



EU-PLF PROJECT

Bright Farm

by Precision Livestock Farming

Closing conference
Brussels, 29th September 2016

PROGRAMME AND SPEAKERS' BIOS



PROGRAMME

8:30	Registration	Outside of Polak Room
9:00	Welcome Prof Daniel Berckmans – KU Leuven	Polak Room
09:15	Video: Smart Farming for Europe	Polak Room
09:20	Results and experiences from broiler farms + Q&A Prof Erik Vranken – Fancom B.V.	Polak Room
10:00	Results and experiences from pig farms + Q&A Dr Dries Berckmans – SoundTalks N.V.	Polak Room
10:40	Coffee break	Patio
11:05	Results and experiences from dairy farms + Q&A Dr Isabelle Veissier – INRA	Polak Room
11:45	Testimonies of high tech start-ups in Precision Livestock Farming	Polak Room
11:45	PigWei: handheld device for precise and fast weighing of livestock pigs Dr Ivan Amat-Roldan – Ymaging	
12:00	High definition gait capturing & analysis – Results of the field tests Dr Patrick Van De Vyver – Bainisha	
12:15	Making Sense of Sensor Data Ir. Yasir Khokhar – Connecterra	
12:30	An automatic 24/7 diagnostic system for hoof diseases in bovine Marzio Miodini – Cowmatix	
12:45	Lunch	Patio
13:45	Farmers' engagement in using PLF technology – Report of the EU-PLF farm visits Prof Jörg Hartung	Polak Room
14:05	Can PLF create value for European farmers? Dr Heiner Lehr – Syntesa	Polak Room
14:30	Farmers' vision for the future	Polak Room
14:30	Mr David Speller – Broiler farmer	
14:40	Mr John Verhoijssen – Pig farmer	
14:50	Ms Tina Dahl – Cow farmer	
15:00	Animal Task Force's vision on Precision Livestock Farming Dr Jean-Louis Peyraud – ATF	Polak Room
15:15	Coffee break: Interactive session EU-PLF Blueprint Dr Michel Bonneau – EAAP	Passage Room and Patio
15:45	Panel discussion Dr Heiner Lehr – Syntesa	Polak Room
16:45	Closing of Conference Prof Daniel Berckmans – KU Leuven	Polak Room
17:00	Reception	Patio

Daniel Berckmans obtained a Master and a PhD in Bio-Science Engineering from KU Leuven. In 1998 he became a full professor at KU Leuven and the Head of the Division M3-Biores (Measure, Model and Manage Bioresponses). The main field of Prof Berckmans' research consists of real time signal analysis of humans and animals by using technology like wearables,

cameras and microphones. The activities comprise the measurements, modelling and monitoring or management of individual living organisms. His research team is considered as a worldwide leader in Precision Livestock Farming. Half of the team is working on animal applications and half on human applications. Prof Berckmans is the co-author of 273 scientific articles in peer-reviewed

journals and 389 papers in conference proceedings. Since 1982, 15 products have been developed for the world market in co-operation with industrial partners and 18 patents have been submitted. Prof Berckmans is the coordinator of several EU-projects with a total value of over 10M Euro and is the co-founder of 2 spin-off companies: BioRICS NV in 2006 and SoundTalks NV in 2011.



*PROF DANIEL
BERCKMANS*

Erik Vranken started his studies in Agricultural Engineering at KU Leuven, where he obtained his master's degree in 1984, with a specialization in Biosystems Engineering. After his studies he started his research career at the same University, where he specialized in bio-environmental control in livestock buildings. This work resulted in several patents and products in the area of ventilation equipment and livestock

production systems, in co-partnership with industry. In 1999, Prof Vranken obtained his Doctorate in Applied Biological Engineering with a thesis on the analysis and optimization of climate control systems in livestock production units.

In 2002, Prof Vranken was nominated as part-time professor at KU Leuven, where he teaches courses in Biomechanics, Sustainable Precision Livestock Farming

and Biosystems Engineering. Since 2007, he combines his professorship with the position of Research Manager at Fancom BV, a Dutch company and world market leader in the development and sales of Integrated Management Solutions for livestock buildings. The research strategy at Fancom BV is focused on the innovation and developments of Precision Livestock technologies in the pig and poultry sector.



*PROF ERIK
VRANKEN*

Dries Berckmans obtained a degree in Mechanical engineering at KU Leuven, in July 2005.

In April 2010, Dr Berckmans finished his PhD with the noise and vibration research

group of KU Leuven on the topic of traffic noise synthesis. In 2011, he became the founder of SoundTalks NV, a spin-off company of KU Leuven and the University of Milan, which focuses on the development of algorithms

for automated sound analysis. SoundTalks has commercially launched a respiratory distress monitor for fattening pigs in 2014 and is now developing new PLF products for the poultry, swine and cattle industry.



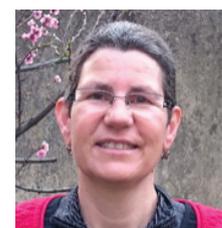
*DR DRIES
BERCKMANS*

Isabelle Veissier, DVM and PhD, is a research director from INRA (French National Institute for Research in Agriculture). She leads the Joint Research Unit on Herbivores. Dr Veissier's research is focused on animal behaviour and welfare. She studies the different facets of the behaviour of cattle and sheep following the idea that behaviour tells us how animals see

the world around them, how they form social bonds, how they learn, and what they feel. Currently Dr Veissier's research is focused on behavioural changes as early signs of health disorders.

Isabelle has worked to spread the idea that the animals were thinking beings, reactive, emotional, etc... and therefore, that their state of welfare can be assessed by specific indicators and should be taken

into account in farming. Dr Veissier's co-leads the French scientific network on animal welfare (1998-2007) and is regularly involved in European projects and networks on animal welfare: a project on the welfare of calves (1997-2000), the COST Network Measuring and monitoring animal welfare (2000-2006), the Welfare Quality® project to develop assessment systems of welfare (2004-



*DR ISABELLE
VEISSIER*

SPEAKERS' BIOS

2009) and its following Welfare Quality Network, the Alcasde project to identify alternatives to dehorning (2009), EUWelNet to evaluate the potential to create

reference centres in animal welfare in Europe (2013), and currently the EU-PLF project to develop precision farming tools (2012-2016). She also works with policy makers

(Ministry for Agriculture, European Union, Council of Europe, dairy industries, etc...) to help them formulate recommendations for the protection of animals.



PROF JÖRG
HARTUNG

Jörg Hartung made two round of farm visits during the EU-PLF project (in 2014 and in 2016). The objective of the farm visits was to learn from the opinion and experiences of the farmers after several years working with PLF systems. It was important to hear the full scope of opinions and not only the good and positive ones. Therefore it was of inter-

est to learn from the farmer's opinion speaking directly with him/her.

Prof Hartung is a Professor for Animal Hygiene and Husbandry and Professor for Animal Welfare Science of the University of Veterinary Medicine Hannover, Foundation (TiHo). He is also an Honorary Doctor of the Swedish University of Agricultural Sciences (SLU) – awarded for his

scientific merits in research on, animal health and welfare and effects of air pollutants on animal, man and the environment.

Prof Hartung was director of the Institute for Animal Hygiene, Animal Welfare and Farm Animal Behaviour at TiHo, Germany for 20 years (till 1993) and served before as group leader in Silsoe Research Institute, UK.



DR HEINER LEHR

Heiner Lehr holds a PhD in Natural Sciences from the Technical University of Berlin. Dr Lehr is an expert in the fields of precision livestock farming and food and animal traceability. He is actively involved in European research projects. He was the coordinator of Bright-

Animal, a direction setting EU project on Precision Livestock Farming. He is the co-editor of a book on the Multidisciplinary Approach to Acceptable and Practical Precision Livestock Farming, available on Amazon. Based on BrightAnimal, the European Commission initiated EU-PLF and ALL-SMART-

PIGS, where Dr Lehr is a work package leader. In EU-PLF, he is the leader of the value creation assessment work package and innovation through the high-tech SMEs work package. Due to his interest and expertise in this field, Dr Lehr recently became an entrepreneur in PLF.



DR JEAN-LOUIS
PEYRAUD

Jean-Louis Peyraud is Special Adviser to the scientific Director of Agriculture at INRA (National Institute for Agricultural Research) in Paris. After his doctorate at the University of Rennes (1983), he focused his research on dairy production. He gained international fame with his work on grazing and grassland management and has been involved in several European projects as WP leader and

has coordinated the FP7-Multisward project whose goal was to improve the competitiveness and sustainability of ruminant production systems based on grassland.

He was the head of the INRA-Agrocampus Joint Research Unit on Dairy Production from 1999 to 2008. He is currently the head of the joint technological research unit "Research and Engineering in dairy farming" led by INRA and the French

Livestock Institute, and the president of the GIS "Livestock tomorrow" which brings together all actors (research, formation, extension services) involved in animal production in France. At the European level he is the chair of the public-private platform "Animal Task Force" which promotes sustainable and competitive animal production sector by fostering knowledge development and innovation in Europe.

HIGH-TECH START-UPS IN THE EU-PLF PROJECT

YMAGING

Ymaging is a company focused in R&D of **new technologies and automated system for the interpretation of complex data.** Ymaging holds a strong component of innovation and technology in computer vision, machine learning, data mining, electronics and informatics that flows into breakthrough solutions for synthesizing complex patterns in big data into simple outputs for non-expert users (e.g. artificial intelligence, ultrasound, predictive models, automated interpretations, photonics, Raman, in-vivo imaging). Ymaging is following **three business lines** in the Cloud Services market: (1) an industrial solution of production line for high-speed and high-precision food sorting (up to 4 tonnes/hour), (2) **Fertility:** Cloud Services for automated quantification of medical images for improved management in fertility and (3) Pig-Wei a product for Smart and Precision Farming sector based on Cloud



DR IVAN
AMAT-ROLDAN
– FOUNDER

Services for precise, feasible and cost-effective pig weighing. **PigWei** is a **smart hand-held device** for instantaneous, touchless, precise and cost-effective pig weighing that allows a constant and **continuous monitoring** of the animal growth in a way it ensures a **better management** of resources, **higher quality** of meat and **lower costs** for farmers. Based on a three-fold structure (Software, Hardware

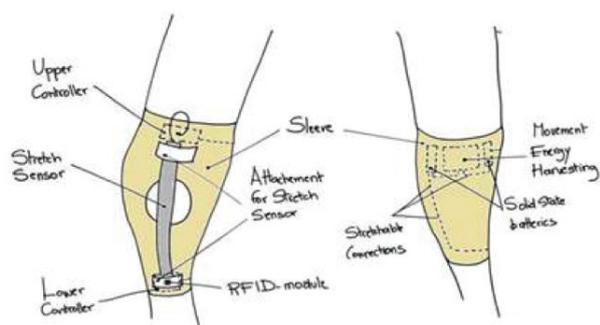
and Cloud Services), the device is a breakthrough technology that weighs a pig by capturing an image, which can be taken from a wide range of distances and angles, and sending it to Cloud Services which process the calculation. The elaborated result appears on the device in few seconds and does not require any additional infrastructure, but the Internet. www.ymaging.com

BAINISHA

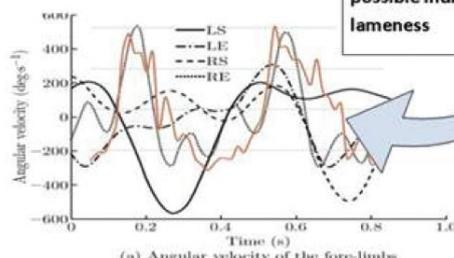
Bainisha is a high-tech start-up dedicated to the development of a high precision flexible motion-capturing sensor that can be used to monitor behaviour, motion, and activity. The ultra-thin, multi-layer

polymer technology used in the Bainisha products allows to compare very similar moves and identifies extremely small differences. The key advantage is that it is worn in a daily life environment without causing any discomfort.

It has a good potential to be used for monitoring locomotion in farm animals and other applications. Bainisha has received several international awards for its ground-breaking technology. www.bainisha.com



DR PATRICK
VAN DE VYVER
– FOUNDER



HIGH-TECH START-UPS IN THE EU-PLF PROJECT

CONNECTERRA B.V.

Connecterra is a high-tech start-up, founded in 2014, that aims to change/improve farming through their dairy health service for cows. Connecterra combines the power of sensor technologies and machine learning to

provide a complete health monitoring service for the dairy industry. Connecterra's end-to-end solution consists of a wearable device, which monitors the herd in real-time and transmits the data to a cloud platform for analysis and prediction of behavioural pat-

terns. This allows farmers to free up labour time, improve milk production per animal and save a significant amount of money by optimising their breeding cycles.

www.connecterra.io



IR. YASIR
KHOKHAR
– FOUNDER

COWMATIX SRL

Cowmatix is a high-tech start-up, founded in 2016, with the mission to develop new solutions in the field of Precision Livestock Farming (PLF), that immediately improve the livestock's wellbeing and increase the farmer's profitability. Cowmatix has developed LE.A.D: Leonardo Advanced Diagnostic system. It enables the early detection of hoof disease in bovines, including both infective and bio-mechanical pathologies. LEAD operates continuously to promptly detect and notify the occurrence of the most common pathologies when they first appear.

www.cowmatix.com



MARZIO MIODINI & LEONARDO SALA –
CO-FOUNDERS

COWMATIX Leonardo Advanced Diagnostic system



FARMERS IN THE EU-PLF PROJECT

David Speller is a poultry grower and consultant from Derbyshire Peak District, UK. He produces more than 20 million chickens a year, mainly for the retail market. He began his broiler chicken farming career in 2004 after having purchased an old 1960's broiler farm due to the owner's retirement. He had no prior experience of poultry farming but it didn't hold him back from establishing a successful broiler busi-

ness. David was the first British producer to employ underfloor heating. Technology doesn't stop there, he has cameras inside and outside the sheds and he can remotely monitor shed temperature, humidity, lighting and carbon dioxide levels. His system also monitors, in real time, the consumption of water and feed, which allows the early detection of any health problems. His experiences are now helping the sector through his consultancy

and contract farming side of the business. Applied Poultry, the company of David, assists clients with any part of their own broiler business through their management services. David will continue to use innovations and technologies to further improve welfare and business margins, to protect the environment and secure a viable food chain that can meet the demands of a growing population.

www.applied-group.co.uk



DAVID SPELLER

John and Truus run a mixed farm in the Netherlands with 1.260 sows, 6.500 fattening pigs and 60.000 broilers. The company has three locations: Beringe, Meijel and Grashoek. Different technologies that are part of the EU-PLF project are installed and utilised on their farm: the eYeNamic system, the eYeScan and the Pig Cough Monitor. "The eYeNamic system monitors the behaviour of our animals. When they are restless, the system warns us that we have to go and see

what's going wrong. The Cough Monitor informs us a couple of days in advance that some animals are going to have serious respiratory disorders if nothing is done. We can then treat them before they get really sick and spread their disease to the rest of the animals in the building. With the eYeScan we can assess the weight of our pigs continuously and identify the best moment to sell them. PLF [will] bring our farm to a higher level via better technical results, more profit and more satisfaction in our work."



JOHN & TRUUS VERHOLJSEN-VERSTAPPEN

Tina Dahl is a dairy farmer from Limnared in western Sweden. The farm has an old history from the early 13th century and is situated in a broken countryside with arable land, pastures and large forests. The family also runs a small water power plant and does some contracting for other farmers.

In 1978 herd size was 36 cows but now there is a new barn with robot milking, built in 2013 with 200 cows.

"CowView helps us to get an overview of the herd and the individual cow both with their welfare and production. It is very profitable if you can find a sign of any disturbance before it gets too serious. It also helps us

to find cows, which are late for milking, with precision and in a fraction of the time it had taken us without the position tags. Technology is progressing fast and we need to learn how to use it. There is a future in technology and if you use it in the right way it will help you a lot."

"Healthy cows give you healthy money."



TINA DAHL

THANK YOU TO EU-PLF FARMERS!

Thank you to all the EU-PLF farmers for allowing us to install the PLF technology in your farms during the project.

Thank you

- *for your contributions and discussions*
- *for your feedback on the PLF technology*
- *for your testimonies during the EU-PLF workshops*
- *for welcoming us to your farms*



*EU-PLF FARMERS DURING THE
WORKSHOP IN COPENHAGEN
AUGUST 2014*



*EU-PLF FARMERS WHO GAVE
TESTIMONIES DURING THE WORKSHOP
IN MILAN
SEPTEMBER 2015*



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 311825.