



Program at a glance

Tuesday

9.00-9.15	Opening by Henk Hogeveen, Chairman of the Organizing Committee		
9.15-9.45	Key note presentation by Ynte Hein Schukken, GD Animal Health, the Netherlands - Animal health challenges on dairy farms increasing in size – are protocols and precision farming compatible?		
9.45-10.15	Key note presentation by James Hills, Tasmanian Institute of Agriculture's Dairy Centre, Australia - Precision feeding and grazing management for temperate pasture-based dairy systems		
10.15-10.45	Break		
10.45-12.05	<i>Session 1</i> Reproduction (shared session with DairyCare)	<i>Session 2</i> Feeding I	<i>Session 3</i> Metabolic disorders
12.05-13.00	Lunch		
13.00-14.00	Poster presentations		
14.00-15.00	<i>Session 4</i> Activity and lameness	<i>Session 5</i> Requirements for PDF	<i>Session 6</i> Udder health and reproduction
15.00-15.30	Break		
15.30-16.50	<i>Session 7</i> Cow traffic and AMS	<i>Session 8</i> Economic impact of PDF	<i>Session 9</i> Welfare
18.00-20.30	Welcome Reception		
20.30-...	Social activity		



Wednesday

- 9.00-18.00 Visiting Precision Dairy Farms
- 18.00-late Conference dinner at the Dairy Campus

Thursday

- 9.00-9.30 Key note presentation by Daniel Berckmans, KU Leuven, Belgium - Novel Precision Dairy Farming Technologies
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| 9.35-10.35 | <i>Session 10</i>
New PDF technologies I:
Lameness detection | <i>Session 11</i>
Big data | <i>Session 12</i>
Feeding II |
| 10.35-11.05 | Break | | |
| 11.05-12.25 | <i>Session 13</i>
New PDF technologies II | <i>Session 14</i>
Adding value to sensor data | <i>Session 15</i>
AMS efficiency |
| 12.25-13.30 | Lunch | | |
| 13.30-14.50 | <i>Session 16</i>
New PDF technologies III | <i>Session 17</i>
Data management | <i>Session 18</i>
Performance of AMS |
| 14.50-15.20 | Break | | |
| 15.20-16.20 | <i>Session 19</i>
Grazing | <i>Session 20</i>
Data modelling | |
| 16.20-16.50 | Key note presentation by Jeffrey Bewley, University of Kentucky, USA - Update on use of sensors on dairy farms | | |
| 16.50-17.00 | Closing | | |



Detailed program for all sessions

Session 1: Reproduction (shared session with DairyCare)

Chairperson: Dr Vivi Thorop

Time	Authors (presenting author in bold)	Title
10.45-11.05	Derks, M. ; Blavy, P.; Christensen, J.M.; Friggens, N.C.	Estimating chances of insemination success using milk progesterone measurements
11.05-11.25	Lind, A. ; Karlsson, M.; Lindahl, C.; Båge, R.	Calving alert system for better working environment
11.25-11.45	Krieger, S. ; Sattlecker, G.; Kicking, F.; Auer, W.; Iwersen, M.; Drillich, M.	Prediction of calving in dairy cows using tail-mounted accelerometers
11.45-12.05	Borchers, M. ; Chang, Y.M.; Wadsworth, B.; Stone, A.; Bewley, J.	Predicting impending calving using activity, lying, and rumination behavior monitors in dairy cattle

Session 2: Feeding I

Chairperson: Kees de Koning, MSc

Time	Authors (presenting author in bold)	Title
10.45-11.05	Sponsor presentation by Agrifirm – Bahr, C.	Nutrition, Sensors & Genetics – A data driven smart feeding approach by Agrifirm
11.05-11.25	Oberschätzl-Kopp, R. ; Haidn, B.; Peis, R.; Reiter, K.; Bernhardt, H.	Effects of an automatic feeding system with dynamic feeding times on the behaviour of dairy cows
11.25-11.45	Van Riel, J.W. ; Lokhorst, C.	Dynamic concentrate feeding and the benefits in different parity groups on dairy farms
11.45-12.05		



Session 3: Metabolic disorders

Chairperson: Dr. Hiemke Knijn

Time	Authors (presenting author in bold)	Title
10.45-11.05	Hallén Sandgren, C. ; Emanuelson, U.	Consistency of measurements from an automatic body condition scoring camera
11.05-11.25	Kaufman, E.I.; Leblanc, S.J.; McBride, B.W.; Duffield, T.F.; Devries, T.J.	Association between behavior and subclinical ketosis in transition dairy cows
11.25-11.45	Scholnik, T. ; Honig, H.	Treating cows for ketosis by milk fat-to-protein ratio levels to improve production
11.45-12.05	Mottram, T.T.F. ; Worfolk, J.P.	Redefining SARA in dairy cows with reticulum pH measurements

Session 4: Lameness detection

Chairperson: Prof. Lene Munksgaard

Time	Authors (presenting author in bold)	Title
14.00-14.20	Link, Y. ; Salau, J.; Karsten, S.; Krieter, J.	Using classifiers based on 3D-head acceleration data for lameness detection
14.20-14.40	Wadsworth, B.A. ; Mayo, L.M.; Tsai, I.C.; Stone, A.E.; Ray, D.R.; Clark, J.D.; Bewley, J.M.	Behavioral comparisons among lame versus sound cattle using precision technologies
14.40-15.00	Van Erp-Van der Kooij, E. ; Van de Brug, M.; Roelofs, J.B.	Validation of Nedap Smarttag Leg and Neck to assess behavioural activity level in cattle



Session 5: Requirements for PDF

Chairperson: Niels Rutten, MSc

Time	Authors (presenting author in bold)	Title
14.00-14.20	Van Weyenberg, S. ; Pluym, L.M.; Piccart, K.; Van Nuffel, A.; Aernouts, B.; Huybrechts, T.; De Busser, E.; Mondelaers, K.; Saeys, W.	Farmers' preference towards heat detection sensor technology
14.20-14.40	Eastwood, C. ; Chaplin, S.; Dela Rue, B. Lyons, N.; Gray, D.	Understanding the roles of farm advisors in precision dairy farming
14.40-15.00	Kort, J.; Van der Weerd, C. ; De Boer, J.; Paradies, G.L.	Smart Dairy Farming in practice: design requirements for user-friendly data based services

Session 6: Udder health and reproduction

Chairperson: Prof. Ynte Schukken

Time	Authors (presenting author in bold)	Title
14.00-14.20	Gouw, A. ; De Jong, L.; Van der Tol, R.; Van der Kamp, A.J.	Optimizing dry cow therapy using frequent SCC monitoring
14.20-14.40	Adriaens, I. ; Huybrechts, T.; Aernouts, B.; Piccart, K.; Geerinckx, K.; Daems, D.; Lammertyn, J.; De Ketelaere, B.; Saeys, W.	Improved milk progesterone algorithm to monitor reproduction in dairy cows
14.40-15.00	Sponsor presentation by Fullwood	Recent advances in mastitis detection with automatic milking systems



Session 7: Cow traffic and AMS

Chairperson: Prof. Marcia Endres

Time	Authors (presenting author in bold)	Title
15.30-15.50	Sponsor presentation by Lely – Van der Kamp, A.J.	Precision livestock farming to unburden the dairy farmer
15.50-16.10	Pitkäranta, J. ; Rodenburg, J.	Automatic Milking in Large Dairy Herds
16.10-16.30	Wildridge, A. ; Thomson, P.; Garcia, S.; Jongman, E.; Clark, C.; Kerrisk, K.	The impact of a partially shaded laneway on voluntary traffic between pasture and an AMS
16.30-16.50	Heurkens, D.; Kamphuis, C.; Van der Kamp, A.J.	Effects of freestall barn layout on efficiency of Dutch dairy farms with an automatic milking system

Session 8: Economic impact of PDF

Chairperson: Prof. Jeffrey Bewley

Time	Authors (presenting author in bold)	Title
15.30-15.50	Van de Gucht, T.; Van Nuffel, A.; Pluym, L.M.; Piccart, K.; Lauwers, L.; Saeys, W.; Van Weyenberg, S.	Relation between sensor performance and willingness of farmers to pay for lameness detection systems
15.50-16.10	De Veer, J.; Eastwood, C. ; Neal, M.; Dela Rue, B.; Kamphuis, C.	Development of an investment model for automated mastitis detection systems
16.10-16.30	Lyons, N. ; Eastwood, C.; Dela Rue, B.; Kerrisk, K.	Current and future technology adoption of milking related technologies on Australian and New Zealand dairy farms
16.30-16.50	Allain, C. ; Chanvallon, A.; Courties, R.; Billon, D.; Bareille, N.	Technical, economic and sociological impacts of an automated estrus detection system for dairy cows



Session 9: Welfare

Chairperson: Assoc Prof. Karin Orsel

Time	Authors (presenting author in bold)	Title
15.30-15.50	Koene, P. ; Hogewerf, P.; Ipema, B.	Dairy cow welfare: effects of a virtual fence on social behavior
15.50-16.10	Keeling, L.J.; De Oliveira, D.; Rustas, B.-O.	Use of mechanical rotating brushes in dairy cows – a potential proxy for performance and welfare?
16.10-16.30	Gabrieli, R.	Monitoring social behaviour in grazing cows
16.30-16.50	Guzhva, O. ; Nilsson, M.; Herlin, A.; Ardö, H.; Åström, K.; Bergsten, C.	Development of a seven-point shape model for analysis of social interactions in dairy cattle

Session 10: New PDF technologies I: Lameness Detection

Chairperson: Dr. Claudia Bahr

Time	Authors (presenting author in bold)	Title
9.35-9.55	Zhao, K. ; He, D.; Bewley, J.	Detection of lameness in dairy cattle based on limb motion analysis with automatic image processing
9.55-10.15	Orsel, K. ; Solano, L.M.; Pickel, C.; Dopfer, D.; Barkema, H.W.	Automated footbaths to implement a standardized protocol: impact Digital Dermatitis dynamic
10.15-10.35	Van De Gucht, T. ; Saeys, W.; Van Weyenbergh, S.; Lauwers, L.; Mertens, K.C.; Vandaele, L.; Vangeyte, J.; Van Nuffel, A.	Assessment of the possibilities to downscale the Gaitwise system by reducing the amount of sensors



Session 11: Big data

Chairperson: Prof. Nathalie Bareille

Time	Authors (presenting author in bold)	Title
9.35-9.55	Van der Tol, R. ; Kool, P.; Van der Kamp, A.J.	When cow health counts, probabilities matter
9.55-10.15	Verhoosel, J.P.C. ; Spek, J.	Semantics for big data application in the Smart Dairy Farming domain
10.15-10.35	Harty, E. ; Healy, J.	Using Big Data and Advanced Analytics to optimise Health and Fertility

Session 12: Feeding II

Chairperson: Prof. Trevor de Vries

Time	Authors (presenting author in bold)	Title
9.35-9.55	Van der Waaij, B.D. ; Feldbrugge, R.L.; Veerkamp, R.F.	Cow feed intake prediction with machine learning
9.55-10.15	Dias, K.M.; Clark, C.E.F.; John, A.	Creating value from data: Milking order and its role in future precision dairy feeding systems
10.15-10.35	De Mol, R.M. ; Goselink, R.M.A.; Knijn, H.M.	The relation between feeding duration and roughage intake of dairy cows



Session 13: New PDF technologies II

Chairperson: Prof. Daniel Berckmans

Time	Authors (presenting author in bold)	Title
11.05-11.25	Klefot, J.M.; Murphy, J.L.; Donohue, K.D.; O'hara, B.F.; Lhamon, M.E.; Bewley, J.M.	Development of a non-invasive system for monitoring dairy cattle sleep
11.25-11.45	Demba, S. ; Rose-Meierhöfer, S.; Ammon, C.; Elsholz, S.; Brunsch, R.	Pressure-indicating film to measure the pressure between a collapsing liner and an artificial teat
11.45-12.05	Timmerman, M. ; Van Riel, J.W.	Maximizing the biogas production of manure-based biogas plants with a Dynamic Input Advice System
12.05-12.25	Höld, M.; Gräff, A. ; Bernhardt, H.; Stumpfenhausen, J.	Basics for the energy distribution in a dairy barn with an energy management system

Session 14: Adding value to sensor data

Chairperson: Prof. Albert de Vries

Time	Authors (presenting author in bold)	Title
11.05-11.25	Sponsor presentation by Agis – Griffioen, G.	CowManager, a unique multiple monitoring system using the ear
11.25-11.45	Huijps, K.; Huurnink, H.; Pasman, A.; Knijn, H.	The Ovalert concept: adding value to sensor data
11.45-12.05	C.A.V. Paiva , C.A.V.; Tomich, T.R.; Machado, F.S.; Campos, M.M.; Souza, G.N.; Velasco, F.O.; Possas, F.P.; Lima, J.A.M.; Ferreira, A.L.; Pereira, L.G.R.	Information and precision technologies used for improving the milking routine performance
12.05-12.25	Sponsor presentation by SCR – Bar, D.	Managing heat stress in dairy cows using on-cow sensors



Session 15: AMS efficiency

Chairperson: Prof. Douglas Reinemann

Time	Authors (presenting author in bold)	Title
11.05-11.25	Sponsor presentation by DeLaval – Perrotin, T.	The advancement of robotic milking on dairy farms: a few eye opening facts
11.25-11.45	Harms, J. ; Bruckmaier, R.M.	A tool to analyse and optimise milking intervals in robotic milking systems
11.45-12.05	DiGennaro, A.J.; Lee, A.R. ; Wadsworth, B.A.; Clark, J.D.; Bewley, J.M.	Effects of a Low Moisture Block Supplement on Cow Distribution and Time Budget
12.05-12.25	Sponsor presentation by Afimilk – Arazi, A.	Real-Time automatic cow monitoring – New practices

Session 16: New PDF technologies III

Chairperson: Prof. Toby Mottram

Time	Authors (presenting author in bold)	Title
13.30-13.50	Jorritsma, R. ; Nielen, M.; Heesterbeek, H.; Aardema, H.	Internet of cows: a novel sensor bolus for oral application
13.50-14.10	Orsel, K. ; Wolfger, B.; Wadsworth, B.A.; Bewley, J.M.	Evaluation of an ear-based real-time location system
14.10-14.30	Salau, J. ; Haas, J.H.; Junge, W.; Thaller, G.	A multi-Kinect system for monitoring and measuring functional traits in dairy cows
14.30-14.50	Sponsor presentation by Nedap – Meijer, L.	Nedap Precision Dairy Farming – Tools for operational, tactical and strategic decision-makers



Session 17: Data management

Chairperson: Dr. Callum Eastwood

Time	Authors (presenting author in bold)	Title
13.30-13.50	Sponsor presentation by Smartbow	Cow Time Budget and Beyond - Experience with the SMARTBOW® System
13.50-14.10	Stygar, A.H. ; Krogh, M.A.; Østergaard, S.; Kristensen, A.R.	Tool for assessing the intervention effect on milk production in an Evolutionary Operation setup
14.10-14.30	Derks, M. ; Blavy, P.; Hoglund, J.K.; Friggens, N.C.	Templates to classify progesterone profiles, built using real-time milk progesterone measurements
14.30-14.50	Sponsor presentation by CRV – Roelofs, R.	Precision Dairy Farming: Adding a new dimension

Session 18: Performance of AMS

Chairperson: Dr. Stephanie van Weyenberg

Time	Authors (presenting author in bold)	Title
13.30-13.50	Sponsor presentation by GEA – Klimpel, S.	Precision dairy technology on the way – and how it can really break through
13.50-14.10	Tremblay, M. ; Hess, J.P.; Christenson, B.M.; Mcintyre, K.K.; Smink, B.; Van der Kamp, A.J.; De Jong, L.G.; Döpfer, D.	Individualized Recommendations Using Clustering of Robotic Milking Systems
14.10-14.30	Lyons, N. ; Kerrisk, K.	KPI Project: Monitoring 9 Australian automatic milking systems
14.30-14.50	Drach, U. ; Degani, A.; Pnini, T.; Izhaki, I.; Halachmi, I.	Increasing milking frequency and milking yield in robotic milking by using an automatic herding system



Session 19: Grazing

Chairperson: Dr. James Hills

Time	Authors (presenting author in bold)	Title
15.20-15.40	Van Reenen , C.G.; Van der Werf, J.T.N.; Timmer, B. Hoeksma, D.; Zom, R	Using behaviour in dairy cows as a predictor of grass intake
15.40-16.00	Allain, C. ; Danilo, S.; Delagarde, R.; Brochard, V.	Recording grazing behaviour of dairy cows in AMS farms with the Lifecorder+® sensor
16.00-16.20	Koene, P.; Hogewerf, P. ; Ipema, B.	Grazing management and welfare: effects of a virtual fence on dairy cow behavior

Session 20: Data modelling

Chairperson: Dr. Rudi de Mol

Time	Authors (presenting author in bold)	Title
15.20-15.40	A. De Vries	Enhanced accuracy of cows' retention, breeding, and milking values with precision dairy technologies
15.40-16.00	Bonora, F. ; Benni, S.; Barbaresi, A.; Tassinari, P.; Torreggiani, D.	Comprehensive analysis of AMS data: a cluster-graph approach tested on a dairy farm
16.00-16.20	Mottram, T.T.F. ; Bradley, D.; Worfolk, J.P.	Identifying sensor error and real variations in the bovine rumen pH, using the eCow farmBolus