Obituary: James France PhD, DSc, FIMA, CMath, CSci

Mewa S. Dhanoa[1] and Judith France[2]

[1]IBERS, Aberystwyth, Wales, UK and [2]University of Guelph, Leeds, UK

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James France, Professor Emeritus at the University of Guelph (Canada), passed away in December 2024. James was a distinguished scholar, dedicated educator and cherished colleague whose contributions to mathematical modelling in agricultural sciences left an indelible mark on the academic community – Jim to all of us who had the pleasure and honour of knowing him.

Born in Haverfordwest, Pembrokeshire, UK, Jim obtained his BSc (honours) in Mathematics at Cardiff University in 1972. He excelled in mathematics and graduated with a PhD at the University of Hull.

After working as a research officer at the Research and Intelligence Unit of South Yorkshire County Council and Commission of the European Communities, he accepted a position with the Agriculture Research Council at the Grassland Research Institute at Hurley, near Maidenhead (UK), in 1979. There, he began his career as a specialist in mathematical modelling of all aspects of animal physiology, with a focus on rumen function, digesta passage and dairy cow nutrition, areas of research that he pursued throughout his career. At Hurley, Jim worked

with John H.M. Thornley (1936–2023), his long-time scientific colleague and co-author of many scientific publications. Together, they published the first edition of their classic book *Mathematical Models in Agriculture* in 1984, followed by a second edition in 2007. Their work has been foundational in understanding and predicting the behaviour of agricultural and ecological systems through quantitative methods. They led the way in showing the value of interdisciplinary research. Following the closure of the Hurley site in 1992, Jim transferred to North Wyke, Okehampton (UK), as part of the newly formed Institute of Grassland and Environmental Research, where he completed work on a dynamic simulation model of rumen function with colleagues from Wageningen University. During his time at Hurley and North Wyke, Jim served as Head of Biomathematics and Deputy Head of Animal and Microbial Sciences. Jim had a prolific and impactful academic career. In 1997, Jim was appointed Research Professor of Biomathematics at the University of Reading, where he established a biomathematics research group and developed compartmental models of protein turnover. In 2003, he received the Senior Canada Research Chair in Biomathematics in Animal Nutrition at the University of Guelph and moved with his family to Canada, where he founded and led the Centre for Nutrition Modelling. In 2011, Jim undertook a sabbatical in Spain to continue his long-standing collaboration on growth functions and feed evaluation systems with scientists at the University of Leon. Jim became Professor Emeritus at the Department of Animal Biosciences of the University of Guelph on his retirement in 2017 and continued to work as a scientist, 'emptying the bottom desk drawer' of in-progress work and contributing further articles to scientific journals up until the time of his death, with further articles to be published posthumously. From 1986 until his retirement, Jim was a visiting professor at the University of California – Davis, Wageningen University, University of León and Newcastle University. Throughout his career, Jim published 10 books and more than 865 journal articles. As of November 2024, his works have been cited more than 31,900 times.

Jim was one of the leading organisers of the workshops on modelling nutrient digestion and utilisation in farm animals (MODNUT). The international meeting is held every 3–5 years to discuss the application of modelling across multiple disciplines of animal nutrition and feeding of farm animals. He was also the coordinator for the Agricultural Research Modellers' Group in the UK from the mid-1980s until 2003 and subsequently established an Animal Science Modellers' Group following his move to Guelph. Jim's ethos was that animal modelling should be based on scientific pluralism and data mining, with an emphasis on solving biological problems rather than applying mathematical techniques and collaborated with many scientists globally to progress this vision.

During the course of his career, he was known not only for his pioneering research in the mathematical modelling of animal nutrition but also for his unwavering commitment to mentoring students, globally, and fostering a passion for discovery in the next generation of scientists.

Jim was a very valuable member of the Editorial Board of *The Journal of Agricultural Science*, published by Cambridge University Press, and published several papers in the journal either as a senior or co-author.

Beyond academia, Jim was a devoted family member, a loyal friend and an active member of the scientific community. Jim met his wife, Judith, while they were studying at the University of Hull (UK), and they were married in 1976. He found joy in hiking, chatting over a coffee, travelling and reading books about history, philosophy and science. He was an avid football fan and enjoyed woodwork as well as gardening.

Jim left a mark that impacted the lives of many people. He is survived by Judith, their three sons and four grandchildren, as well as countless friends, former students and colleagues who will forever remember his warmth and brilliance. He will be deeply missed and fondly remembered.

Best always.

André Dumas
Jennifer L. Ellis
Jan Dijkstra
Ermias Kebreab
Les Crompton
Secundino López
Dennis Poppi
Maggie Gill
Roger Wilkins

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