SmartCow

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

SmartCow is a new Research Infrastructures (RIs) project launched on 1st February 2018 for four years

SmartCow integrates key European cattle RIs to promote their coordinated use and progress, and help the European cattle sector face the challenge of sustainable production

SmartCow is designed to increase access to RIs by academics as well as private research communities

· Centralized transnational access to the network's resources will help achieving 30 projects involving 60 users

· Networking activities will integrate the RIs and improve services by harmonizing procedures and data sharing

· Joint research activities will build new methods and proxies to evaluate feed efficiency, gas emissions and treat sensor data
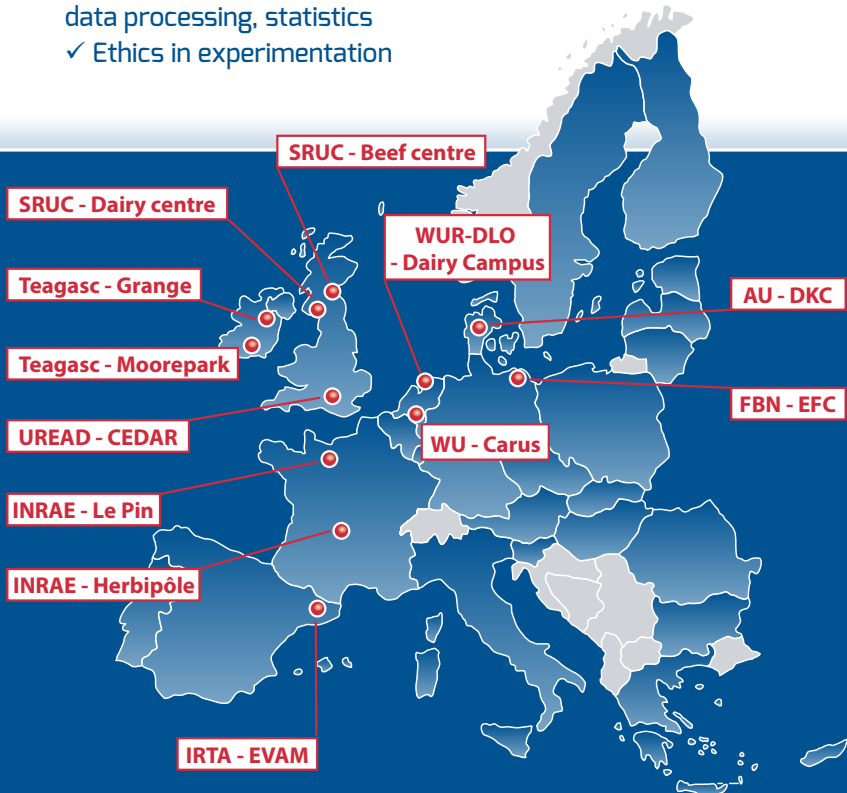
Constant interaction with stakeholders of the cattle sector will help **SmartCow** staying in line with industry needs

Smartcow's Network

Overarching RI services, **SmartCow** gathers 11 major RIs distributed in 7 EU countries (12 locations which include 18 installations, 2500 dairy and 1000 beef cows), allowing research teams and industry stakeholders to get to the infrastructures most suitable to their needs, in terms of:

· Dairy and beef cattle breeds and genotypes
· Livestock farming areas, production systems, and diets
· Climatic and environmental conditions
· Expertise

      ✓ Genetics: genotyped animals, phenotyping
      ✓ Animal nutrition: in vivo methods for measuring nutrient use and emissions
      ✓ Physiology, pathology, ethology, health, welfare: sensors, physiological and behavioral traits recordings
      ✓ Cattle husbandry technology and engineering: rearing systems, grazing and forage technologies, precision livestock farming
      ✓ Research methodologies: surgery, experimental design, data processing, statistics
      ✓ Ethics in experimentation

SRUC – Beef centre

SRUC – Dairy centre

Teagasc – Grange

Teagasc – Moorepark

UREAD – CEDAR

INRAE – Le Pin

INRAE – Herbipôle

IRTA – EVAM

WUR-DLO – Dairy Campus

AU – DKC

FBN – EFC

WU – Carus

Expected Outcomes in cattle research

- Optimize the use of European RIs and promote transnational access to them
- Facilitate multi-site experiments, and multidisciplinary approaches
- Provide a harmonized description of the facilities available in Europe
- Contribute to the unification of methods and protocols across Europe
- Improve recording, interoperability and analysis of data thanks to a cloud-based data-platform
- Improve ontologies for bovine phenotypic traits and environment conditions parameters
- Develop refined methods and proxies to evaluate feed efficiency and emissions
- Develop solutions for efficient use of feed resources reducing GHG emissions and promoting animal welfare and health
- Develop new methods to reduce the use of animals and the constraints in experimentation
- Produce new methods to exploit sensor data for cattle livestock farming and husbandry
- Increase accessibility to RIs by East/South European, and private research communities
- Increase accessibility to RIs by young researchers and train them

Consortium and contacts

Website: **www.smartcow.eu**

Project coordinator: **René Baumont, INRAE Auvergne / Rhône-Alpes, France**

Email: **rene.baumont@inrae.fr** | *Tel.:* **+33 (0)4 73 62 40 81**

Project manager: **Vincent Troillard, INRAE Transfert, Nantes, France**

Email: **vincent.troillard@inrae.fr** | *Tel.:* **+33 2 40 67 51 03**

14 Partners

INRAE – Institut National de la Recherche Agronomique, France

SRUC – Scotland's Rural College, United Kingdom

WU - Wageningen University, The Netherlands

WUR-DLO - Stichting Wageningen Research, The Netherlands

UREAD – University of Reading, United Kingdom

FBN – Leibniz Institut für Nutztierbiologie, Germany

TEAGASC – The Irish Agriculture and Food Development Authority, Ireland

AU - Aarhus Universitet, Denmark

IRTA – Institut de Recerca I Tecnologia Agroalimentaries, Spain

CRA-W – Centre Wallon de Recherches Agronomiques, Belgium

IDELE - Institut de l'Elevage, France

EAAP – European Federation of Animal Science, Italy

Agrimetrics, United Kingdom

INRAE Transfert SAS, France