EU-PLF PROJECT
Bright Farm
by Precision Livestock Farming

Closing conference
Brussels, 29th September 2016

PROGRAMME AND SPEAKERS’ BIOS
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>Registration</td>
<td>Outside of Polak Room</td>
</tr>
</tbody>
</table>
| 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                                       | Polak Room          |
| 12:00 | High definition gait capturing & analysis – Results of the field tests  
Dr Patrick Van De Vyver – Bainisha                                  | Polak Room          |
| 12:15 | Making Sense of Sensor Data  
Ir. Yasir Khokhar – Connecterra                                      | Polak Room          |
| 12:30 | An automatic 24/7 diagnostic system for hoof diseases in bovine  
Marzio Miodini – Cowmatix                                           | Polak Room          |
| 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 Verhoijsen – Pig farmer                                     |                     |
| 14:50 | Ms Tina Dahl – Cow farmer                                           |                     |
| 15:00 | Animal Task Force’s vision on Precision Livestock Farming            | Polak Room          |
| 15:15 | Animal Task Force’s vision on Precision Livestock Farming            | Polak Room          |
| 15:15 | Coffee break: Interactive session EU-PLF Blueprint  
Dr Michel Bonneau – EAAP                                            | Passage Room and Patio |
| 15:45 | Panel discussion                                                      | Polak Room          |
| 15:45 | Panel discussion                                                      | 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 Bioreponses). 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.

Dries Berckmans obtained a degree in Mechanical 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 Berckmans 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 Berckmans was nominated as part-time professor at KU Leuven, where he teaches courses in Bio-mechatronics, 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.

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-
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 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.

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 interest 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.

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 BrightAnimal, 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.

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.
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

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) PigWei a product for Smart and Precision Farming sector based on Cloud 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 threefold 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

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

Low-Res IR Camera

Algorithms

Industrial PC
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 business. 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

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.”

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 is a dairy farmer from Limared 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.
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

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