

Curriculum Vitae - Niels Bastian Kristensen, Ph.D.

Position title: Associate Professor in Biomarkers for Physiological Status and Diseases in Livestock, Horses and Pets
Born: June 18, 1969, Citizenship: Danish

University contact:	Private contact:
Aarhus University Faculty of Technical Sciences (Tech) Department of Animal and Veterinary Sciences Blichers Allé 20 (building 8850 / D20) DK-8830 Tjele Denmark E: nielsbastian@anivet.au.dk PURE: https://pure.au.dk/portal/en/persons/nielsbastian%40anivet.au.dk M: +45 24799335 CVR: 31119103 EAN: 5798000877436	Åkandevej 6 DK-8830 Tjele Denmark E: post@rumen.dk M: +45 2479 9335 Linkedin: www.linkedin.com/in/niels-bastian-kristensen-26235b1 NB-Dairy ApS Website: https://rumen.dk CVR: 37992623

Academic degrees:

1992: Cand. agro. (Animal Science) Royal Veterinary and Agricultural University (KVL), Copenhagen
1996: Ph.D. (Animal Physiology) Royal Veterinary and Agricultural University (KVL), Copenhagen

Occupation

1987 - 88	Herdsmen (dairy cattle)
1996	Research Scientist, National Institute of Agricultural Sciences, Denmark
1996 – 97	Work Agriculture (dairy cattle)
1997 – 01	Research Scientist, Danish Institute of Agricultural Sciences, Denmark
2002 – 04	Senior Research Scientist, Danish Institute of Agricultural Sciences, Denmark
2004 – 11	Research Professor, Faculty of Agricultural Sciences, Aarhus University, Denmark (Danish Institute of Agricultural Sciences before merging with Aarhus University)
2011	Science Manager, Novozymes A/S, Copenhagen, Denmark
2011 - 13	Dairy Consultant, Syddansk Kvæg, Vejens, Denmark and Knowledge Centre for Agriculture, Cattle, Aarhus, Denmark
2013 - 17	Senior Specialist, Feeding Management, SEGES P/S (formerly Knowledge Centre for Agriculture) Aarhus, Denmark
2016 -	Founder and CEO of NB-Dairy Holding Aps and associated companies (spare time activity)
2017 – 17	Appointed Professor in Ruminant Nutrition, University of Copenhagen, Denmark
2017 – 23	Senior Specialist, Feeding Management, Landbrug & Fødevarer F.m.b.A., SEGES, Aarhus, Denmark (From January 1, 2022, SEGES Innovation P/S)
2024 -	Associate Professor in Biomarkers for Physiological Status and Diseases in Livestock, Horses and Pets, Aarhus University

Visiting

1992 - 93: Ph.D.-student, Institute of Physiology, Aarhus University, Denmark
1993 - 95: Ph.D.-student, National Institute of Agricultural Sciences, Denmark
2002 - 03: Visiting Scholar, Dept. Animal Sciences, University of Kentucky, USA

Competences and field of work:

The primary objectives of Niels Kristensen work, and projects have been addressing fundamental biological questions related to the biology of animal agriculture. Project activities have spanned work within ruminal fermentation, silage fermentation, nutrient absorption, portal-drained visceral metabolism, urea recycling, hepatic metabolism (gluconeogenesis, short-chain fatty acids, alcohols, amino acids, ketone synthesis, xenobiotics), relationships between splanchnic metabolism and whole-body use of nutrients for animal production, and biomarker discovery. Niels B. Kristensen has succeeded in implement findings from the research in practical farming, one example is introduction of “Compact TMR” as a feeding concept for dairy cattle adapted in large parts of Europe and beyond.

Experimental surgery has been applied to develop splanchnic metabolism models in dairy cattle, calves, sheep and pigs based on implantation of permanent indwelling catheters in the hepatic portal vein, hepatic vein, mesenteric vein, ruminal vein and arteries. Various cannulation techniques in cattle of all sizes from 4 days old calves to lactating

dairy cows (rumen, abomasum). Complementary activities have been based on large scale on-farm investigations applying blinded intervention trials on multiple farms. Running an advanced analytical laboratory has been a central element in numerous projects: GC/MS (used for identification and quantification of metabolites in a large range of biofluids). Isotope ratio mass spectrometer with various options (GC-combustion, elemental analyzer, high temperature conversion elemental analyzer, H/Device, and dual inlet) used for stable isotope labeled tracers (C-13, N-15, O-18, and deuterium). Clinical chemistry methods and in-house methods for analysis of biofluids using various autoanalyzers (Autoanalyzer III, Cobas Mira analyzer, and YSI-7100 selected biochemistry analyzer). GC-FID for analysis of volatiles in ruminal fluid and silage. From 2012 NIRS and FT-IR equipment have been implanted in projects addressing new solutions to biological optimization and monitoring of dairy cattle production systems. Development of in-line NIR application in dairy farm was initiated in 2012 and presently there are project activities as well as practical implementation of in-line NIR for use on harvesters and feed mixers.

Teaching

1993 - 2011 lectured at undergraduate and graduate courses in general physiology, metabolic physiology and animal nutrition at KU-Life, Copenhagen University (former Royal Veterinary and Agricultural University).

Lectures on rumen fermentation and metabolism in course 'Quantitative Animal Nutrition and Physiology' 2008 – 2010.

Responsible for the DJF part of a shared course in Experimental Animal Nutrition and Physiology offered in collaboration with KU Life, Copenhagen University (15 ECTS) 2003 – 2009.

Course responsible, Ph.D. course 'Metabolic Physiology of the Dairy Cow' offered by Aarhus University (10 ECTS) 2008.

Education of farmers, industry and extension staff

In the period from January 2012 NBK has held +250 seminars, talks and meetings within continual education of farmers, advisors, industry and veterinarians including visitors to Denmark and seminars and talks in Sweden, Germany, Holland, England, Italy, Austria, Poland, China, Russia, Brazil, and USA.

Supervision of PhD students

Project supervisor, Valérie Berthelot, INRA/INAPG, Physiol. de la Nutrition et Alimentation, France (graduated 1999).

Project supervisor, Mogens Larsen, KU Life, University of Copenhagen (graduated 2009).

Principal supervisor, Birgitte M.L. Raun, Aarhus University (2007 – 2011).

Project supervisor, Betina A. Røjen, KU Life, University of Copenhagen (2006 – 2011).

Principal supervisor, Adam C. Storm, Aarhus University (2008 – 2011).

PhD committee, Andrew Foote, University of Kentucky (2010 – 2013).

Co-supervisor, Charlotte S. Nielsen, Aarhus University (2011 – 2015).

PhD committee, Amanda M. Egert, University of Kentucky (2016 – 2019).

Leadership Experience

Manager of research lab from 2004 to 2011 with two full time technicians, one post doc, Ph.D.-students, and various numbers of undergraduate and graduate students.

Founder and daily leader of Kvægbrugets ForsøgsLaboratorium, SEGES analyzing TMR (Compact TMR Analyzer), concentrate, silages, commodities, feces, urine, and milk for dairy farmers, extension service and feed producers. The laboratory has been staffed with 1 to 2 full time employees and 2 to 5 part time employees.

Projects and Project leadership (selected projects)

NAME (PD #1 first)	SUPPORTING AGENCY	TOTAL \$ AMOUNT (approx.).	EFFECTIVE AND EXPIRATION DATES	TITLE OF PROJECT
Kristensen, N.B. , Nielsen, S., Lund, P., Løvendahl, P., Højberg, O., Weisbjerg M.	DFFE, Copenhagen, Denmark	\$1,333,000	1/1/06 – 31/12/10	Nitrogen efficient milk production
Kristensen, N.B and Thøgersen, R.	Mælkeafgiftsfonden, Skejby, Denmark	\$733,000	1/1/08 -31/12/10	Improved silage quality and production efficiency through control of silage fermentation
Munksgaard, L., Kristensen, N.B. , Jensen, M., Weisbjerg, M.R.	DFFE, Copenhagen, Denmark	\$3,446,000	1/7/10 – 31/12/13	Improved production and welfare of transition dairy cows and calves

Curriculum Vitae - Niels Bastian Kristensen, Ph.D.

Ad van Vuuren, A. Dijkstra, J., Calsamiglia, S., Chrenkova, M., Reynolds, C., Moorby, J. Doreau, M., Lebzien, P., Kristensen, N.B. , Weisbjerg, M.	European Union, Bruxelles	\$6,000,000	1/7/08-31/12/12	Innovative and practical management approaches to reduce nitrogen excretion by ruminants (REDNEX)
Larsen, M., Kristensen, N.B. , Theil, P.K., Røntved, C.	The Danish Council for Independent Research	\$750,000	1/7/10-30/6/13	Effect of periparturient protein deficiency on liver protein synthesis, epithelial proliferation and immunity in cows
Kristensen, N.B. Larsen, T., Vestergaard, M.	Mælkeafgiftsfonden, Skejby, Denmark	\$566,000	1/1/11 – 31/12/13	Purine and pyrimidine metabolism in lactating dairy cows
Kristensen, N.B.	GUDP, NaturErhvervstyrelsen	\$750.000	1/1/12-31/12/14	Husdyr 2.0
Kristensen, N.B.	Mælkeafgiftsfonden, Promilleafgiftsfonden	\$990.000 first 2 years + continuation	1/1/15 – 31/12/17	Fodringsbiologisk optimering af fremtidens mælkeproduktion. Precision feeding systems in dairy production

External examiner

External examiner at the Royal Veterinary and Agricultural University in Animal Physiology and Production Animal Anatomy and Physiology (1997 -2010).

Det Jordbrugsvidenskabelige Censorkorps for perioden 2019-22

Reviewer for peer reviewed journals:

- Acta Agric Scand. Sect. A, Animal
- British Journal of Nutrition
- Journal of Animal Science
- Journal of Dairy Science
- Livestock Science

Courses

Animal Experimentation (1994). Per Svendsen, Odense University.

Applied Statistics in Agricultural Research (1995). Dept. of Biometrics, Danish Institute of Agricultural Sciences

Operator Course DELTA^{PLUS} (2-6 June 1997). Finnigan MAT, Bremen, Germany.

Project management I and Project management II (1998). Strukturdirektoratet and PriceWaterhouseCoopers.

Academic Writing (28-30 January 1998 + 26-27 March 1998). Maeve Drewsen and Landbrugets Center for Efteruddannelse.

Differential Equations and Dynamic Systems in Agriculture (20-31 August 2000). DINA, Denmark.

How to write a competitive proposal for the 5th EU FWP (30 January 2001). Dr. Sean McCarthy, Hyperion, Ireland.

How to negotiate, administer, manage and finish an EU R&D contract (31 January 2001). Dr. Sean McCarthy, Hyperion, Ireland.

DSQ Operations Training Course (January 10 – 12, 2006). By the Thermo Electron European Training Institute.

Research Management Course (Hold 7, 2007-2008). Søren Barlebo Rasmussen, Copenhagen Business School.

Course on PhD supervision (8 h; 20101126). Gitte Wichmann-Hansen, CFU - Centre For edUcational Development, Aarhus University.

SU-199 – Introduktion til Programmering (Introduction to programming, November 15 to 16, 2021). Camilla Gaardsted, SuperUsers.

SU-207 - C# Programmering Grundkursus January 23 – 25, 2023. SuperUsers.

Service on institutional committees

Dairy barn management committee 2004 – 2010, chairman 2007 – 2008.

Institutional committee on academic affairs (Danish Institute of Agricultural Sciences, 2005 – 2007).

Departmental PhD committee 2008 – 2009.

Departmental Research and Business committee 2024 -

Academic society affiliations

Curriculum Vitae - Niels Bastian Kristensen, Ph.D.

American Society of Animal Science (terminated 2011), American Dairy Science Association (terminated 2011), European Association for Animal Production.

Publications:

Research papers with peer review	+85
Book chapters and reviews	13
Scientific meeting abstracts	+65
Publications in Danish	+120

Patents:

A DEVICE FOR ESTIMATING AT LEAST ONE PROPERTY OF FODDER, A KIT, A CONTAINER COMPRISING THE DEVICE, AND A METHOD FOR ESTIMATING AT LEAST ONE PROPERTY OF FODDER

Application: PCT/EP2021/073519. Date: 25 August 2021. Office: European Patent Office, The Hague. Applicant: LANDBRUG & FØDEVARER F.M.B.A. Inventors: Niels Bastian Kristensen & Claus Bertram Marcussen.