

## SRUC DAIRY RESEARCH FACILITIES

<p><b>Research topics:</b></p>	<p>The SRUC Dairy Research facility supports a range of detailed feeding studies to evaluate dietary strategies, novel feedstuffs and supplements designed to influence milk production and composition, cow health and environmental impacts (particularly greenhouse gas emissions). Many of these studies look at the effects of different supplements on dairy cow feed intake, milk production, feeding pattern and behaviour. A particular strength of the Centre is linking these animal-based studies with animal behaviour, soil, environment, grassland and forage measurements, as well as systems and financial analysis. We have a particular interest in biomarkers and proxies (based on biochemical measurements or novel sensing or imaging technologies) for hard-to-measure traits - such as feed conversion efficiency, methane emissions and disease susceptibility.</p>
<p><b>Activities and services currently offered by the infrastructure/installation:</b></p>	<p>SRUC Dairy Research 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 7 farm staff. SRUC Research is accredited to ISO 9001.</p> <p>Scientific equipment includes: automated milk recording through either herringbone parlours or robot milking systems; individual recording of feed and water intakes using automated roughage feeders; weighing facilities; hand-held methane detector for enteric greenhouse gas studies; and a range of precision livestock tools (<i>e.g.</i> thermal imaging and other temperature sensing; accelerometer-based activity monitors; rumen pH boluses). Linkage with field, soil, weather and herbage records is an important strength for many projects.</p> <p>The Langhill breeding experiment was established in the early 1970s and still continues to operate at the SRUC Dairy Research Centre. The genetic lines have been selected on the basis of fat plus protein yield (maximum versus national average) for over 40 years and the study also includes contrasting management strategies (currently feeding systems based on either 1.5 or 4.5 tonne of concentrate per cow per annum).</p> <p>The Langhill database provides over 40 years' worth of records that scientists can access alongside the ongoing research in this facility and this invariably adds value to research conducted at the Centre. There is an extensive database incorporating all animal performance, fertility and health records, as well as field records.</p>
<p><b>Description of the access to be provided under SmartCow TNA calls:</b></p>	<p>Typical experiments use groups of dairy cows in continuous design experiments over 3 month periods in early lactation, or else changeover-design studies with 4-week periods after peak lactation. The unit of access for this installation is defined as <b>one cow.week</b> and typical access for a project consists of 256</p>

	units of access (e.g. 20 cows for 3 months).
<b>Animal types, diets, housing and experimental conditions that can be worked on in this infrastructure/installation:</b>	The SRUC Dairy Research Centre has two units (Crichton Main and Acrehead) based on a 252 hectares farm area. The majority of this land is sown as grass for grazing and silage, but a number of other crops are grown to meet the needs of different experiments, for example beans, red clover, forage wheat and forage maize. Studies can be with grazing and/or housed cattle - either dry and/or lactating. We also have capacity for research with dairy replacement stock. There are 250 milking Holstein cows at Crichton Main and a further 220 at Acrehead, plus replacements. Crichton Main houses the Langhill Breeding study with 40 years of selection for milk solids production. Acrehead houses facilities for nutrition and precision livestock farming research.
<b>Travel and subsistence costs:</b>	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 Dairy Research Centre to plan and participate in the work (reimbursements are up to €300 for travel and €100 daily for subsistence).
<b>Infrastructure/installation ethical rules:</b>	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 licence application is required.