Shawn S. Donkin, PhD

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**a. gENERAL INFORMATION**

**Education:**

1992 Ph.D., Dairy Science (Minor: Biomolecular Chemistry), University of Wisconsin - Madison, Wisconsin.

1987 M.S., Dairy and Animal Sciences, The Pennsylvania State University, University Park, Pennsylvania.

1982 B.Sc., General Agricultural Sciences, McGill University, Montreal, Quebec.

1980 Associate in Agricultural Science, Nova Scotia Agricultural College, Truro, Nova Scotia**.**

**Academic Appointments:**

Associate Dean for Research, College of Agricultural Sciences, Oregon State University, August 2021 – present.

Associate Director of the Oregon Agricultural Experiment Station, Oregon State University, August 2021 – present.

Professor of Animal and Rangeland Sciences, Oregon State University, August 2021 – present.

Adjunct Professor of Animal Sciences, Purdue University, August 2021 – present.

Assistant Dean and Associate Director of Research and Graduate Education, College of Agriculture, Purdue University, January 2019 – August 2021.

Interim Associate Dean for Research and Graduate Education, College of Agriculture, Purdue University, July 2017 – January 2019.

Assistant Dean and Associate Director of Research and Graduate Education, College of Agriculture, Purdue University, August 2011 – July 2017.

Research Faculty, The Diabetes Translational Research Center, Indiana University School of Medicine, Indianapolis, August 2009 - present.

Professor of Foods and Nutrition (Courtesy Appointment), Purdue University, January 2009 – August 2021.

University Faculty Scholar, Purdue University, 2007 - 2012.

Professor of Animal Sciences, Purdue University, July 2006 – August 2021.

Visiting Research Professor, The Liggins Institute, Faculty of Medical and Health Sciences, The University of Auckland, New Zealand, December 2004 - July 2005.

Associate Professor of Animal Sciences, Purdue University, July 2001 - July 2006.

Assistant Professor of Animal Sciences, Purdue University, December 1995 - July 2001.

Assistant Research Scientist, University of Wisconsin, August 1995 - December 1995.

Postdoctoral Research Scientist, University of Wisconsin, August 1994 - August 1995.

Postdoctoral Research Scientist, The Pennsylvania State University, May 1992 - August 1994.

**Non-academic work experience:**

Dairy Herd Manager, Bidalosy Farms Ltd., Old Barns, Nova Scotia, 1983-1985.

Field Representative, Shur-Gain Feeds, Canada Packers Inc., Truro, Nova Scotia, 1982-1983.

Awards and Honors:

* 1. Professional awards

Purdue Dreamer Award 2020. *For contributions that embody Rev. Martin Luther King Jr.'s vision of service to others and further the University's commitment to diversity*.

American Society of Animal Science, Animal Growth and Development Award, 2016.

Indiana Extension Educators Association International Award, 2015.

American Dairy Science Association, Pfizer Animal Health Physiology Award, 2010.

Outstanding Teacher, Purdue University, Department of Animal Sciences, 2010.

Purdue College of Agriculture Dean’s Team Award, 2009.

Outstanding Graduate Mentor, Purdue University, Department of Animal Sciences, 2008.

Outstanding Undergraduate Counselor, Purdue University, Department of Animal Sciences, 2002 and 2008.

* 1. Graduate and undergraduate awards

National Feed Ingredients Association Scholarship, University of Wisconsin-Madison, 1990.

Province of Nova Scotia College Entrance Scholarship, 1978.

Memberships in Academic, Professional and Scholarly Societies:

American Society of Animal Science.

American Dairy Science Association.

1. **ADMINISTRATION OF RESEARCH AND GRADUATE PROGRAMS**

As Associate Dean for Research at Oregon State University College of Agricultural Sciences, Dr. Donkin is responsible for the vision and leadership of research programs in agriculture, food and natural resource sciences including fiscal management, and a number of regulatory functions that support research. His responsibilities include USDA-NIFA federal-formula funding accountability and reporting, oversight of a research budget of extramural grants and contracts totaling $83M, research program development, budget, planning, allocation of resources, support of faculty in the aggressive pursuit of extramural funds, and general advocacy for agriculture, food, and natural resources research.

Dr. Donkin previously served the College of Agriculture at Purdue University as Assistant Dean for Research and Graduate Education, Associate Director of the Indiana Agricultural Experiment Station (2011-2017 and 2019-2021) and as Interim Associate Dean for Research (2017-2019). He provided leadership to support the success of graduate programs developed a collaboration with departmental program leaders in the College of Agriculture and the Purdue Graduate School including activities for program planning, assessment, recruiting, admissions, academic services, diversity, inclusion, fellowship program funding, professional development and communications. One of his primary initiatives has been the recruitment, retention, and success of underrepresented minority graduate students and fostering a culture of inclusive excellence in the College of Agriculture and across campus. He was recognized for extraordinary effort in this regard with the 2020 Purdue Dreamer Award (*For contributions that embody Rev. Martin Luther King Jr.'s vision of service to others and further the University's commitment to diversity*.

1. **RESEARCH**

As a faculty member, Dr. Donkin’s research explores the control of hepatic function in food animal production, animal well-being, and human health. This research, which is both applied and basic in scope, resulted in feeding recommendations for optimal health and productivity in dairy cattle and created knowledge of the underlying biology of nutrient metabolism in mammalian liver.

Research conducted in Dr. Donkin’s laboratory was among the first to describe the molecular events that control glucose and nitrogen metabolism in dairy cattle and developing calves. Fundamental studies explore the role of physiological transitions and stressors on gene promoter control. Applied research explores the potential of biofuel co-products as feeds for ruminants and the impact on animal productivity and health.

Dr. Donkin utilized his expertise in nutritional physiology to determine the basis of aberrant glucose and lipid metabolism during disease. Collaborative research in this area explores the control of energy partitioning, the molecular basis of cellular energy metabolism, mammary cancer progression, and insulin signaling.

Core values for Dr. Donkin’s research program include a dynamic and supportive environment that emphasizes scholarly effort, professionalism, and open scientific exchange and the development and training of both graduate and undergraduate students.

* 1. Refereed Articles (last 10 years of 111 peer reviewed publications).

1. Carvalho, E. R., N. S. Schmelz-Roberts, H. M. White, and S. S. Donkin 2011. Replacing corn with glycerol in diets for transition dairy cows. J Dairy Sci. 94:908-916.
2. White H.M., S. L. Koser, S. S. Donkin. 2011. Characterization of bovine pyruvate carboxylase promoter 1 responsiveness to serum from control and feed-restricted cows. J Anim Sci. 89:1763-1768.
3. White H. M., S. L. Koser, S. S. Donkin. 2011. Bovine pyruvate carboxylase 5' untranslated region variant expression during transition to lactation and feed restriction in dairy cows. J Anim Sci. 89:1881-1892.
4. Grünberg W, S. S. Donkin, P. D. Constable. 2011. Periparturient effects of feeding a low dietary cation-anion difference diet on acid-base, calcium, and phosphorus homeostasis and on intravenous glucose tolerance test in high-producing dairy cows. J Dairy Sci. 94:727-745.
5. Aschenbach J.R., N. B. Kristensen, S. S. Donkin, H. M. Hammon, G. B. Penner. 2011. Gluconeogenesis in dairy cows: the secret of making sweet milk from sour dough. IUBMB Life. 62:869-877.
6. White H.M., S. L. Koser, S. S. Donkin. 2011. Differential regulation of bovine pyruvate carboxylase promoters by fatty acids and peroxisome proliferator-activated receptor-? agonist. J Dairy Sci. 94:3428-3436.
7. White HM, Donkin SS, Lucy MC, Grala TM, Roche JR. 2012. Short communication: Genetic differences between New Zealand and North American dairy cows alter milk production and gluconeogenic enzyme expression. J Dairy Sci. 95:455-459.
8. White, H. M., S. L. Koser, and S. S. Donkin. 2012. Regulation of bovine pyruvate carboxylase mRNA and promoter expression by thermal stress. J. Anim. Sci. 90:2979-2987.
9. Carvalho ER, NS Schmelz-Roberts, HM White, CS Wilcox, SD Eicher, SS Donkin. 2012. Feeding behaviors of transition dairy cows fed glycerol as a replacement for corn. J Dairy Sci.; 95:7214-24.
10. White HM, Koser SL, Donkin SS. 2012. Gluconeogenic enzymes are differentially regulated by fatty acid cocktails in Madin-Darby bovine kidney cells. J Dairy Sci. 95:1249-56.
11. Carvalho, E.R., N.S. Schmelz-Roberts, H.M. White, C.S. Wilcox, S.D. Eicher, and S.S. Donkin. 2012. Feeding behaviors of transition dairy cows fed glycerol as a replacement for corn. J Dairy Sci.; 95:7214-24.
12. Zou, M., E. J. Arentson, D. Teegarden, S. L. Koser, L. Onyskow, and S. S. Donkin 2012. Fructose consumption during pregnancy and lactation induces fatty liver and glucose intolerance in rats. Nutr Res. 32:588-98.
13. White, H.M., S.L. Koser, and S.S. Donkin. 2012. Gluconeogenic enzymes are differentially regulated by fatty acid cocktails in Madin-Darby bovine kidney cells. J Dairy Sci. 95:1249-56
14. Zheng W, Tayyari F, Gowda GA, Raftery D, McLamore ES, Porterfield DM, Donkin SS, Bequette B, Teegarden D. 2013. Altered glucose metabolism in Harvey-ras transformed MCF10A cells. Mol Carcinog. doi: 10.1002/mc.22079.
15. Donkin S. S., P. H. Doane, and M. J. Cecava. 2013. Expanding the role of crop residues and biofuel co-products as ruminant feedstuffs. Animal Frontiers 3:54-60.
16. Grala, T.M., J.R. Roche, J.K. Kay, A.G. Rius, H.M. White, S.S. Donkin, M.D. Littlejohn, R.G. Snell and C.V. Phyn. 2013. The expression of genes involved in hepatic metabolism is altered by temporary changes to milking frequency. J Dairy Sci. 97:838-850.
17. Oh, J., A.N. Hristov, C. Lee, T. Cassidy, K. Heyler, G.A. Varga, J. Pate, S. Walusimbi, E. Brzezicka, K. Toyokawa, J. Werner, S.S. Donkin, R. Elias, S. Dowd, and D. Bravo. 2013. Immune and production responses of dairy cows to postruminal supplementation with phytonutrients. J Dairy Sci. 96:7830-43.
18. Arentson, E.J., R. Potu, D. Ragland, K. K. Buhman, K. Ajuwon, S. S. Donkin. 2014. Excess pregnancy weight gain and early energy-rich environment programs offspring for indications of metabolic syndrome. Nutrition Research 34: 241-249
19. Casey T., J. Crodian, S.S. Donkin, K. Plaut. 2014. Continuously Changing Light-Dark Phase Decreases Milk Yield, Fat, Protein and Lactose in Dairy Cows. J Adv Dairy Res 2:119-121.
20. Carvalho, E. R., N. S. Schmelz-Roberts, H.M. White, S. Wilcox, S. Eicher, S. S. Donkin. 2014. Eating, resting and rumination activities of transition dairy cows fed with glycerol. Global science and technology 7:130-141.
21. Zheng, W, F. Tayyari, G.A. Gowda, D. Raftery, E.S. McLamore, J. Shi, D.M. Porterfield, S.S. Donkin, B. Bequette, and D. Teegarden. 2013. 1,25-dihydroxyvitamin D regulation of glucose metabolism in Harvey-ras transformed MCF10A human breast epithelial cells. J Steroid Biochem Mol Biol. 138:81-9.
22. Carrillo, A.E., M.G. Flynn, C. Pinkston, M.M. Markofski, Y. Jiang, S.S. Donkin, and D. Teegarden. 2013. Impact of vitamin D supplementation during a resistance training intervention on body composition, muscle function, and glucose tolerance in overweight and obese adults. Clin Nutr. 32:375-81.
23. Schroer, RC, T.D. Nennich, T.S. Dennis, M.M. Schutz, S.S. Donkin, and D. Little. 2014. Intake and growth of prepubertal dairy heifers fed reduced-fat dried distillers grains. The Professional Animal Scientist 30: 93-98.
24. Camarillo, I.G., L. Clah, W. Zheng, X. Zhou, B. Larrick, N. Blaize, and E. Breslin, N. Patel, D. Johnson, D. Teegarden, S.S. Donkin, T.P. Gavin, and S. Newcomer. 2014. Maternal exercise during pregnancy reduces risk of mammary tumorigenesis in rat offspring. Eur. J. of Cancer Prev. 23: 502-505.
25. Wall, E.H., P.H. Doane, S.S. Donkin, and D. Bravo. 2014. The effects of supplementation with a blend of cinnamaldehyde and eugenol on feed intake and milk production of dairy cows. J. Dairy Sci. 97: 5709-5717.
26. Carvalho, E. R., N. S. Schmelz-Roberts, H.M. White, S. Wilcox, S. Eicher, and S. S. Donkin. 2014. Eating, resting and rumination activities of transition dairy cows fed with glycerol. Global science and technology 7:130-141.
27. McCann, C.C., M.E. Viner, S.S. Donkin, and H.M. White. 2014. Hepatic patatin-like phospholipase domain-containing protein 3 sequence, single nucleotide polymorphism presence, protein confirmation, and responsiveness to energy balance in dairy cows. J. Dairy Sci. 97: 5167-5175.
28. Taheripour, P., M.A. DeFord, E.J. Arentson-Lantz, S.S. Donkin, K.M. Ajuwon, and S.C. Newcomer. 2014. Impact of excess gestational and post-weaning energy intake on vascular function of swine offspring. BMC Pregnancy Childbirth. 14:405-414.
29. Blaize, A.N., E. Breslin, S.S. Donkin, R. Cabot, K.J. Pearson, and S.C. Newcomer. 2015. Maternal Exercise Does Not Significantly Alter Adult Rat Offspring Vascular Function. Med. Sci. Sports Exerc. 11:2340-6.
30. Zheng, W., F. Tayyari, G.A. Gowda, D. Raftery, E.S. McLamore, D.M. Porterfield, S.S. Donkin, B. Bequette, and D. Teegarden. 2015. Altered glucose metabolism in Harvey-ras transformed MCF10A cells. Mol Carcinog. 54:111-20.
31. Qu, H., S.S. Donkin, and K.M. Ajuwon. 2015. Heat stress enhances adipogenic differentiation of subcutaneous fat depot-derived porcine stromovascular cells. J Anim Sci. 93:3832-42.
32. Zhang, Q., Koser SL, Bequette BJ, and Donkin SS. 2015 Effect of propionate on mRNA expression of key genes for gluconeogenesis in liver of dairy cattle. J Dairy Sci. 98:8698-709.
33. White H.M., E.R Carvalho., S.L. Koser, N.S. Schmelz-Robert, L.M. Pezzanite, A.C. Slabaugh, P.H. Doane, S.S. Donkin. 2016. Short communication: Regulation of hepatic gluconeogenic enzymes by dietary glycerol in transition dairy cows. J Dairy Sci. 99:812-7.
34. Zhang Q, Koser SL, Donkin SS. 2016. Propionate induces mRNA expression of gluconeogenic genes in bovine calf hepatocytes. J Dairy Sci. 99:3908-3915 doi: 10.3168/jds.2015-10312.
35. Sheldon, R.D., N. A. Blaize, J.A. Fletcher, K.J. Pearson, S.S. Donkin, S.C. Newcomer, and R.S. Rector. 2016. Gestational exercise protects adult male offspring from high-fat diet-induced hepatic steatosis. J Hepatol. 64:171-8.
36. Arentson-Lantz, E.J., M. Zou, D. Teegarden, K.K. Buhman, and S.S. Donkin. 2016. Maternal high fructose and low protein consumption during pregnancy and lactation share some but not all effects on early-life growth and metabolic programming of rat offspring. Nutrition Research 36: 937-946.
37. Zhang, Q., S.L. Koser, and S.S. Donkin. 2016. Propionate induces the bovine cytosolic phosphoenolpyruvate carboxykinase promoter activity. J Dairy Sci. 99:6654-6664.
38. Qu, H., H. Yan, H. Lu, S.S. Donkin, and K.M. Ajuwon. 2016. Heat stress in pigs is accompanied by adipose tissue-specific responses that favor increased triglyceride storage. J Anim Sci. 94:1884-96.
39. Zhou, X., W. Zheng, G.A. Nagana Gowda, D. Raftery, S.S. Donkin, B. Bequette, and D. Teegarden. 2016. 1,25-Dihydroxyvitamin D inhibits glutamine metabolism in Harvey-ras transformed MCF10A human breast epithelial cell. J Steroid Biochem Mol Biol. 163:147-56.
40. Walker, C.G., M.A. Crookenden, K.M. Henty, R.R. Handley, B. Kuhn-Sherlock, H.M. White, S.S. Donkin, R.G. Snell, S. Meier, A. Heiser, J.J. Loor, M.D. Mitchell, and J.R. Roche .2016. Epigenetic regulation of pyruvate carboxylase gene expression in the postpartum liver. J Dairy Sci. 99: 5820-5827.
41. Ajuwon, K.M., E.J. Arentson-Lantz, and S.S. Donkin. 2016. Excessive gestational calorie intake in sows regulates early postnatal adipose tissue development in the offspring. BMC Nutrition 2: 29-41.
42. Wilmanski, T., K. Buhman, S.S. Donkin, J.R. Burgess, and D. Teegarden. 2017. 1α,25-dihydroxyvitamin D inhibits de novo fatty acid synthesis and lipid accumulation in metastatic breast cancer cells through down-regulation of pyruvate carboxylase. J Nutr Biochem. 40:194-200.
43. Wilmanski, T., X. Zhou, W. Zheng, A. Shinde, S.S. Donkin, M. Wendt,. J.R. Burgess, and D. Teegarden. 2017. Inhibition of pyruvate carboxylase by 1α, 25-dihydroxyvitamin D promotes oxidative stress in early breast cancer progression. Cancer Letters 411, 171-181.
44. Vemulapalli, T.H., S.S. Donkin, T.B. Lescun, P.A. O'Neil, and P.A. Zollner. 2017. Considerations When Writing and Reviewing a Higher Education Teaching Protocol Involving Animals. Journal of the American Association for Laboratory Animal Science 56: 500-508.
45. Crookenden, M.A., C.G. Walker, H. Peiris, Y. Koh, F. Almughlliq, K. Vaswani, S. Reed, A. Heiser, J.J. Loor, J.K. Kay, S. Meier, S.S. Donkin, A. Murray, V.S.R. Dukkipati, J.R. Roche, and M.D. Mitchell. 2017. Effect of circulating exosomes from transition cows on Madin-Darby bovine kidney cell function. J. Dairy Science 100: 5687-5700.
46. Tucker, H.A., M.D. Hanigan, J. Escobar, P.H. Doane, and S.S. Donkin. 2017. Hepatic expression of aminoadipate semialdehyde synthase is unchanged by postruminal lysine supply in lactating dairy cows. Journal of dairy science 100: 1009-1018.
47. Wilmanski, T., K. Buhman, S.S. Donkin, J.R. Burgess, and D. Teegarden. 2017. 1α, 25-dihydroxyvitamin D inhibits de novo fatty acid synthesis and lipid accumulation in metastatic breast cancer cells through down-regulation of pyruvate carboxylase. J. Nutr. Biochem. 40, 194-200.
48. Casperson, B. A., A. E. Wertz-Lutz, J. L. Dunn, and S.S. Donkin. 2018. Inclusion of calcium hydroxide-treated corn stover as a partial forage replacement in diets for lactating dairy cows. J Dairy Sci. 101:2027-2036.
49. Larrick, B.M., K.H. Kim, S.S. Donkin, and D. Teegarden. 2018. 1, 25-Dihydroxyvitamin D regulates lipid metabolism and glucose utilization in differentiated 3T3-L1 adipocytes. Nutrition Research 58, 72-83.
50. Beckett, L., S. Xie, J. Thimmapuram, H.A. Tucker, S.S. Donkin, and T. Casey. 2020. Mammary transcriptome reveals cell maintenance and protein turnover support milk synthesis in early-lactation cows. Physiol Genomics. 52:435-450
51. Kennedy K.M., S.S. Donkin, M.S. Allen. 2020. Effects of propionate concentration on short-term metabolism in liver explants from dairy cows in the postpartum period. J Dairy Sci. 103:11449-11460
52. Boesche K.E., S.S. Donkin. 2020. Pretreatment with saturated and unsaturated fatty acids regulates fatty acid oxidation in Madin-Darby bovine kidney cells. J Dairy Sci. 103:8841-8852.
53. Malacco V.M.R., M. Erickson, F.F. Cardoso, B.P. Biese, J.G. Laguna, S.S. Donkin. 2020. Short communication: Effect of glucose infusion dose and stage of lactation on glucose tolerance test kinetics in lactating dairy cows. J. Dairy Sci. 103:7547-7554.
54. Boesche, K.E., S.S. Donkin. 2021. Bovine pyruvate carboxylase gene proximal promoter activity is regulated by saturated and unsaturated fatty acids in Madin-Darby bovine kidney cells. J Dairy Sci. 104:2308-2317
55. Vyshniakova, K., E. Pavlica, V.M.R. Malacco, A. Yiannikouris T. Reddy Yerramreddy, S. S. Donkin, R.M. Voyles, R.A. Nawrocki. 2020. Impedimetric, PEDOT: PSS-Based Organic Electrochemical Sensor for Detection of Histamine for Precision Animal Agriculture. IEEE Sensors Letters 4: 1-4.
56. Tucker, H.A., V.M.R. Malacco, M.D. Hanigan, S.S. Donkin. 2021. Postruminal protein supply upregulates hepatic lysine oxidation and ornithine transcarbamoylase in lactating dairy cattle. J. Dairy Science doi: 10.3168/jds.2020-18967.
57. Kennedy K.M., S.S. Donkin, M.S. Allen. 2021. Effect of uncouplers of oxidative phosphorylation on metabolism of propionate in liver explants from dairy cows. J Dairy Sci. doi: 10.3168/jds.2020-19536.
58. Cardoso, F. F., S. S. Donkin, M. N. Pereira, R. A. N. Pereira, A. P. Peconick, J. P.Santos, R. B. Silva, V. R. Caproni, C. Parys, and M. A. C. Danes. 2021. Effect of protein level and methionine supplementation on dairy cows during the transition period. J. Dairy Sci. 104: https://doi.org/10.3168/jds.2020-19181
59. Zhang, Q., S.L. Koser and S.S. Donkin. 2021. Identification of promoter response elements that mediate propionate induction of bovine cytosolic phosphoenolpyruvate carboxykinase (PCK1) gene transcription. J. Dairy Sci. 104 (6), 7252-726.
60. Kiesel V. A., M. P. Sheeley, M. F. Coleman, E. K. Cotul, S. S. Donkin, S. D. Hursting, MK Wendt, D Teegarden. 2021. Pyruvate carboxylase and cancer progression. Cancer Metab. 9:20. doi: 10.1186/s40170-021-00256-7
61. Sheeley, M. P., V. A Keisel, N. M. Atallah, S. S. Donkin, S. D. Hursting, M. K. Wendt, and D. Teegarden. 2021. Pyruvate carboxylase supports MCF10a-Ras cell survival in extracellular matrix detached conditions. Cancer & Metabolism 10.21203/rs.3.rs-647480/v1.
62. Casey, T., A.M Suarez-Trujillo, C. McCabe, L. Beckett, R. Klopp, L.Brito, V. M. R. Malacco, S. Hilger, S. S. Donkin, J. Boerman, and K. Plaut. 2021. Transcriptome analysis reveals disruption of circadian rhythms in late gestation dairy cows may increase risk for fatty liver and reduced mammary remodeling. Physiol. Genomics 53:441-455.
    1. Malacco, V. M. R., L. Beckett, S. Hilger, P. Doane, R. B. Reis, S. S. Donkin. 2022. Effects of increased doses of lysine in a rumen-protected form on plasma amino acid concentration and lactational performance of dairy cows fed a lysine-deficient diet J. Dairy Science 105: 3064-3077.
    2. Zacaroni, O. F., N. M. Lopes, G. S. D. Júnior, T. J. DeVries, R. A. N. Pereira. 2022. Complete Replacement Of Corn Grain With Crude Glycerin For Dairy Cows. Livestock Science 258:104893.
    3. Kiesel, V. A. M. P. Sheeley, S. S. Donkin, M. K. Wendt, S. D. Hursting, D.Teegarden. 2022. Increased Ammonium Toxicity in Response to Exogenous Glutamine in Metastatic Breast Cancer Cells. Metabolites 12: 469.
    4. Kiesel, V,A., M. P. Sheeley, E. M. Hicks, C. Andolino, S. S. Donkin, M. K. Wendt, S. D. Hursting and D. Teegarden. 2022. Hypoxia-mediated ATF4 induction promotes survival in detached conditions in metastatic murine mammary cancer cells. Frontiers in Oncology 767479 doi:10.3389/fonc.2022.767479
    5. Sheeley, M. P., V. A. Kiesel, C. Andolino, N. A. Lanman, S. S. Donkin, S. D. Hursting, M. K. Wendt, S. D. Hursting and D. Teegarden. 2022. 1α, 25-dihydroxyvitamin D reduction of MCF10A-ras cell viability in extracellular matrix detached conditions is dependent on regulation of pyruvate carboxylase. The Journal of Nutritional Biochemistry, 109: 116. doi.org/10.1016/j.jnutbio.2022.109116
63. Research Abstracts (last 10 years of 139 abstracts)
64. Arentson, E.J., M. Zou, K.K. Buhman, and S.S. Donkin. 2011. Maternal fructose consumption programs gene expression pattern in intestine of male offspring. FASEB J. 24: 344.3.
65. White, H.M., S.S. Donkin, M.C. Lucy, T.M. Grala, and J.R. Roche. 2011. Genetic differences between New Zealand and North American dairy cows alter milk production and gluconeogenic enzyme expression. J. Anim. Sci. 89: E-Suppl. 1: 28.
66. Tindell, S.I., S.L. Koser, and S.S. Donkin. 2011. Propionate increases mitochondrial phosphoenolpyruvate carboxykinase mRNA in Madin-Darby bovine kidney epithelial cells. J. Anim. Sci. 89: E-Suppl. 1: 338.
67. Tucker, H.A., S.L. Koser, P.H. Doane, and S.S. Donkin. 2011. Protein balance alters expression of key genes for protein and lysine catabolism in liver of lactating dairy cattle. J. Anim. Sci. 89: E-Suppl. 1: 620.
68. Donkin, S.S. 2011. Carbon cycles, pyruvate carboxylase, and the potential for chaos in liver of dairy cows during the transition to lactation. EAAP – 62nd Annual Meeting, Stavanger.
69. Donkin, S.S. and S.L. Koser. 2011. Expression of bovine cytosolic phosphoenolpyruvate carboxykinase is regulated by glucagon, glucocorticoids, and propionate to control gluconeogenic capacity in bovine liver. 2011 International Congress On Farm Animal Endocrinology-ICFAE, Bern.
70. Arentson, E.J., R. Potu, D. Ragland, K. K. Buhman, K. Ajuwon, and S.S. Donkin. 2012. Excess pregnancy weight gain and early energy-rich environment in swine program offspring for indications of metabolic syndrome. FASEB J. 25.
71. Tucker, H. A., M.D. Hanigan, J. Escobar, P.H. Doane, and S.S. Donkin. 2012. Genes for lysine catabolism in lactating dairy cows are responsive to postruminal lysine supply. J. Dairy Sci., 95 Suppl. 2: 46.
72. Viner, M.E., S.S. Donkin, and H.M. White. 2012. Hepatic patatin-like phospholipase domain-containing protein 3 mRNA expression is increased during feed restriction and in transition dairy cows. J. Dairy Sci., 95 Suppl. 2:77.
73. Donkin, S.S., A.C. Headley, H.A. Tucker, P.H. Doane, and M.J. Cecava. 2012. Processed corn stover as a corn silage replacement feed for lactating dairy cattle. J. Dairy Sci., 95 Suppl. 2:606.
74. Zhang, Q., S.L. Koser, and S.S. Donkin. 2012. Cloning and responsiveness of bovine glucose-6-phosphatase promoter to cyclic AMP and glucocorticoids. J. Dairy Sci., 95 Suppl. 2:567.
75. Donkin, S. S. and M. J. Cecava. 2012. Rethinking and expanding the role of co-products and crop residues as livestock feeds. J. Dairy Sci., 95 Suppl. 2:404.
76. Tucker, H. A., G. Honda, A. Vamra, J. Townsend, and S.S. Donkin. 2012. Methane production is not reduced when glycerol, a biofuel co-product, is fermented by rumen bacteria. Tri-State Dairy Nutrition Conference. Fort Wayne, IN.
77. Nortrup, A. J., H.A. Tucker, P.H. Doane, and S.S. Donkin. 2012. Initial feeding behavior responses of dairy cattle to physical form of added fat. Tri-State Dairy Nutrition Conference. Fort Wayne, IN.
78. Potu, R.B., E.J Arentson, D. Ragland, S.S. Donkin, and K.M. Ajuwon. 2012. Maternal overconsumption of calories during pregnancy programs offspring for increased adiposity through induction of adipogenic genes FASEB J March 29, 2012 26:648.5.
79. Taheripour, P., K.M. Ajuwon, S.S. Donkin, R.D. Sheldon, M. Bahls, E.J. Arentson, D. Ragland, and S.C. Newcomer. 2012. Impact of maternal and postnatal nutrition on femoral artery vascular function of offspring FASEB J March 29, 2012 26:829.2.
80. Zheng, W., F. Tayyari, N. Gowda, D. Raftery, J. Shi, M. Porterfield, B. Bequette, S.S. Donkin, and D. Teegarden. 2012. 1,25 dihydroxyvitamin D regulation of energy metabolism in MCF10 human breast epithelial cells FASEB J March 29, 2012 26:822.2.
81. Boesche, K.E.; S.L. Koser, and S.S. Donkin, 2013. Regulation of pyruvate carboxylase expression by fatty acid cocktails in Madin-Darby bovine kidney cells. Proceedings of the 22nd Tri-State Dairy Nutrition Conference, Fort Wayne, Indiana, USA, 23-24 April 2013 Pages: 167.
82. Blaize, N., S.S. Donkin, R. Cabot, and S.C. Newcomer. 2013. Maternal Exercise During Pregnancy Does Not Influence Glucose Clearance or Vascular Function in Adult Offspring. Medicine and Science In Sports and Exercise. Volume: 45 (Suppl 1):33.
83. Tucker, H., M. Hanigan, and S. S. Donkin,. 2013. Hepatic gene expression and post-ruminal protein supply in lactating dairy cattle. J. Dairy Sci. 96(E-Suppl. 1):31.
84. Zhang, Q., H.A. Tucker, K.E. Boesche, J.E. Sibray, S.L. Koser, and S.S. Donkin. 2013. Effect of postruminal propionate infusion on expression of key genes for gluconeogenesis in the liver of lactating dairy cows. J. Dairy Sci. 96 (E-Suppl. 1) :48.
85. Boesche, K.E., S.L. Koser, and S.S. Donkin. 2013. Regulation of pyruvate carboxylase expression by fatty acid cocktails in Madin-Darby bovine kidney cells. J. Dairy Sci. 96(E-Suppl. 1):48.
86. Tucker, H. and S.S. Donkin. 2013. Expression of mRNA for ureagenesis in early-lactation dairy cows is responsive to post-ruminal protein supply. Dairy Sci. 96(E-Suppl. 1):35.
87. Zheng, W., S.L. Koser, S.S. Donkin, and D. Teegarden. 2014. 1, 25 Dihydroxyvitamin D regulation of glucose metabolism via pyruvate carboxylase in MCF10A-ras human breast epithelial cells. The FASEB Journal 28 (1 Supplement), 261.7.
88. Zhou, X., W. Zheng, F. Tayyari, N. Gowda, D. Raftery, S.S. Donkin, B. Bequette. 2014 and D. Teegarden. 1, 25 Dihydroxyvitamin D inhibits glutamine metabolism in ras-transformed MCF10A breast epithelial cells. The FASEB Journal 28 (1 Supplement), 644.12.
89. Boesche, K., S.L. Koser, and S.S. Donkin. 2014. Fatty acid chain length and degree of saturation regulate expression of pyruvate carboxylase in Madin-Darby bovine kidney cells. The FASEB Journal 28 (1 Supplement), 821.9.
90. Zheng, W., I. Camarillo, L. Clah, X. Zhou, B. Larrick, N. Blaize, E. Breslin, N. Patel, D. Johnson, D. Teegarden, S.S. Donkin, T.P. Gavin, and S. Newcomer. 2014 Maternal exercise during pregnancy reduces risk of mammary tumorigenesis in rat offspring. The FASEB Journal 28 (1 Supplement), 886.1.
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93. Zhang, Q., S.L. Koser, and S.S. Donkin. 2014. Propionate regulates its own metabolic fate in liver of dairy cattle. Tri-State Dairy Nutrition Conference Proceedings 2014. P 187.
94. Zhang, Q., S.L. Koser, and S.S. Donkin. 2014. Propionate is a dominant inducer of bovine cytosolic phosphoenolpyruvate carboxykinase gene expression.. J. Dairy Sci. Vol. 97, E-Suppl. 1: 570.
95. Boesche, K.E., J.E. Sibray, S.L. Koser and S.S. Donkin. 2014. Effect of postruminal infusion of fructose on hepatic steatosis. J. Dairy Sci. Vol. 97, E-Suppl. 1: 884.
96. Boesche, K.E., S.L. Koser, and S.S. Donkin. 2015. Pretreatment with saturated and unsaturated fatty acids regulates [1-14C] C16:0 metabolism in Madin-Darby bovine kidney cells. . J. Anim. Sci. Vol. 93, Suppl. s3/J. Dairy Sci. Vol. 98, Suppl. 2:139.
97. Casperson, B.A., A.E. Wert-Lutz and S.S. Donkin. 2015. Ca(OH)-treated corn stover as an alternative for hay-crop forage or corn silage in diets for lactating dairy cows. J. Anim. Sci. Vol. 93, Suppl. s3/J. Dairy Sci. Vol. 98, Suppl. 2:140.
98. Zhang, Q., S.L. Koser, and S.S. Donkin. 2015. Propionate and cyclic AMP induced bovine PCK1 gene transcription is concurrently mediated by CRE and HNF4α binding elements. J. Anim. Sci. Vol. 93, Suppl. s3/J. Dairy Sci. Vol. 98, Suppl. 2:708.
99. Boesche, K. E.; S. L. Koser, and S. S. Donkin. 2015. Saturated and unsaturated fatty acid pretreatment regulates [1-14C] C16:0 metabolism in Madin-Darby bovine kidney cells. 24th Tri-State Dairy Nutrition Conference, Fort Wayne, Indiana, USA, 20-22 April, 2015 Pages: 165.
100. Casperson, B.A., A.E. Wertz-Lutz, and S.S. Donkin, 2016. Calcium hydroxide treated corn stover as an alternative forage source for lactating Holstein cows: effects on milk production and milk composition. 24th Tri-State Dairy Nutrition Conference, Fort Wayne, Indiana, USA, 20-22 April, 2015 Pages: 166.
101. Larrick, B.M., K. Kee-Hong, S.S. Donkin, and D. Teegarden 1, 25-Dihydroxyvitamin D Regulates Energy Substrate Metabolism to Reduce Triacylglycerol Accumulation in 3T3-L1 Adipocytes. 2016. The FASEB Journal 30 (1 Supplement), 128.2-128.2.
102. Wilmanski, T., A. Barnard, S. S. Donkin, M. Parikh, K. Buhman, J. Kirshner, and D. Teegarden. 2016. 1α25-Dihydroxyvitamin D3 Inhibits De Novo Fatty Acid Synthesis and Metastatic Capability of Breast Cancer Cells. 2016. The FASEB Journal 30 (1 Supplement), 688.4-688.4.
103. Casperson, B.A., A.E. Wertz-Lutz, and S.S. Donkin. 2016. Inclusion of pelleted calcium hydroxide-treated corn stover in lactating Holstein cow diets: Effects on milk production and milk composition. Journal of Animal Science 94 (supplement 5), 653.
104. Wilmanski, T.M., A. Shinde, S.S. Donkin, J. Burgess, M. Wendt, and D. Teegarden. 2017. Pyruvate Carboxylase is Essential for Breast Cancer Metastasis in Vivo. The FASEB Journal 31 (1 Supplement), 942.12-942.
105. Casperson, B.A., and S.S. Donkin. 2017. Young Scholar Presentation: Making something out of nothing: The potential of calcium hydroxide–treated corn stover for dairy cows. Journal of Animal Science 95 (supplement2), 180-181.
106. Smith, E.N., M.G. Erickson, F.F. Cardoso, B.P. Biese, J.G. Laguna, J. Bydalek, and S.S. Donkin. 2018. Effect of glucose infusion dose on glucose tolerance test kinetics in lactating dairy cows. J. Dairy Sci. Vol. 101, Suppl. 2: 274.
107. Malacco, V. M. R., M. Cecava, P. Doane, R. B. Reis, and S. S. Donkin. 2019. Evaluation of rumen-protected lysine product on performance of lactating dairy cows. J. Dairy Sci. Vol. 102, Suppl. 2: 243.
108. Teeple, K., A Suarez-Trujillo, C McCabe, J Townsend, S Donkin, K Plaut, J Boerman, T Casey. 2020. Disruption of circadian clocks in the prepartum dry period negatively affect mammary development. J. Dairy Sci. 103, 21-21
109. Beckett, L., J Thimmapuram, S Xie, T Casey, SS Donkin. 2020. Mammary gland transcriptome profiling reveals an abundance of transcripts for cell maintenance and protein turnover. J. Dairy Sci. 103, 21-22
110. Malacco, V.M.R., P. Doane, R.B. Reis, L Beckett, S. Hilger, N. Briggs and S.D Donkin. 2020. Estimated postruminal bioavailability of rumen-protected lysine using plasma area under the curve methodology. J. Dairy Sci. 103, 300-300.
111. Vyshniakova1, K., H. Bai, V. Malacco, E Pavlica, R. M. Voyles, S. S, Donkin, A. Gehman, and R. Nawrocki. 2021. Electrochemical ZnO-Based Impedimetric Sensor for Aqueous Ammonia Detection for Precision Animal Agriculture. ECS Meeting Abstracts, Volume MA2021-01, IMCS 04: Sensors for Agricultural and Environmental Applications.
112. Bai, H., K. Vyshniakova, E. Pavlica, V. Malacco, A. Yiannikouris, T.Yerramreddy, R. M. Voyles, S. S. Donkin and R. Nawrocki . 2021. (Invited) Impedimetric Detection of Histamine Using PEDOT:PSS-Based Organic Electrochemical Sensor for Precision Animal Agriculture. ECS Meeting Abstracts, Volume MA2021-01, G03: Organic Semiconductor Materials, Devices, and Processing 8.
113. Beckett, L. M., J. Laguna, S. Hilger, and S. S. Donkin. 2021. Pyruvate carboxylase knockdown alters lactate oxidation in Madin-Darby bovine kidney cells. J. Dairy Sci. Vol. 104, Suppl. 1: 301.
114. Malacco, V. M. R., P. Doane, L. Beckett, S. Hilger, C. McCabe, M. Savage, and S. Donkin. 2021. Postruminal dosing of lysine, methionine, and histidine as an assessment tools for amino acid biological availability in lactating dairy cows., J. Dairy Sci. Vol. 104, Suppl. 1: 328.
115. Datta, A., U. Kaur, V. Malacco, M. Nath, B. Chatterjee, S. S. Donkin, R. M. Voyles, S. Sen. 2021. In-body to Out-of-body Communication Channel Modeling for Ruminant Animals for Smart Animal Agriculture. 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). Pages 7570-7573.
116. Snyder, M. M., F. Yue, L. Zhang, R. Shang, J. Qiu, J. Chen, K. H. Kim, Y. Peng, S. N. Oprescu, S. S. Donkin, P. Bi, S. Kuang. 2021. LETMD1 is required for mitochondrial structure and thermogenic function of brown adipocytes. The FASEB Journal 35: e21965.
117. Beckett, L. M., S. S. Donkin, and T. Casey. 2022. Response of hepatic gluconeogenic flux and transcriptome to circadian rhythm disruption. J. Dairy Sci. Vol. 105, Suppl. 1: 168.
118. Effect of glucose infusion dose and stage of lactation on urinary glucose excretion in dairy cows. Malacco, V. M. R., M. R. Savage, L. Beckett, S. Hilger, L. F. Martins, R. C. Neves, B. Funnell, and S. S. Donkin. J. Dairy Sci. Vol. 105, Suppl. 1: 306.

3. Book Chapters

* 1. Etherton, T.D., S.S. Donkin, and D.E. Bauman. 1995. Mechanisms by which porcine somatotropin (pST) decreases adipose tissue growth in growing pigs. In: *The Biology of Fat in Meat Animals: Current Advances*. American Society of Animal Science, Champaign, IL. Edited by S.B. Smith and D.R. Smith. pp. 53-69.
  2. Donkin, S.S. 1999. Role of the endocrine pancreas on animal metabolism, growth and performance. In: *Developments in Animal and Veterinary Sciences: The Biology of Pancreas in Growing Animals*. Elsevier, Amsterdam. Edited by S.G. Pierzynowski and R. Zabielski. pp. 315-328.
  3. Donkin, S.S. 2002. Metabolic diseases of dairy animals: Fatty liver. In: *Encyclopedia of Dairy Sciences*. Academic Press-London. Edited by J. Fuguay. pp. 855-860.
  4. Donkin, S.S. and H.M. Hammon. 2005. Hepatic gluconeogenesis in developing ruminants. In *Biology of Metabolism in Growing Animals*. Elsevier, Amsterdam. Edited by D.G. Burrin and H.J. Mersmann. pp. 375-390.
  5. Donkin, S.S. 2011. Metabolic diseases of dairy animals: Fatty liver. In: *Encyclopedia of Dairy Sciences* (2nd revised edition), Academic Press-London. Edited by J. Fuguay. pp. 217–223.
  6. Larrick B., S.S. Donkin, and D. Teegarden. 2013. Vitamin D and Insulin Sensitivity. Handbook of vitamin D in human health, Editor: R.R. Watson, Wageningen Academic Publishers, Wageningen, The Netherlands.
  7. Kaur, U., R. M. Voyles and S. Donkin 2021. Future of Animal Welfare –Technological Innovations for Individualized Animal Care. CAB International 2021. Improving Animal Welfare, 3rd Edition, Edited by Temple Grandin. pp. 351-362.

1. Invited Lectures: **41 invited lectures in 9 countries**
2. Nutritional strategies for the control of hepatic disorders around calving. 54 Annual Meeting of The Brazilian Society of Animal Science, Goiania, Brazil, 2018.
3. The Role of Liver During Transition on Postpartum Health and Performance. Florida Ruminant Nutrition Conference Proceedings. Gainesville, FL. 2016.
4. On the connectedness of cows, carbon cycles, and mammary cancer. University of Florida, Animal Molecular & Cellular Biology Graduate Program Retreat. Invited keynote speaker. Brooksville Florida. 2016
5. Energetic hepatic metabolism of amino acids. Amino Acid University sponsored by Adisseo Inc, University of Illinois, Champaign, IL 2016.
6. Cows, carbon cycles, and the potential for chaos (and control) in liver of metabolism, Michigan State University, Department of Animal Sciences, East Lansing, MI. 2016
7. Regulation of gluconeogenesis in the liver by insulin and glucagon and metabolites. 52 Annual Meeting of The Brazilian Society of Animal Science, Belo Horizonte, Brazil, 2015.
8. Modifying crop residues to improve digestibility for dairy cattle. Federal University of Lavras, Minas Gerais Brazil. 2013.
9. The role of liver metabolism during transition on postpartum health and performance. Florida Ruminant Nutrition Conference Proceedings, pp 97-107. Gainesville, FL. 2012.
10. Nutrition and hepatic metabolism in periparturient cows. Formuette, Federal University of Lavras, Minas Gerais Brazil. 2012.
11. The Role of Liver during Transition on Postpartum Health and Performance, Expoleche San Marcos, Aguascalientes, Mexico. 2012.
12. Rethinking and expanding the role of co-products and crop residues as livestock feeds. Canadian Society of Animal Science Symposium, Phoenix. 2012.
13. Opportunities in transition cow biology and management. 8th Sino-US Joint Symposium on Feed Efficiency and Farm Profit, Hohhot, China. 2011.
14. Carbon cycles, pyruvate carboxylase, and the potential for chaos in liver of dairy cows during the transition to lactation. EAAP – 62nd Annual Meeting, Stavanger. 2011.
15. Expression of bovine cytosolic phosphoenolpyruvate carboxykinase is regulated by glucagon, glucocorticoids, and propionate to control gluconeogenic capacity in bovine liver. International Congress on Farm Animal Endocrinology-ICFAE, Bern, Switzerland. 2011.
16. Use of Glycerol in Dairy Rations. Mid-South Ruminant Nutrition Conference, Arlington, TX. 2009.
17. Feeding to Minimize Nutrient Requirements for Maintenance and Increase Milk Production. Tri-State Dairy Nutrition Conference, Fort Wayne. 2008.
18. Use of glycerin in dairy diets. Invited presentation, ADSA/ASAS Ruminant Nutrition Symposium, Indianapolis, IN. 2008.
19. Glycerol: the New Corn for Dairy Cattle. Southwest Nutrition Conference, Tempe, AZ. 2008.
20. Glycerol: The new corn in dairy cattle rations? 45th Reunião Anual da Sociedade Brasileira de Zootecnia (Annual Meeting Brazilian Society of Animal Sciences). July, 2008.
21. Feeding Glycerol from Biodiesel Production. Tri-State Dairy Nutrition Conference, Fort Wayne, IN. 2007.
22. Coordinated control of gluconeogenesis in dairy cattle. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA. 2007.
23. Responding to glucose needs: From dairy cows to carboxylases and beyond. Department of Dairy and Animal Sciences and Center for Nutrition & Pregnancy Department of Animal & Range Sciences, North Dakota State University, Fargo, ND. 2007.
24. Cows, carboxylases, and coordinated control of gluconeogenesis. Ohio State University Nutrition Program, The Ohio State University, Columbus, OH. 2006.
25. Regulation of Key Metabolic Processes in Lactation. Invited presentation, ADSA/ASAS Ruminant Nutrition symposium: Exploring the Boundaries of Efficiency in Lactation: Metabolic Relationships in Supply of Nutrients in Lactating Cows. Cincinnati, OH. 2005.
26. Molecular changes in liver that guide the transition to lactation in dairy cows. DairyNZ, Hamilton, New Zealand. 2005.
27. Dry matter intake and transition dairy cows: A US perspective, DairyNZ producer meeting, Putaruru, Waikato, New Zealand. 2005.
28. Liver metabolism at parturition. The Liggins Institute, Faculty of Medicine and Health Sciences, University of Auckland, New Zealand. 2005.
29. Rumen-protected choline: potential for improving health and production in dairy cows. Tri-State Dairy Nutrition Conference, Fort Wayne, IN. 2002.
30. Feeding genetically modified crops to dairy cattle. Tri-State Dairy Nutrition Conference, Fort Wayne, IN. 2001.
31. Cows, carbon cycles, carboxylases and the transition through calving. Department of Dairy and Animal Sciences, The Pennsylvania State University, University Park, PA. 2001.
32. Cows, carbon cycles, carboxylases and the transition through calving. Department of Animal Sciences, Purdue University, West Lafayette, IN. 2000.
33. Role of the endocrine pancreas on animal metabolism, growth and performance: Effects on glucose synthesis and disposal. European Association Animal Production satellite symposium on the role of the pancreas in growth and nutrient utilization. Zurich, Switzerland. 1999.
34. Zen and the art of determining a protein recommendation for transition dairy cows. Tri-State Dairy Nutrition Conference, Fort Wayne, IN. 1999.
35. Regulation of genes that control gluconeogenesis in the transition dairy cow. American Dairy Science Association Discover Conference on Food Animal Agriculture: Transition Cows, Nashville, IN. 1999.
36. Supplementing B-complex vitamins to lactating cows: Effects on lipid and glucose metabolism. Tri-State Dairy Nutrition Conference, Fort Wayne, IN. 1997.
37. Growth hormone action on key genes in glucose metabolism. Interdepartmental Nutrition Program, Purdue University, West Lafayette, IN. 1996.
38. Glucose synthesis and methionine metabolism by bovine liver. Department of Animal Sciences, Purdue University, West Lafayette, IN. 1995.
39. Glucose synthesis and disposal in the barnyard: Regulation by insulin, glucagon, and somatotropin. Department of Animal Sciences, University of Arizona, Tucson, AZ. 1995.
40. Somatotropin and insulin action: Effects on glucose metabolism and gene expression. Center for Gene Therapy, Baylor College of Medicine, Houston, TX. 1994.
41. Somatotropin action on insulin regulated gene expression. Department of Animal Sciences, University of Maryland, College Park, MD. 1994.
42. Direct hormonal regulation of bovine hepatic gluconeogenesis and glycogen balance by insulin and glucagon. Department of Dairy and Animal Science, The Pennsylvania State University, University Park, PA. 1992.
43. Direct hormonal regulation of bovine hepatic gluconeogenesis and glycogen balance by insulin and glucagon. Lilly Research Laboratories, Eli Lilly and Company, Greenfield, IN. 1991.
44. Graduate Research Involvement

**12 MS (includes 2 nonthesis) and 11 PhD students completed since 1995**

1. Completed Theses (Major Advisor)

* + 1. Randall B. Greenfield, M.S. 1998. Protein requirements and changes in hepatic gene expression in the transition dairy cow.
    2. Jennifer Hartwell, M.S. 1999. Regulation of genes encoding urea cycle enzymes in lactating dairy cattle during the transition to lactation.
    3. Melissa Heckart, M.S. 2000. Effects of conjugated linoleic acid on lipogenesis, lipolysis, and expression of genes that regulate lipid metabolism in liver and adipose tissue of growing pigs.
    4. Lucia Gorleri, M.S. 2000. Impact of dietary protein level and type on growth rate, composition of growth, rumen development and efficiency of nitrogen utilization in early weaned beef cattle.
    5. Cansu Agca, Ph.D. 2001. Cloning of the pyruvate carboxylase gene, characterization of promoter elements and heterogeneous primary transcripts in liver of dairy cows.
    6. Juan Carlos Velez, M.S. 2002. Effects of nutrient sufficiency on expression of genes that regulate glucose metabolism of lactating dairy cows.
    7. Stacie Crowder, M.S. 2003. Enrichment of milk with DHA and effects on cow performance and milk attributes.
    8. Elizabeth (Williams) Karcher , M.S. 2004. Action of rumen fermentation end products on gene expression in liver of dairy cows. Liz was a recipient of the Featherston Graduate Travel Award in the Department of Animal Sciences, 2002-2003 and was first runner-up in the ADSA National Graduate student paper competition at the ADSA/ASAS meetings in Cincinnati, 2005.
    9. Katherine Wright, Ph.D. 2005. Effects of CLA-enriched butter on cholesterol metabolism and sterol-CoA response element binding proteins. (co-advised with J.A. Story, Foods and Nutrition).
    10. Sarah Hazelton-Rodriguez, Ph.D. 2005. Cloning and characterization of bovine pyruvate carboxylase gene promoter.
    11. Jonathan Townsend, Ph.D. 2007. Use of DNA microarray technology to identify the genetic basis of metabolic diseases in lactating dairy cattle. Jon was selected as the outstanding Ph.D student in the Department of Animal Sciences, 2002-2003.
    12. Long Wang, Ph.D. 2007. Hepatic gene expression profiling in response to fiber and fatty acid feeding. (Interdepartmental Nutrition Program, co-advised with J.A. Story, Foods and Nutrition).
    13. Heather White, M.S. 2007. Action of conjugated linoleic acid in adipogenesis.
    14. Mi Zou, M.S. 2010. Fructose, Fetal Programming, and Insulin Resistance.
    15. Nicole Schmelz, M.S. 2010. Use of co-products from biofuels as feeds for lactating dairy cattle.
    16. Heather White, Ph.D. 2010. Role of variants for pyruvate carboxylase in glucose metabolism and insulin resistance. Heather was selected as the outstanding Ph.D. student in the Department of Animal Sciences, 2010.
    17. Emily Arentson, Ph.D. 2012. Fetal Programming, intestinal transport, and glucose homeostasis. (Interdepartmental Nutrition Program).
    18. Heather Tucker, Ph.D. 2013. Control of key genes involved in regulating protein and amino acid metabolism in liver of dairy cattle.
    19. Qian Zhang, Ph.D. 2015. Control of phosphoenolpyruvate carboxykinase promoter function in dairy cattle.
    20. Katie Boesche, Ph.D. 2015. Impact of fatty acids on bovine pyruvate carboxylase expression and function.
    21. Brittany Casperson, Ph.D. 2017. Effects of Calcium Hydroxide Treated Corn Stover Inclusion as a Partial Forage Replacement in Diets for Lactating Dairy Cows.
  1. Completed Non-Thesis (Major Advisor)
     1. Amy Theivagt, M.S. 2009.
     2. Alison Headley, M.S. 2013.
  2. Current Students (Major Advisor)
     1. Linda Beckett, Ph.D. Effects of postruminal amino acid levels and patterns on hepatic amino acid oxidation, milk protein synthesis and biomarkers for adequacy of amino acid requirements. (entered January 2019)
  3. Post-doctoral Students, Research Associates, Visiting Scientists
     1. Harald Hammon. Ontogenic effects of growth hormone on liver metabolism and in response to glucocorticoid administration in neonatal calves. 2001-2002. Current position: Research Scientist, Research Institute for the Biology of Farm Animals, Dummerstorf, Germany.
     2. Burim Ametaj. Effect of dietary form of omega-3 fatty acids on pattern of hepatic gene expression determined using DNA microarray technology. January 2002-December 2002.
     3. Eduardo Carvalho. Effects of glycerol on intake, production and feeding behaviors in transition dairy cows. March 2009-April 2010. Current position: Assistant Professor, Universidade Federal de Goiás, Brazil.
     4. Ozanna Zacaraoni, Impact of methanol in biodiesel glycerol on rate of ruminal glycerol fermentation and fiber digestion 2012-2013. Universidade Federal de Lavras, Brazil.
     5. Fabiana Cardosa. Effects of protein level and methionine supplementation on the diet of dairy cows during the transition period. Universidade Federal de Lavras, Brazil.
     6. Juliana Lugana. Manipulating flux through the TCA cycle in bovine liver cells using RNAi and impact on glucose and fatty acid metabolism. (postdoc).
     7. Victor Malacco. Effects of rumen protected methionine, lysine and histidine on milk composition and blood metabolites in lactating dairy cows, Universidade Federal de Minas Gerias, Brazil. (former visiting PhD student, postdoc).
  4. Graduate advisory and examining committees

18 MS and 24 PhD students from 8 different departments.

1. Research Grants

Total research funding of **$18,945,113 since 1995** with **$11,762,617 since 2011.**

Funded Grants

2020-2021 Leadership, Innovation and The Future of Food and Ag Systems: FFAR Fellows Resident Session II. North Carolina State University. PI:s Donkin, Gunderson, Parks ($108,000).

2020-2021 Archer Daniels Midland Company/Evaluation Rumen Protected Lysine for Dairy Cattle: Postruminal Delivery. PI: S.S. Donkin, ($43,000).

2020-2021 Boveta Nutrition Ltd. / Evaluation of Protein Feeding Technologies for Lactating Dairy Cattle. PI: S.S. Donkin, ($146,053)

2019-2020 Evaluation of supplemental methionine hydroxy analog with or without cinnamaldehyde and garlic oil on lactation performance in dairy cattle. Novus International. PI: Shawn S. Donkin ($66,669).

2019-2022 USDA National Institute of Food and Agriculture / Molecular Regulation of TCA Cycle Flux by Propionate and Fatty Acids and Impact on Metabolic Capacity in Dairy Cows PIs: S. Donkin and D. Teegarden ($499,498).

2019-2024 National Institutes of Health / Obesity, Metabolism and Breast Cancer Metastasis, PIs: D. Teegarden, S. Donkin, M. Wendt, S. Hursting. ($2,845,714).

2018-2021 National Science Foundation / Cyber Physical Systems: Medium: Collaborative Research: Close Loop Sustainable Precision Animal Agriculture. PI: Richard M. Voyles, Co PIs George T. Chiu, S.S. Donkin, Byung-Cheol Min, S. Sundaram ($579,704)

2018-2020 Archer Daniels Midland Company/Evaluation of protein and amino acid sources for dairy cattle. PI: S.S. Donkin, ($150,000).

2018-2019 Archer Daniels Midland Company/Evaluation Rumen Protected Lysine for Dairy Cattle . PI: S.S. Donkin, ($39,111).

2018-2019 AGSEED, Purdue University / Molecular diagnostics of milk in determining protein requirements of lactating dairy cattle. PIs: T. Casey and S. S. Donkin, ($50,000).

2015-2018 Purdue University, Provost Office / Diversity Transformation Award / Graduate Diversity Ambassadors Program. PI: S.S. Donkin, ($150,000).

2015-2016 Archer Daniels Midland Company/Evaluation of novel feeds for dairy cattle. PI: S.S. Donkin, ($150,000).

2015-2016 Zinpro Corporation/Determine the effect of level of chromium-DL-methionine supplementation on enhancement in insulin sensitivity in growing heifers. PI: S.S. Donkin, ($374,939).

2015-2016 Clabber Girl / Evaluation of a Slow Release Formulation of Rumen Buffers for Lactating Dairy Cows. PI: S.S. Donkin, Co-PI J. Schoonmaker ($76,529).

2015-2016 Clabber Girl / Effect of Protected a Protected Buffer on Ruminal pH Changes and Performance of Beef Feedlot Steers During Adaptation from a Forage to a Grain-Based Diet. PI: J. Schoonmaker, Co-PI S.S. Donkin, ($64,998).

2014-2015 Archer Daniels Midland Company/Evaluation of novel feeds for dairy cattle. PI: S.S. Donkin, ($150,000).

2014-2015 AGSEED, Purdue University / Mitigating adverse effect of climate change: Deciphering mechanism of adaptive response to heat stress and impact on efficiency of growth in swine. PIs: K. Ajuwon and S. S. Donkin, ($50,000).

2013-2020 Zinpro Corporation/Contribution to ruminant nutrition research. PI: S.S. Donkin, ($100,000).

2013-2016 USDA NIFA Higher Education Challenge Grants Program / Transdisciplinary Obesity Prevention Program-Undergraduate (TOPP-U). PI: D. Teegarden, Connie Weaver; Co-investigator: S.S. Donkin, ($190,000).

2012-2015 USDA WAMS / Developing Human Capacity Through Mentoring Of Underrepresented Women And Minority Graduate Students For Stem Careers In Agricultural And Life Science. PI: L. Esters and N. Knobloch; Co-investigator: S.S. Donkin, ($149,997).

2012-2013 Purdue Office of Vice President for Research / Phenotyping of Obesity Development. PI: K. Ajuwon and S.S. Donkin, ($98,390).

2012-2013 Indiana CTSI, Purdue Project Development Team Grant Award/ Exercise and Vitamin D Exposure during the Lifespan on Breast Cancer Risk. PIs: D. Teegarden and S.S. Donkin, ($10,000).

2012-2014 Zinpro Corporation/Effect of chromium methionine on insulin sensitivity in cattle. PI: S.S. Donkin, ($250,000).

2011-2014 Archer Daniels Midland Company/Evaluation of strategies to enhance use of novel feeds for dairy cattle. PI: S.S. Donkin, ($300,000).

2011-2013 Zinpro Corporation/Biological availability impact of organic trace mineral formulations on health and productivity of ruminant animals. PI: S.S. Donkin, ($180,000).

2011-2012 Indiana Corn Marketing Council/Corn-based Biofuel Co-product Forage Alternatives. Co-PIs S.S. Donkin, T. Nennich and D. Buckmaster. ($71,105).

2011-2012 Purdue Agricultural Research Programs and Cooperative Extension Service/ Complementarities of biofuels feeds, dairy production, and reduced greenhouse gas emissions from agriculture in Indiana. Co-PIs S.S. Donkin, J. Townsend and A. Varma. ($15,367).

2010-2011 Archer Daniels Midland Company/Effects of OptiBalance Supplementation in High and Low Protein Diets on Performance and Nutrient Supply of Lactating Cows. PIs: S.S. Donkin. ($54,400).

2010-2011 Zinpro Corporation/Ruminant Research PIs: S.S. Donkin. ($45,000).

2009-2011 USDA National Institute of Food and Agriculture, National Research Initiative Competitive Grants Program, Animal Growth and Nutrient Utilization/Control of pyruvate carboxylase promoter function and physiological significance in dairy cattle. PIs: S.S. Donkin. ($337,048).

2007-2012 National Science Foundation/Partnership for Recruiting & Retaining High Need, High Potential Students to Food, Environmental, Engineering, and Life Sciences (FEELS). PIs: R. Mohtar, P. Morris, and D Whittaker, Collaborator: S.S. Donkin. ($597,423).

2007-2011 USDA National Research Initiative Competitive Grants Program/Agricultural Prosperity for Small and Medium-Sized Farms. Developing storage and feeding methods to utilize bio-fuel co-products in small and medium farms. PIs: S. Donkin, R. Lemenager, D. Buckmaster, S Lake, and M. Schutz. ($499,989).

2007-2011 Indiana State Department Of Agriculture. Processing, Handling, and utilization of DDGS -an integrated ethanol co-product research and extension effort PI: D. Maier, Co-PI: S.S. Donkin, T. Applegate, S Radcliffe, K. Ileleji, S. Lake, R Lemenager, B. Richert ($200,000).

2007-2010 Elanco Animal Health, Division of Eli Lilly and Company. Liver analysis. PI: S.S. Donkin ($8,951).

2006-2009 National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Fetal programming, fructose and insulin resistance. PI: S.S. Donkin, Co-I with D. Teegarden, Department of Foods and Nutrition. ($412,742).

2007- 2005 Archer Daniels Midland Co., Nutrition Research. Effects of feeding divalent cations and biofuels co-products to lactating dairy cows. PI: S.S. Donkin. ($25,000).

2006-2007 Showalter Trust Foundation. Fetal Programming Fructose and Insulin Resistance. PI: S. S. Donkin. Co-PI D. Teegarden. ($65,000).

2006-2007 Showalter Trust Foundation. Transcriptional Regulation Profiling of Genes Relevant to Prostate Cancer Progression. PI: J. Fleet, Co-PIs Shawn S. Donkin and M.Kane. ($75,000).

2006-2007 .d Modulation By Neonatal Diet. PI: S.S. Donkin. ($15,292).

2005-2008 National Institutes of Health, Obesity and Eating Disorders Program, National Institute of Diabetes and Digestive and Kidney Diseases. Dairy product intake and regulation of energy metabolism. PI: D. Teegarden, Department of Foods and Nutrition. Co PIs: S.S. Donkin and J. Hock. ($985,056).

2005-2008 USDA National Research Initiative Competitive Grants Program, Animal Growth and Nutrient Utilization. Propionate and control of hepatic PEPCK in dairy cattle. PI: S.S. Donkin. ($222,863).

2004-2005 Elanco Animal Health, Division of Eli Lilly and Company. The Determination of Monensin Payout from Rumensin Controlled Release Capsules in the Rumen of Dairy Cows. PI: S.S. Donkin ($144,856).

2004- 2005 Archer Daniels Midland Co., Alliance Nutrition. Dose effectiveness of botanical extracts on milk production, health and spectrum of rumen microflora in dairy cattle. PI: S.S. Donkin ($22,500).

2004 - 2005 United States Agency for International Development (USAID), Global Livestock Collaborative Research Support Program. Animal Source Foods in Diets of HIV-Infected Kenyan Women and Their Children. PIs: S.S. Donkin, T. Applegate, Department of Animal Sciences, A. Mason, Foods and Nutrition, T. Vyn, Department of Agronomy, Purdue University, and J. A. Ernst, Nutrition and Dietetics, Indiana University School of Medicine ($41,091).

2003 - 2004 Archer Daniels Midland Co., Alliance Nutrition. Effects of botanical extracts on milk production and health of dairy cattle. PI: S.S. Donkin ($14,450).

2002-2005 USDA National Research Initiative Competitive Grants Program, Animal Health and Well-Being. Prevention of fatty liver in dairy cows by glucagon and glycerol. PI: Dr. Don Beitz, Iowa State University. Collaborators: Shawn S. Donkin, Purdue University, Ronald Horst, Jesse Goff, USDA National Animal Disease Center, Kenneth Koehler, Iowa State University, Douglas Ensley, DVM, Iowa State University. (Amount of award $289,5939 (amount to SSD $49,099).

2001-2004 USDA National Research Initiative Competitive Grants Program, Animal Growth and Nutrient Utilization. Pyruvate Carboxylase mRNA Variants in Dairy Cattle: Significance and Control of Expression. PI: S.S. Donkin ($215,000)

2000-2001 Central Soya Inc. Rumen degradation and estimated intestinal availability of an alternatively processed soybean meal. PI: S.S. Donkin ($9,970).

2000-2001 Central Soya Inc. Evaluation of soybean meal produced through an alternative processing method as a source of rumen-protected protein for lactating dairy cattle. PI: S.S. Donkin ($22,435).

2000-2002 Indiana 21st Century Research and Technology Fund. / A center of excellence enhancing foods to protect health. Co PIs: P. Brown, J. Burgess, N. Carpita, S. Donkin, B. Hamaker, K. McNamara, S.E. Mills, M.F. Seifert, J. Simon, R.K. Singh, J.J. Turek, R. Vierling, D.J. Waters, and B.A. Watkins. ($2,400,413)

2000-2003 OmegaTech Inc. Effect of a rumen-protected DHA source on milk production, fatty acid composition and dairy product characteristics. PI: S.S. Donkin. ($326,270).

1999-2001 The Graduate School Purdue University. Special Initiative Program Minority Graduate Training. PI: S. S. Donkin ($31,173).

1999-2001 Dairy Management Incorporated. Effects of CLA on cholesterol 7α- hydroxylase activity and hepatic mRNA levels and the bile acid excretion. Co-PIs: S. S. Donkin and J.A. Story. ($128,453).

1999-2001 Maplehurst Farms Foundation Altering nutritive composition of milk and milk products. Co-PIs S. S. Donkin, J.D. Armstrong, and M.M. Schutz. ($44,520).

1999-2001 The Graduate School Purdue University. Special Initiative Program Minority Graduate Training. PI: S. S. Donkin ($20,782).

1999 Monsanto Company. Effects of feeding silage and grain produced from genetically modified corn on feed intake, milk production and dry matter digestibility in lactating dairy cattle. PI: S. S. Donkin ($34,000).

1998-2000 Innotek Pet Products. Intraruminal temperature to detect onset of estrus in beef cattle. PIs S. S. Donkin and J. Nielson ($13,914).

1998-2000 Monsanto Company. Feed intake, ruminal digestibility, and milk production from cows fed corn silage engineered to express the Bacillus thuringiensis (Bt) gene. PI: S. S. Donkin ($7,500).

1998 -2000 State of Indiana, Office of Commissioner of Agriculture, Value Added Grant Program. Effects of conjugated linoleic acid (CLA) on blood cholesterol levels of pigs and dogs, pig growth and carcass composition, and the regulation of gene expression. Co-PIs S. S. Donkin, A.P. Schinckel, and J.M. Eggert. ($60,000).

1997-1999 Balchem Corporation. Study an encapsulated choline supplement in transition cows. PI: S. S. Donkin ($11,500).

1996-1999 USDA National Research Initiative Competitive Grants Program, Animal Growth and Nutrient Utilization. Changes in hepatic pyruvate carboxylase expression during transition to ruminating status. PI: S. S. Donkin ($134,150).

1996-2000 Consolidated Nutrition, L.L.C. Dairy Cattle Nutrition Research. PI: S. S. Donkin ($82,360).

1996-1998 Purdue University Agricultural Research Programs. Protein requirements and changes in gene expression associated with improved health status in the transition dairy cow. PI: S. S. Donkin ($24,000).

1. **TEACHING**

In addition to research and administrative responsibilities for the College of Agriculture at Purdue University Dr. Donkin led the seminar course for animal sciences graduate students (2019-2021). Dr Donkin previously served as the lead instructor for ANSC 52400 (Ruminant Nutrition and Physiology), lead instructor for ANSC 44400 (Dairy Cattle Management), co-lead instructor Nutrition Science 60600 / ANSC 62600 (Nutritional Biochemistry and Physiology) and mentored several undergraduates through special research projects and honors theses (ANSC 49100, ANSC 49900). Dr. Donkin currently guest lectures in these and other courses and continues to direct undergraduate students through special research projects. Dr. Donkin has served on several occasions as a lead visiting instructor for a week-long intensive course on the nutritional biochemistry and physiology of ruminants at the Federal University of Lavras, Brazil (every 18-24 months) that serves graduate students from all over Brazil.

* 1. Courses taught (Purdue University)
     1. ANSC 68100 – Graduate Seminar, 1 credit.

Instruction and application of concepts for effective oral and written professional presentations in the field of Animal Sciences. The course provides students with guidelines for effective oral communication of scientific information and an opportunity to put guidelines into practice. Students also develop skills for constructively peer evaluation (2019-2021)

* + 1. ANSC 52400 - Ruminant Nutrition and Physiology, 3 credits.

This dual level (senior undergraduate / graduate) level course integrates the physiological, microbiological, and biochemical aspects of digestion and metabolism of the ruminant animal. (Lead instructor 1997 through 2011, except 2005 while on sabbatical leave. Two guest lectures in 2014, 2015; 6 guest lectures 2017).

* + 1. ANSC 44400 – Dairy Cattle Management, 3 credits.

This course provides an integrated analysis of dairy management concepts and engage the decision-making process for dairy enterprises. This course fulfills a portion of the approved capstone experience required of ANSC majors for graduation (lead instructor 1997 through 2011, except 2005 while on sabbatical leave).

* + 1. Nutrition Science 60600 / ANSC 62600 – Nutritional Biochemistry and Physiology II, 2 credits.

This intensive graduate level course is designed to provide a foundation in nutrition concepts, nutritional biochemistry, physiology and their integration as part of a 3 course series required by students in the Purdue Interdepartmental Nutrition Program. Dr. Donkin provided one-third of the material for the course in his lectures on physiology and control of liver function and integration of glucose metabolism. Co- lead instructor 2000 through 2011, except 2005 while on sabbatical leave. (Two guest lectures in 2014, 2015, 2016, 2017, 2018).

* + 1. ANSC 49900H – Honors Thesis Research, 3 credits.

Dr. Donkin directed the honors thesis research studies for several students (usually 1 per year) in this intensive lab-based research experience.

* + 1. ANSC 49100 – Supervised individual laboratory or library assignments.

Dr. Donkin mentored Erika Smith (3 credits, Fall 2016) and MaryGrace Erickson (3 credits, Spring 2017), Ariana Torres (3 credits, Spring 2020), Madison Savage (3 credits, Spring 2021) as part of an intensive research experience.

* + 1. Nutritional Biochemistry and Metabolism in Ruminants, 3 credits, guest instructor.

Dr. Donkin has taught as a visiting lecturer a week-long 3 credit intensive course at the University of Lavras in Brazil on biochemical aspects of digestion and metabolism of the ruminant animal. The course was organized by Dr. Marcos Neves Pereira and is translated from English to Portuguese. The course enrolls 20-30 graduate students from 4-6 universities in Brazil (2015 - 2019).

* 1. Students Counseled
     1. Dr. Donkin advised approximately 20-25 ANSC undergraduate students per year (1996 through 2011).

1. **EXTENSION AND SERVICE ACTIVITIES**

Although Dr. Donkin has not held a formal extension appointment he has participated in numerous outreach activities. Dr. Donkin has been a regular contributor to the Tri-State Dairy Nutrition Conference, a collaborative extension effort among Purdue, Michigan State and Ohio State Universities with a target audience of 500 to 600 industry consultants and practicing veterinarians. He served on the planning committee in 2008 and again in 2015- 2017. This conference is recognized as one of the premier applied dairy cattle nutrition conferences in the United States. Dr. Donkin has also participated in several similar nutrition conferences nationally. He has contributed to outreach effects through extension publications, producer field day participation, youth activities, and individual consultations with livestock producers.

* 1. Extension and other Publications
     1. Johnson, T.R., S.S. Donkin, and M.M. Schutz. 2006. Value of Distillers’ Grain Ethanol Co-Products to Dairy Replacements. Purdue Cooperative Extension Publication ID-332-W.
     2. Donkin, S.S., T.R. Johnson, and M.M. Schutz. 2006. Value of Distillers’ Grains for Lactating Dairy Cows. Purdue Cooperative Extension Publication ID-334-W.
     3. Schutz, M. M., T.R. Johnson, and S.S. Donkin. 2006. Issues Surrounding the Use of Distillers’ Grains by the Indiana Dairy Industry. Purdue Cooperative Extension Publication ID-571-W.
     4. Lemenager, R., T. Applegate, M. Claeys, S.S. Donkin, T.R. Johnson, S. Lake, M. Neary, S. Radcliffe, B. Richert, A. Schinckel, M. Schutz, and A. Sutton. 2006. The Value of Distillers’ Grains as a Livestock Feed. Purdue Cooperative Extension Publication ID-330.
     5. Balakuntala, M.V., M Ayad, R. M. Voyles, R. White, R.Nawrocki, S. Sundaram, S. Priya, G. Chiu, S. Donkin, B.-C. Min, and K. Daniel. 2018. Global Sustainability through Closed-Loop Precision Animal Agriculture. Mechanical Engineering Magazine Select Articles 140: S19-S2
  2. Extension and Outreach Activities
     1. Tristate Dairy Nutrition Conference Planning Committee 2015-2017. Dr. Donkin served on the planning board for this extension conference hosted by Michigan State University, Ohio State University and Purdue University.
     2. American Dairy Association of Indiana Dairy. 2015-2017. Dr. Donkin served as an ex-officio member of the IDAI Board of Directors, a not-for-profit promotion, communication, and nutrition education organization funded by and serving Indiana dairy farm families.

1. **OTHER SERVICE AND LEADERSHIP** 
   1. Indiana Crop Improvement Association. Board of Directors (2020-2021)
   2. ASAS/ ADSA JAM, Symposium organizer and chair. Teaching/Undergraduate and Graduate Education: Graduate Education in a Shifting Research Landscape (2010).
   3. Associate Editor, Ruminant Nutrition, Canadian Journal of Animal Science (2011 - 2013).
   4. Associate Editor, Ruminant Nutrition, Journal of Animal Science (2011 - 2013).
   5. ASAS/ ADSA, Teaching/Undergraduate and Graduate Education JAM Program Committee (2010 – present) (Chair 2012- 2013).
   6. Mid-West ASAS/ADSA Outstanding Young Animal/Dairy Scientist Research Award Committee (2013). Dr. Donkin developed the criteria for this award during his service to the Mid-West Board of Directors.
   7. American Dairy Science Association, Pfizer Animal Health Physiology Award, Selection Committee (2011- 2014).
   8. Editorial Board, Journal of Animal Science (1998-2001, 2003-2013).
   9. Editorial Board, Journal of Dairy Science (1999-2001, 2003-2011).
   10. Chair, Mid-West ASAS/ADSA Outstanding Young Animal/Dairy Scientist Award in Agribusiness (2010).
   11. Board of Directors Mid-West ADSA/ASAS (2007-2010).
   12. Chair ADSA National Meeting Graduate Student Poster Competition (2008).
   13. Chair, Mid-West ASAS/ADSA Outstanding Young Animal/Dairy Scientist Award in Research (2008).
   14. Tri-State Dairy Nutrition Conference, Program Planning Committee (2008, 2015).
   15. Tri-State Dairy Nutrition Conference, Graduate student paper competition (2007, 2008).
   16. American Dairy Science Association, graduate student poster competition committee (2006-2008).
   17. Alltech Graduate Student Paper Publication Award Committee, American Dairy Science Association (1999-2002) and Chair (2002).
   18. United States - Israel Bi-National Agricultural Research and Development Fund, Animal Production, ad hoc reviewer (1998 -present).
   19. Association of Public and Land-Grant Universities (APLU), Food System Leadership Institute. FSLI Encore 2016, “Intercultural, Inclusion and Equity” co-chair (2016)
   20. Program review panel Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany (2019).
   21. External reviewers: Oregon State University Center for Genome Research and Biocomputing (2019).
   22. Association of Public and Land-Grant Universities (APLU), Budget and Legislative Committee (2019-present).