



FECUND Newsletter - December 2014

Welcome to the first FECUND newsletter

Good cattle fertility is essential for the efficiency and sustainability of dairy production. FECUND works on improving the fertility of dairy cows. The FECUND newsletter updates you on recent activities and important results.

www.fecund-project.eu

FECUND: An introduction

Good fertility is essential for the sustainability of livestock production. Of all livestock sectors, fertility of dairy cattle is raising the greatest cause for concern. This has become a major concern for farmers and the dairy industry. The causes of this decline in reproductive success are multi-factorial.

The FECUND project addresses the metabolic and genetic causes of low reproductive success of dairy cows. We work in an interdisciplinary approach that will integrate in vivo and in vitro studies, biology, physiology, -omics technologies and bioinformatics. FECUND focuses on the early phases of reproduction from oocyte development to implantation of the conceptus.

[Read more.](#)

FECUND's objectives

The FECUND project will contribute to improved breeding programmes and a more sustainable and competitive European cattle industry. [Read more](#) about FECUND's objectives.

Cattle fertility: two projects, one website

In order to tackle major societal challenges such as resource efficiency and food security, the European Commission has granted two research projects that focus on increasing efficiency of dairy production via improved cow fertility: [FECUND](#) and [PROLIFIC](#).

Each project focuses on other solutions to achieve this, as there are many factors that influence cattle fertility. Both project teams are composed of specialists from across Europe, bringing together their knowledge and expertise to tackle this multi-factorial challenge.

FECUND and PROLIFIC work closely together and hence initiated a [common website on cattle fertility](#). [This website](#) integrates the

Cattle fertility conference May 2014

The British Society of Animal Science organised a conference on cattle fertility in Westport, Ireland, in May 2014, bringing together 450 experts from 20 countries to discuss issues including genetics, nutrition and effective cattle management. Pat Lonergan, one of the FECUND work package leaders, gave a presentation on Maternal-embryo interaction leading up to the peri-implantation period of pregnancy in cattle.

Conference organiser Michael Diskin: "Fertility is one of the major drivers of milk and beef production, and the costs of getting it wrong are high..." [Read more.](#)

Interesting new publications

Fine mapping of genome activation in bovine embryos by RNA sequencing

A. Graf, S. Krebs, V.

Zakhartchenko, B. Schwalb, H.

Blum, E. Wolf

Embryonic development is initially controlled by maternal genetic information stored in the egg. LMU researchers now describe a methodology that allows the succeeding activation of the zygotic genome to be mapped at high resolution.

[Read the original paper.](#)

[Read more](#) (interview with LMU researchers)

Tribbles expression in cumulus cells is related to oocyte maturation and fatty acid metabolism

results of the two projects to move improvements for fertility in cattle forward.

Launch of the FECUND project: 1st annual meeting

The first annual meeting of FECUND project was held in Brussels on February 11th 2014. All work package leaders presented an update of the project progress and the results coming from the preliminary analyses of samples. John Williams, the FECUND project coordinator, noted that a considerable quantity of data had been produced from the first animal model. FECUND is working on the first phase of the project focused on the Energy Balance and Genetic Merit animal models (Workpackage (WP) 1) and the "biological" WPs 2-3-4 respectively related to follicle-oocyte, oviduct-embryo and uterus-conceptus. [Read more.](#)

Picture: the FECUND project team at the 1st annual meeting



D. Bisard, F. Chesnel, S. Elis, A. Desmarchais, L. Sánchez-Lazo, M. Chasles, V. Maillard, S. Uzbekova

[Read more](#)

Development rate and gene expression of IVP bovine embryos cocultured with bovine oviduct epithelial cells at early or late stage of preimplantation development.

A. Cordova, C. Perreau, S. Uzbekova, C. Ponsart, Y. Locatelli, P. Mermillod.

[Read more](#)

Fatty acid synthesis and oxidation in cumulus cells support oocyte maturation in bovine.

L. Sánchez-Lazo, D. Brisard, S. Elis, V. Maillard, R. Uzbekov, V. Labas, A. Desmarchais, P. Papillier, P. Monget, S. Uzbekova.

[Read more](#)

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