

## IRTA

### EVAM - ESTACIÓ DE VACUM DE MONELLS/PLATFORM FOR STUDIES ON DAIRY COW FEED EFFICIENCY

(ES)

<b>Research topics:</b>	The EVAM research station of IRTA is located in Monells, Girona, Spain. The main objective of the station is to conduct studies on feed efficiency of dairy cows. Its mission is to evaluate management and nutritional strategies, which require recording individual feed intake of cows raised in groups, or controlling total mixed ration and/or concentrate intake. Studies that require to record feed intake, milk yield and its composition, animal welfare, and biochemical, immunological, hematological, microbial biomarkers and molecular studies can be conducted in the facilities.
<b>Activities and services currently offered by the infrastructure/installation:</b>	EVAM facilities are complemented with other IRTA laboratory facilities, which provide complementary services (forage management, milk analysis and milk technology development, organic residues management and analysis, animal welfare evaluations, and animal health). The facility has the following technologies: 90 individual feed bunk scales, 24 water bin scales, a precision feeding system in the milking parlor, on-line milk quality (fat and protein content) monitoring system in each milking point, double pipelines in the milking parlor, body weight scale, pedometers, and video-recording cameras. Several IRTA research groups can be involved in the projects conducted in EVAM: ruminant production, animal health, animal welfare, organic residues management, dairy technology, and extensive forage production departments. Five support personnel, one technician and a farm manager are the ones involved in the daily routines in the farm.
<b>Description of the access to be provided under SmartCow TNA calls:</b>	The unit of access is defined as one cow.day. On average each user or user group is expected to stay 90 days at the infrastructure, and one typical access consists of 5,400 units of access. Every unit access includes the personnel work of running a study (R+D, support, and administrative personnel), the cost of animal maintenance (feed, drug), the cost of equipment maintenance, the cost of milk (CP and fat) and feed chemical analysis, and the cost of energy and water supplies. During the access, users can use 60 dairy cows, and feed several TMR. Animals will receive their diet in the feed bunk and a supplementation (if required) in the milking parlor. The effects of the different diets will be evaluated on feed efficiency recording individual feed intake and feed composition, individual milk yield, and CP and fat milk composition in a dairy herd managed in a free stall facility. Data to evaluate the feeding and lying behavior will be also provided. Furthermore, if the user wants to obtain other samples (blood, rumen liquid...), it can be made available out

	<p>of the budget proposed for this project previous approval from the animal care committee.</p>
<p><b>Animal types, diets, housing and experimental conditions that can be worked on in this infrastructure/installation:</b></p>	<p>Studies will be done with Holstein dairy cows.</p> <p>Users can do up to three different TMR diets, and diet supplements can be offered in the milking parlor (up to 1 kg supplement per milking)</p> <p>The infrastructure can host 120 milking cows. The animals are managed in a free stall facility with cubicles and distributed in 6 pens of 20 cows in each one. The farm is equipped with a milking machine that can record very precisely in each milking milk yield, and milk composition (fat and protein). Furthermore, in the milking parlor, it is possible to supplement dairy cows with a concentrate feed according to their body weight, basal feed intake, milk yield, and milk composition. In the feed bunk, there are individual electronic bins that are able to identify each cow and to record feeding behavior (kg DM intake, number of meals per day, meal duration, ...). Furthermore, these feeders are locked and only some cows are granted permission to eat the feed of specific feed bins (treatment). Therefore, cows from different treatments are able to be located in the same pen (thus the experimental unit is cow; the smallest unit where treatment is applied). Cows are identified with a pedometer that allows the researcher to study the lying behavior and cow's heat detection.</p>
<p><b>Travel and subsistence costs:</b></p>	<p>According to IRTA rules, travel and subsistence costs of applicants can be reimbursed on production of original receipts. Train or flight tickets can be also directly ordered by IRTA for the successful applicants.</p>
<p><b>Infrastructure/installation ethical rules:</b></p>	<p>IRTA follows the European Regulations for the Use of Animals in experimental procedures and complies with current regulations established in Europe, in the Spanish State and the Autonomous Community of Catalonia. All experimental procedures carried out in this project will be conducted under experimental license according to the Spanish and European legislation and issued by the Spanish Ministry and the Autonomous Community Department. All animal experiments will be approved by the local Animal Research Ethics Committee at IRTA. EVAM facilities are registered in the Catalan Ministry of Agriculture, Livestock, Fisheries, Food and Environment as an Experimental Centre with the number GI-9900017, plus it has a protocol approved by Ethics Commission in Animal Experimentation of the Generalitat de Catalunya for each animal specific experimentation. Besides, approval of the specific procedures from this proposal by the Ethical Committee of IRTA will be ensured. The ethical issues will be implemented by trained personnel in animal experimentation, taking especial care to avoid unnecessary suffering. Each experiment has a protocol that establishes the correct manipulation of the animals and end points for euthanasia.</p>