

INRA PEB (Pôle Expérimental Bovin / Bovine Experimental Pole)

Le Pin, Dairy and Beef

Research topics:	<p>Location (town, country) of the infrastructure: INRA-Le Pin, 61310 Exmes, France. Lowland grass-based beef and dairy cows systems. Web site addresses: INRA-Le Pin: http://www6.rennes.inra.fr/domaine-experimental-du-pin</p> <p>The INRA-Le Pin research farm lies at the interface of research on cattle genetics and physiology and grass-based dairy systems. The first mission of Le Pin research farm is to monitor and record animal and grass performances to supply data to scientists and references for local and national agriculture. Regarding dairy genetics and physiology, research currently focuses on variations in udder health (mastitis) and body condition during lactation; genetic disorders are also studied. Regarding dairy systems, it aims to assess the influence of the type of cow and the level of feed input on dairy-cow performances and their evolution through successive lactations. Regarding beef cattle genetics, the main research issues are to improve beef-cattle profitability, sexual precocity (calving at 2 years old), development precocity and capacity to use high-fibre diets.</p>
Activities and services currently offered by the infrastructure/installation:	<p>The installation of INRA-PEB Le Pin is equipped to measure animal performances (weight, milk production and composition, body condition score) and individual intake (96 Biocontrol® automatic feeders). All facilities are approved for animal experimentation by the French government. In each of them, a welfare committee works to help people take care of experimental animals. They are also engaged in quality process and are approved for minimizing environmental impact (ISO 14001).</p> <p>The INRA researchers using the Le Pin installation are based in the INRA center of Rennes and Jouy-en-Josas. Their expertise is in bovine genetics and breeding systems, in particular grass-based systems. The genetic lines created for their experiments or the set up breeding techniques could be interesting supports for TNA users.</p> <p>At INRA-Le Pin, all animals are genotyped and GreenFeed® systems (CH4 measurements) are available. In the dairy division, the breeding period is spread over 6 months. Wintering barns are arranged with a straw mulching lane, a straw area for cows, an alley and a feeding lane. Experimental batch management is made possible with pens. Twelve automatic concentrate feeders are used to monitor daily individual concentrate intake. The milking equipment consists of 2x15 rear-milking stalls with individual milk counters and double transfer. In the beef-cattle division, wintering barns are arranged with a straw mulching lane, a straw area for cows, an</p>

	<p>alley and a feeding lane. Experimental batch management is made possible with pens. A barn with 48 individual troughs (Dairy Gates®) is used to assess daily individual intake. Fodder is weighed with a cart equipped with an automatic scale. Every year, about 1000 visitors (including students, agricultural technicians, farmers, associations and companies) with diverse interests come to the farm. Le Pin has already collaborations with European organizations such as Teagasc regarding grass growth.</p>
<p>Description of the access to be provided under SmartCow TNA calls:</p>	<p><u>Modality of access under this proposal:</u> The unit of access for each installation is defined as one cow.week. One typical access for a project consists in 560 units of access for INRA-Le Pin One typical access covers the preparatory work which will be required at least 4 months before the access, submission of protocol and training on requirements of Animal Ethics committee, access to feeding facilities and data (including help with data analysis), and training in use of equipment.</p> <p><u>Support offered under this proposal:</u> The team of INRA-Le Pin consists of 3 engineers, 7 technicians and 20 animal keepers. In the frame of an experimental project, after discussion with the users, the engineers of the domain insure the supervision of the technical staff during the experiment and the concrete implementation of the protocol. Then, they insure the respect of the protocol, the quality of the collected data and their integration into a file defined in common with the researcher.</p> <p>The data collected at the INRA-PEB will respect the SmartCow data management plant to allow their integration into the cloud-based database (WP3-NA3). From a practical point of view, the 3 installations of INRA-PEB can supply the users with: offices with internet connection, restauration services and accommodation (for users who need to stay several days for the experiments). Meeting rooms are also available with videoconference systems.</p>
<p>Animal types, diets, housing and experimental conditions that can be worked on in this infrastructure/installation:</p>	<p>The installations of INRA-PEB Le Pin is equipped to measure animal performance (weight, milk production and composition, body condition score) and individual intake (Biocontrol® automatic feeders). INRA-Le Pin covers 440 ha, of which 400 ha grazed and harvested (for silage, bailage and hay) and 40 ha are cropped for maize silage. Its dairy and wintering facilities are adapted for 1000 cattle. The research farm features a Dairy Division (260 dairy cows) and a Beef-cattle Division (130 Charolaise cows). All animals are genotyped and GreenFeed® systems (CH4 measurements) are available. In the Dairy Division, the breeding period is spread over 6 months. Wintering barns are arranged with a straw mulching lane, a straw area for cows, an alley and a feeding lane. Experimental batch management is made possible with pens. Twelve automatic concentrate feeders are used to monitor daily</p>

	<p>individual concentrate intake. The milking equipment consists of 2 times 15 rear-milking stalls with individual milk counters and double transfer. In the Beef-cattle Division, wintering barns are arranged with a straw mulching lane, a straw area for cows, an alley and a feeding lane. Experimental batch management is made possible with pens. A barn with 48 individual troughs is used to assess daily individual intake. Access to troughs works by recognition of electronic collars worn by the animals. Fodder is weighed with a cart equipped with an automatic scale.</p>
<p>Travel and subsistence costs:</p>	<p>A budget of up to €2,750 is available for travel and subsistence costs for up to 2 people from successful applicants to visit the INRA-PEB Le Pin to plan and participate in the work (reimbursements are up to €300 for travel and €100 daily for subsistence)</p>
<p>Infrastructure/installation ethical rules:</p>	<p>INRA-PEB submit researchers' protocols for authorization to the French Education, Research and Innovation Ministry* <i>via</i> a web platform (APAFiS platform). The Ethical Committees – which, in France, are local and multi-institutional in their composition and range of activities – have to provide an ethical opinion on the case. INRA-Le Pin is linked to the Rennes Ethical Committee (CREEA, registered as CEEA # 07).</p> <p>Process:</p> <ol style="list-style-type: none"> 1. Researchers contact INRA-PEB; 2. Researchers draft the APAFiS form, with help from INRA-PEB staff; 3. INRA-PEB submit the final APAFiS form on the Ministry web platform, and keep the researchers up to date with the progress of their file; 4. Ethical committee provides an ethical opinion; 5. If ethical opinion is favourable, French Ministry gives the project an authorization. <p>INRA-PEB complies with all the currently applicable French regulations** derived from the <i>Guidelines of the directive 2010/63/EU of the European Parliament and of the Council: Ethics in animal experimentation</i>. Internal procedures are defined and included into the quality management system, Internal functioning rules, prevention and ethical guidance, and protocol related procedures.</p> <p>* http://www.enseignementsup-recherche.gouv.fr/cid70598/l-encadrement-reglementaire-de-l-utilisation-d-animaux-a-des-fins-scientifiques.html</p> <p>** Décret n° 2013-118 du 1er février 2013 relatif à la protection des animaux utilisés à des fins scientifiques.</p>