

PhD position: environmental footprint of food products

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

Are you looking to contribute to addressing the challenges raised by the ecological transition and the preservation of the environment? Do you have a strong interest in science, knowledge production, the search for sustainable alternatives to our lifestyles, and the prospect of deriving meaning from this work in order to support sound decision-making? Then this position is for you.

You will be working in FOODTURE, a European research and innovation project redefining how we understand and improve our food systems. FOODTURE brings together 20 partners from 9 different countries (<https://foodture-project.eu>). It develops and validates enhanced Life Cycle Assessment (LCA) methodologies, moving beyond generic data to deliver more reliable results on the environmental impact of food products consumed in Europe.

The environmental impact of a food product results from all stages involved: agriculture, processing, transport, packaging, consumption, and waste management. The objective of this PhD is to quantify the footprints of products at a large scale and to explore variability between and within food product categories. This work will be based on the collaborative OpenFoodFacts database, which includes more than 4 million products, available environmental data (e.g. Agribalyse), and recipe estimation models such as [1]. Ultimately, this work will lead to a better understanding of the impacts of our food. The originality of the project lies in the volume of data to be mobilised, which will require careful consideration of data quality in the statistical processing to be carried out, including the management of uncertainties and outliers.

You will be based in the ITAP research unit (joint INRAE – Institut Agro Montpellier unit, 10 minutes by bike from the city centre and railway station), with the possibility of remote working up to 3 days a week. The PhD will be supervised by Arnaud Hélias (<https://itap.inrae.fr>).

You will be more specifically in charge of:

1. State-of-the-art of environmental footprints of food products
2. Implementation of a workflow for the automated construction of environmental impacts for food products from the OpenFoodFacts database
3. Identification of representative product archetypes for food categories
4. Characterisation of these impacts and their variability across categories, in order to identify levers for action
5. Dissemination and communication of results

[1] G. Coste and A. Hélias, "PEFAP : estimating the environmental footprint of foodproducts from packaging data," *J. Open Source Softw.*, vol. 7, no. 73, p. 3329, May 2022, doi: 10.21105/joss.03329.

Training and skills sought

Recommended training: Master's or Engineering degree in environmental or data science

Knowledge required in several of the following areas: data processing, statistical analysis, system modelling, programming tools (preferably Python), environmental assessment methods, LCA, food engineering

Skills sought: organisation, autonomy, interest in interdisciplinary work

Excellent written and spoken English is required (French is not a prerequisite)

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 ITAP
- Postal code and city workplace: 34060, Montpellier, France
- Type of contract: PhD position
- Duration: 36 months
- Starting date: early 2026
- Remuneration: 2,300€ gross monthly

How to apply

Please send a cover letter and CV.

By email : arnaud.helias@inrae.fr

✗ Deadline to apply: 09/01/2026

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