

Postdoctoral research: Renovation of INRAE's concepts for predicting ruminant feed intake

The French National Research Institute for Agriculture, Food, and the Environment (INRAE) is a public research establishment gathering a community of 12,000 people with more than 270 units including fundamental and experimental research, spread out throughout 18 regional centres in France. Internationally, INRAE is among the top research organisations in agricultural and food sciences, plant and animal sciences, as well as in ecology and environmental science. It is the world's leading research organisation specialising in agriculture, food and the environment. Faced with a growing world population, climate change, the depletion of resources and declining biodiversity, the Institute has a major role to play in providing the knowledge base supporting the necessary acceleration of agricultural, food and environmental transitions, to address the major global challenges.

Work environment, missions and activities

You will work in the Herbivores joint research unit (UMR). The mission of this unit is to produce, integrate and disseminate knowledge, and share expertise to design multi-performing herbivore farming systems that meet the challenges of global change (environmental, socio-economic and digital transition). The unit has 118 permanent staff and welcomes 70 non-permanent staff each year. It is organized into 4 research teams, a management team and a support team.

You will work within the DINAMIC team, alongside the scientist coordinating the project entitled 'Renovation of INRAE's ruminant intake prediction system (IRM3)'. This project, supported by INRAE's Animal Physiology and Livestock Systems Division (PHASE), brings together a group of scientists from the Herbivores (Clermont-Ferrand/Theix), Pegase (Rennes), MoSAR (Paris-Saclay), Selmet (Montpellier) and ASSET (Guadeloupe) research units, and the Herbipôle (Clermont-Ferrand/Theix) and Ferlus (Lusignan) experimental units. It is led by the Herbivores and Pegase research units.

The INRAE System of Fill Units makes it possible to predict the intake of ruminants (cattle, sheep, goats) and is the starting point for calculating nutrient requirements and supply in a diet. This system has several scientific limitations (e.g. inaccurate intake predictions for certain categories of animals and diets, failure to take climatic factors into account) and operational limitations (e.g. system not functional in hot regions, grazing predictions only functional for dairy cows). The objective of the IRM3 project is to renew the ruminant intake prediction system to better take into account new feeding practices linked to the agroecological transition and the adaptation of livestock systems to climate change. This revision will be based on three concepts: 1) Multi-animal, by unifying the system between species and categories of ruminants to more easily establish generic response laws on intake; 2) Multi-feed, by unifying the method of calculating fill effect for all types of feed, considering a continuum between forage, fibrous co-products and concentrated feed; and 3) Multi-environment, taking into account environmental conditions (particularly climatic conditions), as well as animal breeds and plant species in warm countries, in order to make the intake prediction system functional in temperate and hot contexts (Mediterranean, dry tropical or humid tropical).

Your mission will consist, in collaboration with the INRAE teams involved, of establishing 'multi-animal, food and environment' response laws for predicting intake in ruminants and testing them against existing data (literature and INRAE database) in order to refine approaches and models for predicting intake in ruminants.

You will be specifically responsible for:

- Analysing the literature and formalising new 'multi' concepts relating to animals, food and environments.
- Establishing and calibrating response laws derived from the new concepts using the INRAE ingestion database:
 - o Sub-sets of the global database will be identified to test the new concepts separately, then their aggregation will be undertaken progressively
 - o Simulations of intake forecasts will be compared with those of the current INRAE system of Bulk Units (internal tool SIRAR, model INRA2018 and INRAtion v5).
- Dissemination of the work in the form of one or more scientific publications and presentations at national and international conferences

Special conditions of activity: The main activity involves analysing literature and data and developing intake prediction models as part of a group of scientists. Regular participation in videoconference meetings and occasional travel within France and Europe.

Training and skills sought

Recommended training: PhD in animal sciences obtained less than 3 years ago

Desired knowledge: Animal science, animal nutrition, data processing and statistical analysis (multiple regression in particular), written and spoken English at C1 level

Appreciated experience: Use of feeding systems for ruminants (French INRA2018 or from other countries), Statistical modelling (regression techniques)

Skills: Writing skills, autonomy, initiative.

INRAE's life quality

By joining our teams, you benefit from (depending on the type of contract and its duration):

- up to 30 days of annual leave + 15 days "Reduction of Working Time" (for a full time);
- parenting support: CESU childcare, leisure services;
- skills development systems: training, career advise;
- social support: advice and listening, social assistance and loans;
- holiday and leisure services: holiday vouchers, accommodation at preferential rates;
- sports and cultural activities;
- collective catering.

Contract details

- Hosting unit name: **UMR Herbivores**
- Postal code and city workplace: **63122 St Genès Champanelle**
- Type of contract: **Postdoctoral contract**
- Duration: **18 months**
- Starting date: **1st February 2026**
- Remuneration: **3 135€ gross monthly salary**

How to apply

Please send a cover letter and CV by e-mail to:

René Baumont – rene.baumont@inrae.fr

and

Rémy Delagarde – remy.delagarde@inrae.fr

✗ Deadline to apply: 22nd November 2025

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