

Curriculum Vitae

Miel Hostens

2026-04-13

Miel Hostens, PhD, DVM

Robert and Anne Everett Endowed Associate Professor
Digital Dairy Management and Data Analytics
Department of Animal Science

Cornell University
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Current position

Robert and Anne Everett Associate Professor of Digital Dairy Management and Data Analytics at Department of Animal Science, College of Agriculture and Life Sciences, Cornell University (9 months position) focusing on the creation of methodologies using precision dairy farming to monitor sustainable food production systems from a global perspective.



Identifiers & Profiles

- **ORCID:** <https://orcid.org/0000-0001-5376-976X>
- **Google Scholar:** *Citations and indices*
- **LinkedIn:** <https://www.linkedin.com/in/miel-hostens-56b1339b/>
- **Motivational Insights:** *My Motivational Insights*

Previous Scientific and Professional Activities

Academic Appointments & Professional Experience

Role	Institution	From	To
Robert and Anne Everett Associate Professor of Digital Dairy Management and Data Analytics focusing on the creation of methodologies using precision dairy farming to monitor sustainable food production systems from a global perspective.	Department of Animal Science, Cornell University	Jan 2024	Present
Adjunct Associate Professor	Department of Laboratory for Animal Nutrition and Animal Product Quality, Ghent University	Jan 2024	Present
Tenured Assistant Professor	Department of Population Health Sciences, Utrecht University (0.9 FTE)	Jan 2019	Dec 2023
Adjunct Assistant Professor	Department of Laboratory for Animal Nutrition and Animal Product Quality, Ghent University (0.1 FTE)	Jan 2021	Dec 2023
Post-doctoral fellow focusing on the optimisation of productive and reproductive performances in small and large dairy herds using digital technologies.	Department of Reproduction, Obstetrics and Herd Health, Ghent University	Nov 2012	Dec 2018
Pre-doctoral Fellow focusing on optimisation of productive and reproductive performances of small and large herds with an emphasis on nutrition using digital technologies, while finalizing PhD research.	Department of Reproduction, Obstetrics and Herd Health, Ghent University	Sep 2010	Oct 2012
PhD Candidate funded by the Institute for the Promotion of Innovation by Science and Technology in Flanders called “Induction of milk fat depression through specific fatty acids to reduce the negative energy balance after parturition of high yielding dairy cattle in relation to fertility”	Department of Reproduction, Obstetrics and Herd Health, Ghent University	Sep 2007	Aug 2010
Veterinarian in a dairy cattle and veal calve practice	Dierenkliniek Den Ham, The Netherlands	Jan 2007	Aug 2007
PhD Pre-applicant for the Institute for the Promotion of Innovation by Science and Technology in Flanders on the topic of “Polyunsaturated fatty acids in dairy cattle nutrition and the consequences for follicle, egg and embryo quality.”	Department of Reproduction, Obstetrics and Herd Health, Ghent University	Jul 2006	Dec 2006

Education

- PhD in Veterinary Medicine, University of Ghent, 2013:
 - “Health and Fertility Challenges in High Yielding Dairy Cows during the Transition Period and the Use of Dietary Fatty Acids as an Optimization Strategy”
- Master in Veterinary Medicine, University of Ghent, 2006 (*cum laude*).
- Bachelor in Veterinary Medicine, University of Ghent, 2003 (*cum laude*).

Post-academic training

Dairy Science Domain

Title of degree or diploma	Grade obtained	Institution	Date
Cursus rundveevoeding: recente ontwikkelingen en nieuwe inzichten	Certificate of attendance	Wageningen Business School, The Netherlands	2007
BASF, Tagungsveranstaltung	Certificate of attendance	Haus Riswick, Germany	2007
WIAS Seminar: Strategies to improve health and fertility in dairy cows	Certificate of attendance	Wageningen University & Research, The Netherlands	2008
ITB Schulung Februar	Certificate of attendance	DSP Agrosoft, Verden, Germany	2008
14th DISCOVER Conference: Lipids for Dairy Cattle: Today's Issues, Tomorrow's Challenges	Certificate of attendance	ADSA, Nashville, Indiana, United States	2008
25th World Buiatrics Congress	Certificate of attendance	World Buiatrics Association, Budapest, Hungary	2008
International symposium: Nutritional strategies to manage the challenges of today's dairy cows	Certificate of attendance	Wageningen University & Research, The Netherlands	2009
International Symposium on Ruminant Physiology	Certificate of attendance	ISRP, Clermont-Ferrand, France	2009
Rindergesundheitstag – Milch und gute Fruchtbarkeit: Die besten Strategien	Certificate of attendance	Leipzig, Germany	2009
ITB Schulung August	Certificate of attendance	DSP Agrosoft, Verden, Germany	2009
17th DISCOVER Conference: Dairy Herd Analytics	Certificate of attendance	ADSA, Nashville, United States	2009

Title of degree or diploma	Grade obtained	Institution	Date
20th Discover Conference: The Transition Cow: Biology and Management	Certificate of attendance	ADSA, Champaign, United States	2010
Dairy Solutions Symposium – Rumen Health: A 360° Analysis	Certificate of attendance	Utrecht University, The Netherlands	2010
Alta Value Services Konferenz	Certificate of attendance	Alta, Bremen, Germany	2010
14th International Conference on Production Diseases in Farm Animals	Certificate of attendance	ISRP, Ghent, Belgium	2010
International Reproduction Conference	Certificate of attendance	Anchorage, United States	2010
Bovine Professionals Meeting, Fertility and Rumen Health	Certificate of attendance	BFP, Hofheim, Germany	2010
21st Discover Conference: Improving Reproductive Efficiency of Lactating Dairy Cattle	Certificate of attendance	ADSA, Itasca, United States	2011
22nd Discover Conference: Milk Components: Opportunities for Maximizing Farm Gate Returns	Certificate of attendance	ADSA, Chicago, United States	2011
Rindergesundestag	Certificate of attendance	University of Giessen, Germany	2011
European Buiatrics Forum	Certificate of attendance	EBF, Marseille, France	2011
Meeting American Association for Bovine Practitioners	Certificate of attendance	AABP, Louisville, United States	2011
25th Discover Conference: New Developments in Immunity, Nutrition, and Management of the Preruminant Calf	Certificate of attendance	ADSA, Chicago, United States	2012
27th World Buiatrics Congress	Certificate of attendance	World Buiatrics Association, Lisbon, Portugal	2012
Meeting American Association for Bovine Practitioners	Certificate of attendance	AABP, Toronto, Canada	2012
14th International Congress of SIVAR	Certificate of attendance	SIVAR, Cremona, Italy	2012

Title of degree or diploma	Grade obtained	Institution	Date
Bovine Professionals Meeting, Claw Health and Transition Management	Certificate of attendance	BPM, Hofheim, Germany	2012
26th Discover Conference: Dairy Feed Efficiency	Certificate of attendance	ADSA, Chicago, United States	2013
Meeting of the European Society for Domestic Animal Reproduction	Certificate of attendance	ESDAR, Milano, Italy	2013
Dairyland Initiative Meeting on Transition Cow and Positive Pressure Tube Ventilation	Certificate of attendance	Dairyland Initiative, Madison, United States	2013
28th Discover Conference: Starch for Ruminants	Certificate of attendance	ADSA, Chicago, United States	2014
Annual National Mastitis Council Meeting	Certificate of attendance	NMC, Fort Worth, United States	2014
Joint ASA-ADSA Annual Meeting	Certificate of attendance	ADSA, Kansas City, United States	2014
65th Annual Conference of the European Federation of Animal Science	Certificate of attendance	EAAP, Copenhagen, Denmark	2014
Blanca Reproduction Workshop	Certificate of attendance	Blanca, Barcelona, Spain	2015
ICAR Technical Meeting	Certificate of attendance	ICAR, Cracow, Poland	2015
66th Annual Conference of the European Federation of Animal Science	Certificate of attendance	EAAP, Warsaw, Poland	2015
7th European Conference on Precision Livestock Farming	Certificate of attendance	EC-PLF, Milan, Italy	2015
Large Dairy Herd Management Conference	Certificate of attendance	ADSA, Chicago, United States	2016
67th Annual Conference of the European Federation of Animal Science	Certificate of attendance	EAAP, Belfast, United Kingdom	2016
68th Annual Conference of the European Federation of Animal Science	Certificate of attendance	EAAP, Tallinn, Estonia	2017
70th Annual Conference of the European Federation of Animal Science	Certificate of attendance	EAAP, Ghent, Belgium	2019
ADSA Annual Meeting	Certificate of attendance	ADSA, Cincinnati, Ohio	2019

Title of degree or diploma	Grade obtained	Institution	Date
Annual ICAR Meeting	Certificate of attendance	ICAR, Prague, Czech Republic	2019
9th European Conference on Precision Livestock Farming	Certificate of attendance	EC-PLF, Cork, Ireland	2019
39th Discover Conference: The Transition Period – From Physiology to Management (online)	Certificate of attendance	ADSA, Itasca, United States	2020
Annual ICAR Conference	Certificate of attendance	ICAR, Leeuwarden, The Netherlands	2021
Dairy InnovCongress	Certificate of attendance	ULiege–Gembloux, Namur, Belgium	2022
Annual ICAR Conference	Certificate of attendance	ICAR, Montreal, Canada	2022
10th European Conference on Precision Livestock Farming	Certificate of attendance	EC-PLF, Vienna, Austria	2022
43rd Discover Conference: Dairy Cattle Reproduction – Lessons learned and future frontiers	Certificate of attendance	ADSA, Itasca, United States	2022
Joint Committee for Dairy Diagnostics	Certificate of attendance	Zoetis, Rome, Italy	2022
21st International Symposium & 13th International Conference on Lameness in Ruminants	Certificate of attendance	LIR, Bloomington, USA	2023
11th European Conference on Precision Livestock Farming	Certificate of attendance	EC-PLF, Milan, Italy	2024
Annual Meeting American Dairy Science Association	Certificate of attendance	ADSA, West Palm Beach, USA	2024
Annual Meeting American Dairy Science Association	Certificate of attendance	ADSA, Louisville, USA	2025

Informatics, data science and statistical domain

Title of degree or diploma	Grade obtained	Institution	Date
Post-graduate courses in applied informatics	Certificate of attendance	HoGent, Belgium	2007–2010
EPI on the Island 2009: An introduction to multilevel modeling	Certificate	Prince Edward Island, Canada	2009

Title of degree or diploma	Grade obtained	Institution	Date
Introduction to SAS	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2009
Introductory Statistics: Basics of Statistical Inference	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2009
Analysis of Variance	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2009
Applied Linear Regression	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2010
Applied Logistic Regression	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2011
Multilevel Analysis for Grouped and Longitudinal Data	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2011
Design and Analysis of Clinical Trials	Doctoral School Credit	Ghent University, Belgium	2011
Survival Analysis	Doctoral School Credit	Ghent University, Belgium	2012
Introduction to R	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2013
Tech Transfer Skills Workshop	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2013
Multivariate Data Analysis	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2014
An Introduction to Big Data	Doctoral School Credit	Institute for Continued Education, Ghent, Belgium	2015
Professional Certificate in Bioinformatics	Professional Certificate	University College Dublin, Ireland	2016
Principles of Statistical Data Analysis	ECTS	Ghent University, Belgium	2016
Statistical Modelling	ECTS	Ghent University, Belgium	2016
Data + AI Summit	Certificate of attendance	Databricks, Brussels, Belgium	2016
Big Data Science	ECTS	Ghent University, Belgium	2017
Computer-Intensive Statistical Methods	ECTS	Ghent University, Belgium	2017
Databases	ECTS	Ghent University, Belgium	2017
Programming and Algorithms	ECTS	Ghent University, Belgium	2017
Statistical Computing	ECTS	Ghent University, Belgium	2017

Title of degree or diploma	Grade obtained	Institution	Date
Data + AI Summit	Certificate of attendance	Databricks, Dublin, Ireland	2017

Research focus

- **Sustainable dairy and veterinary systems**

Advancing resilient, efficient, and socially accepted dairy production systems that balance productivity with animal health, welfare, environmental impact, and food safety.
- **Precision livestock farming (PLF) and real-world evidence**

Leveraging sensor-based technologies (production, behavior, health, emissions) to generate continuous, real-time data streams that support early detection, monitoring, and management decisions at animal and herd level.
- **Large-scale dairy data integration and reuse**

Exploiting heterogeneous, real-world datasets from platforms such as dairydatawarehouse and Mm-mooOgle to move beyond isolated experiments toward scalable, generalizable insights across farms, regions, and production systems.
- **Privacy-preserving data science for agriculture**

Developing methodological frameworks that address data ownership, privacy, security, and governance, enabling collaboration without centralizing sensitive farm data.
- **Federated learning for dairy and veterinary science**

Pioneering the application of federated learning to train statistical, machine-learning, and AI models across distributed farm, industry, and research data sources by “bringing the code to the data.”
- **Ontologies and semantic interoperability**

Creating and applying ontologies to harmonize heterogeneous data sources, support causal inference, and enable interoperability across technologies, institutions, and countries.
- **Digital twins of cows and farms**

Building data-driven digital twins for simulation, hypothesis testing, training, and decision support, integrating historical experimental data with real-time PLF data.
- **AI-driven decision support and prediction**

Using advanced analytics, machine learning, and artificial intelligence to predict disease events, performance outcomes, and sustainability indicators at animal, herd, and system levels.
- **Human-centered AI interfaces**

Integrating fine-tuned large language models (LLMs) and retrieval-augmented generation (RAG) to allow farmers, veterinarians, and policymakers to interact with complex models through natural language.
- **Translation from research to practice**

Ensuring that advanced analytics are deployable on commercial farms, including small and medium-sized operations, and directly support decision-making in daily management and policy contexts.

Significant output

In my research domain, first, second and last authors have made significant contributions. As my research group focuses on applied research, a large international network and participation in consortia or advisory committees are globally also acknowledged as important output. My current h-index is 35 (<https://scholar.google.com/citations?user=fZ1xfdQAAAAJ&hl=nl>). I consider the following papers/achievements as my personal best output, although I have other clinically important output due to active collaborations within the veterinary domain (Pardon et al.; Kemel et al.). I have ordered and grouped output together given common projects or background. A clear move from the veterinary and dairy domain towards the precision livestock farming and data science domain can be seen in my key output.

First peer-reviewed paper

Hostens, M., Ehrlich, J., Van Ranst, B., & Opsomer, G. (2012). On-farm evaluation of the effect of metabolic diseases on the shape of the lactation curve in dairy cows through the MilkBot lactation model. *Journal of dairy science*, 95(6), 2988–3007. <https://doi.org/10.3168/jds.2011-4791>

The first paper from my PhD work extended a data warehouse architecture I created during my PhD with a novel Bayesian lactation curve model applied to dairy cow transition disease. It was initiated through an international collaboration with Jim Ehrlich, a veterinarian from New York (USA). This collaboration eventually led to the co-organization of the 31st Discover Conference on Big Data Dairy Management in 2016 (Chicago, USA). Ultimately, the paper even contributed to me taking the lead organization of the 46th ADSA Discover Conference on Milking the Data: Value-Driven Dairy Farming in Chicago (USA).

The paper has initiated other researchers to use the methodology leading to several co-authorships (Charlier et al., 2012; Verschave et al., 2014). Through my current position as Chair of the Milk Recording Working Group within the International Committee of Animal Recording, the model is being evaluated as one of the newer models to be applied in the milk recording industry. The paper also had 2 follow-up papers (Probo et al., 2018; Pascottini et al., 2020) re-using the same dataset using novel machine learning techniques which illustrates me actively advocating and applying open-code, open-source and FAIR principles, motivating other researchers to follow the approach.

DairyDataWarehouse & MmmooOgle

The data warehouse architecture developed during the previous paper was eventually acquired by Delaval, a leading milking software and hardware provider, from the department of Reproduction, Obstetrics and Herd health and transformed into www.DairyDataWarehouse.com. The product is still actively used across the world. Ghent University was compensated for this acquisition in 2012. After this, I re-initiated a new software company with the original co-creator of the data warehouse, focusing on creating the next-generation data-science platform ready for the multitude in PLF technologies being installed on dairy farms called www.MmmooOgle.com. This illustrates my academic entrepreneurship, which:

- accelerated my scientific output as it provided me with unlimited access to data from dairy farms around the world.
- because of the combined expertise in data and dairy science attracted several successful project consortia (GPLUS, VEERKRACHT, DECIDE, GREENFEED, see appendix 3)
- illustrates my academic drive to create decision support tools which can be implemented in the dairy industry at sufficient technology-readiness-level.

GplusE

In 2013, my PhD supervisor Prof. dr. Geert Opsomer and me were approached to join a large FP7 consortium called GplusE. This multi-institutional international project resulted in a large amount of peer reviewed articles (see Appendix 3). Our team was responsible for the data intensive work packages integrating research

data from heterogeneous farms and creating best practices for data pipelines within the project. The project resulted in my first article as last author:

De Koster, J., Salavati, M., Grelet, C., Crowe, M. A., Matthews, E., O’Flaherty, R., Opsomer, G., Foldager, L., GplusE, & **Hostens, M.** (2019). Prediction of metabolic clusters in early-lactation dairy cows using models based on milk biomarkers. *Journal of dairy science*, 102(3), 2631–2644. <https://doi.org/10.3168/jds.2018-15533>

The article compared several biomarkers with a standardized prediction methods for novel indicators for dairy cow resilience. The methodology was built using 2 ‘Microsoft for Research awards’ mentioned in this application, implementing highly innovative techniques such as scalable machine learning and artificial intelligence in its early stages. The methodology of clustering cows according to their metabolic blood profile was adopted by multiple researchers around the world (e.g. Tremblay et al., 2018; Grelet et al., 2019; Xu et al., 2019; Girma et al., 2024). Subsequently, the method was translated, in collaboration with a visiting researcher from Iran, into a genome wide association study involving multiple industry partners from the Netherlands (Atashi et al., 2020). It illustrates my capability of working with multiple stakeholders, across several domains (phenotype and genotypes), and attracting visiting researchers.

SenseOfSensors

During my appointment as Assistant Professor at Utrecht University between 2018 and 2023, my scientific output was boosted due to the daily supervision of 5 PhD students (Liseune A., Hut P., Scheurwater J., Salamone M. and Chen Y.). All of them were applying some of my previous work (such as the Milkbot model) as well as novel data science methods (including artificial intelligence) and precision dairy farming techniques to monitor and predict dairy cow health and behavior. I consider the following paper as key output from that 5 year period.

Hut, P. R., Kuiper, S. E. M., Nielen, M., Hulsen, J. H. J. L., Stassen, E. N., & Hostens, M. M. (2022). Sensor based time budgets in commercial Dutch dairy herds vary over lactation cycles and within 24 hours. *PloS one*, 17(2), e0264392. <https://doi.org/10.1371/journal.pone.0264392>

It illustrates several important aspects of my research philosophy:

- The article demonstrates the enormous potential of using and combining real-world farm data to test field assumptions made about cow behavior.
- The article started as an MSc project in Veterinary Medicine. The student (listed as second author) was illiterate in data science at the beginning of the project, but through my daily supervision and training was successful in converting this project into a peer-reviewed paper. It illustrates my active approach to train the next generation student in data-driven Veterinary Medicine.
- The methodology of the article was also made publicly available (open-source/open-code), demonstrating my current default strategy when publishing data-driven dairy science as it supports training and dissemination.

Resilience

Around the same time, I still had an active appointment at Ghent University, through which I successfully applied for a Flemish VLAIO with collaborators from Bio-science engineering at UGent and the KULeuven. The aim of the project was to create data-driven tools applying artificial intelligence to monitor the transition success of dairy cows at individual level and herd level. The project, using real-world farm data yielded several publications in the highly ranked Journal Computers and Electronics in Agriculture (impact factor 7.7), of which is I value the following as key output:

Liseune, A., Salamone, M., Van den Poel, D., Van Ranst, B., & Hostens, M. (2020). Leveraging latent representations for milk yield prediction and interpolation using deep learning. *Computers and Electronics in Agriculture*, 175, 105600. <https://doi.org/10.1016/j.compag.2020.105600>

The article was foundational for my research group because

- It served 5 other papers of my group using the same AI method to predict milk production (Liseune et al 2021, Salamone et al., 2022), metabolic health (Salamone et al., 2024; van Leerdam et al., 2024) and behavior (Liseune et al., 2021) in dairy cows.
- It is currently used as base-model to create a digital twin of a dairy cow including milk components, body weight, feed intake and cow behavior in the current work of 2 of my current PhD students (Hayu S. and van Leerdam M.)

The model is also being integrated with Large Language Models (LLM) by my current post-doctoral fellow Liu E. to allow farmers to interact with the model using natural languages instead of complex computer interfaces.

Grants & Projects (Current, Pending, Finished)

Current

Project Description	Role	Year	Budget
DECIDE, Horizon Europe H2020-SFS-2018-2020 / 101000494, is a five-year Horizon 2020 project running from 2021 to 2025. It will develop data-driven decision support tools that offer robust and early signals of disease emergence and options for diagnostic confirmation. Moreover, options will be provided for controlling the disease along with their implications in terms of disease spread, economic burden and animal welfare.	CoPI	2021	€9,998,805
PLAY BEHAVIOR CALVES IN EUROPE – A project funded by the Dutch dairy organization ZuivelNL to detect play behaviour in relation to space allowance using accelerometer and video analytics in dairy calves.	PI	2023	€100,000
PLAY BEHAVIOR CALVES IN THE US – A project funded by the Cornell Institute for Digital Agriculture to detect play behaviour in relation to space allowance using accelerometer and video analytics in dairy calves.	PI	2023	€100,000
GLOBAL GREENFEED PROJECT – A project funded by the Global Methane Hub to accurately measure and collect gas emissions from cattle with the GreenFeed system.	PI	2024	\$3,279,652
AI-Driven Pandemic Preparedness in Dairy Farming: Enhancing Health Monitoring and Disease Management through Generative AI and Data Integration (Don Bennink Endowment).	PI	2025	\$249,175
PDASP Track 3: Privacy-Preserving Dairy-Digitalization with Federal Learning (NSF-PDASP)	PI	2025	\$1,000,000
Leveraging AI for Sustainable Livestock Farming: A RAG-Enhanced LLM Approach to Mitigate Carbon Emissions Around The World (Bezos Earth Fund)	PI	2025	\$50,000
Selective Antimicrobial Disease Treatments in Dairy cows – Lessons learned from real-world farm data. (Federal Capacity Funds)	PI	2025	\$90,000
A Multimodal Approach to Dairy Methane Reduction: Validation of Remote Satellite Images, Mid-InfraRed and Genomic Selection in Methane Mitigation (Cornell Atkinson Center for Sustainability)	PI	2025	\$150,000

Pending

Project Description	Role	Year	Budget
HERD-AID: Connecting dairy herd health, environment and economics through applied and innovative decision modeling (FFAR)	Co-PI	2025	\$194,995
DSFAS: A Farm-Deployable, Privacy-Aware Computer Vision Decision for Dairy Cattle Health and Welfare Management (USDA-NIFA-AFRI-011134)	PI	2025	\$650,000

Project Description	Role	Year	Budget
Modernizing Simulation Models to Enhance Computational Efficiency and User-Friendliness for Better Decision-Making on Small and Medium-Sized Dairy Farm (USDA-NIFA-AFRI-011134)	PI	2025	\$650,000
Enhancing CNCPS Accuracy and Adaptability through Ontology-Enabled Farm Data Integration and AI-Driven Model Modernization (USDA-NIFA-AFRI-011134)	PI	2025	\$650,000

Finished

Project Description	Role	Year	Budget
GplusE was an FP7 project funded by the European Union. It was a five-year project from 2014 and 2018 executed by 15 research and industry partners. The project covered the interaction between genotype and environment contributing to the sustainability of dairy cow production systems. This was achieved through the optimal integration of genomic selection and novel management protocols based on the development and exploitation of genomic data and supporting novel phenotyping approaches.	CoPI	2014	€9,000,000
In the SUMMERFAIR project (SUMmarizing transmission data to Enable data Reanalysis and predictions by FAIR data use) we tackle the issue of lack of a common terminology and need for repetition of costly experiments by developing a shared vocabulary (domain-ontology) and a workflow enabling reuse and combination of transmission data. The project running from 2021–2022 was granted by the dutch ZoNMW.	CoPI	2021	€250,000
VEERKRACHT/Resilience – The transition period as a window and metabolic resilience to monitor of dairy cattle, granted by national Belgian VLAIO 2018 is a project that aims at creating tools to monitor the transition success of dairy cows at individual level and herd level. These tools allow the farmer to monitor individual animals at risk, in addition to allow individualized preventive measures. This will reduce the development of transition associated problems, which will increase productivity and animal welfare.	CoPI	2018	€1,300,000
CLAWHEALTH.NL – A project sponsored by the Dutch Foundation WakkerDier to map the prevalence of leg and hoof problems in Dutch dairy cows, and to uncover the risk factors for leg and claw problems in the Netherlands using AI driven systematic reviews.	PI	2023	€100,000

Graduate research experience

Finalized PhDs

- **Jenne De Koster** (2016), PhD title: “Influence of body condition score of dairy cows at the end of pregnancy on peripheral tissue insulin response and metabolic properties of adipose tissue”.
- **Peter Hut** (2022), PhD title: “Sense of Sensors – Monitoring Behaviour of Dairy Cows” focusing on using sensor technology in transition dairy cows.
- **Arno Liseune** (2022), PhD title: “Using deep learning for animal monitoring to improve animal welfare in dairy cattle”.
- **Chen YongYan** (2024), PhD title: “Lactation curve modelling in dairy production - Applications at cow and herd level”.
- **Matthieu Salamone** (2025), PhD title: “Predicting milk yield to monitor the transition period in high yielding dairy cattle”.

Regular supervision

- **Oswaldo Bogado Pascottini** (Ghent University, 2016), PhD title: “Subclinical endometritis in dairy cattle: a practical approach”.
- **Josje Scheurwater** (Utrecht University, 2024), PhD title: “The Happy Healthy Cow”.

Ongoing PhD supervision

- **Kristof Hermans**, a PhD focusing on data quality in dairy cows as a follow up on the development of the DairyDataWarehouse.
- **Yara Slegghers**, a PhD focusing on the applying federated machine learning to disease data in poultry.
- **Saba Noor**, a PhD focusing on the use of semantic web technologies and federated learning to disease data in livestock.
- **Thomas Vandeputte**, a PhD on computer vision and sensor aided analysis of behavioural and feed intake patterns in pigs (Ghent University, expected 2025).
- **Sonam Hayu**, a PhD focusing on the use of federated vision and learning technologies in dairy production (Cornell University, expected 2028).
- **Meike van Leerdam**, a PhD focusing on the use of federated learning technologies to prediction production reproduction and animal welfare traits in dairy cows (Cornell University, expected 2029).
- **Sumit Sharma**, a PhD focusing on the use of artificial intelligence and machine learning for Precision Livestock Farming: From data quality to digital twin-based decision support (Cornell University, expected 2029).

PhD examination committee

- Dr. Lucia Trapanese, 2025 - High-tech farming: Study and application of machine learning techniques for improving production efficiency in livestock.
- Dr. Ismalia Bouba, 2024 - A data driven approach to understand factors influencing health, welfare and performance of laying hens and Pullets.
- Dr. Mingqi Zhang, 2024 - Inter-animal variability in metabolic and oxidative status as well as in inflammatory response in Holstein cattle during the transition period.

- Dr. Yujie Liu, 2022 - Cross-species combination of cohort and intervention studies to assess the fatty acid composition in various lipid fractions of the follicular fluid in relation to blood lipid composition and embryo quality
- Dr. Zhaoju Deng, 2021 - Improving udder health management in dairy herds with automatic milking systems.
- Dr. Marlene Tremblay, 2019 - Systematic pattern recognition and modeling with imperfect data: An integration of datascience, data mining, machine learning and epidemiology.
- Dr. Wei Xu, 2019 - Energy balance and metabolic status of dairy cows: a study using metabolomics, proteomics and machine learning approaches.
- Dr. Cyriel Ververs, 2018 - Breeding on the brink of extinction: what can we learn from game-ranched white rhinoceros (*Ceratotherium simum simum*)?´.

Teaching

Professionalization of education

- **University Teaching Qualification** at Centre for Academic Teaching and Learning, Utrecht, The Netherlands, 2021

Teaching experience

<u>Institution</u>	<u>Programme</u>	<u>Duration</u>
Cornell University	• Undergraduate in Animal Science	2024–present
Utrecht University	• Master of Veterinary Medicine	2019–present
	• Bachelor of Clinical Sciences	2022–2023
	• Bachelor of Veterinary Medicine	2019–2023
	• Master of Bio-informatics and Bio-complexity	2019–2023
	• Lifelong Learning Course	2022–2023
	• Inter-faculty Course	2021–2023
Ghent University	• Bachelor of Science in Bioscience Engineering Technology	2020–present
	• Master of Science in Bioscience Engineering Technology	2020–present
	• Bachelor of Science in Veterinary Medicine	2020–present
	• Master of Science in Veterinary Medicine – Ruminants	2015–2018
	• Institute for Continued Education (Faculty of Veterinary Medicine)	2010–2019
	• Basic Summer Course on Veterinary Epidemiology	2016
University College Dublin	• Summer School – Professional Certificate in Bioinformatics	2017

Cornell University

Undergraduate in Animal Science

- Main lecturer in “*Data Science Applications in Agriculture*” (2024–present).
- Co-lecturer in Hackathon in Digital Agriculture (2024–present).
- Main lecturer in “*Digital Dairy Management and Data Analytics*”.

Utrecht University

Master of Veterinary Medicine

<https://www.uu.nl/masters/diergeneeskunde>

- Main developer and co-lecturer of the “*Dairy Health Management*” course (2019–present).
- Main developer and lecturer of the “*Dier and Data*” course (2022–2023).
- Main lecturer in “*International Dairy Study Trip*” (2019–present).
- Clinical rotations in “*Bovine health management*” (2019–2024).
- Main lecturer in “*Veal calf management*” (2019–2023).

Bachelor of Clinical Sciences

<https://www.uu.nl/bachelors/zorg-gezondheid-en-samenleving>

- Co-developer of “*Digitalization and technology in clinical sciences*” (2022–2023).

Bachelor of Veterinary Medicine

<https://www.uu.nl/bachelors/diergeneeskunde>

- Weekly lectures on bovine health management (2019–2023).

Master of Bio-informatics and Bio-complexity

<https://www.uu.nl/en/masters/bioinformatics-and-biocomplexity/study-programme>

- Co-lecturer in “*Introductory course to bioinformatics*” (2019–2023).

Lifelong Learning Course

- Development and main lecturer of the post-graduate course “*Sustainable Ruminant Health*” (2022–2023).
<https://www.uu.nl/professionals/programmas/sustainable-ruminant-health>

Inter-faculty Course

- Co-development and main lecturer of the “*Dutch Dairy Student Innovation Challenge*” (2021–2023).
<https://ewuu.nl/en/education/challenges/dutch-dairy-challenge/>

Ghent University

Bachelor of Science in Bioscience Engineering Technology

- Co-lecturer in “*Animal Physiology*” (2020–present).
<https://studiekiezer.ugent.be/studiefiche/en/I700213/2023>
- Co-lecturer in “*Reproductive Physiology of Animals*” (2020–present).
<https://studiekiezer.ugent.be/studiefiche/en/I700042/2023>

Master of Science in Bioscience Engineering Technology: Agriculture and Horticulture

- Main lecturer in “*Animal Production Systems*” (2020–present).
<https://studiekiezer.ugent.be/studiefiche/en/I700259/2023>

Bachelor of Science in Veterinary Medicine

- Co-lecturer in “*Physiology and Pathophysiology I*” and “*Physiology and Pathophysiology II*” (2020–present).
<https://studiekiezer.ugent.be/studiefiche/en/G000720/2022>
<https://studiekiezer.ugent.be/studiefiche/en/G000862/2022>

Master of Science in Veterinary Medicine – Ruminants

- Theoretical courses for *Ruminant and Porcine Herd Health Medicine with Clinical Training II and III* (2015–2018).
- Weekly practical training sessions on herd record interpretation (2014–2018).
- Clinical Training III during nightly duties at the Veterinary Service of the Department of Reproduction, Obstetrics and Herd Health (2007–2018).
- Clinical Training III during *Bovine Herd Health* service visits (2008–2018).

Institute for Continued Education – Faculty of Veterinary Medicine

- *A practical approach to risk factors for transition cows* (2010).
- *Ration balancing for dairy cows, more than VEM and DVE* (2012).
- *Key Performance Indicators on dairy herds* (2013).
- *To synch or not to synch dairy cows* (2013).
- *Factors influencing reproduction and production results in dairy cows* (2014).
- *Data management in high-yielding dairy cows* (2015).
- *Transition cow disease* (2016).
- *Short course Dairy Cow Nutrition* (2018).
- *Short course Dairy Cow Nutrition* (2019).

Basic Summer Course on Veterinary Epidemiology

- *Big Data in Dairy Analytics* (2016).

University College Dublin

Summer School – Professional Certificate in Bioinformatics

- *An introduction to scalable data analytics in animal science (2017).*

Intellectual property and knowledge transfer

In 2013, intellectual property created by my group on data processing and visualisation for dairy reproduction data, co-developed between Uniform-Agri (Assen, the Netherlands) and Ghent University, was transferred towards www.DairyDataWarehouse.com (2007-2013). Dairy Data Warehouse nowadays is a specialist dairy data company providing digital solutions for a sustainable, profitable future for dairy farmers and stakeholders throughout the dairy industry.

Contributions to Congresses, Symposia and Workshops

Presentations available online

<https://www.youtube.com/watch?v=mEnP4GJVhRM>

<https://youtu.be/ibMIYSSPNwc?si=HYCIoTuj-OCwhyWo>

https://youtu.be/hh8AELptzH0?si=n7MAJlp_xPd9Ug2P

Invited speaker

Title	Year	Presentation link
Fresh Cow — Risiken und Chancen. Was Sie darüber unbedingt wissen sollten!	2011	—
Visualisation of fertility records in dairy herds	2012	—
The use of dairy data in herd health management	2014	—
The economics of breeding protocols in dairy cows	2015	—
The past, the present and the future of bovine herd health management	2015	—
Bovi-Analytics: an e-learning platform to educate veterinary students big data in dairy cows	2015	—
Challenges for data-intensive projects	2016	—
From Big Data to Decisions in Dairy Cows	2016	—
Big Dairy in Dairy Cows	2016	—
Visualisation and analysis of reproductive performance	2017	—
Pitfalls in Dairy Analytics (advanced technical)	2017	—
Analysis of reproductive performance (farmer orientated)	2017	—
Transition management as a key to fertility success	2017	—
How to monitor productive performance on a small vs large dairy	2017	—
Common analytical data pitfalls every practitioner should know about	2017	—
Will semantics help disentangle the Gordian knot of Big Data in animal health	2017	—
Monitoring fertility control programs in small and large dairy herds	2017	—
Opening keynote: A novel approach to data mining and prediction modelling in dairy cows	2017	—
Opening Keynote: BigData Moscow — A Novel Approach to Data Mining and Prediction Modelling in Dairy Cows	2018	—
Transforming Big Data into Value: Put Data to Work for Your Dairy (Connect Summit)	2018	—
Transforming Big Data into Value: Put Data to Work for Your Dairy (CDCB – 10 years of genomics)	2018	—
Metabolic clustering of dairy cows at early and peak lactation	2018	—
Dairy Intelligence and Turning Data Into Information	2019	—
Predicting the Moment of Birth using Sensor Data in Dairy Cows	2019	—
What makes a biomarker a good one?	2019	—
Put Data to Work for the Dairy Industry	2020	—
Agricultural Genome to Phenome Initiative (AG2PI)	2020	—
Monitoring transition cows using novel techniques	2021	—

Title	Year	Presentation link
Using data to embrace excellence in hoof health — challenges and opportunities	2022	Link to presentation
How to Make Sense of 24×7 Sensor Data	2022	Link to presentation
Sustainable dairy production, EU within a global perspective	2023	Link to presentation
Sustainable dairy production from a global perspective	2023	Link to presentation
The Finnish Veterinary Congress (Helsinki, Finland)	2023	Link to presentation 1 Link to presentation 2 Link to presentation 3
Een toekomst voor de veehouderij in Nederland, Europa en ver daarbuiten?	2024	Link to presentation
European Perspective on Longevity — the Data and Technology	2024	Link to presentation
Advancing precision dairy farming through AI	2024	Link to presentation
Digital Dairy Farming (CIDA Symposium)	2024	Link to presentation
Cattle Camp (Triesdorf, Germany)	2024	Link to presentation 1 Link to presentation 2
How can AI change the dairy industry?	2024	Link to presentation
CIDA Seminar (Ithaca, USA)	2025	Link to presentation
What can camera technology and artificial intelligence bring to a dairy in 2025?	2025	Link to presentation
How artificial intelligence can transform an entire agricultural industry, or NOT? (IEEE MeAVeAS)	2025	Link to presentation
Effectively Implementing AI at the Interface Between Veterinary and Dairy Science (Savy)	2025	Link to presentation
Effectively Implementing AI at the Interface Between Veterinary and Dairy Science (VEE)	2025	Link to presentation
How artificial intelligence can transform an entire agricultural industry, or NOT? (AABP)	2025	Link to presentation
How artificial intelligence can transform an entire agricultural industry, or NOT? (Georgia Dairy Conference)	2026	Link to presentation
Growing with AI — Input Optimization Webinar	2026	Link to presentation

Oral conference presentation

Title	Year	Presentation link
The effect of marine algae supplementation in the ration of high-yielding dairy cows during transition and its effect on metabolic parameters in the serum and follicular fluid around parturition	2009	—
On-farm evaluation of the effect of metabolic diseases on the shape of the lactation curve in dairy cows through the MilkBot lactation model	2012	—
Potential for novel glycan measurements in milk as biomarker phenotypes for dairy traits	2016	—
MmmooOgle: From Big Data to Decisions for Dairy Cows	2016	—
Data Mining and Prediction Modelling in the Dairy Industry Using Time Series and Sliding Windows with Apache Spark 2	2016	—
Exploratory classification of multiparous dairy cows based on fertility-related phenotypes	2017	—
Investigating metabolic phenotypes in multiparous dairy cows by component analysis and clustering	2017	—

Title	Year	Presentation link
The use of technologies in dairy innovation	2018	—
Can artificial intelligence be used on historical cow data to improve data quality and standardization of disease records	2019	—
Predicting the next life event of cows by applying deep learning on sequential and pictorial data	2019	—
Big Data for Dairy and Monitoring Cow Health and Performance	2020	—
The veterinary toolbox for reproductive herd health management now and in the (near) future	2020	—
Modern tools for milk recording management	2021	—
The importance of sensor data in transition cow monitoring	2021	—
Detecting the subclinical diseased transition cow: how novel phenotyping strategies can help	2021	—
Prediction of persistency at day 305 in lactation at the moment of the insemination decision	2023	—
A predictive model for hypocalcemia in dairy cows utilizing behavioural sensor data combined with deep learning	2023	—
Generative AI in agriculture	2024	Link to presentation
A Foundational Framework for Animal Behavior Analysis Using Computer Vision (AI4AS, Zurich)	2024	Link to presentation
ICAR–IDF initiative on sensor data for functional traits: genetics and reference standards for rumination	2024	—
A Foundational Framework for Animal Behavior Analysis Using Computer Vision (Precision Dairy Farming Conference, Christchurch)	2024	Link to presentation

Extension workshops

Title	Year	Presentation link
How we practitioners should implement our nutrition knowledge to help our farmers?	2011	—
Technology in dairy	2012	—
HACCP approaches for fertility management in livestock	2013	—
Herd Health Management: The future for bovine practitioners: challenge or opportunity	2013	—
Visualisation of heat detection and conception rates in small and large dairy herds	2013	—
Transition management and its influence on fertility	2013	—
Pitfalls in the analysis of reproductive records in dairy herds	2013	—
Subclinical ketosis during the transition period	2013	—
Masterclasses reproductive management in dairy cows	2014	—
Visualisation and interpretation of reproductive herd records	2014	—
Masterclasses reproductive management in dairy cows	2015	—
Masterclasses Transition Management	2015	—
Transforming Big Data into real world evidence for SARA	2016	—
Bovine herd health management	2016	—
Dairy data management, where to start	2017	—
How to monitor reproductive performance	2017	—
Multiple sessions for the Ruminant Specialisation (General intro, pitfalls, monitoring production & reproduction, insemination & conception strategy, fertility)	2017	—
The truth about transition disease in dairy cows	2017	—

Title	Year	Presentation link
First results of the GplusE project	2017	—
Ruminant clinical cases	2017	—
Monitoring reproduction in high yielding dairy cows	2018	—
Feeding the dairy cow — Basics of high yielding dairy cows	2018	—
Feeding the dairy cow — Feeding high intake and milk composition	2018	—
Zoetis Advanced Fertility Consulting	2018	—
Act, think and work like a datascientist	2018	—
GplusE Training School	2018	—
Not only a success story: lessons learned moving from precision to smart dairy farming	2022	—
Sustainable Ruminant Health: How to manage it successfully	2023	Link to presentation
Sustainable Ruminant Health (DAP Oostland)	2023	Link to presentation
Duurzame melkveehouderij vanuit een internationaal perspectief	2023	Link to presentation
Meer melk uit (ruw)voer	2023	Link to presentation
NutriVice studie bijeenkomst — Een toekomst voor de Nederlandse melkveehouderij	2023	Link to presentation
Evolution or revolution	2023	Link to presentation
Toekomst van de melkveehouderij in Nederland, Europa en daarbuiten (DAMB)	2024	Link to presentation
Toekomst van de melkveehouderij in Nederland, Europa en daarbuiten (Boerensymposium)	2024	Link to presentation
How artificial intelligence can transform an entire agricultural industry, or NOT? (Dairy Center of Excellence)	2025	Link to presentation
Eine Zukunft für die Milchwirtschaft	2025	Link to presentation
Effectively Implementing AI at the Interface Between Veterinary and Dairy Science (Bovine Practitioners Meeting)	2025	Link to presentation 1 Link to presentation 2 Link to presentation 3 Link to presentation 4 Link to presentation 5
Effectively Implementing AI at the Interface Between Veterinary and Dairy Science (Ohio Veterinarians Meeting)	2026	Link to presentation 1 Link to presentation 2 Link to presentation 3 Link to presentation 4 Link to presentation 5
Toekomst van de melkveehouderij in Vlaanderen, Europa en daarbuiten	2025	Link to presentation

Academic services

Professional Service, Leadership & Editorial Activities

- **Scientific Reviewer** for leading international journals, including *Journal of Dairy Science*, *Journal of Animal Science*, *Animal*, *Dairy Research*, *Theriogenology*, *Preventive Veterinary Medicine*, *Frontiers*, *PLOS ONE*, and *Computers and Electronics in Agriculture*, among others. (*Present*)
- **Chair**, *Dairy Cattle Milk Recording Working Group*, International Committee for Animal Recording (ICAR). (*2024 – Present*)
- **Executive Committee Member**, [Cornell Institute for Digital Agriculture](#). (*2025 – Present*)
- **Faculty Fellow**, [Cornell Atkinson Center for Sustainability](#). (*2024 – Present*)
- **Faculty Fellow**, [Cornell Institute for Digital Agriculture](#). (*2024 – Present*)
- **Organizer**, ADSA Discover Conference “*Milking the Data: Value-Driven Dairy Farming*”, Chicago, USA. (*2024*)
- **Board Member**, Framework Development of the Master in Veterinary Medicine (v2022). https://students.uu.nl/sites/default/files/dgk_raamplan_masteropleiding_diergeneeskunde_def.pdf (*2019 – 2022*)
- **Guest Editor**, Special Issue “[Towards Machine Learning and Artificial Intelligence in the Farm-to-Fork Industry](#)”, *Applied Sciences* (MDPI). (*2022*)
- **Applied Data Science Ambassador**, [Utrecht University](#). (*2018 – 2023*)
- **Open Science Fellow**, [FAIR Data and Software Track](#), Utrecht University. (*2018 – 2023*)
- **Co-Organizer**, ADSA Discover Conference “*Big Data for Dairy*”, Chicago, USA. (*2016*)

Professional membership

- Member of the American Dairy Science Association.
- Member of the Dutch Veterinary Association.
- Member of the Flemish Veterinary Association.

Extension services

National Institute for Agricultural Training (NCBL)

- Multiple extension training sessions for dairy and beef herd managers on production, transition and reproductive management of dairy cows (2006-2022).

Industry and Stakeholder Engagement

Active involvement in extension services for several Belgian, European and global agricultural businesses. Some examples but not limited to

Feed Industry

- [Agrifirm](#)
- [AVEVE](#)
- [ForFarmers](#)
- [PAHC](#)
- [Nutrivic](#)

Milk Recording Organizations

- [Lactanet](#)
- [CRV](#)
- [U.S. Council on Dairy Cattle Breeding \(USCDCB\)](#)

Genetic Companies

- [Dairy Herd Improvement Association \(DHIA\)](#)
- [Semex](#)
- [Alta Genetics](#)

Pharmaceuticals

- [Zoetis](#)
- [MSD Animal Health](#)
- [Elanco](#)

Dairy Cooperatives

- [Alsafi Danone](#)

Precision Dairy Farming Technologies

- [DeLaval](#)
- [Lely](#)
- [Connecterra](#)
- [MmmooOgle](#)

Academic distinctions, awards, prizes

1. In 2014 and 2018, I was twice awarded the Microsoft Azure Research award (2014 - €150,000 and 2018 - €25,000) to accelerate the adoption of scalable machine learning techniques to monitor sustainable agriculture practices.
2. In 2022, I was awarded the 'Applied data science award' (€ 5,000) from the Utrecht University to create the first LoraWAN network at the faculty of Veterinary Medicine allowing real time monitoring of PLF data from the research farm 'De Tolakker'.
3. In 2024, I was awarded the 'CIDA Summer Research Award' (\$25,000) to advance calve welfare monitoring using computer vision.

Natural Languages

Mother tongue : Dutch

Other:

	Understanding	Speaking	Writing
English	+++	+++	+++
French	++	+	±
German	±	±	-
Italian	±	±	-

Datascience skills

Computer languages	Datascience software	Statistical frameworks
[R]	SQL Server/warehouse	SPSS
Python	Jupyter notebooks	SAS-Project
Scala	Jupyter lab	R-Project
SQL	Intellij	
SAS code	Google colab	
Bash	Spark scala	
C++	Tableau	
	Docker	
	TensorFlow	
	Git & Github	
Cloud	Hardware	Other
Microsoft azure	IoT (eg LoraWAN)	
Google cloud	Arduino framework	
Docker	RaspberryPi	
TheThingsNetwork		

Publications

(a1) Articles published in journals listed in the ISI Web of Science

<u>Title</u>	<u>Year</u>	<u>IF</u>
Salamone, M., Hostens, M., Canniere, E., Goossens, T., van Beest, V. W. M., van Gasteren, T., Opsomer, G., Aernouts, B. & Adriaens, I. (2026). The association between transition management and modelled milk yield in multiparous dairy cows. <i>Biosystems Engineering</i> , 263, 104382. https://doi.org/10.1016/j.biosystemseng.2025.104382	2026	5.3
Sharma, S., Liu, E., van Leerdam, M., Hu, H., Villalobos-Barquero, R., Dorea, J. R., Cabrera, V., Iwersen, M., Bewley, J., Soyeyurt, H. & Hostens, M. (2026). Invited review: Milking the data for value-driven dairy farming. <i>Journal of Dairy Science</i> . https://doi.org/10.3168/jds.2025-27011	2026	3.7
Sitko, E. M., Hostens, M., O'Connor, J., Heffernan, C., McCarthy, J., & Butler, S. T. (2025). Predictors of reproductive outcomes in seasonal-calving, pasture-based lactating dairy cows. <i>Journal of Dairy Science</i> . https://doi.org/10.3168/jds.2025-27537	2025	3.7
Hostens, M., Franceschini, S., van Leerdam, M., Yang, H., Pokharel, S., Liu, E., Sharma, S. (2025). The future of big data and artificial intelligence on dairy farms: A proposed dairy data ecosystem. <i>JDS Communications</i> . https://doi.org/10.3168/jdsc.2025-0843	2025	2.2
Slegers, Y., Matthijs, M., Stegeman, A., Hostens, M., & de Wit, S. (2025). Applied research note: exploring the relationship between first-week mortality and performance after the first week in broiler chickens. <i>Journal of Applied Poultry Research</i> , 100611. https://doi.org/10.1016/j.japr.2025.100611	2025	2.0
Brito, L. F., Heringstad, B., Klaas, I. C., Schodl, K., Cabrera, V. E., Stygar, A., Hostens, M., & Egger-Danner, C. (2025). Invited review: Using data from sensors and other precision farming technologies to enhance the sustainability of dairy cattle breeding programs. <i>Journal of Dairy Science</i> , 108(10), 10447–10474. https://doi.org/10.3168/jds.2025-26554	2025	3.7
Liu, E., Yang, H., Sharma, S., van Leerdam, M. B., Niu, P., VandeHaar, M. J., & Hostens, M. (2025). Agents are all you need: Pioneering the use of agentic artificial intelligence to embrace large language models into dairy science. <i>Journal of Dairy Science</i> . https://doi.org/10.3168/jds.2025-26775	2025	3.7
Kemel, C., Salamone, M., Aernouts, B., Adriaens, I., Opsomer, G., Hut, P., & Hostens, M. (2025). Association of artificial intelligence–predicted milk yield residuals to behavioral patterns and transition success in multiparous dairy cows. <i>Journal of Dairy Science</i> . https://doi.org/10.3168/jds.2024-26134	2025	3.7

<u>Title</u>	<u>Year</u>	<u>IF</u>
Wessels, W., Bokkers, E. A., de Boer, I. J., Meijer, E., Rodenburg, T. B., Hostens, M., & Koop, G. (2025). A systematic review and meta-analysis of lameness scoring methods and the prevalence of lameness of dairy cows in Northwest Europe. <i>Journal of Dairy Science</i> . https://doi.org/10.3168/jds.2025-26585	2025	3.7
Slegers, Y., Hostens, M., de Wit, S., Stegeman, A., & Jensen, D. B. (2025). Predicting footpad lesion scores of Dutch broiler flocks using routinely collected data. <i>Smart Agricultural Technology</i> , 101080. https://doi.org/10.1016/j.atech.2025.101080	2025	5.7
Van De Putte, T., Van Kerschaver, C., Hostens, M., & Degroote, J. (2025). Investigating the development of piglet feeding behaviour during the immediate postweaning phase using computer vision. <i>animal</i> , 19(6), 101524. https://doi.org/10.1016/j.animal.2025.101524	2025	4.2
Pascottini, O. B., Crowe, A. D., Ramil, U. Y., Hostens, M., Opsomer, G., & Crowe, M. A. (2025). Perspectives in cattle reproduction for the next 20 years – A European context. <i>Theriogenology</i> , 233, 8–23. https://doi.org/10.1016/j.theriogenology.2024.11.007	2025	2.4
Slegers, Y., Hostens, M., Matthijs, M. G. R., Stegeman, J. A., & de Wit, J. J. (2024). Broiler flocks in production systems with slower-growing breeds and reduced stocking density receive fewer antibiotic treatments and have lower mortality. <i>Poultry Science</i> , 103(11), 104197. https://doi.org/10.1016/j.psj.2024.104197	2024	3.8
van Leerdam, M., Hut, P. R., Liseune, A., Slavco, E., Hulsen, J., & Hostens, M. (2024). A predictive model for hypocalcaemia in dairy cows utilizing behavioural sensor data combined with deep learning. <i>Computers and Electronics in Agriculture</i> , 220, 108877. https://doi.org/10.1016/j.compag.2024.108877	2024	7.7
Chen, Y., Steeneveld, W., Frankena, K., Leemans, I., Aardema, H., Vos, P. L. A. M., Nielen, M., & Hostens, M. (2024). Association between days post-conception and lactation persistency in dairy cattle. <i>Journal of Dairy Science</i> , 107(8), 5794–5804. https://doi.org/10.3168/jds.2023-24282	2024	3.7
Trapanese, L., Hostens, M., Salzano, A., & Pasquino, N. (2024). Short review of current limits and challenges of application of machine learning algorithms in the dairy sector. <i>Acta IMEKO</i> , 13(1), 1–7. https://doi.org/10.21014/actaimeko.v13i1.1725	2024	1.06
Probo, M., Atashi, H., & Hostens, M. (2024). Lactation performances in primiparous Holstein cows following short and normal gestation lengths. <i>Frontiers in Veterinary Science</i> , 11, 1289116. https://doi.org/10.3389/fvets.2024.1289116	2024	2.6

<u>Title</u>	<u>Year</u>	<u>IF</u>
Salamone, M., Adriaens, I., Liseune, A., Heirbaut, S., Jing, X. P., Fievez, V., Vandaele, L., Opsomer, G., Hostens, M., & Aernouts, B. (2024). Milk yield residuals and their link with the metabolic status of dairy cows in the transition period. <i>Journal of Dairy Science</i> , 107(1), 317–330. https://doi.org/10.3168/jds.2023-23641	2024	3.7
Hostens, M., Lam, T., & Koop, G. (2023). Sustainable Ruminant Health at Utrecht University. <i>American Journal of Veterinary Research</i> , 84(7), ajvr.23.05.0104. https://doi.org/10.2460/ajvr.23.05.0104	2023	1.3
Zare, M., Atashi, H., & Hostens, M. (2022). Genome-Wide Association Study for Lactation Performance in the Early and Peak Stages of Lactation in Holstein Dairy Cows. <i>Animals</i> , 12(12), 1541. https://doi.org/10.3390/ani12121541	2022	2.7
Chen, Y., Steeneveld, W., Nielen, M., & Hostens, M. (2023). Prediction of persistency for day 305 of lactation at the moment of the insemination decision. <i>Frontiers in Veterinary Science</i> , 10, 1264048. https://doi.org/10.3389/fvets.2023.1264048	2023	2.6
Chen, Y., Atashi, H., Mota, R. R., Grelet, C., Vanderick, S., Hu, H., GplusE Consortium, & Gengler, N. (2023). Validating genomic prediction for nitrogen efficiency index and its composition traits of Holstein cows in early lactation. <i>Journal of Animal Breeding and Genetics</i> , 140(6), 695–706. https://doi.org/10.1111/jbg.12819	2023	1.9
Franceschini, S., Grelet, C., Leblois, J., Gengler, N., Soyeurt, H., & GplusE consortium. (2022). Can unsupervised learning methods applied to milk recording big data provide new insights into dairy cow health? <i>Journal of Dairy Science</i> , 105(8), 6760–6772. https://doi.org/10.3168/jds.2022-21975	2022	3.7
Chen, Y., Hostens, M., Nielen, M., Ehrlich, J., & Steeneveld, W. (2022). Herd level economic comparison between the shape of the lactation curve and 305 d milk production. <i>Frontiers in Veterinary Science</i> , 9, 997962. https://doi.org/10.3389/fvets.2022.997962	2022	2.6
Hut, P. R., Kuiper, S. E. M., Nielen, M., Hulsen, J. H. J. L., Stassen, E. N., & Hostens, M. (2022). Sensor based time budgets in commercial Dutch dairy herds vary over lactation cycles and within 24 hours. <i>PLOS ONE</i> , 17(2), e0264392. https://doi.org/10.1371/journal.pone.0264392	2022	2.9
Hut, P. R., Scheurwater, J., Nielen, M., van den Broek, J., & Hostens, M. (2022). Heat stress in a temperate climate leads to adapted sensor-based behavioral patterns of dairy cows. <i>Journal of Dairy Science</i> , 105(8), 6909–6922. https://doi.org/10.3168/jds.2021-21756	2022	3.7

<u>Title</u>	<u>Year</u>	<u>IF</u>
Kemel, C., Salamone, M., Van Loo, H., Latour, C., Vandeputte, S., Callens, J., Hostens, M., & Opsomer, G. (2022). Unaffected semen quality parameters in <i>Neospora caninum</i> seropositive Belgian Blue bulls. <i>Theriogenology</i> , 191, 10–15. https://doi.org/10.1016/j.theriogenology.2022.07.013	2022	2.4
Salamone, M., Adriaens, I., Vervae, A., Opsomer, G., Atashi, H., Fievez, V., Aernouts, B., & Hostens, M. (2022). Prediction of first test day milk yield using historical records in dairy cows. <i>Animal</i> , 16(11), 100658. https://doi.org/10.1016/j.animal.2022.100658	2022	4.0
Zare, M., Atashi, H., & Hostens, M. (2022). Genome-Wide Association Study for Lactation Performance in the Early and Peak Stages of Lactation in Holstein Dairy Cows. <i>Animals</i> , 12(12), 1541. https://doi.org/10.3390/ani12121541	2022	2.7
Atashi, H., Asaadi, A., & Hostens, M. (2021). Association between age at first calving and lactation performance, lactation curve, calving interval, calf birth weight, and dystocia in Holstein dairy cows. <i>PLOS ONE</i> , 16(1), e0244825. https://doi.org/10.1371/journal.pone.0244825	2021	2.9
Atashi, H., Hostens, M., & GplusE consortium. (2021). Genetic parameters for milk urea and its relationship with milk yield and compositions in Holstein dairy cows. <i>PLOS ONE</i> , 16(6), e0253191. https://doi.org/10.1371/journal.pone.0253191	2021	2.9
Atashi, H., & Hostens, M. (2021). Genetic Aspects of Somatic Cell Count in Holstein Dairy Cows in Iran. <i>Animals</i> , 11(6), 1637. https://doi.org/10.3390/ani11061637	2021	2.7
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Hostens, M., Bossaert, P., Cools, S., de Kruif, A., & Opsomer, G. (2010). Het gebruik van glucogene precursoren in de voeding van hoogproductief melkvee. <i>Vlaams Diergeneeskundig Tijdschrift</i> , 79(4), 247–258.	2010	0.2
Ververs, C., Hostens, M., Caluwaerts, T., de Kruif, A., & Opsomer, G. (2010). Is er een verband tussen het verloop van de aanvangsfase van de lactatiecurve en het optreden van de eerste oestrus post partum bij hoogproductieve melkkoeien? <i>Vlaams Diergeneeskundig Tijdschrift</i> , 79(4), 381–388.	2010	0.2

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<u>Title</u>	<u>Year</u>
van Schaik, G., Hostens, M., Faverjon, C., Jensen, D. B., Kristensen, A. R., Ezanno, P., Frössling, J., Dórea, F., Jensen, B. B., Carmo, L. P., Steeneveld, W., Rushton, J., Gilbert, W., Bearth, A., Siegrist, M., Kaler, J., Ripperger, J., Siehler, J., de Wit, S., Garcia-Morante, B., ... Nielen, M. (2023). <i>The DECIDE project: from surveillance data to decision-support for farmers and veterinarians</i> . Open Research Europe, 3, 82. https://doi.org/10.12688/openreseurope.15988.1	2023
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(b2) Chapters in books

<u>Title</u>	<u>Year</u>
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Hermans, K., Van Ranst, B., Opsomer, G., & Hostens, M. (2018). <i>Promises and challenges of big data associated with automated dairy cow welfare assessment</i> . In A. Butterworth (Ed.), Animal Welfare in a Changing World (pp. 199–207). CAB International.	2018

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Title	Year
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Egger-Danner, C., Klaas, I., Brito, L., Schodl, K., Bewley, J. M., Cabrera, V., Haskell, M. J., Iwersen, M., Heringstad, B., Stock, K., Stygar, A., van der Linde, R., Hostens, M., Charfeddine, N., Gengler, N., & Vasseur, E. (2024). <i>Improving animal health and welfare by using sensor data in herd management and dairy cattle breeding – a joint initiative of ICAR and IDF</i> . In 11th European Conference on Precision Livestock Farming , Bologna, Italy.	2024
Kemel, C., Salamone, M., Hut, P., Adriaens, I., Aernouts, B., & Hostens, M. (2024). <i>Association between AI-generated milk yield residuals as measure of transition success and behavioural patterns in dairy cows</i> . In 11th European Conference on Precision Livestock Farming , Bologna, Italy.	2024
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Chen, Y., Hostens, M., Nielen, M., Ehrlich, J., & Steeneveld, W. (2022). <i>An empirical analysis of economic herd performance in relation to herd lactation curve characteristics</i> . In European Conference on Precision Livestock Farming & International Conference on Precision Dairy Farming , Vienna, Austria, pp. 728–736.	2022
Chen, Y., Hostens, M., Nielen, M., Ehrlich, J., & Steeneveld, W. (2022). <i>An empirical analysis of economic herd performance in relation to herd lactation curve characteristics</i> . In Dair’Innov Congress , Namur, Belgium, p. 35.	2022
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