

## SRUC BEEF RESEARCH FACILITIES – BEEF EFFICIENCY FACILITY

<p><b>Research topics:</b></p>	<p>The SRUC Beef Research Centre covers work from component scale biological and economic research up to the farming systems level and then beyond the farm gate into the food chain. Current projects in the beef efficiency facility include: phenotyping for genetic evaluation of feed efficiency; animal sensor systems (precision livestock farming); beef farm system modelling of greenhouse gas emissions; development of biomarkers and proxies for feed efficiency and methane emissions; carcass and meat quality characteristics.</p>
<p><b>Activities and services currently offered by the infrastructure/installation:</b></p>	<p>SRUC Beef Centre is supported by a team of 4 specialist technical staff who are responsible for implementation of all experimental protocols and work alongside a dedicated team of farm staff. The senior technician supports all scientists in protocol development, experimental planning, experimental licensing, quality control and health &amp; safety matters. She also manages the technicians in supporting all equipment maintenance, animal measurements and recording, as well as sample collection, processing, submission to various laboratories and archiving.</p> <p>The Beef Centre is located adjacent to one of the most concentrated animal science campuses in Europe with the University of Edinburgh Vet School, Roslin Institute, Moredun Institute and SRUC Animal Science all located in close proximity.</p> <p>Recent investments of over €3 million have included 60 automated forage feeders enabling individual feed intake in group pens (enabling 100+ cattle to be recorded at a time); new silage pits (enabling multiple diets and year around provision of experimental diets); integrated handling and weighing facilities; extensive instrumentation with precision livestock farming technologies (thermal imaging, 3D imaging, accelerometer-based activity sensors, rumen boluses, jaw movement recorders; extensive video recording and image analysis capability; water intake sensors; automated weighing; a range of different ultrasound scanners; and body conformation analysis). Aligned laboratories provide analytical expertise for a range of biomarkers (for animal stress, feed efficiency and product quality), as well as a growing capacity for rumen microbiome analysis (we have conducted both 16S community analysis and gene-centric metagenomics using samples from this unit). SRUC Research is accredited to ISO 9001.</p>
<p><b>Description of the access to be provided under SmartCow TNA calls:</b></p>	<p>The unit of access for each installation is defined as <b>one cow.week</b>. One typical access for a project consists of 360 units of access for the Beef efficiency facility (e.g. 36 cattle recorded for 10 weeks).</p>
<p><b>Animal types, diets, housing and experimental conditions that can be</b></p>	<p>Our cattle are representative of breeds used in the lowlands (Angus x Limousin) and uplands (Luining) of the UK. Studies are</p>

<p><b>worked on in this infrastructure/installation:</b></p>	<p>generally with housed cattle during the growing or finishing phases. We also have some capacity for work with adult 'suckler' cows. Primary forages are grass silage and whole-crop cereal silages, with others available with advanced planning. Feeding systems range from mixtures of forages and concentrates (e.g. 50/50 on a DM basis) through to high-concentrate 'cereal beef' systems.</p>
<p><b>Travel and subsistence costs:</b></p>	<p>A budget of up to €2,400 is available for travel and subsistence costs for up to 2 people from successful applicants to visit the SRUC Beef Research Centre to plan and participate in the work (reimbursements are up to €300 for travel and €100 daily for subsistence).</p>
<p><b>Infrastructure/installation ethical rules:</b></p>	<p>All research conducted by SRUC staff and/or at SRUC facilities involving the use of animals must have approval from the SRUC Animal Experiments Committee and, where appropriate project and personal licenses issued under the UK Animals (Scientific Procedures) Act (1986). Planning of experiments will take at least 4 months and this could be longer if a new license application is required.</p>