

Devki Nandan Kamra (1954–2022)

Professor Devki Nandan Kamra, a renowned rumen microbiologist, passed away on 3 December 2022 in Gurgaon, Haryana. Born on 8 November 1954, in Panipat, Haryana, Kamra received his B.Sc. degree from Kurukshetra University in 1975 and Master's degree in microbiology from G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand in 1977. He later earned a Ph.D. degree in microbiology from the Indian Veterinary Research Institute (IVRI), Izatnagar, Uttar Pradesh in 1989. In 1984, he studied German as a foreign language at the Goethe-Institut, Göttingen, Federal Republic of Germany.

Kamra joined as a scientist in the Animal Nutrition Division of IVRI in 1978 and served as senior scientist and principal scientist from 1984 to 1998 and 1998 to 2013 respectively. He was appointed Director of the Centre of Advanced Faculty Training (CAFT) in Animal Nutrition, IVRI, Izatnagar in 2010 and Acting Joint Director (Research) during 2012–13. He was an Indian Council of Agricultural Research (ICAR) National Professor at the CAFT in Animal Nutrition from 2013 to 2018.

Kamra's research focused on ensiling green forages for livestock feeding and the effects of animal waste on waste characteristics, pathogens and livestock acceptance. He also studied the fungal treatment of straws and stovers to increase nutrient bioavailability in ruminants. In 1991, he designed a new method for microscopic estimation of protozoal count in a hemocytometer (Kamra, D. N. *et al.*, *Lett. Appl. Microbiol.*, 1991, **131**, 165–167). Kamra and his team submitted three patents for JevSel-101, Anti-Methane and Methane suppressor respectively. They investigated ruminant rations that produced minimal methane and improved livestock production. They also established a state-of-the-art rumen microbiology laboratory at IVRI, Izatnagar. They collaborated with laboratories across India and around the world through research projects from the International Atomic Energy Agency, National Agricultural Technology Project, National Agricultural Innovation Project, Department of Biotechnology and network programmes.

Kamra was a passionate and skilled teacher who guided 4 Master's and 13 Ph.D. students in rumen microbiology. His tea-

ching skills attracted students to the field, and he was involved in formulating academic programmes in rumen and silage microbiology, advanced rumen microbiology and feed biotechnology. His passion for teaching can be assessed through his freelance teaching package of 22 lectures for different universities from India and abroad. He contributed to academic development at IVRI as a member/chairman of the Board of Studies at the institute. Kamra received numerous awards for his dedication to teaching and quality research. He received the Bharat Ratna Dr C. Subramaniam Award for Outstanding Teacher of



the ICAR in 2011, the Best Teacher Award of IVRI in 1996–97, the Award of Merit from IVRI for Best Teaching and Research in Animal Nutrition in 2001, and the Award of Honour for Best Teaching and Research in Animal Nutrition from IVRI in 2011, particularly for his dedication towards teaching and quality research.

Kamra was an excellent motivator for developing a scientific temperament and passion for research. He ensured that his students were equipped with the best technologies for future research. Most of the rumen microbiology research and extension in India is led by his students and associates across the country. Kamra received the DAAD Fellowship (German Academic Research Exchange Programme) twice, once for 16 months in 1983–85 and the second for three months in 1995–96. He was associated with FAO/IAEA for the formulation of International Research Projects from 2004 to 2009. He served as General Secretary (1995–97; 2008–10) and Presi-

dent (2010–13) of the Animal Nutrition Association based at IVRI. He was instrumental in organizing many workshops, seminars, CAFT training programmes, and conferences in the animal nutrition sector.

Kamra has over 300 publications, including 169 research papers, with an impactful publication on the rumen microbial ecosystem published in *Current Science*. He served as an editorial board member and reviewer of several reputed international journals. During 2020–21, Kamra was a member of the Research Advisory Committee of the ICAR-National Institute of Animal Nutrition and Physiology, Bengaluru; Central Institute for Research on Cattle, Meerut; Central Institute for Research on Buffaloes, Hisar; Indian Grassland and Fodder Research Institute, Jhansi, and National Research Centre for Meat, Hyderabad. In 2005–06, he received the highest award in agriculture conferred by ICAR, the Rafi Ahmed Kidwai Award, and the Lifetime Achievement Award in 2013 of the Compound Livestock Feed Manufacturers Association, India. He was elected as a Fellow of the National Academy of Agricultural Sciences (NAAS) in 2007 and also received the Recognition Award and the Dr P. Bhattacharya Memorial Award from NAAS in 2007–08 and 2017 respectively. He received the ANA Dr. D. V. R. Prakash Rao Outstanding Researcher Award in 2015 and ANA Dr U. R. Mehra Life Time Achievement Award in 2017 for lifetime contribution to animal sciences from Animal Nutrition Association, Izatnagar. The Indian Society for Buffalo Development, Hisar, Haryana also bestowed him the Lifetime Achievement Award in 2019 in recognition of his research on buffaloes. In 2019, he was also elected Fellow of the Animal Nutrition Association, IVRI, Izatnagar.

He is survived by his wife Mrs Lalita Kamra, son Piyush and daughter Sradha. Kamra's family, students, colleagues and animal nutrition professionals will never forget him for his gentle, kind-hearted and enlightening nature.

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