INRA PEB (Pôle Expérimental Bovin / Bovine Experimental Pole)

Herbipôle – Theix, Ruminant Physiology

Research topics:	Location (town, country) of the infrastructure: Herbipôle, Theix, 63122 Saint-Genès Champanelle, France. Ruminant physiology studies. INRA-Herbipôle: http://www6.ara.inra.fr/herbipole/ The aims of the experiments conducted at the **INRA-Herbipôle** research farms deal with ruminant farming systems in grassland mountain areas, in connection with products qualities (meat, milk and cheeses) and environmental impacts (e.g. biodiversity, carbon fluxes). INRA-Herbipôle includes two locations: In Theix, ruminant physiology and ethology studies are conducted on 70 Holstein dairy cows (20 cannulated) and on fattening young cattle. Equipment for behaviour and digestive physiology analysis are also available. Herbipôle hosts one site of the ICOS EU infrastructure (Integrated Carbon Observation System, https://www.icos-ri.eu/) and is the support of French and European research projects.
Activities and services currently offered by the infrastructure/installation:	The installations of INRA-PEB Herbipôle Theix is equipped to measure animal performances (weight, milk production and composition, body condition score) and individual intake (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). Most of the INRA researchers using Herbipôle are based at INRA Auvergne-Rhône-Alpes and provide a strong expertise in ruminant nutrition, physiology and ethology. Expertise in grassland ecology and microbiology are also available. At **INRA-Herbipôle Theix**, the following devices are available for CH4 studies: 4 chambers for adult cows, 2 automatic head chambers (GreenFeed®) and SF6 tracer and breathe analysis technique. For digestion studies, 16 stalls for digestibility, rumen parameters, digestive and nutrient flow techniques are available. In Theix installation, dairy cows calve from October to December. During winter, they are housed in a cubicle barn and milked in a 2x6 milking-parlour with individual milk counters. Feeds can be measured individually with Dairy Gates® and automatic concentrate feeders. During the grazing period (mid-April to November), cows graze pastures near the barn according to a rotational grazing system. Open-days for farmers, students and public are held in the Herbipôle installations. Every year, around 1000 persons from research institutions, advisory services, farmers and students visit the installations.

Description of the access to be provided under SmartCow TNA calls:	Modality of access under this proposal: The unit of access for each installation is defined as one cow.week. One typical access for a project consists in 48 units of access for ruminant physiology studies in INRA-Herbipôle Theix. 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. Support offered under this proposal: In **INRA-Herbipôle**, 11 engineers and 80 technicians help the users to manage their projects. They are able to manage experiments on ruminants at different scales (from organ to the farming system) and pastures. A team of 5 technicians manages data and can design or adapt devices to record data automatically. They provide samples and data according to the users requirements. Two technicians are trained for surgical operations on ruminants' digestive tract. The slaughterhouse (EU certified) performs measurements on carcass and meat qualities. 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.
Animal types, diets, housing and experimental conditions that can be worked on in this infrastructure/installation:	**INRA-Herbipôle** includes two locations: Marcenat-Laqueuille installation (1000 to 1400 m a.s.l.) and Theix installation (850 m a.s.l.). For the Theix installation, the area is 150 ha of pastures of grasslands, of which around 30 ha can be laughed. Theix hosts 70 Holstein dairy cows (20 cannulated) and fattening young cattle. In Theix installation, dairy cows calve from October to December. During winter, they are housed in a cubicle barn and milked in a 2x6 milking-parlour with individual milk counters. Feeds can be measured individually with Dairy Gates® and automatic concentrate feeders. During the grazing period (mid-April to November), cows graze pastures near the barn according to a rotational grazing system. The following devices are available for CH4 studies: 4 chambers for adult cows, 2 automatic head chambers (GreenFeed®) and SF6 tracer and breathe analysis technique. For digestion studies, 16 stalls for digestibility, rumen parameters, digestive and nutrient flow techniques are available.
Travel and subsistence costs:	A budget of up to €4,800 is available for travel and subsistence costs for up to 2 people from successful applicants to visit the INRA-PEB Herbipôle Theix to plan and participate in the work

	(reimbursements are up to €300 for travel and €100 daily for subsistence)
Infrastructure/installation ethical rules:	INRA-PEB submit researchers' protocols for authorization to the French Education, Research and Innovation Ministry* *via* 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-Herbipôle is linked to the Auvergne Ethical Committee (C2E2A, registered as CEEA # 02). Process: 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. INRA-PEB complies with all the currently applicable French regulations** derived from the *Guidelines of the directive 2010/63/EU of the European Parliament and of the Council: Ethics in animal experimentation*. Internal procedures are defined and included into the quality management system, Internal functioning rules, prevention and ethical guidance, and protocol related procedures. * *http://www.enseignementsup-recherche.gouv.fr/cid70598/l-encadrement-reglementaire-de-l-utilisation-d-animaux-a-des-fins-scientifiques.html* ** *Décret n° 2013-118 du 1er février 2013 relatif à la protection des animaux utilisés à des fins scientifiques.*