

## EU-PLF E-Newsletter

EU-PLF is an EU supported project for bringing **Precision Livestock Farming** from the lab to the farm

August 2013

### In This Issue

- Foreword
- Who we are
- What we will do
- What we have achieved so far

### Foreword

The size of livestock farms is continuously growing and these large groups pose specific demands and challenges for farmers regarding management of technical and economic performance and provision of good welfare for the animals.

Precision livestock Farming has the potential to assist livestock producers through automated, continuous monitoring of the animals. The observation data can be translated into key indicators for animal welfare, animal health, productivity and environmental impact. A number of PLF tools have been developed at laboratory levels and as prototypes. The purpose of this project is to develop those tools into services for the end-users on the farm.

A consortium has been set up, bringing academic research and private business together to achieve this ambitious goal with the support of the EU within the 7th framework programme. For more information, visit our website at [www.eu-plf.eu](http://www.eu-plf.eu)

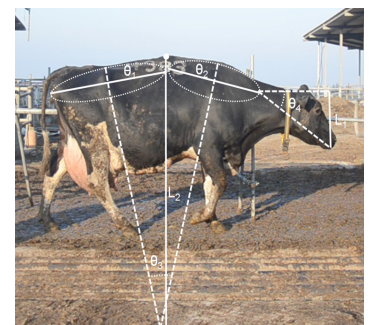
*Daniel Berckmans, EU-PLF co-ordinator,  
Division M3-BIORES, Department of Biosystems, KU Leuven, Belgium,  
[daniel.berckmans@biw.kuleuven.be](mailto:daniel.berckmans@biw.kuleuven.be)*

**EU-PLF is designed to bring Precision Livestock Farming tools from the lab to the farm, for the benefit of animals, farmers, consumers, industry and environment**

*Precision Livestock Farming is based upon using monitoring systems (through image and sound analysis techniques and sensors) to follow the animal's health status and welfare and detect diseases and disorders at an early stage. By automating the process, the farmer is able to receive real-time information on his livestock which is most valuable for him to manage and optimise animal production and welfare in a fast and accurate way.*

The overall objective of the **EU-PLF** project is to bring available **PLF** tools from the lab to the farm. The process of making those tools operational for the end-user in dairy, pig and poultry farms will be studied and a generic procedure (blueprint) will be created that will help people in the future to translate Precision Livestock Farming concepts into operational tools. This blueprint represents a manual for farmers and high tech SME's that are keen to develop and use **PLF** tools. It will be a

reference tool offering pragmatic guidance on how **PLF** systems can be applied on farm level in order to create value for the farmer and other stakeholders.



### Contact Us

[info@eu-plf.eu](mailto:info@eu-plf.eu)

### More Information

[www.eu-plf.eu/](http://www.eu-plf.eu/)

## Who we are

	KU Leuven, Belgium
	Swedish University of Agricultural Sciences, Sweden
	University of Bristol, UK
	National Institute for Agricultural Research, France
	University of Milan, Italy
	Agricultural Research Organisation (A.R.O.), The Volcani center, Israel
	Agriculture and Food Development Authority, Ireland
	The Royal Veterinary College, UK
	Wageningen UR, The Netherlands
	Fancom BV, The Netherlands
	SoundTalks NV, Belgium
	PLF Agritech Europe LTD, UK
	Xenon New Technologies GCV, Belgium
	Abrox, Advances Technology, Spain
	Syntesa sp/f, Faroe Islands
	Nutrition Sciences NV, Belgium
	EAAP, European Federation of Animal Science, Italy
	M&M Corporation, Belgium
	GEA Farm Technologies

*The **EU-PLF** project started in November 2012 and will end in October 2016. The total budget is close to 8 Million Euros. **EU-PLF** is coordinated by Daniel Berckmans, KU Leuven, Leuven, Belgium*

***EU-PLF** is financially supported by the EU commission within the 7th Framework programme; Grant no: 311825*

## What we will do

Highly experienced European teams from different disciplines with a proven track record in animal and **PLF**-related fields, including animal scientists, veterinarians, ethologists, bio-engineers, engineers, social scientists and economists, have joined forces with leading industrial market players in the livestock industry and high tech SME's to deliver a useful **PLF** blueprint. A competition for SME's and starters will be organised and the best ideas will get funding to design a **PLF**-prototype using their high tech innovative solutions. In collaboration with a leading industrial **PLF**-partner, the selected SME's and starters will use the blueprint to bring their prototype to farm level.



## What we have achieved so far

### Key indicators and gold standards defined

Key indicators and gold standards for economic, technical and ecological performance, for animal health and welfare have been defined for pigs, broilers, calves and dairy cows. The work was inspired by the outcomes of the Welfare Quality® project and the result is a list of key indicators and their related gold standards that can now be linked to possible technical solutions. The next step is to perform a test run on a fully equipped broiler farm in the Netherlands and a fattening pig farm in Spain and to apply the gold standards on three occasions during the production in order to decide on which measures to focus on in future assessments. For both the pigs and broilers we are currently working on getting agreements with assessors all over Europe to apply the gold standards on farms in order to validate the connection between technical solutions and animal based measures.

### PLF equipment installed in pig and poultry farms for further testing



Fancor and SoundTalks installed PLF-equipment in a total of 16 farms around Europe, partially in collaboration with our sister project ALL-SMART-PIGS ([www.all-smart-pigs.com](http://www.all-smart-pigs.com)). On each farm, 4 microphones and 4 cameras are used as sensors, and all systems have an online connection to a central database. The project includes 5 broiler farms ● 10 fattening pig farms ● and 1 calve farm ●. On the selected farms, the PLF systems are now being connected to existing climate and feed controllers to give access to environmental and performance data as well. The obtained farm data will be linked to the Key Indicators for animal welfare, health, productivity and emissions. In total 60 fattening periods will be investigated for both pigs and broilers.



### Insights obtained in key social and economic indicators that drive PLF adoption

In a workshop on socio-economic issues in the Benelux area we asked important players in the food chain, such as premix/concentrate producers, feed producers, farmers (pig, poultry and cattle) and slaughterhouses for their opinion on key indicators driving adoption of PLF systems. Participants in the Sterksel (Netherlands) workshop discussed the following issues from a socio-economic point of view:

- Energy (from energy neutral to energy producing)
- Environment (emission, air quality, manure)
- Preventive operations and animal welfare (tail biting, boar taint, I&R, transport)
- Animal health (reduced use of antibiotic, farm based diseases, zoonosis)
- Product differentiation
- Food safety

From the discussion we concluded that the main socio-economic drivers are: communication, transparency, timeliness, dynamics, and addressing certainty/risk.



These results and cross-checks with literature were further used 1) to conduct two in-depth interviews with fully integrated production chains in Catalonia (Spain), and 2) to design a qualitative questionnaire in order to gather views from all over Europe.

The Value Creation Group (VCG) interviewed large players in the Catalonia region of Spain:

- Grup Alimentari Guissona, [www.cag.es](http://www.cag.es)
- Selecció Batallé, [www.batalle.com](http://www.batalle.com)
- Cooperativa Plana de VIC, [www.planadevic.cat](http://www.planadevic.cat)

In the interviews we tried to get insight into performance indicators and whether these are related to social and economic indicators that can be related to PLF products and services. As a general conclusion we found that these larger operators were very interested in the technologies that the project is installing on farm in collaboration with our sister project ALL-SMART-PIGS. In particular Grup Alimentari Guissona has expressed an interest in testing some of these technologies on their own farms. A collaboration is in preparation. With respect to key indicators, most of these are performance related, i.e. economic. Indicators on health and animal welfare are rudimentary and social indicators regarding workers absent. Animal welfare at this stage is not an important marketing factor in Spain and the current economic climate in the country has shifted the focus away from social to economic aspects.

In addition to the above work, a qualitative questionnaire was sent to food chain players all over Europe. The distribution of the questionnaire was started in May 2013 and within two months 87 responses were received from more than 10 countries, mostly from Europe. The largest number of respondents came from the Netherlands (34), Italy (11) and Belgium (7).

COUNTRY	COUNT	%
Belgium	7	8
Germany	2	2
Spain	4	5
France	4	5
Hungary	3	3
Israel	2	2
Italy	11	13
Netherlands	34	39
Sweden	4	5
Denmark	1	1
United Kingdom	3	3
Other countries	12	14

Based on the questionnaire, we found the following evaluation of key indicators.

The five most important **social key indicators** for PLF adoption were:

- 1) Labour conditions (physical, dust, environment, light...)
- 2) Number of labour hours
- 3) Pride/motivation to talk about and show animal and production facilities
- 4) Availability of advisory systems
- 5) Successor for farm business to continue the farm

However, job satisfaction, participation in a study group for farmers, risk awareness, attractiveness of the farm to external investors and social recognition for a job well done were important as well.

The five most important **economic key indicators** for PLF adoption were:

- 1) Feed conversion
- 2) Growth
- 3) Health costs
- 4) Delivery weight
- 5) Energy costs

Mortality, farm income, noble parts/units and control of waste production and manure were also important.

The questionnaire is still active – and will be active throughout the project. Anybody interested in participating should use the URL: <http://projectasg.wur.nl/questplf2013/>

### EU-PLF innovation days result in selecting start-up teams for Business Start-up Coaching

Innovation days are organised by the EU-PLF working group “Innovation through High-Tech SMEs”, internally known as the “SME Drive”.

The aim is to motivate and select suitable candidate entrepreneurs to start a business in Smart Farming or PLF on the basis of the experience and the results of the EU-PLF project, the “blueprint”. Selected candidates will be coached in the process to successfully start up a business in the area. A running competition will also be held where groups can get some funding to showcase their products or services on real-life farms.

Three Innovation days have been organised so far:

- February 2013 in Barcelona
- May 2013 at the University of Wageningen, in collaboration with Dr. Kees Lokhorst.
- June 2013 at the University of Milan, in collaboration with Dr. Marcella Guarino.

A fourth Innovation day will be held on 12 September 2013 in Leuven.

Four groups out of a target of 10 have so far been selected and confirmed. Another three groups are in the evaluation process and will likely be signed on. These groups work with very diverse and exciting new technologies to address issues like early death, aggression, weight measurement and continuous fat determination. Three groups have started with the coaching and are working now together with the EU-PLF consortium on the details of their business ideas.

As a next step, the SME Drive will install a board of experienced business angels for the competition on the selected teams for funding for their first prototype

The SME Drive is still open for new groups to join the coaching process. Anybody interested should please contact Heiner Lehr ([heiner@syntesa.eu](mailto:heiner@syntesa.eu)) or Johan van den Bossche ([johan.vandenbossche@sokwadraat.be](mailto:johan.vandenbossche@sokwadraat.be)). Details on the coaching process can be found under: [www.sokwadraat.be](http://www.sokwadraat.be).

### News from our sister project: LivingLab expresses strong interest in information exchange along the feed-animal-food chain

ALL-SMART-PIGS is our sister project; for details see [www.all-smart-pigs.com](http://www.all-smart-pigs.com). The project concentrates on a single species (fattening pigs) and on a fixed set of technologies. Pig farms in Spain and Hungary are “shared” and there is an agreement to exchange information between projects and seek maximum synergies.

ALL-SMART-PIGS is a so-called LivingLab and invites users to participate in the process of creating a PLF service offering. In this particular case, feed providers, farmers and slaughterhouses in Spain and Hungary have been invited to co-create a specification for the exchange of information along the feed-animal-food chain. The original suggestion was that such an exchange would allow optimisation of feed and feed usage along the chain by (a) improving seed composition and (b) reducing the production of off-spec animals for slaughter. The LivingLab has confirmed this view in several sessions and expressed a very strong interest in piloting a traceability system that will allow the exchange of such data. The exchange of information such as weight gain in dependence of feed composition change, the auditability of feeding programs with respect to uniformity, slaughter weight and back fat composition or the influence of transport on meat quality makes Smart Farming technologies much richer and effectively much more interesting to implement.

The system is now being developed by ALL-SMART-PIGS partners NEMA, IRTA and Syntesa. It is expected to go on-line in January 2014, providing all supply chain partners with valuable information about the effectiveness of their activities.

Syntesa is the coordinator of ALL-SMART-PIGS.

**ACKNOWLEDGEMENT:** The authors gratefully acknowledge the European Community for financial participation in Collaborative Project EU-PLF KBBE.2012.1.1-02-311825 under the Seventh Framework Programme.

**DISCLAIMER:** The views expressed in this publication are the sole responsibility of the author(s) and do not necessarily reflect the views of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for potential uses of this information. The information in this document is provided with no guarantee or warranty that the information is fit for any particular purpose. The user thereof uses the information at his or her sole risk and liability.

