



► INTRODUCTION TO THE BIO-BUSINESS PROJECT AND PRECISION LIVESTOCK FARMING 1

○ ISSUE: 1 | ○ VOLUME: 1 | ○ YEAR: 2011



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Newsletter BioBusiness

BioBusiness Project

WHEN BIOLOGY MEETS TECHNOLOGY

<http://www.bio-business.eu/>



Seven European universities and research institutes and three industrial partners have joined together to form the Bio-Business Project team. Each partner offers specialization while working under a collaborative research framework.

PLF scientists of the future

The BioBusiness Project is a European project interconnected to the Marie Curie Initial Training Network that seeks to develop precision livestock scientists of the future. This objective will be achieved by training 11 selected fellows in biological processes and technological innovation.

Through the Precision Livestock Farming scheme, the BioBusiness fellows are examining current animal welfare problems and creating technology-based solutions. Sub-grouped into teams, fellows are running three projects concurrently: Part A

explores improved conditions for incubating eggs, Part B is developing automatic lameness detection in cows, and Part C is creating automatic monitoring of pig aggression. In order to transfer research into the market, fellows receive training in product definition and development, marketing, and sales. Additionally, fellows participate in organizing and hosting yearly BioBusiness Workshops. At the end of the project (48 months), the fellows will organize a final 3-day conference to present their research findings and acquired skills.

CONSORTIUM



Agricultural Research Organization (ARO)



WHAT IS PLF?

Precision Livestock Farming (PLF) is a methodology that uses sensors and information technology to monitor animal production, health and welfare in real time. PLF plays a crucial role in the early detection of disease and objectively assesses animal welfare in modern livestock production. The aim of PLF is not to replace but to support the farmer who always remains the crucial factor in good animal management.



The BioBusiness project seeks solutions for three welfare problems linked to farm animal production with the participation of industrial partners. For this reason, the project focused in the following three products:



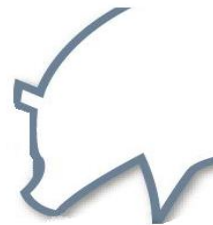
Improved conditions for incubating eggs

The goal is to optimize incubation conditions that will ensure better post-hatching performance concerning poultry health and welfare. This project will focus on the input variables affecting broiler embryonic development and how they relate to chicken welfare during grow-out. Various measurements of health and welfare will be taken throughout embryonic and post-hatch development using appropriate technological tools.



Automatic detection of lameness in cows

The objective is to develop an automatic system to detect lameness in dairy cows. This project will focus on automating visual technology to capture gait and posture at the individual level. Furthermore, visual information will be linked to predictive mathematical models of lameness. Accuracy and reliability of continuous and early detection of lameness are cornerstones of this study.



Automatic monitoring of pig aggression

Pig aggression may be difficult for producers to detect and control in time to protect vulnerable animals. In order to assist management, the goal of this project is to develop visual and auditory techniques that continuously monitor and detect undesired pig behaviour. This project will also investigate automated means to manage undesired behaviour using appropriate negative conditioning techniques.

BioBusiness Team in Ploufragan (France) 14th of March, 2011.



Supervisors: Maryse Guinebretiere, Kees Lokhorst, Vasileios Exakdatylos, Claudia Bahr, Erik Vranken, Daniel Berckmans, Nicolas Etterradosi, Ilan Halachmi, Uzi Birk, Jörg Hartung, Michaela Fels, Marcella Guarino, Imelda McGonnell.
Fellows: Maciej Oczak, Tom Van Hertem, Stefano Viazzi, Lilia Thays Sonoda, Gunel Ismailova, Annamaria Vörös, Qin Tong, Nancy Roulston, Eduardo Romanini, Andrés Schlageter Tello and Hakim Bergoug.

MARIE CURIE ACTIONS

Brilliant careers in research for graduates

Embarking on a research career is not always easy. Marie Curie Actions want to make research careers more attractive to young people. The Initial Training Networks (ITN) offers to early-stage researchers the opportunity to improve their research skills, join established research teams, and enhance their career prospects.

ITNs funding supports:

- A) Worldwide recruitment of researchers in the first five years of their career for initial training.
- B) Networking opportunities, outreach activities, workshops, and conferences that connect early-stage researchers to staff from participating and external research institutions.

More Information:

Marie Curie Actions:
<http://ec.europa.eu/research/mariecurieactions>

Job vacancies at Euraxess:
<http://ec.europa.eu/euraxess/index.cfm/general/index>



BIOBUSINESS NEWS

1st Workshop of the BioBusiness Project in Celle, Germany.

Nearly 40 delegates from all over Europe participated in the 1st Workshop of the BioBusiness project on November 16th to 18th, 2010. The workshop was organized by the Institute of Animal Hygiene, Animal Welfare and Farm Animal Behaviour of the University of Veterinary Medicine Hanover Foundation in Celle, Germany.

The main discussion of the workshop was guided by Cledwyn Thomas and focused on the conflicts between the stakeholders in the livestock and food production chain in relation with Precision Livestock Farming systems (PLF). In order to initiate discussion, four speakers were invited to express the viewpoint of different stakeholders within livestock and food production chains.

Christine Nicol, from Bristol University, reported experimental results related to the advantages and disadvantages of PLF in relation to animal welfare. David Speller, a poultry farmer from England, gave his personal experience with PLF systems. Carlo Leifert, an ex-executive of a retail company, explained the poor knowledge of his sector in relation to PLF and finally, Corrine Goenee, spoke about consumer acceptance of PLF systems.



Pictures of the work group activities during the discussion of PLF under the perspective of different stakeholders.

With the arrival of the last two fellows, the BioBusiness project team is complete!

In February (2011), Nancy Roulston (Canada) and Marciej Oczak (Poland) joined the Bio-Business Project. The fellows and their supporting institutions are sub-grouped as follows:



Detection of lameness in dairy cows:

- Andrés Schlageter Tello (WUR)
- Tom Van Hertem (ARO)
- Annamaria Vörös (DeLaval)



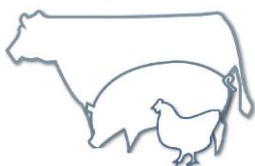
Detection of pig aggression:

- Lília Thays Sonoda (TiHo)
- Gunel Ismailova (UMil)
- Maciej Oczak (Fancom)



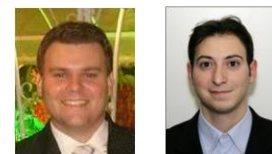
Improved conditions for incubating eggs:

- Qin Tong (RVC)
- Hakim Bergoug (ANSES)
- Nancy Roulston (Petersime)



Model and control development:

- Eduardo Romanini (KULeuven)
- Stefano Viazzi (KULeuven)



BIOBUSINESS HANDS-ON TRAININGS

Petersime Training, Belgium
22th – 24th September, 2010
Training in incubation

The Volcani Center - ARO Training, Israel
27th – 30th September, 2010
Lameness experiment set up

KULeuven Training, Belgium
26th – 27th October, 2010
Training in PLF
1st Meeting of the Fellows board

TiHo Workshop, Germany
16th – 18th November, 2010
1st BioBusiness Workshop
Trainings for Fellows
Board Meetings

Anses Training, France
16th – 18th March, 2011
Training for Fellows /
Board Meetings

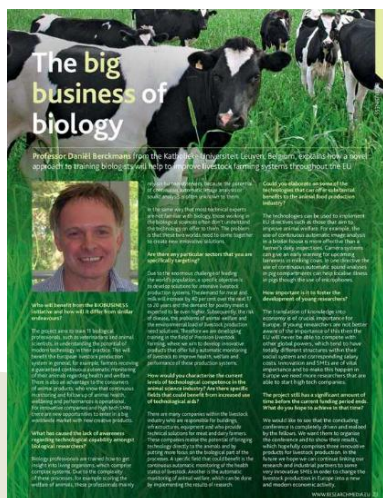
PRESS RELEASE

Article on the BioBusiness Project published in the EU research magazine **International Innovation**.

Food, Issue 1 – March of 2011.

Page 8 of the electronic magazine or page 23 of press magazine.

[\(Click here for article\)](#)



EVENTS WITH BIOBUSINESS CONTRIBUTIONS



XVth International Congress on Animal Hygiene 2011
3rd – 7th of July, 2011, Vienna – Austria.
<http://www.isah2011.info/>

Presenter Author	Title	Presentation
Bergoug, H.	<i>Effect of transport duration on day-old chick dehydration and animal mortality, feed intake, and weight during rearing period</i>	Oral
Roulston, N.	<i>BioBusiness research project: training and development of innovative solutions for animal health and welfare problems by means of precision livestock farming (PLF)</i>	Oral
Schlageter, A.	<i>Selection of a golden standard for visual-based automatic lameness detector for dairy cows</i>	Oral
Tong, Q.	<i>Monitoring environmental conditions during incubation of chicken eggs</i>	Oral
Viazzi, S.	<i>Labelling of video images: The first step to develop an automatic monitoring tool of pig aggression</i>	Poster



5th European Conference of Precision Livestock Farming 2011
11th – 14th of July, 2011. Prague – Czech Republic.
<http://www.ecplf2011.cz/>

Presenter Author	Title	Presentation
Bergoug, H.	<i>Monitoring of transport environment and effect of transport duration on zootechnical performances, health and welfare during rearing period.</i>	Poster
Ismayilova, G.	<i>The Precision Livestock Farming (PLF): an innovative methodology for measuring the interest of piglets on environmental enrichments</i>	Oral
Romanini, E.	<i>BioBusiness project: Research training program on Precision Livestock Farming (PLF)</i>	Poster
Sonoda, L.	<i>Tail biting in pigs: A review</i>	Oral
Van Hertem, T.	<i>Experimental setup for the study of a computer vision based automatic lameness detection system for dairy cows</i>	Oral
Viazzi, S.	<i>Real-time monitoring tool for pig welfare</i>	Oral



5th International Conference on the Assessment of Animal Welfare at Farm and Group Level 2011
8th – 11th of August, 2011. University of Guelph – Canada.
<http://www.uoguelph.ca/csaw/wافل/>

Presenter Author	Title	Presentation
Roulston, N.	<i>Development of precision livestock farming solutions for animal health and welfare</i>	Poster



2nd Workshop of BioBusiness Project 2011
5th – 9th of September, 2011. Brussels – Belgium.
<http://www.bio-business.eu>