

# DR ERMIAS KEBREAB

## EDUCATION

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- Jan 1995 – Jul 1998     The University of Reading, United Kingdom  
*PhD in Systems modeling of plant and animal ecology*
- Oct 1989 – Sep 1991     The University of Reading, United Kingdom  
*MSc in Technology of Integrated Pest Management*
- Oct 1983 – Jul 1987     The University of Asmara, Eritrea  
*BSc (summa cum laude) in Biology, Chemistry & Mathematics*
- Oct 1976 – Jun 1983     Comboni College Private School, Asmara, Eritrea  
*High School Diploma in Biology, Chemistry & Mathematics*

## PROFESSIONAL EXPERIENCE

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- Apr 2007 -Present     University of Manitoba, Canada  
*Associate Professor and Canada Research Chair in Sustainable Agricultural Systems*
- Sep 2003 – Apr 2007     University of Guelph, Canada  
*Adjunct Professor in Nutritional and Environmental Systems Analysis*
- Jan 2001 – Aug 2003     The University of Reading, United Kingdom  
*Research Fellow in Bio Mathematics and Warden*
- Jan 1999 – Dec 2001     The University of Reading, United Kingdom  
*Research Fellow in Bio Mathematics*
- Aug 1995 – Dec 1995     M. Saynor Consultancy, United Kingdom  
*Research Assistant*
- Oct 1992 – Jan 1994     The University of Asmara, Eritrea  
*Department Head, Department of Plant and Animal Sciences*
- Aug 1987 – Sep 1989     The University of Asmara, Eritrea  
*Lecturer in Arid Zone Sustainable Agriculture*

## PROFESSIONAL MEMBERSHIPS

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American Dairy Science Association, American Society of Animal Science, Canadian Society of Animal Science, American Society of Agricultural and Biological Engineering.

## AWARDS

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Early Career Achievement Award from American Society of Animal Science (2008)

Young Scientist Award from Canadian Society of Animal Science (2006)

Senior Research Fellowship Bursary from Wageningen University, The Netherlands (2005)

Research Scientist Award from Society for Protection of Science and Learning (1997)

Graduate Student Award from Africa Educational Trust (1996)

RESEARCH GRANTS (2007/2008)

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1. **Kebreab, E. (principal applicant)** Modelling Sustainable Agricultural Systems. (05/07) NSERC – Canada Research Chairs Programme. \$500,000.
2. **Kebreab, E. (principal applicant)** Infrastructure for Sustainable Agricultural Systems. (05/07) Canadian Foundation for Innovation. \$280,000.
3. **Kebreab, E. (principal applicant)** Start-up funding. (05/07) Faculty of Agricultural and Food Sciences - Office of the President. \$25,000.
4. **Kebreab, E. (principal applicant)** Start-up funding. (05/07) Manitoba Agriculture Food and Rural Initiatives. \$25,000.
5. **Kebreab, E. (principal applicant)** Swine related research funding. (05/07) Manitoba Pork Council. \$30,000.
6. **Kebreab, E. (principal applicant)** & Nyachoti, C.M. Nutrient management planning for finisher pig operations using extant and new feed consumption models and manure analysis. (11/07) Manitoba Agriculture Food and Rural Initiatives. \$19,457.
7. **Kebreab, E. (principal applicant)** & Nyachoti, C.M. Nutrient management planning for nursery pig operations using extant and new feed consumption models and manure analysis. (11/07) Sustainable Development Initiative Fund. \$19,457.
8. **Kebreab, E. (principal applicant)** & Nyachoti, C.M. Nutrient management planning for sow operations using extant and new feed consumption models and manure analysis. (02/08). Manitoba Livestock Manure Management Initiative. \$81,330.
9. **Kebreab, E. (principal applicant)**, Nyachoti, C.M. & Tenuta M. Nutrient management planning for finisher pig operations using extant and new feed consumption models and manure analysis – Greenhouse gas measurements. (02/08) Manitoba Agriculture Food and Rural Initiatives. \$16,450.
10. **Kebreab, E. (principal applicant)** Modelling rumen function in non-steady state (04/08) NSERC Discovery. \$136,000.
11. House, J.D. & **Kebreab, E.** Poultry model development. (03/08) Manitoba Rural Adaptation Council. \$517,900.
12. **Kebreab, E. (principal applicant)** & Nyachoti, C.M. Development of swine nutrient utilization model. (04/08) Agr-Food Research and Development Initiative. \$56,000.
13. **Kebreab, E.** & Crow, G. Comparison of economic and environmental efficiencies of advanced beef production systems in the Western Canadian Parkland (04/08)

Agr-Food Research and Development Initiative. \$52,000.

14. Ominiski, K, **Kebreab, E.**, Wittenberg, K.M. & Krause, D.O. (05/08) Developing a strategy for forage and grassland management through an examination of value in terms of forage productivity and environmental sustainability including nutrient management, biodiversity, erosion and water management, and agri-tourism. Manitoba Rural Adaptation Council/Manitoba Cattle Producers' Association. \$300,000.
15. Ominiski, K, **Kebreab, E.**, Wittenberg, K.M. & Krause, D.O. (05/08). An Examination of the Multi-functionality of Forages in Manitoba. Manitoba Forage Council. \$32,000.
16. Ominiski, K, **Kebreab, E.**, Wittenberg, K.M. & Kulshreshtha, S. (06/08). Developing a strategy for forage and grassland management through an examination of the multi-functionality of forages in terms of productivity and environmental sustainability. Beef Cattle Research Council. \$60,000.
17. **Kebreab, E. (principal applicant)**. (08/08). Nutrient transformations and prediction of greenhouse gas emissions from stored manure. Agricultural Sustainability Initiative. \$50,000.

#### TRAINING OF HIGHLY QUALIFIED PERSONNEL

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3 PhD and 3 visiting research fellows co-supervised to completion

2 PhD, 1 MSc students and 1 visiting research fellow currently co-supervising

1 PhD, 1 Post doc and 2 MSc students currently supervising

#### RESEARCH COLLABORATION AND LINKS

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The University of Reading (United Kingdom), Grassland Research Institute (United Kingdom), Wageningen University (The Netherlands), The Ohio State University (USA), Cornell University (USA), Virginia Tech University (USA), University of California at Davis (USA), Colorado State University (USA), Washington State University (WSU), University of Sao Paulo (Brazil), Institute of Agricultural Research (Cuba), Agriculture and Agri-Food Canada (Brandon and Lethbridge), and BIOCAP Canada, Provimi (Belgium), Nutreco.

#### LANGUAGES

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English (fluent), Tigrinya (mother tongue), Amharic (fluent), Italian (basic), Spanish (basic)

#### OTHER SKILLS

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Qualified Visual Basic programmer (City and Guilds London, Certificate)

Attended the 'Insight into Management' course at The University of Reading

#### SERVICE TO SCIENTIFIC COMMUNITY

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*Reviewer for scientific journals:* Agricultural and Forest Meteorology, Agricultural Systems, Animal Feed Science and Technology, Animal, Atmospheric Environment, Canadian

Journal of Animal Science, Canadian Journal of Soil Science, Journal of Agricultural Science, Journal of Animal and Feed Science, Journal of Animal Science, Journal of Dairy Science.

*Reviewer for grant applications:* National Science Foundation (USA), Alberta Agriculture Research Initiative, NSERC Discovery Grants, Poultry Industry Council.

*Co-Convener:* International Modeller's Group (affiliated to Federation of Animal Science Societies and holds a meeting once a year in the United States or Canada).

*Western Director:* Canadian Society of Animal Science.

*Awards Committee member:* American Society of Animal Science

*Program Chair:* 2009 Western Nutrition Conference.

#### INTERESTS

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Long distance running, reading, travelling, Latin American dancing, Eritrean literature

#### REFERENCES

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Professor James France, Director, Centre for Nutrition Modelling, Department of Animal and Poultry Science, University of Guelph, Guelph N1G 2W1, Canada. Phone 1 519 824 4120 ext 52209, E-mail: [jfrance@uoguelph.ca](mailto:jfrance@uoguelph.ca)

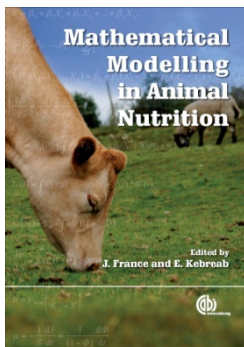
Dr Jeff Firkins, Department of Animal Science, The Ohio State University, 223 Animal Science Building, 2029 Fyffe Road, Columbus, Ohio 43210-1095, Email [firkins.1@osu.edu](mailto:firkins.1@osu.edu)

Dr John Newbold, Director, Provimi Research and Innovation Centre, Lenneke Marelaan 2, Sint-Stevens-Woluwe B 1932, Belgium. Email: [jnewbold@be.provimi.com](mailto:jnewbold@be.provimi.com)

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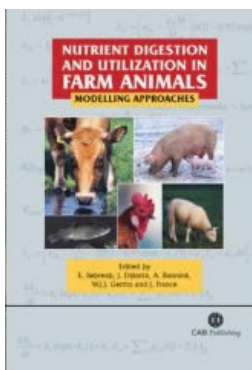
## PUBLICATIONS

### i. Books



1. France, J., and **E. Kebreab**. 2008. *Mathematical Modelling in Animal Nutrition*. CAB International, Wallingford, UK, 574pp.
2. **Kebreab, E.**, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France. 2006. *Nutrient Utilization in Farm Animals: Modelling Approach*. CAB International, Wallingford, UK, 446pp.
3. **Kebreab, E.**, J.A.N. Mills, and D.E. Beever. 2004. *Dairying - Using Science to Meet Consumers' Needs*. Nottingham University Press, UK.

### ii. Chapters in books



4. Dijkstra J., **E. Kebreab**, J. France and A. Bannink. 2008. Modelling protozoal metabolism and volatile fatty acid production in the rumen. Pages 170-188 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

5. Wagener-Riddle C., **E. Kebreab**, J. France and J. Rapai. 2008. Supporting measurements required for evaluation of greenhouse gas emission models for enteric fermentation and stored animal manure. Pages 204-224 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

6. Odongo N. E., O. AlZahal, J. E. Las, A. Kramer, B. Kerrigan, **E. Kebreab**, J. France and B.W. McBride. 2008. Data capture: development of a mobile open-circuit ventilated hood system for measuring real-time gaseous emissions in cattle. Pages 225-240 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

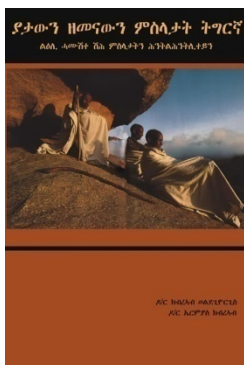
7. Crompton L. A., J. France, R. S. Dias, **E. Kebreab** and M. D. Hanigan. 2008. Compartmental models of protein turnover to resolve isotope dilution data. Pages 254-294 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

8. **Kebreab E.**, D. M. S. S. Vitti, N. E. Odongo, L. A. Crompton and J. France. 2008. Modelling phosphorus metabolism. Pages 353-369 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

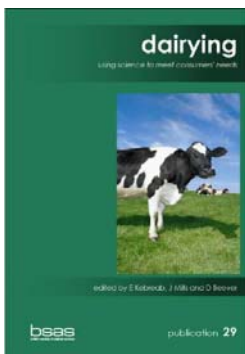
9. Assis A. G., O. F. Campos, J. Dijkstra, **E. Kebreab** and J. France 2008. Modelling sugarcane utilization by dairy cows in the tropics. Pages 526-543 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

10. Gerrits, W.J.J., **E. Kebreab**, M. Kramer and J. Dijkstra. 2008. Simulation exercises for animal science MSc students: rumen digestion and pig growth. Pages 544-566 in *Mathematical Modelling in Animal Nutrition*. J. France and E. Kebreab, eds. CAB International, Wallingford, UK.

11. **Kebreab, E.**, J. France, B. W. McBride, N. E. Odongo, A. Bannink, J. A. N Mills, and J. Dijkstra. 2006. Evaluation of models to predict methane emissions from enteric fermentation in North American dairy cattle. Pages 299-313 in *Nutrient Utilization in Farm Animals: Modelling Approach*. E. Kebreab, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France, eds. CAB International, Wallingford, UK.



International, Wallingford, UK.

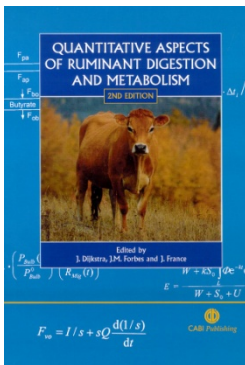


12. Bannink, A., J. Dijkstra, **E. Kebreab**, and J. France 2006. Advantages of a dynamic approach to rumen function to help resolve environmental issues. Pages 281-298 in *Nutrient Utilization in Farm Animals: Modelling Approach*. E. Kebreab, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France, eds. CAB International, Wallingford, UK.

13. Lopez, S., M. Prieto, J. Dijkstra, **E. Kebreab**, M. S. Dhanoa, and J. France 2006. Sigmoidal functions for microbial growth. Pages 54-68 in *Nutrient Utilization in Farm Animals: Modelling Approach*. E. Kebreab, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France, eds. CAB International, Wallingford, UK.

14. Dijkstra, J., **E. Kebreab**, R. P. Kwakkel, and J. France 2006. Development of a dynamic model of Ca and P flows in layers. Pages 192-210 in *Nutrient Utilization in Farm Animals: Modelling Approach*. E. Kebreab, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France, eds. CAB International, Wallingford, UK.

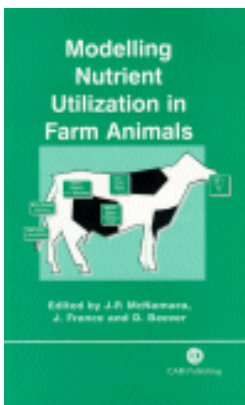
15. Collao-Saenz, E. A., A. Bannink, **E. Kebreab**, J. France, and J. Dijkstra 2006. Simulation of rumen particle dynamics using a non-steady state model of rumen digestion and nutrient availability in dairy cows fed sugarcane. Pages 33-39 in *Nutrient Utilization in Farm Animals: Modelling Approach*. E. Kebreab, J. Dijkstra, W. J. J. Gerrits, A. Bannink, and J. France, eds. CAB International, Wallingford, UK.



16. **Kebreab, E.**, and D. M. S. S. Vitti. 2005. Mineral Metabolism. Pages 469-486 in *Quantitative Aspects of Ruminant Digestion and Metabolism*. J. Dijkstra, J. M. Forbes, and J. France, eds. CAB International, Wallingford, UK.

17. Bannink A., J. Dijkstra, J. A. N. Mills, **E. Kebreab**, and J. France. 2005. Nutritional strategies to reduce enteric methane formation in dairy cows. Pages 367-376 in *Emissions from European Agriculture*. T. Kuczynski, U. Dammggen, J. Webb, and A. Myczko, eds. Wageningen Academic Publishers, Wageningen, The Netherlands.

18. **Kebreab, E.**, T. Smith, J. Tanner, and P. Osuji. 2005. Review of undernutrition in smallholder ruminant production systems in the tropics. Pages 3-95 in *Coping with Feed Scarcity in Smallholder Livestock Systems in Developing Countries*. A.A. Ayantunde, S. Fernandez-Rivera, and G. McCrabb, eds. International Livestock Research Institute, Nairobi, Kenya. Available online at [http://www.ilri.cgiar.org/Infoserv/webpub/fulldocs/CopingFeedScarcity/CopingWFood\\_Scarcity.pdf](http://www.ilri.cgiar.org/Infoserv/webpub/fulldocs/CopingFeedScarcity/CopingWFood_Scarcity.pdf).



19. Agnew, R. E., T. Yan, J. France, **E. Kebreab**, and C. Thomas. 2004. Energy requirement and supply. Pages 11- 20 in *Feed into Milk: A new applied feeding system for dairy cows*. C. Thomas, ed. Nottingham University Press, Nottingham, UK.

20. **Kebreab, E.**, R. Allison, R. Mansbridge, D. E. Beaver, and J. France 2000. Modelling nitrogen utilisation in dairy cows. Pages 347-351 in *Modelling Nutrient Utilization in Farm Animals*. J. P. McNamara, J. France, and D. E. Beaver eds. CAB International, Wallingford, UK.

21. Murdoch, A. J., L. Sonko, and **E. Kebreab**. 2000. Population responses to temperature for loss of seed dormancy and consequences for predictive empirical modelling. Pages 57-68 in *Dormancy in Plants*. J. D. Viemont, and J. Crabbe, eds. CAB International, Wallingford, UK.



### iii. Papers published in refereed journals

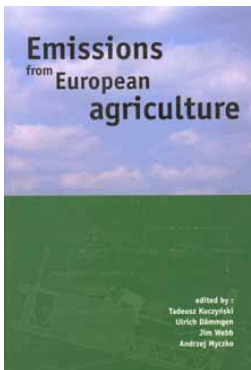
2008

22. Dijkstra, J., **E. Kebreab**, A. Bannink, L. A. Crompton, S. López, P. A. Abrahamse, P. Chilbroste, J. A. N. Mills, and J. France. 2008. Comparison of energy evaluation systems and a mechanistic model for milk production by dairy cattle offered fresh grass-based diets. *Anim. Feed Sci. Technol.* 143:203-219.

23. Jalilvand, G., A. Naserian, **E. Kebreab**, N.E. Odongo, R. Valizadeh, F. Eftekhari Shahroodi, S. Lopez, and J. France. 2008. Rumen degradation kinetics of alfalfa hay, maize silage and wheat straw treated with fibrolytic enzymes. *Archivos de Zootecnia*, 57:155-164.

24. Ellis, J. L., J. J. Thomason, **E. Kebreab** and J. France. 2008. Calibration of estimated biting forces in domestic canids: Comparison of post-mortem and *in vivo* measurements. *J. Anatomy*, 212:769-780.

25. Schulz-Zeuthen, M., **E. Kebreab**, J. Dijkstra, S. Lopez, A. Bannink, and J. France. 2008. A comparison of the Schumacher with other functions for describing growth in pigs. *Anim. Feed Sci. Technol.* 143:314-327.



26. Bannink, A, J. France, S. Lopez, W. J. J. Gerrits, **E. Kebreab**, and J. Dijkstra. 2008. Modelling the implications of feeding strategy on rumen fermentation and functioning of the rumen wall. *Anim. Feed Sci. Technol.* 143:3-26.

27. Dias, R. S., **E. Kebreab**, D. M. S. S. Vitti, A. P. Roque, and J. France. 2008. Application and comparison of two models to study the effects of calcium sources in sheep. *Anim. Feed Sci. Technol.*, 143:89-103.

28. Hill, S. R., K. F. Knowlton, **E. Kebreab**, J. France, and M. D. Hanigan 2008. A model of phosphorus digestion and metabolism in the lactating dairy cow. *J Dairy Sci.* 91:2021-2032.

29. Ellis, J. L., J. Dijkstra, **E. Kebreab**, A. Bannink, N. E. Odongo, B.W. McBride, J. France. 2008. Aspects of rumen microbiology central to mechanistic modelling of methane production in cattle. *J. Agric. Sci.* 146:213-233.

30. **Kebreab E.**, J. France, H. Darmani Kuhl and S. Lopez. 2008. A comparative evaluation of functions for partitioning nitrogen and amino acid intake between maintenance and growth in broilers. *J. Agric. Sci.* 146:163-170.



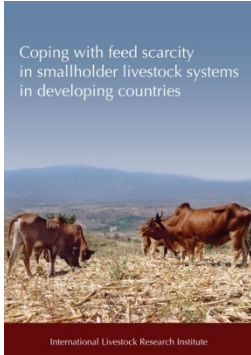
31. Fathi Nasri, M. H., J. France, M. Danesh Mesgaran, and **E. Kebreab**. 2008. Effect of heat processing on ruminal degradability and intestinal digestibility of nitrogen and amino acids in Iranian whole soybeans. *Livest. Sci.* 113:43-51.

32. **Kebreab, E.**, N. E. Odongo, B. W. McBride, M. D. Hanigan and J. France. 2008. Phosphorus utilization and environmental and economic implications of reducing phosphorus pollution from Ontario dairy cows. *J. Dairy Sci.* 91:241-246.

33. AlZahal, O., **E. Kebreab**, J. France, M. Froetschel and B. W. McBride. 2008. Ruminal temperature may aid in the detection of subacute ruminal acidosis. *J. Dairy Sci.* 91:202-207.

2007

34. Odongo, N. E. D. Mcknight, A. Koekkoek, J. W. Fisher, P. Sharpe, **E. Kebreab**, J. France, and B. W. McBride. 2007. Long-term effects of feeding diet without mineral



phosphorus supplementation on the performance and phosphorus excretion in high yielding dairy cows. *Can. J. Anim. Sci.* 87:639-646.

35. France, J., **E. Kebreab**, and N. St-Pierre. 2007. Proceedings of the 2007 meeting of the animal science modelling group and the William V. Chalupa recognition symposium. *Can. J. Anim. Sci.* 87:647-655.

36. Dias, R. S., **E. Kebreab**, D. M. S. S. Vitti, F. P. Portilho, H. Louvandini, and J. France. 2007. Phosphorus kinetics in lambs fed different levels of dicalcium phosphate. *J. Agric. Sci.* 145:509-516.

37. Odongo, N. E., M. M. Or-Rashid, R. Bagg, G. Vessie, P. Dick, **E. Kebreab**, J. France, and B. W. McBride. 2007. Long-term effects of feeding monensin on milk fatty acid composition in lactating dairy cows. *J. Dairy Sci.*, 90:5126-5133.

38. **Kebreab E.**, M. Schulin-Zeuthen, S. Lopez, J. Soler, R. S. Dias, C. F. M. de Lange, and J. France. 2007. Comparison of mathematical functions to describe growth and efficiency of phosphorus utilization in growing pigs. *J. Anim. Sci.* 85:2498-2507.

39. Jalilvand, G., A. Naserian, N.E. Odongo, **E. Kebreab**, R. Valizadeh, F. Eftekhari Shahrodi, and J. France. 2007. Effects of abomasal infusion of cottonseed oil and dietary enzyme supplementation on dairy goats. *J. Anim. Feed Sci.* 16:389-396.

40. Fathi Nasri, M. H., M. Danesh Mesgaran, **E. Kebreab**, and J. France. 2007. Past peak lactational performance of Iranian Holstein cows fed raw or roasted whole soybeans. *Can. J. Anim. Sci.* 87:441-447.

41. Fathi Nasri, M. H., M. Danesh Mesgaran, A. Nikkhah, R. Valizadeh, **E. Kebreab**, and J. France. 2007. Effect of raw or roasted whole soybeans on early lactational performance and ruminal and blood metabolites in Iranian cows. *J. Agric. Sci.* 145:529-537.

42. AlZahal, O., **E. Kebreab**, J. France, and B. W. McBride. 2007. A Mathematical approach to predict biological values from rumen pH measurements. *J. Dairy Sci.* 90:3777-3785

43. Schulin-Zeuthen, M., **E. Kebreab**, W. J. J. Gerrits, S. Lopez, M. Z. Fan, R. S. Dias, and J. France. 2007. Meta-analysis of phosphorus balance data from growing pigs. *J. Anim. Sci.*, 85:1953-1961.

44. Ellis, J. L., **E. Kebreab**, N.E. Odongo, B. W. McBride, E. K. Okine, and J. France. 2007. Prediction of methane production from dairy and beef cattle. *J. Dairy Sci.* 90 3456-3467.

45. López, S, M. S. Dhanoa, J. Dijkstra, A. Bannink, **E. Kebreab**, and J. France. 2007. Some methodological and analytical considerations regarding application of the gas production technique. *Anim. Feed Sci. Technol.* 135:139-156.

46. Dijkstra, J., **E. Kebreab**, J. A. N. Mills, W. F. Pellikaan, S. Lopez, A. Bannink, and J. France. 2007. Predicting the profile of nutrients available for absorption: from nutrient requirement to animal response and environmental impact. *Anim.* 9: 99-111.

47. Odongo, N. E., M. M. Or-Rashid, S. E. Hook, G. Vessie, R. Bagg, P. Dick, J. T. Gray, **E. Kebreab**, J. France, and B. W. McBride. 2007. Long-term effects of feeding monensin on methane production in lactating dairy cows. *J. Dairy Sci.* 90:1781-1788.

48. Odongo, N. E., M. M. Or-Rashid, **E. Kebreab**, J. France, and B. W. McBride. 2007. Effect of supplementing myristic acid in dairy cow rations on ruminal methanogenesis and fatty acid profile in milk. *J. Dairy Sci.* 90:1851-1858.

49. **Kebreab, E.**, J. Dijkstra and J. France. 2007. Meta-analysis of the effect of forage type on the efficiency of utilization of energy for milk production in dairy cows. *J. Anim Feed Sci.* 16, Suppl. 2, 184–188.

## 2006

50. France, J., **E. Kebreab**, M. B. Hall, and N. R. St-Pierre. 2006. Proceedings of the 2006 meeting of the animal science modelling group. *Can. J. Anim. Sci.* 86: 569-575.

51. Dias, R. S., **E. Kebreab**, D. M. S. S. Vitti, A. P. Roque, I. C. S. Bueno, and J. France. 2006. A revised model for studying phosphorus and calcium kinetics in growing sheep. *J. Anim. Sci.* 84:2787-2794.

52. Fathi Nasri, M. H., M. Danesh Mesgaran, J. France, J. P. Cant, and **E. Kebreab**. 2006. Evaluation of models to describe ruminal degradation kinetics from in situ ruminal incubation of whole soybeans. *J. Dairy Sci.* 89: 3087-3095.

53. **Kebreab, E.**, K. Clarke, C. Wagner-Riddle, and J. France. 2006. Methane and nitrous oxide emissions from Canadian animal agriculture – a review. *Can. J. Anim. Sci.* 86:135-158.

54. Val-Arreola, D., **E. Kebreab**, and J. France. 2006. Modeling Small-Scale Dairy Farms in Central Mexico using Multi Criteria Programming. *J. Dairy Sci.* 89:1662-1672.

55. Bannink, A., J. Kogut, J. Dijkstra, J. France, **E. Kebreab**, A. M. Van Vuuren, and S. Tamminga. 2006. Estimation of the stoichiometry of volatile fatty acid production in the rumen of lactating cows. *J. Theor. Biol.* 238:36-51.

## 2005

56. Val-Arreola, D., **E. Kebreab**, J. A. N. Mills, and J. France 2005. Analysis of feeding strategies for small-scale dairy systems in central Mexico using linear programming. *J. Anim. Feed Sci.* 14:607-624.

57. France, J., **E. Kebreab**, and N. St-Pierre. 2005. Proceedings of the 2005 meeting of the animal science modelling group. *Can. J. Anim. Sci.* 85:545-551.

58. France, J., S. López, **E. Kebreab**, A. Bannink, M. S. Dhanoa, and J. Dijkstra. 2005. A general compartmental model for interpreting gas production profiles. *Anim. Feed Sci. Technol.* 123-124:473-485.

59. Dijkstra, J., **E. Kebreab**, A. Bannink, J. France, and S. López. 2005. Application of the gas production technique in feed evaluation systems for ruminants. *Anim. Feed Sci. Technol.* 123-124:561-578.

60. Behera, U. K., **E. Kebreab**, J. Dijkstra, A. Assis, and J. France. 2005. Simulation of milk production in dairy cows fed sugarcane top based diets with locally available supplements under Indian conditions. *J. Agric. Sci.* 143:217-229.

61. **Kebreab, E.**, J. France, R. H. Phipps, and S. Leeson. 2005. Potential economic and environmental impact of feeding high-oil corn to poultry in Brazil. *J. Appl. Poult. Res.* 14:463-475.

62. Schulin-Zeuthen, M., J. B. Lopes, **E. Kebreab**, D. M. S. S. Vitti, A. L. Abdalla, M. Del Haddad, L. A. Crompton, and J. France. 2005. Effects of phosphorus intake on phosphorus

flow in growing pigs: application and comparison of two models. *J. Theor. Biol.* 236:115-125.

63. **Kebreab, E.**, J. France, J. D. Sutton, L. A. Crompton, and D. E. Beever. 2005. Effect of energy and protein supplementation on phosphorus utilization in lactating dairy cows. *J. Anim. Feed Sci.* 14:63-77.

64. **Kebreab, E.**, M. A. Shah, D. E. Beever, D. J. Humphries, J. D. Sutton, J. France and I. Mueller-Harvey. 2005. Effects of contrasting forage diets on phosphorus utilisation in lactating dairy cows. *Livest. Prod. Sci.* 93:125-135.

65. Vitti, D. M. S. S, **E. Kebreab**, J. B. Lopes, A. L. Abdalla, and J. France. 2005. Effects of dietary supplementation on phosphorus metabolism in sheep. *J. Anim. Vet. Adv.* 4:349-355.

## 2004

66. Darmani Kuhi, H., **E. Kebreab**, S. Lopez, and J. France. 2004. A comparative evaluation of functions for describing the relationship between live-weight gain and metabolizable energy intake in turkeys. *J. Agric. Sci.* 142:691-695.

67. Val-Arreola, D., **E. Kebreab**, J. A. N. Mills, and J. France. 2004. Analysis of the calving pattern of herds in small-scale dairy systems in central Mexico. *J. Anim. Feed Sci.* 13:557-574.

68. Val-Arreola, D., **E. Kebreab**, J. Dijkstra, and J. France. 2004. Study of the lactation curve in dairy cattle on farms in central Mexico. *J. Dairy Sci.* 87:3789-3799.

69. Val-Arreola, D., **E. Kebreab**, S. L. Wiggins, and J. France. 2004. A study of forage production and nutrient availability in small-scale production systems in central Mexico. *Nutr. Cycl. Agroecosyst.* 69:191-201.

70. Dhanoa, M. S., J. France, L.A. Crompton, R. M. Mauricio, **E. Kebreab**, J. A. N. Mills, J. Dijkstra, and S. Lopez. 2004. A proposed method to determine extent of degradation of a feed in the rumen from the degradation profile obtained with the in vitro gas production technique using feces as the inoculum. *J. Anim. Sci.* 82:733-746.

71. **Kebreab E.**, J. A. N. Mills, L. A. Crompton, A. Bannink, J. Dijkstra, W. J. J. Gerrits, and J. France 2004. An integrated mathematical model to evaluate nutrient partition in dairy cattle between animal and environment. *Anim. Feed Sci. Technol.* 112:131-154.

## 2003

72. Mills, J. A. N, **E. Kebreab**, C. Yates, L. A. Crompton, S. B. Cammell, M. S. Dhanoa, R. E. Agnew, and J. France 2003. Alternative approaches to predicting methane emissions from dairy cows. *J. Anim. Sci.* 81:3141-3150.

73. **Kebreab, E.**, J. France, R. E. Agnew, T. Yan, M. S. Dhanoa, J. Dijkstra, D. E. Beever, and C. K. Reynolds. 2003. Alternatives to linear analysis of energy balance data from lactating dairy cows. *J. Dairy Sci.* 86:2904-2913.

74. Darmani Kuhi, H., **E. Kebreab**, E. Owen, and J. France. 2003. An evaluation of different growth functions for describing the profile of live weight with time (age) in meat and egg strains of chicken. *Poult. Sci.* 82:1536-1543.

75. Darmani Kuhi, H., **E. Kebreab**, S. Lopez, and J. France. 2003. A comparative

evaluation of functions for the analysis of growth in male broilers. *J. Agric. Sci.* 140:451-459.

## 2002

76. Darmani Kuhi, H., **E. Kebreab**, S. Lopez, and J. France. 2002. A derivation and evaluation of the von Bertalanffy equation for describing growth in broilers over time. *J. Anim. Feed Sci.* 11:109-125.

77. **Kebreab, E.**, J. France, J. A. N. Mills, R. Allison, and J. Dijkstra. 2002. A dynamic model of N metabolism in the lactating dairy cow and an assessment of impact of N excretion on the environment. *J. Anim. Sci.* 80:248-259.

78. **Kebreab, E.**, J. Dijkstra, J. A. N. Mills, and J. France. 2002. Rebuttal of the critique of a dynamic model of N metabolism. *J. Anim. Sci.* 80:3371-3373.

## 2001

79. **Kebreab, E.**, J. France, D. E. Beever, and A. R. Castillo. 2001. Nitrogen pollution by dairy cows and its mitigation. *Nut. Cycl. Agroecosyst.* 60: 275-285.

80. Alderman, G., **E. Kebreab**, and J. France. 2001. Methods for correcting the metabolisable energy intakes of ruminants measured at the production level of feeding to that measured at the maintenance level. *J. Anim. Feed Sci.* 10:541-558.

81. Darmani Kuhi, H., **E. Kebreab**, E. Owen, and J. France. 2001. Application of the law of diminishing returns to describing the relationship between metabolizable energy intake and growth rate in broilers. *J. Anim. Feed Sci.* 10:661-670.

82. Mills, J.A.N, J. Dijkstra, A. Bannink, S. B. Cammell, **E. Kebreab**, and J. France. 2001. A mechanistic model of whole-tract digestion and methanogenesis in the lactating dairy cow: Model development, evaluation, and application. *J. Anim. Sci.* 79:1584-1597.

83. Alderman, G., J. France, and **E. Kebreab**. 2001. A critique of the Cornell Net Carbohydrate and Protein System with emphasis on dairy cattle: 1. The rumen model. *J. Anim. Feed Sci.* 10:1-24.

84. Alderman, G., J. S. Blake, J. France, and **E. Kebreab**. 2001. A critique of the Cornell Net Carbohydrate and Protein System with emphasis on dairy cattle: 2. The post-rumen digestion model. *J. Anim. Feed Sci.* 10:203-221.

85. Alderman, G., J. France, and **E. Kebreab**. 2001. A critique of the Cornell Net Carbohydrate and Protein System with emphasis on dairy cattle: 3. The requirements model. *J. Anim. Feed Sci.* 10:361-383.

86. **Kebreab, E.**, A. G. Assis, J. Dijkstra, and J. France. 2001. Evaluating sugarcane diets for dairy cows using a digestion model. *Trop. Anim. Health Prod.* 33:127-139.

87. **Kebreab, E.**, and A. J. Murdoch. 2001. Simulation of integrated control strategies for *Orobanche* spp. based on a life-cycle model. *Exp. Agric.* 37:37-51.

88. Castillo, A. R., **E. Kebreab**, D. E. Beever, J. H. Barbi, J. D. Sutton, H. C. Kirby, and J. France. 2001. The effect of energy supplementation on nitrogen utilisation in grass silage diets by lactating dairy cows. *J. Anim. Sci.* 79:240-246.

89. Castillo, A. R., **E. Kebreab**, D. E. Beever, J. H. Barbi, J. D. Sutton, H. C. Kirby, and J. France. 2001. The effect of protein supplementation on nitrogen utilisation in grass silage diets by lactating dairy cows. *J. Anim. Sci.* 79:247-253.

## 2000

90. Vitti, D. M. S. S., **E. Kebreab**, J. B. Lopes, A. L. Abdalla, F. F. R. De Carvalho, K. T. De Resende, L. A. Crompton, and J. France. 2000. A kinetic model of phosphorus metabolism in growing goats. *J. Anim. Sci.* 78:2706-2712.

91. **Kebreab, E.**, and A. J. Murdoch. 2000. The effect of water stress on temperature range for germination of *Orobanche aegyptiaca* seeds. *Seed Sci. Res.* 10:127-133.

92. **Kebreab, E.**, A. R. Castillo, D. E. Beever, D. Humphries, and J. France 2000. The effects of management practices prior to and during ensiling and concentrate type on nitrogen utilisation and pollution in lactating dairy cows. *J. Dairy Sci.* 83:1274-1285.

93. Castillo, A. R., **E. Kebreab**, D. E. Beever, and J. France 2000. A review of efficiency of nitrogen utilisation in dairy cows and its relationship with the environmental pollution. *J. Anim. Feed Sci.* 9:1-32.

94. **Kebreab, E.**, J. France, R. H. Ellis, and C. Garforth. 2000. An evaluation of uptake and developmental impact in the semi-arid tropics of four crop production models. *J. Agric. Sci.* 134:173-180.

## 1999

95. **Kebreab, E.**, and A. J. Murdoch. 1999. A model of the effects of a wide range of constant and alternating temperatures on seed germination of four *Orobanche* species. *Annals of Botany* 84:549-557.

96. **Kebreab, E.**, and A. J. Murdoch. 1999. Effect of moisture and temperature on the viability of *Orobanche* spp. *Weed Res.* 39:199-211.

97. **Kebreab, E.**, and A. J. Murdoch. 1999. Modelling the effects of water stress and temperature on germination of *Orobanche aegyptiaca* seeds. *J. Exp. Bot.* 50:655-664.

98. **Kebreab, E.**, and A. J. Murdoch. 1999. A quantitative model for loss of primary dormancy and induction of secondary dormancy in imbibed seeds of *Orobanche* spp. *J. Exp. Bot.* 50:211-219.

## iv. Papers accepted for publication

99. Fathi Nasri, M. H., J. France, N. E. Odongo, A. Bannink and **E. Kebreab**. Modelling the lactation curve of dairy cows using the differentials of growth functions. *J. Agric. Sci.*, in press.

100. Jalilvand, G., N.E. Odongo, A. Naserian, R. Valizadeh, F. Eftekhari Shahroodi, **E. Kebreab**, and J. France. 2008. Effects of different levels of an enzyme mixture on in vitro gas production parameters of different forages. *Anim. Feed Sci. Technol.*, in press.

101. Darmani Kuhi, H., T. Porter, **E. Kebreab**, S. Lopez and J. France. 2008. A comparative

evaluation of functions for the analysis of growth in turkeys. *World's Poult. Sci. J.* in press.

102. Behera, U. K., C. M. Yates, **E. Kebreab** and J. France. 2008. Farming systems methodology for efficient resource management at the farm level: an Indian perspective *J. Agric. Sci.*, in press.

103. **Kebreab, E.**, K. A. Johnson, S. L. Archibeque, D. Pape, and T. Wirth. 2008. Model for estimating enteric methane emissions from US cattle. *J. Anim. Sci.*, in press.

#### **v. Papers submitted for publication**

104. Ellis, J. L., **E. Kebreab**, N.E. Odongo, K. Beauchemin, S. McGinn, J. D. Nkrumah, S. S. Moore, R. Christopherson, G. K. Murdoch, B. W. McBride, E. K. Okine, and J. France. 2009. Modeling methane production from beef cattle using linear and non-linear approaches. *J. Anim. Sci.* Re-submitted June 8, 2008.

105. Dias, R. S., M. Schulin-Zeuthen, D. M. S. S. Vitti, J. A. Moreira, **E. Kebreab**, and J. France. Application of a mathematical model to evaluate phosphorus metabolism in pigs fed a diet containing different levels of phytase enzyme. Submitted to *J. Agric. Sci.*

106. Ellis, J. L., J. J. Thomason, **E. Kebreab**, K. Zubair and J. France. Cranial dimensions and food processing in the domestic dog. Submitted to *J. Anatomy*.

107. Bannink, A., M. C. J. Smits, **E. Kebreab**, J. A. N. Mills, A. Klop, J. France and J. Dijkstra. Effects of grassland management and grass ensiling on methane emission by lactating cows. Submitted to *J. Agric. Sci.*

108. Dumas, A., S. Lopez, E. Kebreab, M. Gendron, J.H.M. Thornley and J. France. Comparison and selection of fish growth models: unexpected alternatives to the von Bertalanffy and advantages of a pluralistic statistical approach. Submitted to *Can. J. Fish. Aqua. Sci.*

109. Darmani Kuhi, H., **E. Kebreab**, S. Lopez and J. France. Application of the law of diminishing returns to estimate maintenance requirement for amino acids and their efficiency of utilisation for accretion in young chicks. Re-submitted to *J. Agric. Sci.* March 12, 2008

110. Dias, R. S., T. Silva, R. M. P. Pardo, J. C. Silva Filho, D. M. S. S. Vitti, **E. Kebreab** and J. France. Rumen phosphorus metabolism in sheep. Submitted to *J. Agric. Sci.*

111. **Kebreab E.**, J. France, R. P. Kwakkel, S. Leeson, H. Darmani Kuhi and J. Dijkstra. Development and evaluation of a dynamic model of calcium and phosphorus flows in layers. Submitted to *Poult. Sci.* May, 2008.

#### **vi. Papers read at conferences**

##### **2008**

112. **Kebreab, E.** 2008. Mathematical Modelling in Poultry Science. *Prairie Poultry Seminar* May 7-8, 2008. (Invited presentation).

113. **Kebreab, E.**, J. Dijkstra, A. Bannink, and J. France. 2008. Advances in modeling ruminant nutrient utilization. *J. Anim. Sci.* 86 (Suppl. 1)/*J. Dairy Sci.* 91 (Suppl. 1), 611 (Invited presentation).

114. **Kebreab, E.**, K. A. Johnson, S. L. Archibeque, D. Pape, and T. Wirth. 2008. Development of methane conversion factors for US cattle using mechanistic models. *J. Anim. Sci.* 86 (Suppl. 1)/*J. Dairy Sci.* 91 (Suppl. 1), 323.
115. Bannink, A., M. C. J. Smits, J. A. N. Mills, **E. Kebreab**, J. Ellis, J. France and J. Dijkstra. 2008. Simulating effects of grass management on methane emission in lactating cows. *J. Anim. Sci.* 86 (Suppl. 1)/*J. Dairy Sci.* 91 (Suppl. 1), 324.
116. **Kebreab, E.** 2008. Feed model evaluation for nutrient management. *Manitoba Swine Seminar* 22:153-159. (Invited presentation).
117. Dijkstra J., A. Bannink, E. A. Lantinga, J. France, **E. Kebreab**, and J. W. Reijs. Development of a model to predict the effect of nutritional strategies on manure composition of dairy cows. *Can J. Anim. Sci.* in press.
118. Bannink A., J. France, **E. Kebreab**, and J. Dijkstra. Modelling rumen wall functionality and potential for a systems biology approach. *Can J. Anim. Sci.* in press.
119. Yitbarek, A., M. Tenuta, C. M. Nyachoti, J. France, and E. Kebreab. Effect of phytase supplementation on greenhouse gas emissions from manure application. *Can J. Anim. Sci.* in press.

## 2007

120. Dijkstra, J., Bannink, A., France, J. and **Kebreab, E.** 2007. Nutritional control to reduce environmental impacts of intensive dairy cattle systems. In *Proceedings of the 7<sup>th</sup> International Symposium on the Nutrition of Herbivores. Herbivore Nutrition for the Development of Efficient, Safe and Sustainable Livestock Production*, pp. 411-435 [Q.X. Meng, L.P. Ren & Z.J. Cao, editors]. Beijing: China Agricultural University Press.
121. Darmani Kuhi, H., T. Porter, **E. Kebreab**, S. Lopez and J. France. 2007. A comparative evaluation of functions for the analysis of growth in turkeys. *Proceedings of the 16<sup>th</sup> European Symposium on Poultry Nutrition, Strasbourg, France*, World's Poultry Science Association. pp. 109-110.
122. **Kebreab, E.** 2007. Advances in the development of rumen models. 2007. *Proceedings of Canadian Nutrition Congress, Winnipeg, Manitoba, 18-21 June, 2007*. p. 19. (Invited presentation).
123. AlZahal, O., **E. Kebreab**, J. France, M. Froetschel and B. W. McBride. 2007. Ruminant Temperature may Aid in the Detection of Subacute Ruminant Acidosis. *J. Anim. Sci.* 85 (Suppl. 1)/*J. Dairy Sci.* 90 (Suppl. 1)/*Poult. Sci.* 86 (Suppl. 1): 562.
124. Dhanoa, M. S., R. Sanderson, S. Lopez, J. Dijkstra, **E. Kebreab** and J. France. 2007. Alternative regression approaches when modelling energy components. In *Energy and Protein Metabolism and Nutrition. EAAP publication Number 124*. pp 593-594 (Eds: I. Ortigues-Marty, N. Miraux and W. Brand-Williams), Wageningen Academic Publications, 2007.
125. **Kebreab, E.**, J. Dijkstra, R. P. Kwakkel and J. France. 2007 Evaluation of a dynamic model of calcium and phosphorus metabolism in layers. *J. Anim. Sci.* 85 (Suppl. 1)/*J. Dairy Sci.* 90 (Suppl. 1)/*Poult. Sci.* 86 (Suppl. 1): 590.

## 2006

126. **Kebreab, E.**, France, J., Odongo, N., Osborne, V. R., and McBride, B.W. 2006.

Evaluation of a dynamic mechanistic model of phosphorus metabolism. Page 17 in *Proceedings of the Workshop on Environment and Agriculture at Guelph: Multi-disciplinary Research and its Challenges*. J. Rapai, C. Wagner-Riddle, E. Kebreab and J. France, eds. University of Guelph, Guelph, ON, Canada.

127. **Kebreab, E.**, and J. France. 2006. Current applications of dairy production models – assessing environmental and financial impacts. Pages 173-186 in *42<sup>nd</sup> Eastern Nutrition Conference*, Animal Nutrition Association of Canada. (Invited presentation).

128. France, J., and **E. Kebreab**. 2006. Role of modeling in animal nutrition. Pages 145-156 in *42<sup>nd</sup> Eastern Nutrition Conference*, Animal Nutrition Association of Canada. (Invited presentation).

129. **Kebreab, E.**, J. France, N. E. Odongo, and B. W. McBride. 2006. Empirical and mechanistic modeling of phosphorus utilization in dairy cows in Ontario. *J. Anim. Sci.* 84 (Suppl. 1)/*J. Dairy Sci.* 89 (Suppl. 1): 441.

130. Darmani Kuhi H., **E. Kebreab**, S. Lopez and J. France. 2006. An evaluation of the monomolecular equation for the analysis of growth in pigs. Proceedings of the 12<sup>th</sup> AAAP meeting, Bexco, Busan, Korea, abstract no. 1109.

131. Odongo, N. E., A. Kramer, J. E. Las, O. AlZahal, B. Kerrigan, **E. Kebreab**, J. France, T. May, and B. W. McBride. 2006. Feeding strategies to minimize the extent of methane output from dairy cows into the environment. Proceedings of the Workshop on Environment and Agriculture at Guelph: Multi-disciplinary Research and its Challenges, Oct 2<sup>nd</sup>, 2006.

132. Dijkstra, J., **E. Kebreab**, J. A. N. Mills, López S, and J. France 2006. From nutrient requirement to animal response: predicting the profile of absorbed nutrients in dairy cattle. *Proceedings of the British Society of Animal Science* 2006, 218.

133. Odongo, N. E., A. Kramer, J. E. Las, O. AlZahal, B. Kerrigan, **E. Kebreab**, J. France, T. May, and B. W. McBride. 2006. Measurement of gaseous emissions from ruminants, using a mobile system. Proc. 2<sup>nd</sup> mtg. Anim. Prod. Manure Manag. Net., 00-00. BIOCAP Canada Foundation [www.biocap.ca](http://www.biocap.ca).

134. France, J., **E. Kebreab**, J. L. Ellis, N. E. Odongo, and B. W. McBride. 2006. Different approaches to modeling enteric methane production in dairy cows. Proc. 2<sup>nd</sup> mtg. Anim. Prod. Manure Manag. Net., 00-00. BIOCAP Canada Foundation [www.biocap.ca](http://www.biocap.ca).

135. Wagner-Riddle, C., **E. Kebreab**, J. France, K. Clark, and J. Rapai. 2006. Supporting measurements for greenhouse gas emission studies. Proc. 2<sup>nd</sup> mtg. Anim. Prod. Manure Manag. Net., 00-00. BIOCAP Canada Foundation [www.biocap.ca](http://www.biocap.ca).

136. Dijkstra, J., **E. Kebreab**, A. Bannink, L. A. Crompton, P. A. Abrahamse, P. Chilibroste, J. A. N. Mills, and J. France 2006. Supply and requirement of nutrients predicted by feed evaluation systems and a mechanistic model for dairy cattle offered grass-based diets. *Can. J. Anim. Sci.* 569.

137. Ellis, J. L., **E. Kebreab**, N. E. Odongo, B. W. McBride, and J. France 2006. Prediction of methane production from Canadian beef and dairy cattle. *Can. J. Anim. Sci.* 571.

138. AlZahal, O., **E. Kebreab**, J. France, and B. W. McBride. 2006. A mathematical approach to predict biological values from rumen pH measurements. *Can. J. Anim. Sci.* 572.

139. Dias, R. S., **E. Kebreab**, D.M.S.S. Vitti, F. P. Porthillo, H. Louvandini, and France, J.

2006. Phosphorus kinetics in lambs fed different levels of P. *Can. J. Anim. Sci.* 573-574.

## 2005

140. Bannink A., J. Dijkstra, J. A. N. Mills, **E. Kebreab**, and J. France. 2005. A dynamic approach for evaluating farm-specific as well as general policies to mitigate methane emissions by dairy cows. Pages 75-82 in *Non-CO2 Greenhouse Gases (NCGG-4): Science, control, policy and implementation : Proceedings of the Fourth International Symposium on Non-CO2 Greenhouse Gases (VVM, 2005)*. Millpress Publishers, Rotterdam, The Netherlands.

141. **Kebreab, E.**, J. Dijkstra, and J. France. 2005. Effect of forage type on the efficiency of utilization of energy for milk production in dairy cows. *Proc. 1st Trop. Anim. Prod. Soc. La Habana, Cuba*. (Invited presentation)

142. Ellis, J. L., **E. Kebreab**, J. Thomason, and J. France. 2005. Craniodental biometrics and mathematical modeling in the domestic dog: determining biting force and other measures of food apprehension. *Can. J. Anim. Sci.* 85:546-547.

143. **Kebreab, E.**, J. France, N. E. Odongo, V. R. Osborne, and B. W. McBride. 2005. Evaluation of a dynamic mechanistic model of phosphorus metabolism in dairy cows. *J. Anim. Sci.* 83 (Suppl. 1)/*J. Dairy Sci.* 88 (Suppl. 1): 59-60.

144. Wagner-Riddle, C., K. Clark, J. France, and **E. Kebreab**. 2005. Animal Production and Manure Management Network: addressing research gaps in mitigation of greenhouse gas emissions. Capturing Canada's Green Advantage: Biosphere Solutions to Climate Change and the Economy, BIOCAP Canada Foundation Conference, 2-3 February 2005, Ottawa, Canada.

145. **Kebreab, E.**, N. E. Odongo, J. France, and B. W. McBride. 2005. Feeding strategies to minimize the extent of methane output in the environment and improve dairy cow efficiency. Proc. 1<sup>st</sup> mtg. Anim. Prod. Manure Manag. Net., 15-16. BIOCAP Canada Foundation [www.biocap.ca](http://www.biocap.ca). (Invited presentation).

## 2004

146. **Kebreab E.**, J. France, R. H. Phipps, and S. Leeson. 2004. Impact of feeding high-oil corn to poultry in Brazil. *J. Anim. Sci.* 82 (Suppl. 1)/*J. Dairy Sci.* 87 (Suppl. 1)/*Poultry Science* 83 (Suppl. 1): 394-395.

147. Agnew, R. E., T. Yan, J. France, **E. Kebreab**, D. E. Beever, G. F. J. Gordon, G. Alderman, M.G. Porter, and S. B. Cammell. 2004. Development of a new approach to determine the energy requirements of dairy cows. *Proc. Br. Soc. Anim. Sci.* 2.

148. Yan, T., R. E. Agnew, J. France, **E. Kebreab**, D. E. Beever, F. J. Gordon, G. Alderman, M.G. Porter, and S. B. Cammell. 2004. Evaluation of a revised energy rationing model for dairy cows. *Proc. Br. Soc. Anim. Sci.* 3.

149. Vitti, D.M.S.S., A. P. Roque, **E. Kebreab**, J. B. Lopes, A. L. Abdalla, L. A. Crompton, R. S. Dias, V. F. N. Filho, and J. France. 2004. Calcium metabolism in sheep fed different calcium sources. 2. A kinetic model. *Proc. Br. Soc. Anim. Sci.* 113.

## 2003

150. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2003. A decision support system for evaluating phosphorous pollution by dairy cows. *J. Agric. Sci.* 140:481. (Invited presentation).

151. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2003. A model of P metabolism within a decision support system for evaluating phosphorus pollution by the dairy cow. *Can. J. Anim. Sci.* 83:646.

152. Mills, J.A.N, **E. Kebreab**, L. A. Crompton, and J. France. 2003. Implementation of a user friendly rumen simulation model through mixed language programming. *J. Anim. Sci.* 81 (Suppl. 1):/J. Dairy Sci. 86 (Suppl. 1):223.

153. **Kebreab, E.**, J. France, J. A. N. Mills, L. A. Crompton, R. E. Agnew, and T. Yan. 2003. Effect of forage to concentrate ratio on the efficiency of utilization of energy for milk production in dairy cows. *J. Anim. Sci.* 81 (Suppl. 1):/J. Dairy Sci. 86 (Suppl. 1):341.

154. Schulin-Zeuthen, M., J. B. Lopez, **E. Kebreab**, D. M. S. S. Vitti, A. L. Abdalla, M. DeL. Haddad, J. A. N. Mills, L. A. Crompton, and J. France. 2003. Effects of phosphorous intake on phosphorous flow in growing pigs: application and comparison of two models. *J. Agric. Sci.* 140:486-487.

155. Schulin-Zeuthen, M., J. B. Lopez, **E. Kebreab**, D. M. S. S. Vitti, A. L. Abdalla, M. DeL. Haddad, J. A. N. Mills, L. A. Crompton, and J. France. 2003. An application and comparison of two models of phosphorus flow in pigs. *Can. J. Anim. Sci.* 83:631.

156. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2003. A decision support system to evaluate the pollution potential of diets for dairy cows. *Proc. Br. Soc. Anim. Sci.* 134.

157. Vitti, D. M. S. S., **E. Kebreab**, J. B. Lopes, A. L. Abdalla, L. M. Salviano, L. A. Crompton, and J. France. 2003. A phosphorus metabolism model for sheep fed various levels of calcium. A kinetic model. *Proc. Br. Soc. Anim. Sci.* 196.

158. Mills, J.A.N, **E. Kebreab**, L. A. Crompton, and J. France. 2003. The Mitscherlich equation: an alternative to linear models of methane emissions from cattle. *Proc. Br. Soc. Anim. Sci.* 135.

159. Schulin-Zeuthen, M., J. B. Lopes, **E. Kebreab**, D. M. S. S. Vitti, A. L. Abdalla, M. DeL. Haddad, L. A. Crompton, J. A. N. Mills, and J. France. 2003. Application and comparison of two models of phosphorus flows in growing pigs. *Proc. Br. Soc. Anim. Sci.* 67.

## 2002

160. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2002. An impact assessment of methane, nitrogen and phosphorus excretion on the environment. *Responding to the Increasing Global Demand for Animal Products. Proc. Intl. Conf. Br. Soc. Ani. Sci., Am. Soc. Anim. Sci. and Mexican Soc. Anim. Prod.*, Universidad Autonoma de Yucatan, 29-30.

161. Val-Arreola, D, **E. Kebreab**, S. L. Wiggins, and J. France 2002. Optimising the resources used for feeding dairy cows on small-scale production systems in Central Mexico. *Responding to the Increasing Global Demand for Animal Products. Proc. Intl. Conf. Br. Soc. Ani. Sci., Am. Soc. Anim. Sci. and Mexican Soc. Anim. Prod.*, Universidad Autonoma de Yucatan, 134-135.

162. **Kebreab, E.**, J. France, J. A. N. Mills, L. A. Crompton, R. E. Agnew, and T. Yan, 2002. A non linear approach to analysing energy balance studies in dairy cows. *J. Agric. Sci.* 139:110-111. (Invited presentation).

163. Mills, J. A. N, **E. Kebreab**, C. M. Yates, L. A. Crompton, S. B. Cammell, R. E. Agnew, and J. France. 2002. Developing a universal model of methane emissions from dairy cattle. Alternatives to linear regression analysis. *J. Agric. Sci.* 139:104-105.

164. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2002. A decision support system to evaluate methane and nitrogen emissions from dairy cows. *J. Dairy Sci.*, 85 (Suppl. 1):398-399.

165. Mills, J. A. N, **E. Kebreab**, L. A. Crompton, and J. France. 2002. A non linear approach to modeling methane emissions from dairy cows. *J. Dairy Sci.*, 85 (Suppl. 1):310-311.

166. **Kebreab, E.**, J. A. N. Mills, L. A. Crompton, and J. France. 2002. Application of a dynamic nitrogen model to reduce nutrient pollution by dairy cows. *Proc. Br. Soc. Anim. Sci.* 106.

167. Vitti, D. M. S. S., **E. Kebreab**, J. B. Lopes, C. J. Dorigan, K. T. De Resende, A. L. Abdalla, L. A. Crompton, and J. France 2002. Calcium metabolism in Saanen goats. A kinetic model. *Proc. Br. Soc. Anim. Sci.* 105.

168. Mills, J. A. N, **E. Kebreab**, L. A. Crompton, J. Dijkstra, and J. France. 2002. Application of a dynamic mechanistic model of small intestinal starch digestion in the dairy cow. *Proc. Br. Soc. Anim. Sci.* 104.

## 2001

169. **Kebreab, E.**, J. France, C. M. Yates, J. A. N. Mills, L. A. Crompton, R. E. Agnew, and T. Yan. 2001. Analysing the efficiency of energy utilization for milk production in dairy cows. *J. Agric. Sci.* 137:118. (Invited presentation).

170. Yates, C. M., J. A. N. Mills, **E. Kebreab**, L. A. Crompton, and J. France. 2001. An integrated modelling approach to providing cost-effective means of reducing methane emissions from dairy cows. *J. Agric. Sci.* 137:120-121.

171. Crompton, L. A., C. K. Reynolds, B. J. Bequette, M. D. Hanigan, J. A. Maas, J. A. N. Mills, **E. Kebreab**, C. M. Yates, and J. France. 2001. An isotope dilution model for partitioning phenylalanine and tyrosine uptake by the mammary gland of lactating dairy cows. *J. Agric. Sci.*, 137:114-115.

172. **Kebreab, E.**, J. France, R. E. Agnew, and T. Yan. 2001. An alternative approach to determine the efficiency of energy utilization for milk production in lactating dairy cows. *J. Dairy Sci.* 84 (Suppl. 1):121.

173. **Kebreab, E.**, J. France, J. A. N. Mills, R. Allison, and J. Dijkstra. 2001. Simulation of the effect of N excretion on environmental pollution arising from dairy cows using a dynamic model. *J. Dairy Sci.* 84 (Suppl. 1):359.

174. Crompton, L. A., J. France, **E. Kebreab**, J. A. N. Mills, M. S. Dhanoa, S. Lopez, and J. Dijkstra. 2001. A non invasive approach to determining extent of degradation in the rumen. *Proc. Br. Soc. Anim. Sci.* 26.

175. **Kebreab, E.**, L. A. Crompton, J. A. N. Mills, and J. France 2001. Phosphorus pollution by dairy cows and its mitigation by dietary manipulation. *Proc. Br. Soc. Anim. Sci.* 138.

176. Mills, J. A. N, J. Dijkstra, A. Bannink, **E. Kebreab**, S. B. Cammell, L. A. Crompton, and J. France. 2001. Application of a mechanistic model of methanogenesis in the lactating dairy cow. The fate of hydrogen during fermentation and strategies to mitigate methane emissions. *Proc. Br. Soc. Anim. Sci.* 122.

## 2000

177. Vitti, D.M.S.S., **E. Kebreab**, J. B.Lopes, A. L. Abdalla, F. F. De Carvalho, K. T. De Resende, L. A. Crompton, and J. France. 2000. A model of kinetics and metabolism of

phosphorus in goats. *Proc. 37<sup>th</sup> Brazil. Soc. Anim. Sci.*

178. Mills, J. A. N., J. Dijkstra, A. Bannink, **E. Kebreab**, S. B. Cammell, and J. France 2000. Application of a mechanistic model of methanogenesis in the lactating dairy cow. Nutritional strategies to reduce methane emissions and increase dietary energy availability models. *J. Agric. Sci.* 135:325-326.

179. Murdoch, A. J., **E. Kebreab**, L. Sonko, I. P. Lynn. 2000. Multiplicative probability models in seed physiology. *Proc. 21<sup>st</sup> Seed Biol.*, RHS Wisley, UK.

180. France, J., M. S. Dhanoa, L. A. Crompton, S. Lopez, J. Dijkstra, R. M. Mauricio, **Kebreab E.**, and E. Owen. 2000. A non-invasive approach to determining extent of degradation in the rumen. *Gas Production: Fermentation Kinetics for Feed Evaluation and to Assess Microbial Activity*, *Proc. EAAP Sat. Symp. Gas Prod.*, 18-19 August 2000, Wageningen, The Netherlands, 33-41. British Society of Animal Science, Edinburgh.

181. **Kebreab, E.**, D. E. Beever, and J. France 2000. Phosphorus utilisation and excretion in dairy cows. *Proc. Intl. Conf. Control of Nitrogen and Phosphorus excretion in ruminants by dietary manipulation*. SCI, London, UK. (Invited presentation).

### 1999

182. **Kebreab, E.**, J. France, and R. H. Ellis. 1999. Developmental impact of crop models in semi-arid tropics. Page 350 in *Proceedings of the Thirty-first Meeting of the Agricultural Research Modellers' Group meeting*. J. France, L. A. Crompton (eds.) *J. Agric. Sci.* 133.

183. Murdoch, A. J., **E. Kebreab**, L. Sonko and I. P. Lynn. 1999. Multiplicative probability models in seed physiology. Page 347 in *Proceedings of the Thirty-first Meeting of the Agricultural Research Modellers' Group meeting*. J. France, L. A. Crompton (eds.) *J. Agric. Sci.* 133.

184. **Kebreab, E.**, J. France, and D. E. Beever 1999. Nitrogen pollution by dairy cows in the UK and its mitigation. *Proc. Intl. Conf. Biogenic Emissions of Green house Gases Caused by Arable and Animal Agriculture*. 13-15 October 1999, Stuttgart, Germany. (Invited presentation)

185. Murdoch, A. J., **E. Kebreab**, and L. Sonko. 1999. Population responses to temperature for loss of primary dormancy and induction of secondary dormancy in seeds and consequences for predictive empirical modelling. *Proc. Intl. Conf. Dormancy*. 23-25 July 1999, Angiers, France.

186. **Kebreab, E.**, and A. J. Murdoch 1999. A new 'hydrothermal' time equation for progress of germination in *Orobanche aegyptiaca*. *Proc. 20<sup>th</sup> Seed Biol.* Horticulture Research International, Wellesbourne, UK.

### 1996

187. **Kebreab, E.**, and A. J. Murdoch. 1996. Germination of *Orobanche crenata*, *O. aegyptica*, *O. cernua* and *O. minor* at a wide range of alternating and constant temperatures. *Proc. 17<sup>th</sup> Seed Biol.* University of Hertfordshire, UK. (Invited presentation)

188. **Kebreab, E.**, and A. J. Murdoch. 1996. Germination of *Orobanche crenata* seeds at a wide range of alternating and constant temperatures. Pages 426-431 in *Advances in Parasitic Plant Research – Proc. Sixth Intl. Symp. Parasitic Weeds*. Cordoba, Spain.

### 1993

189. **Kebreab, E.**, and A. Haile. 1993. Pesticide Use in Eritrea. *Proc. 2<sup>nd</sup> Conf. Chem. Soc. Eritrea*. The University of Asmara, Eritrea. (Invited presentation)

## 1992

190. **Kebreab, E.** 1992. DDT and associated problems in Eritrea. *Proc. 1st Conf. Chem. Soc. Eritrea*. The University of Asmara, Eritrea.

## vii. Other conference abstracts

### 1999

191. **Kebreab, E.**, R. Allison, R. Mansbridge, D. E. Beever, and J. France 1999. Comparison of linear models of nitrogen balance in dairy cows. Abstract. *Vth Intl. Workshop on Modelling Nutrient Utilization in Farm Animals*. 25-27 October 1999, Cape Town, South Africa.

192. **Kebreab, E.**, T. Smith, and J. France. 1999. Modelling nutrient partitioning in undernourished ruminants in the tropics. *Proc. Intl Workshop on Undernutrition in Dairy Ruminants, International Livestock Centre for Africa*, Addis Abeba, June 6-7, 1999.

193. Smith, T., and **E. Kebreab**. 1999. Research priorities to study undernutrition in dairy ruminants in small holder production systems in the tropics. *Proc. Intl Workshop on Undernutrition in Dairy Ruminants, International Livestock Centre for Africa*, Addis Abeba, June 6-7, 1999.

### 1998

194. **Kebreab, E.**, and A. J. Murdoch. 1998. Thermal time models for rate of germination of five *Orobanche* species. Pages 59-64 in *Current Problems of Orobanche Res. Proc. 4th Intl. Workshop on Orobanche*. K Wegmann, L. J. Musselman and D. M. Joel (eds.), 23-26 September 1998, Albena, Bulgaria.

195. **Kebreab, E.**, and A. J. Murdoch. 1998. Loss and induction of seed dormancy by prolonged period in imbibed storage. *Proc. Intl Seed Testing Assoc.*, Johannesburg, South Africa.

### 1997

196. **Kebreab, E.**, and A. J. Murdoch. 1997. Towards prediction of secondary dormancy in *Orobanche* spp. *Proc. Br. Crop Prot. Council Conf.* November 1997, Brighton, UK.

197. **Kebreab, E.**, and A. J. Murdoch. 1997. Modelling the effects of prolonged conditioning on germination and dormancy of *Orobanche*. *Proc. 18th Seed Biol.* Long Ashton Research Station, Univ. Bristol, Bristol, UK.

### 1989

198. **Kebreab, E.** 1989. Parasitic weeds in Eritrea - a preliminary survey. *Proc. Eth. Crop Sci. Soc.* Ethiopian Crop Science Society, Addis Abeba, Ethiopia.

## viii. Technical Reports

### 2006

199. **Kebreab, E.**, J. France, C. F. M. de Lange, and C. Wagner-Riddle. 2006. Identification of environmentally and economically important dietary and management strategies that influence composition and volume of swine manure. Interim Report to OMAFRA, Univ.

Guelph, Canada.

### 2003

200. Wheeler, T., C. Murekezi, S. Gowen, **E. Kebreab**, W. Tushemereirwe. 2003. Impact of banana streak virus on the growth and yield of banana var. Cavendish Williams (*Musa* AAA) and var. Mbwaziume (*Musa* AAA-EA). Univ. Reading, UK.

201. **Kebreab, E.**, J. A. N. Mills, and J. France. 2003. CowPoll v.1. A decision support tool to evaluate diets for their pollution impact in dairy cows. Written in Fortran and Visual Basic 6. The University of Reading, UK.

### 2001

202. **Kebreab, E.**, and J. France. 2001. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows*. MAFF Contract WA0311 Project Report No 1, 26pp.

### 2000

203. **Kebreab, E.**, and J. France. 2000. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows*. MAFF Contract WA0311 R&D Review Report, 4pp.

204. **Kebreab, E.**, and J. France. 2000. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows*. MAFF Contract WA0311 Final Project Report, 28pp.

205. **Kebreab, E.**, G. Alderman, R. E. Agnew, and J. France. 2000. *Sub-Task: Combine All Energy Metabolism Data Within the United Kingdom (ARINI/Newforage and CEDAR/GRI) and Examine Alternative Approaches to Modelling these Data*. MAFF Link Project 42 (Feed in Milk) Final Report 10pp.

206. **Kebreab, E.**, and J. France. 2000. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows*. MAFF Contract WA0311 Interim Project Report No 2, 6pp.

207. **Kebreab, E.**, and J. France. 2000. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows: Updated Ammonia Emissions Statement*. MAFF Contract WA0311, Univ. Reading, May 2000, 7pp.

### 1999

208. **Kebreab, E.**, J. France, and D. E. Beever. 1999. *Modelling of Nitrogen and Phosphorus Utilisation in Dairy Cows: Preliminary Nitrogen Pollution Statement*. MAFF Contract WA0311, Univ. Reading, January 1999, 3pp.

209. **Kebreab, E.**, and J. France. 1999. *Biomathematical modelling guidelines for Natural Resources projects*. Natural Resources International Ltd., 6pp.

### 1998

210. **Kebreab, E.**, J. France, and R. H. Ellis. 1998. *Evaluating the potential of biomathematical modelling funded by the Department for International Development to provide developmental impact in the context of NRSP goals and purposes*. Final Technical Document submitted to Natural Resources International Ltd. December, 1998. 71pp.

211. Smith, T, and **E. Kebreab**. 1998. *A Review of Undernutrition in Dairy Ruminants in Smallholder Production Systems in the Tropics*. Final Report, International Livestock Research

Institute, Nairobi, Kenya. 124 pp.

**1997**

212. **Kebreab, E.** 1997. Germination Biology of *Orobanche spp.* and implications for integrated control. PhD thesis. Univ. Reading, UK.

**1991**

213. **Kebreab, E.** 1991. Biology and Control of *Cynodon dactylon*. MSc thesis. Univ. Reading, UK.

**1987**

214. **Kebreab, E., G. Mehare.** 1987. Screening Barley Germplasms from Northern Ethiopia for Drought and Pest Resistance. BSc thesis. Univ. Asmara, Eritrea.

**ix. Additional evidence of scholarship**

215. France, J., Imamidoost, R., and **E. Kebreab.** 2008. Next generation of software for application in livestock nutrition. *Feed Compounder*, August 2008:21-22.

216. Kebreab, W-G., and **E. Kebreab.** 2006. *Modern and Traditional Proverbs in Tigrinya*. ErmiPublishing, Guelph, ON. 120pp.

217. France, J., J. A. N. Mills, and **E. Kebreab.** 2002. Green cows CAN be more profitable. *Dairy Farmer*, June 2002:40-41.

218. **Kebreab, E.,** and A. J. Murdoch. 1999. Predicting *Orobanche* seed longevity for better weed management in legumes. *Grain Legumes*, The magazine of the European Association for Grain Legume Research 23:8-9.

219. **Kebreab, E.** 1999. How long can the seeds of the parasitic weed *Orobanche* survive in soil? *The Journal of the Department of Agriculture*, Univ. Reading 12:25-28.

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