., W. Van Leeuwen, H. Barkema, O. Sampimon, H. Verbrugh, Y. H. Schukken, and A. Van Belkum. 2000. Application of Pulsed-Field Gel Electrophoresis and Binary Typing as Tools in Veterinary Clinical Microbiology and Molecular Epidemiologic Analysis of Bovine and Human *Staphylococcus aureus* Isolates. Journal of Clinical Microbiology 38(5):1931-1939.

Zadoks, R. N., H. G. Allore, H. W. Barkema, O. C. Sampimon, G. J. Wellenberg, Y. T. Gröhn, and Y. H. Schukken. 2001. Cow- and Quarter-Level Risk Factors for Streptococcus uberis and *Staphylococcus aureus* Mastitis. J. Dairy Sci. 84(12):2649-2663.

Zadoks, R. N., B. E. Gillespie, H. W. Barkema, O. C. Sampimon, S. P. Oliver, and Y. H. Schukken. 2003. Clinical, epidemiological and molecular characteristics of *Streptococcus uberis* infections in dairy herds. Epidemiol Infect 130(2):335-349.

Zadoks, R. N., L. L. Tikofsky, and K. J. Boor. 2005. Ribotyping of *Streptococcus uberis* from a dairy's environment, bovine feces and milk. Veterinary Microbiology 109(3):257-265.

Zdanowicz, M., J. A. Shelford, C. B. Tucker, D. M. Weary, and M. A. G. von Keyserlingk. 2004. Bacterial Populations on Teat Ends of Dairy Cows Housed in Free Stalls and Bedded with Either Sand or Sawdust. J. Dairy Sci. 87(6):1694-1701.

Zwald, A. G., P. L. Ruegg, J. B. Kaneene, L. D. Warnick, S. J. Wells, C. Fossler, and L. W. Halbert. 2004. Management Practices and Reported Antimicrobial Usage on Conventional and Organic Dairy Farms. J. Dairy Sci. 87(1):191-201.