

5-2018

## **Cornelis (Kees) Franciscus Maria de Lange (1961–2016): a brief biography**

John F. Patience  
*Iowa State University, jfp@iastate.edu*

M. Z. Fan  
*University of Guelph*

Follow this and additional works at: [https://lib.dr.iastate.edu/ans\\_pubs](https://lib.dr.iastate.edu/ans_pubs)



Part of the [Agriculture Commons](#), and the [Animal Sciences Commons](#)

The complete bibliographic information for this item can be found at [https://lib.dr.iastate.edu/ans\\_pubs/810](https://lib.dr.iastate.edu/ans_pubs/810). For information on how to cite this item, please visit <http://lib.dr.iastate.edu/howtocite.html>.

---

This Article is brought to you for free and open access by the Animal Science at Iowa State University Digital Repository. It has been accepted for inclusion in Animal Science Publications by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

---

## Cornelis (Kees) Franciscus Maria de Lange (1961–2016): a brief biography

### Abstract

Dr. Cornelis Franciscus Maria de Lange, known to all as Kees, the son of Cornelis and Petronella de Lange, was born on April 19, 1961 in the farming community of De Weere, The Netherlands. He earned a Bachelor of Science degree in animal science in 1983 and followed that with a M.Sc. degree in animal nutrition in 1985, both from the Agricultural University in Wageningen, The Netherlands. He then moved to Canada to study with Dr. Willem C. Sauer at the University of Alberta (Edmonton, AB, Canada), graduating with a Ph.D. in animal nutrition in 1988. For 3 yr, he was employed as a Swine Nutritionist and Research and Technical Service Manager with Ralston-Purina Canada in Woodstock, ON, Canada. In 1992, he joined the Prairie Swine Centre (Saskatoon, SK, Canada) as a Research Scientist – Nutrition before moving back to Ontario to join the faculty in the Department of Animal and Poultry Science of the University of Guelph in 1994. He was promoted to Associate Professor in 1998 and then to Full Professor in 2003, a position he held until his death from melanoma on August 1, 2016.

### Disciplines

Agriculture | Animal Sciences

### Comments

This is a manuscript of an article published as Patience, J. F., and M. Z. Fan. "Cornelis (Kees) Franciscus Maria de Lange (1961–2016): a brief biography." *Journal of animal science* 96, no. 5 (2018): 2012-2015. doi:[10.1093/jas/skx026](https://doi.org/10.1093/jas/skx026). Posted with permission.

## Cornelis (Kees) Franciscus Maria de Lange (1961-2016): A Brief Biography

J. F. Patience\*<sup>1</sup> and M. Z. Fan<sup>†</sup>

\*Iowa State University, Ames, 50011; <sup>†</sup>University of Guelph, Guelph, ON, CANADA N1G 2W1

Dr. Cornelis Franciscus Maria de Lange, known to all as Kees, the son of Cornelis and Petronella de Lange, was born on April 19, 1961 in the farming community of De Weere, The Netherlands. He earned a Bachelor of Science degree in animal science in 1983 and followed that with a M.Sc. degree in animal nutrition in 1985, both from the Agricultural University in Wageningen, The Netherlands. He then moved to Canada to study with Dr. Willem C. Sauer at the University of Alberta (Edmonton, AB, Canada), graduating with a Ph.D. in animal nutrition in 1988. For 3 yr, he was employed as a Swine Nutritionist and Research and Technical Service Manager with Ralston-Purina Canada in Woodstock, ON, Canada. In 1992, he joined the Prairie Swine Centre (Saskatoon, SK, Canada) as a Research Scientist – Nutrition before moving back to Ontario to join the faculty in the Department of Animal and Poultry Science of the University of Guelph in 1994. He was promoted to Associate Professor in 1998 and then to Full Professor in 2003, a position he held until his death from melanoma on August 1, 2016.

Kees met Deirdre “Dede” Conway, a fellow graduate student in nutrition and his future wife, while at the University of Alberta. They had 4 children: Samuel, Mark, Julia, and Anna. While his career was of great importance to Kees, it did not replace or surpass the love he had for his family and friends with whom he enjoyed cycling, canoeing, hiking and camping. Dede described him as a “BIG family man” who, in spite of a busy schedule, always found time to attend soccer games or watch movies on a Friday night. As much as possible, he involved his family in foreign travel, to share his love of learning and his interests in science, history, and culture. He was a man of great principle and was very generous with his time, not only for his family but for his graduate students as well.

Dr. Paul Moughan, Distinguished Professor at Massey University and Co-Chair of the affiliated

Riddet Centre (Palmerston North, New Zealand), was a colleague of Kees' and described him as "one of the leading animal scientists of his time" and said he "will be remembered for his very keen mind, his professionalism, his humility and his ability to lead." Dr. Martin Verstegen, Emeritus Professor at the Agricultural University in Wageningen, was another close colleague of Kees' and similarly described him as "a passionate professor and one of the very best scientists in his field in the world." It would be no exaggeration to describe Kees as a global thought leader in swine nutrition. He challenged our thinking on many aspects of amino acid and energy metabolism and their interactions at both basic and applied levels.

### **By the numbers**

By any measure, Kees was a highly prolific scientist. He published more than 150 refereed manuscripts, more than 200 papers in conference proceedings, 31 books and book chapters, and 165 other miscellaneous publications. He also presented more than 100 talks at academic and industry conferences around the globe, for example in Australia, Brazil, China, Denmark, Germany, Hungary, Mexico, The Netherlands, New Zealand, Poland, Spain, the United Kingdom, and the United States. To achieve such a high level of productivity, he secured more than \$8.5 million of extramural funding, much of it from highly competitive granting agencies. This was all accomplished by a man whose career was cut short at the age of 55, and who was fighting melanoma for almost a third of his career!

Kees took advantage of sabbatical leaves at INRA (Saint-Gilles, France; 2001 to 2002) and Massey University in New Zealand (2005 to 2006) to further develop his scientific skills and build many lifelong friendships with fellow researchers. He was a member of both the Canadian Society of Animal Science and the American Society of Animal Science and was also a member of the Editorial Boards of the journals of both Societies.

## **Research accomplishments**

Kees' career was noted for the strength and prolificacy of his graduate training. Plus, he was as comfortable speaking to pork producers as he was to global leaders in the academic community. His communication skills provided the foundation for a highly successful career in academia, but it was his infectious enthusiasm for new knowledge and his keen mind, matched with innovative thinking, that defined his success as a researcher. He was perhaps most widely recognized for his studies in 3 important areas: 1) the effects of diet, physiological maturity, gender, and health status on nutrient utilization in the growing pig; 2) dietary effects on pork quality; and 3) dietary effects on gut health in newly weaned pigs. He was also accomplished in developing liquid feeding strategies and evaluating novel ingredients for use by the pig industry. He stated that the "ultimate aim (of his research program) was to support development of sustainable pork production practices, including satisfying the demands of the critical public, and to train future leading nutritionists."

His successful research career was prophesied by a very successful Ph.D. dissertation at the University of Alberta, wherein he studied endogenous N secretions in the small intestine of the pig. Three of the manuscripts that evolved from this work have been widely cited (de Lange et al., 1989a,b; de Lange et al., 1990), an accomplishment rarely achieved by papers derived from a Ph.D. dissertation. His interests in endogenous N losses continued after graduation and culminated in one of the most cited publications on the subject (Nyachoti et al., 1997).

Kees was an early advocate of the use of growth simulation models to develop a broader understanding of the complex interactions among the diet and the biology, environment and health of pigs, and how they related to growth performance and nutrient requirements. He also saw in models the opportunity to apply our growing understanding of the biology of the pig into commercial practice. His first refereed paper on modeling was published in 1996 (Schinckel and de Lange, 1996). However, he had presented talks and written general articles on the subject starting in 1993. His series of

publications with S. Birkett in the British Journal of Nutrition provided a unique synthesis of the state of our understanding of nutrient flow and modelling (Birkett and de Lange, 2001a,b,c). These and other publications on the subject established Kees as a leader in the development and application of modelling in swine. In support of the advancement of model precision and application, he undertook research on protein deposition and the quantification of maximum protein deposition ( $PD_{max}$ ) under diverse conditions.

Perhaps his greatest and most innovative research was related to N and AA metabolism. He addressed the topic under many different health, environmental and nutritional circumstances, and he considered numerous AA in his studies. He had few contemporaries that had contributed so much to our understanding of this topic in swine.

The interesting thing about Kees' research was that although he studied a broad range of topics, he maintained great depth in his research and an impressive level of innovation and novelty in his approaches. His research was often referred to as "cleverly designed." This reflected his intellectual capacity, his ability to organize his research very effectively and his tremendous work ethic. He was rewarded for his research efforts with numerous awards that were local, national and international in scope. These included the Distinguished Research Award from the Alumni Association of the Ontario Agriculture College of the University of Guelph in 2005, the Excellence in Nutrition and Meat Quality Research Award from the Canadian Society of Animal Science in 2010, the Non-Ruminant Nutrition Research Award from the American Society of Animal Science in 2012 and the Distinguished Extension Award from the Alumni Association of the Ontario Agriculture College of the University of Guelph in 1999 and again in 2013. He was the only 2-time recipient of the latter award.

### **Teaching and training**

Kees was a popular and successful teacher at both the undergraduate and graduate levels. For example, over the last 6 yr during which he taught an undergraduate course in swine nutrition, he

earned average student evaluation scores of not less than 4.6 on a 5-point scale; indeed, in 2015, the last year he taught the course, he received a perfect score of 5.0.

Kees supervised the training of more than 50 graduate students and post-doctoral fellows. He also hosted several international visiting scholars, including Dr. Malcolm Fuller, formerly of the Rowett Institute (Aberdeen, Scotland). In honor of Kees' accomplishments, his support of students, and his significance to the University of Guelph community, an endowed graduate scholarship, The Kees de Lange Scholarship in Swine Nutrition, was created at the University of Guelph.

### **Outreach accomplishments**

Kees had the ability to interpret and describe complex scientific concepts in a manner that was understandable to a very broad audience in both the academic and lay communities. In this way, he was able to greatly strengthen the relationship between the Ontario and Canadian pork industries and the University of Guelph. He was also interviewed on national news agencies in Canada and The Netherlands. In honor of his outreach accomplishments, the Kees de Lange Lectureship in Swine Nutrition was established in 2017 at the annual London Swine Conference and at the annual University of Guelph Swine Research Day in the same year.

### **Service to science and his profession**

Kees' reputation in swine nutrition was reflected in his popularity as a consultant to numerous pork producers and feed companies in Ontario, including Cold Springs Farm (Thamesford, ON, Canada), Agribands International (Woodstock, ON, Canada) and Wallenstein Feeds (Wallenstein, ON, Canada). He was also invited to join numerous international panels, including the Expert Panel on "Life Cycle Analyses on the Role of Specialty Feed Ingredients on Livestock Production's Environmental Sustainability," the National Scientific Committee of the 4<sup>th</sup> International Symposium on Energy and Protein Metabolism and Nutrition (Sacramento, CA), the National Research Council's NRSP-9 Modelling

Committee of the National Animal Nutrition Program, the International Consortium at Murdoch University to define AA requirements of pigs during a disease challenge, and the US National Academies of Science Committee to prepare the 11<sup>th</sup> Nutrient Requirements of Swine publication (NRC, 2012).

Kees was truly a global leader in swine nutrition. His research advanced our knowledge in many important areas and his extension efforts brought that new knowledge to the industry for adoption. His leadership in modelling has created an important legacy for the future, and his administrative and scientific leadership on industry committees leaves its mark across the field of swine nutrition. Rather than lament his early passing, perhaps we should simply appreciate that we had a man of his stature and character with us at all.

### **Acknowledgements**

Many people assisted with the preparation of this biography. We therefore wish to extend appreciation to Dede Conway (Guelph, ON, Canada), Dr. Brian Kerr (USDA-ARS, Ames, IA), Dr. Paul Moughan (Massey University), Dr. Martin Nyachoti (University of Manitoba, Winnipeg, MB, Canada) and Dr. Martin Verstegen (Wageningen University).

### **Sampling of publications**

Birkett, S. and K. de Lange. 2001a. A computational framework for a nutrient flow representation of energy utilization by growing monogastric animals. *Br. J. Nutr.* 86:661-674 (Cited 59 times; 24 June 2017)

Birkett, S. and K. de Lange. 2001b. Calibration of a nutrient flow model of energy utilization by growing pigs. *Br. J. Nutr.* 86:675-689 (Cited 41 times; 24 June 2017)

Birkett, S. and K. de Lange. 2001c. Limitations of conventional models and a conceptual framework for a nutrient flow representation of energy utilization by animals. *Br. J. Nutr.* 86:647-659 (Cited 88 times; 24 June 2017)

- de Lange, C. F. M., W. C. Sauer, R. Mosenthin and W. B. Souffrant. 1989a. The effect of feeding different protein-free diets on the recovery and amino acid composition of endogenous protein collected from the distal ileum and feces in pigs. *J. Anim. Sci.* 67:746-754 (Cited 204 times; 24 June 2017)
- de Lange, C. F. M., W. C. Sauer and W. Souffrant. 1989b. The effect of protein status of the pig on the recovery and amino acid composition of endogenous protein in digesta collected from the distal ileum. *J. Anim. Sci.* 67:755-762. (Cited 157 times; 24 June 2017)
- de Lange, C. F. M., W. B. Souffrant and W. C. Sauer. 1990. Real ileal protein and amino acid digestibilities in feedstuffs for growing pigs as determined with the <sup>15</sup>N-isotope dilution technique. *J. Anim. Sci.* 68:409-418. (Cited 157 times; 24 June 2017)
- de Lange, C. F. M., P. C. H. Morel and S. H. Birkett. 2003. Modeling chemical and physical body composition of the growing pig. *J. Anim. Sci.* 81 (Suppl 2): E159-E165. (Cited 92 times; 24 June 2017)
- Libao-Mercado, A. J., D. Columbus and C. F. M. Lange. 2015. Influence of a flooding dose of valine on key indicators of metabolic status in the growing pig. *J. Anim. Physiol. Anim. Nutr.* 99:100-106.
- NRC. 2012. Nutrient requirements of swine. 11th rev. ed. Natl. Acad. Press, Washington, DC.
- Nyachoti, C.M., C. F. M. de Lange, B. W. McBride and H. Schulze. 1997. Significance of endogenous gut nitrogen losses in the nutrition of growing pigs: A review. *Can. J. Anim. Sci.* 77:149-163. (Cited 235 times; 24 June 2017)
- Rudar, M., C. L. Zhu and C. F. M. de Lange. 2017. Dietary leucine supplementation decreases whole-body protein turnover before, but not during, immune system stimulation in pigs. *J. Nutr.* 147:45-51. (Cited 1 time; 24 June 2017)
- Schinckel, A. P. and C. F. M. de Lange. 1996. Characterization of growth parameters needed as inputs for pig growth models. *J. Anim. Sci.* 74:2021-2036. (Cited 216 times; 24 June 2017)