

SmartCow

An integrated infrastructure for increased research capability
and innovation in the European cattle sector

Newsletter – Issue 2



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First SmartCow Annual Meeting, 6th – 8th March 2019

Following the study tours organised by Scotland's Rural College (SRUC), the first annual meeting was held in Dumfries from 6th to 8th March 2019. It brought together 34 people representing the 14 project partners. One year after the start of the project, this meeting aimed to take stock of the work done during the first year, discuss the first results obtained and plan the actions to be carried out for the coming year.

Among the highlights of the first year, we can mention:

- The recruitment of 6 post-docs and engineers involved in the various work-packages;
- The implementation of communication tools;
- The setup of the stakeholder platform of the project that met for the first time in Brussels in June 2018;
- The completion of the first phase of the mapping of research infrastructures for cattle in Europe;
- The success of the first call for Transnational projects;
- Several participations in international conferences to publicize the project: Ag-Research conference in Brussels (May 2018); EAAP Session in Dubrovnik (August 2018); ISNH Meeting in Clermont-Ferrand (Sept 2018)

During the meeting, workshops were held to discuss the next steps and the development of project activities with a particular focus on:

- The organisation of the future Transnational Projects calls;
- The extension of the mapping of cattle research infrastructures in Europe;
- The utilisation and the development of the Animal Trait Ontology for Livestock;
- The writing of a book of methods in cattle physiology;

- The implementation of a cloud-based data platform for the project;
- The involvement of the stakeholders in national workshops and the organisation of the training activities proposed by SmartCow;
- The ethical issues in the use of fistulated cow in cattle research;
- The progress in the Joint Research Activities of SmartCow aimed at refining reference methods and developing proxies for measuring feed efficiency and emissions in cattle, and developing new phenotyping capabilities from activity sensor data.

We highly appreciated the help of Richard Dewhurst's team in organizing the meeting and the peaceful atmosphere of the Crichton campus, which enabled the work to proceed in a relaxed and productive manner. The discussions continued in the evenings during convivial dinners, with the tasting of the famous Scottish haggis!

Stay tuned for more news on SmartCow, our next call for Transnational projects will open soon!

René Baumont (Project coordinator)

Léa Tourneur (Project manager).





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Study Tours: Scotland's Rural College (SRUC)

Alongside the annual project meeting held in Dumfries during March 2019, we organised two half-day study tours of research facilities of Scotland's Rural College (SRUC) – half a day at the beef facilities and half a day at the dairy facilities.

Around thirty people came to see the beef research facilities of SRUC at Easter Howgate farm, near Edinburgh. Head of the SRUC Beef & Sheep Research Centre Dr Carol-Anne Duthie and her team showed visitors the respiration chambers (the 'GreenCow' facility for work on ruminant methane emissions), individual feeding and precision livestock farming research. In addition to a focus on feed efficiency and greenhouse gas research, the visitors also heard about SRUC expertise in animal behaviour and welfare monitoring, as well as rumen microbiome research. Key areas of research for the SRUC beef team are: animal imaging and sensing systems; biomarkers for animal performance, efficiency and health; measurement systems and proxies for greenhouse gas emissions; role of the rumen microbiome (microbial species and genes) in animal performance; as well as carcass and meat quality evaluations.

The group then transferred by coach from Edinburgh to Dumfries – calling in to see SRUC's teaching campus at Barony (just north of Dumfries). At Barony, the visitors were introduced to SRUC's wide range of teaching programmes and shown the teaching dairy facilities. This campus will shortly start a major period of expansion to become the focus for teaching, research and consultancy in the South and West of Scotland.

The group expanded with more local stakeholders on the following day and was shown around SRUC's Dairy Research facilities at Crichton Royal Farm, near Dumfries. Long-serving research farm manager Hugh McClymont gave an overview of the farm, its enterprises and production levels. Researchers then spoke about work on dairy cattle breeding, dairy systems analysis, feeding trials and precision dairying. The visitors then toured the dairy facilities – seeing the long-established Langhill breeding study, as well as facilities for research on feeding, growth and health of adult cows and calves. The Langhill Herd was central to SRUC being awarded The Queen's anniversary Prize for Higher and Further Education in 2017. There was particular interest in new calf research facilities that are being established in conjunction with Agri-EPI Centre Limited, which provide for detailed recording of intakes of water, milk, concentrates and forages, as well as individual weights. More details of projects at the SRUC Dairy Research and Innovation Centre are available at this [link](#).



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Results of the First Call for Transnational Access projects - 2018

The outcome of the First Call for Transnational Access project, launched in July 2018, was announced at the end of January 2019. Applications were evaluated in a two-stage process involving internal and external reviewers, our ethical committee and facility managers.

The first tranche of projects came from both industry and academic organisations based in the UK, Switzerland, Germany, France, Belgium, Denmark and Spain. A key requirement of this programme is that research must be conducted in a different country to the applicant's base. Organisations providing access to their facilities for the projects are: SRUC, University of Reading, Teagasc, Wageningen University and Research, Aarhus University, INRA and IRTA.

The new projects cover a wide range of nutrition and feed topics – the experimental treatments involved in the various studies are expected to affect animal performance, feed conversion efficiency (particularly the utilisation of dietary protein), cheese quality, methane emissions and cow health and welfare. Other work is using exciting new technologies for monitoring feed quality and animal health status.

Proposed timetable for the Second Call for Transnational Access projects - 2019

As in the previous call, SmartCow makes available cattle research facilities of leading dairy and beef researchers across Europe, so that academic or industry colleagues can apply for funding for studies in nutrition, physiology, ethology and animal husbandry.

The expected timetable for this Call is as follows:

- Call launched before the end of April 2019
- Short Pre-proposals to be submitted by 30th June 2019
- Decisions on eligibility and availability of facilities, as well as invitations to prepare Full proposals will be sent to proposers within 3 weeks.
- Full proposals to be submitted by 30th September 2019

Full information about the Transnational Access programme, future Calls and application instructions will be available at: <http://www.smartcow.eu/calls>

IRTA Cattle research facilities

IRTA Dairy Research Station in Monells (Girona, Catalonia) offers the possibility to perform feed efficiency studies within the Call of Smart Cow project (next call announcement will be launched in April 2019). We encourage you to submit projects within the topic of feed efficiency in this call. What can you do at IRTA facilities? You can test different diets considering nutrient or ingredient composition or feed additives in a free-stall facility managed following an intensive production system. Precision feeding studies are also possible because the facilities offer the opportunity to individually deliver different types and amounts of concentrates in the milking parlor. What do the IRTA facilities offer in the call? We offer the use of 60 animals for a period of 12 weeks to perform a study, and two studies of this type are budgeted in SmartCow. The applicant will obtain individual feed intake data, daily milk yield and composition (fat and protein), daily body weight, daily water intake, and daily resting time and activity. Are there any other possibilities? Animal samples can be also obtained during the study, but the sampling procedures and analysis will be out of SmartCow budget and will need approval from the Animal Care Committee. We are also close to an extensive crops research station, the Department of organic residues of IRTA, and a dairy products research plant. Thus, if there is interest for the applicant, there will be the possibility (out of the SmartCow budget) to extent the research towards crops, milk processing properties, or manure management to have a holistic assessment of the impact of the strategy proposed.



Feeding precision system to deliver a mixture of three different ingredients in the milking parlor

A twenty-cows pen with four scale water troughs to register individual water intake

Feed bunk scale to register individual feed intake in a free-stall pen

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A fruitful discussion with Stakeholder at the SmartCow General meeting on 6th March 2019

Eighteen stakeholders participated in the Stakeholder Session of the General meeting on 6th of March and in the Study tour on March 5th. Among them, 8 representatives of the UK, European and international feed industries, as well as farm technology providers, a levy board, researchers and media.

In general, for the private sector, connecting to SmartCow is seen as an opportunity to reinforce links with academia. Most of them show a great interest in applying to Transnational Access calls for funding, taking part in trainings, accessing proxies for cattle feed efficiency, methane emissions, but also in the use of guidelines and methodologies. Some reported on the importance of ultimately supporting communication to consumers and looking at outcomes for farmers.

In 2019, SmartCow partners will invite stakeholders during workshops:

- Stakeholder platform on June 3rd in Brussels
- Ireland (early 2019)
- Spain (May 2019)
- France (Oct. 2019)
- ICAR on June 17-21, 2019
- EAAP conference on Aug. 26-30, 2019, Ghent
- International Symposium Rum. Physiology on Sept. 3-6 2019, Leipzig
- CDB-ATF conference on Nov. 6th, 2019, in Brussels

The 2019 training catalogue is available!

7 courses are planned in September and October 2019, dealing with topics such as feed efficiency and methane emissions, gold standard methods and proxies. These courses are aimed at scientists, technicians, stakeholders and students, etc. Tuition fees are covered by the SmartCow project. The face-to-face courses take place in various European countries, while Webconference courses are easily accessible from your office.



[Download the program and register here!](#)

SmartCow and the CDB GenTORE



Since mid-2018, SmartCow participates with five other European research projects to a “Common Dissemination Booster” (CDB) – the CDB GenTORE. These five projects are FeedaGene, Image, Saphir, GpluE and GenTORE.

What is a CDB?

It is a participative tool created by the European Commission in order to improve the dissemination and the exploitation of the results of scientific projects. The idea is to add up the dissemination efforts of projects which have similar or close objectives. The CDB encourages then projects to come together to identify a common portfolio of results and shows them how best to disseminate to end-users, focusing on what is common between the projects, and pooling the results in order to address jointly the stakeholders. In practice the EC has assigned “Trust IT-Services”, an international marketing & research organization specialized in fostering Information and communication technology solutions across Europe, in order to coordinate the group of the six projects involved in the CDB GenTORE.

The CDB activities

Trust IT-Services consults the different projects through questionnaires and organizes on-line meetings of representatives of the dissemination work packages of the projects involved in the CDB (for SmartCow EAAP and IDELE are involved). It organizes its activities around different “services” such as:

- Making the inventory of the dissemination activities and best practices of the different projects, and encouraging synergy between the projects
- Identifying the barriers to dissemination
- Training online on the dissemination methods, volunteers from the different projects
- Identifying the results which can be gathered in a joint portfolio.
- Mapping and pooling the stakeholders of the different sectors (livestock breeding, farming industry, technology providing, veterinarian)
- Elaborating a joint dissemination strategy and carrying out common activities such as:
 - Writing joint policy papers
 - Organizing joint dissemination events
 - Building joint dissemination tools (videos, joint social media, leaflets, etc.)
 - Having a common communication seal

Events organized in 2019

In 2019, two events have been planned:

- A joint session during the EAAP 2019 annual meeting in Ghent: session n°18, Title: “Burning issues in biodiversity 2: fitter livestock farms from better gene banks” (Chair: Michèle Tixier-Boichard, Coordinator of Image). All the projects involved in the CDB should participate to this session, abstracts have been submitted.
- A joint stakeholder event will be organized jointly by the CDB GenTORE, ATF – Animal Task Force, and EAAP. It will take place on 6th November in Brussels, after the ATF annual meeting that will address the theme: “Towards a climate smart livestock farming”. Around 120 stakeholders are expected. The main interest of this joint event is to make available a common portfolio of results from the six EU-funded projects to a wide range of European stakeholders from policy makers, NGOs, industries, farmer’s organisations, advisory services and engage a discussion on the potential of research and innovation to address societal challenges.



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