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Personal information

Born October 10, 1975. Nationality: Danish.

Academic degrees

2002: MSc. in Biology, Department of Genetics and Ecology, Aarhus University, Denmark.

2007: PhD in Ethology, Faculty of Life Sciences, University of Copenhagen, Denmark.

Postgraduate employment

2003: Research assistant. The Royal Veterinary and Agricultural University, Denmark. 2 months.

2003-2007: PhD student. The Royal Veterinary and Agricultural University, later Faculty of Life Sciences, University of Copenhagen, Denmark, 36 months.

2007: Post doc. Faculty of Life Sciences, University of Copenhagen, Denmark. 3 months.

2007-2017: Researcher. Department of Animal Science, Aarhus University, Denmark. 10 years.

2017-: Senior researcher. Department of Animal Science, Aarhus University, Denmark.

A total of 32 months of maternity/work leaves within the years 2005-2014

Authorship (24 August 2022)

o Author/co-author of 131 publications

o Google Scholar: H-index = 22

Invited lectures

o VID conference on animal welfare and climate. Copenhagen, Denmark, 5 November 2020.

o Nordic Poultry Conference, Billund, Denmark. 9 November 2016.

o Livestock Research Institute, National Chun-shin University, Tainan, Taiwan. 5 May 2015.

o Department of Animal Science, National Taiwan University, Taipei, Taiwan. 7 May 2015.

o Int. workshop arranged by the Ministry of Food, Agriculture and Fisheries, Copenhagen, Denmark.

Supervision: Main supervisor for 1 PhD student, co-supervisor for 2 PhD students, mentor for 4 post docs, main supervisor for 3 master students, main supervisor for 11 master students and 3 PhD students on internships.

International network

Stays abroad

o Visiting Researcher at the National University of Córdoba, Argentina, 2017, 14 days.

o Visiting Researcher at National Chun-shin University, Taiwan, 2015, 10 days.

o Visiting Researcher at Lincoln University, England, 2008, 1 month.

o Visiting Research Scholar at the University of California, Davis, USA, 2006, 4 months.

o Several short stays as a visiting Research Scholar at the Swedish University of Agricultural Sciences, the Norwegian University of Life Sciences and the University of Helsinki, 2003- 2007

o Visiting Research Scholar at Mpala Research Centre, Nanyuki, Kenya, 2000, 5 months.

International collaboration on research projects

o Smart broiler: Smart Monitoring of Broiler Welfare using Camera Technology and Machine Learning. In collaboration with Scio+ (DK), KU Leuven (BE) and Purdue University (US).
o Never wake a sleeping broiler. In collaboration with SLU (SE).
o FreeBirds: Suitability of different laying hybrids for organic egg production. In collaboration with Swedish University of Agricultural Science, Università degli Studi Milano (IT), Louis Bolk Institute (NL), Polish Academy of Sciences (PL), ILVO (BE), Uludag University (TR), Wageningen University (NL) and Wageningen Livestock Research (NL).

o Factors underlying gait score 2 in fast-growing broilers. In collaboration with SRUC (UK) and University of Bristol (UK).

o Environmental enrichment for broilers and broiler breeders. In collaboration with Wageningen Livestock Research (NL) and Cerebrus (UK).

o The influence of keel bone damages and foot disorders on welfare of laying hens. In collaboration with University of Guelph (CA).

o Validation of the palpation method used for diagnosing keel bone damage in layers. In collaboration with University of Guelph (CA).

o Development and effects of optimal brooders on the welfare of laying hens. In collaboration with Utrecht University (NL) and University of Cordoba (AR).

o Factors affecting welfare during rearing of laying hens. In collaboration with Norwegian School of Veterinary Science.

o Feather pecking and the nutritional link. In collaboration with Boehringer Ingelheim Vetmedica (MX) and Universidad Autónoma del Estado de México (MX).

o Nest location selection in laying hens. In collaboration with Lincoln University (UK) and INRA (F).

Participation international conferences, seminars and meetings Around 2 yearly since 2004 (e.g. Congress of the International Society of Applied Ethology, Worlds Poultry Conference, European Symposium on Poultry Welfare, International Conference on the Assessment of Animal Welfare at Farm and Group Level).

Awards and memberships

2022-2023 Member of the working group on ducks, geese and quails in the Farm to Fork program of EFSA (European Food and Safety Authority).

2020-: Member of the consortium of the EU Reference Centre for Welfare of poultry and other small farmed animals. <https://www.eurcaw-poultry-sfa.eu/>

2020-2022 Member of the working group on broilers in the Farm to Fork program of EFSA (European Food and Safety Authority).

2019: Received the ST Public Sector Consultancy Award. <https://nat.au.dk/en/about-the-faculty/news/show/artikel/st-awards-2019/>.

2016-2020: Invited member of the management committee of the European COST Action 'Identifying causes and solutions of keel bone damage in laying hens (CA15224)'.

2015-2019: Invited member of the management committee of the European COST Action 'Synergy for preventing damaging behaviour in group housed pigs and chickens (CA15134)'.

2010-: Invited member of working group 9 'Poultry Welfare and Management' in the European federation of the World's Poultry Science Association.

2006: 'Best Paper Award', 40th International Congress of the ISAE, August 8-12, Bristol, England.

2006-: Member of the World's Poultry Science Association (WPSA).

2003-: Member of the Association for the Study of Animal Behaviour (ASAB) and the International Society for Applied Ethology (ISAE).

Leadership and administration

2016-: Leader of WG2 (Effects of keel bone damage on welfare and productivity) of the European COST Action 'Identifying causes and solutions of keel bone damage in laying hens (CA15224)'.

2016: Member of the scientific evaluation committee at a PhD defence, University of Guelph (CA).

2007-: Regularly refereeing papers for Applied Animal Behaviour Science, Poultry Science, British Poultry Science, Animal Welfare, Mammal Review, Animal, Animals, Acta Scandinavica, Journal of Arid Environments, etc.

Project leader on the following research projects based on research grants SMART broiler: Smart Monitoring of Broiler Welfare using Camera Technology and Machine Learning (The Foundation for Food and Agriculture Research)

- o Identification of risk factors for development of damaging behaviour in barn layers (The Poultry Production Levy Fund)
- o FreeBirds: Suitability of different laying hybrids for organic egg production (CORE Organic under EU Horizon 2020)
- o Validation of the palpation method used for diagnosing keel bone damage in layers (The Poultry Production Levy Fund)
- o Feather pecking and cannibalism in layers with intact beaks (The Poultry Production Levy Fund)
- o Development and effects of optimal brooders on the welfare of laying hens (Green Development and Demonstration Programme (GUDP))
- o Feather pecking and the nutritional link (The Poultry Production Levy Fund; the Fund for Organic Farming)
- o Effects of LED lighting in broiler houses on welfare and productivity (Green Development and Demonstration Programme (GUDP))
- o Nest location selection in laying hens (The Danish Research Council | Technology and Production)

Project leader on the following research projects commissioned by the Ministry of Environment and Food of Denmark

- o Effects of hatching on-farm on behaviour and welfare in slow-growing broilers.
- o Qualitative feed restriction during rear of broiler breeders: Effects of feeding different types of fibre-rich diets on behaviour and welfare.
- o Reliability and validation of different scoring protocols used for assessment of plumage condition in laying hens.
- o Factors underlying gait score 2 in fast-growing broilers.
- o Welfare challenges in the barn system
- o Environmental enrichment for broilers and broiler breeders.
- o Prevalence of lameness in Danish broilers.
- o Characteristics of foot pad lesions in organic broilers.
- o Keel bone deformities in laying hens housed in enriched cages.
- o Alternatives to mutilation of the outermost joint of the backward facing toe in broiler breeder males
- o The influence of keel bone damages and foot disorders on welfare of laying hens.
- o Factors affecting welfare during rearing of laying hens.

Teaching and supervision experience

2019-: 'Animal Behaviour' (MSc, 10 ECTS)

2016-2017: 'Animal Behaviour' (BSc, 10 ECTS), Course responsible

2014-: 'Biomedical Research Technology' (BSc).

2014: 'Poultry Production and Health' (PhD, 5 ECTS)

2013-: 'Assessment of Welfare in Production Animals' (Professional MSc, 15 ECTS)

2013: 'Trends in Stress Biology' (PhD, 5 ECTS)

2011-2018: 'Behaviour of domesticated animals' (MSc, 10 ECTS)

2011-2015: 'Behaviour and stress biology' (BSc, 10 ECTS)

2007-: Lecturing regularly in different subjects of Poultry Behaviour and Welfare for veterinarians, farmers, advisors, the industry, technicians, laypersons and governmental employees.

2007-: 'Laboratory Animal Science (Category B)' (PhD, 2.4 ECTS)

2004-2006: Lecturing and teaching in different subjects on 4 different BSc and MSc courses on basic and applied ethology.

Innovation, Industry collaboration and Technology Transfer

2020-2021: Development of automatic monitoring of broiler welfare using camera technology and machine learning in collaboration with Scio+, KU Leuven and Purdue University. **2012-2016:** Development of optimal dark brooders for chicks in collaboration with Jyden Bur A/S and Seges. Resulted in brooders optimised in terms of size and functions. Brooders are now being tested by some breeders and used for research purposes nationally and internationally.

2012-2014: Development of optimal LED lighting for use in broiler barns in collaboration with TA Elteknik ApS. Resulted in LED's optimised for broiler farms and in recommendations regarding colour temperature. LED lighting is becoming increasingly used in broiler barns.

2015-2016: Investigation of the welfare consequences of omitting beak trimming in layer chicks in collaboration with the Danish Egg Association. Results clearly showed the need for more initiatives to prevent damaging behaviour in layers with intact beaks. As a result, DanÆg (among others) has increased their efforts on this topic. All layers in Denmark are now having intact beaks.

2016-2017: Setting up criteria for different levels of welfare of poultry (layers, broilers, turkeys, common/Muscovy ducks and geese) in collaboration with COOP (the largest supermarket retailer in DK). The animal welfare label is now in use.