# JOB OFFER - postdoc

**Modelling vineyard adaptations to climate change**

*The French National Research Institute for Agriculture, Food, and the Environment (INRAE) is a public research establishment. It is a community of 12,000 people with more than 200 research units and 42 experimental units located throughout France. The institute is among the world leaders in agricultural and food sciences, in plant and animal sciences, and is 11th in the world in ecology and environment. INRAE's main goal is to be a key player in the transitions necessary to address major global challenges. In the face of the increase in population, climate change, scarcity of resources and decline in biodiversity, the institute develops solutions for multiperformance agriculture, high quality food and sustainable management of resources and ecosystems.*

## WORKING ENVIRONMENT AND ACTIVITIES

- You will be welcomed in joint research unit "Ecophysiology and Functional Genomics of grapevine" (UMR EGFV) located in the surrounding area of Bordeaux. The EGFV gathers a wide range of interdisciplinary skills, from agronomy and ecophysiology to molecular biology, through plant physiology, biochemistry and genetics. Different projects are studying the functioning of grapevine in interaction with its environment and the factors determining the quality of grape berries. The general aims are the adaptation of viticulture to present and future challenges, noteworthy climate change. The EGFV joint research unit offers high-quality scientific and technical environment. https://www6.bordeaux-aquitaine.inrae.fr/egfv/. You will also collaborate with research unit INRAE « URP3F » (https://www6.nouvelle-aquitaine-poitiers.inrae.fr/urp3f/) in Lusignan, under supervision by Didier Combes, and grapevine experimental unit (UEVB) of INRAE near Bordeaux (https://www6.bordeaux-aquitaine.inrae.fr/uevb).

The post-doc position will be associated with the "MAIA" (funded by the region of Nouvelle Aquitaine) and "SOLUBIOD" (funded by France 2030 https://www.pepr-solubiod.fr/) projects which both focus on developing agroecological solutions to increase resilience of agroecosystems in the face of climate change. These projects are broad, with work packages addressing issues across many crops and agricultural contexts. Within these projects one of the primary goals is focused on increasing our ability to accurately model vineyard adaptations to climate change. The objective of this postdoctoral research is to use modeling to gain insight into the pleiotropic effects of applying specific management strategies to ameliorate performance under climate change scenarios at the parcel and regional scales. Numerous projects to date have suggested particular management adaptations (for example decreased planting density, vineyard floor and/or soil management, agroforestry, etc.) that we can imagine could increase resilience in the face of particular environmental stresses (most notably increased high temperatures and droughts). However, we currently lack a detailed, quantitative understanding of the probable impacts of these management strategies. Therefore, the postdoctoral researcher will be expected to utilize existing plant models, most notably STICS (but other models can be considered such as GrapevineXL or SUREAU), to simulate changes in management to better understand their impacts.

- You will be responsible for:

  - synthesizing the state of knowledge regarding the use of STICS to model grapevine adaptation to climate change;
  - imagine, define, and reach specific research objectives within the framework of the MAIA and SOLUBIOD projects; specifically to utilize; existing plant models to accurately predict the pleiotropic

effects of applying specific management strategies to ameliorate vineyard performance under climate change scenarios.
- participate with a team of modelers in improvement of the models being used in order to increase their accuracy and/or adapt them to address specific questions;
- participate in the publication of notable results;
- participate in the animation of the MAIA and SOLUBIOD projects, the supervision of trainees, and communication (conference presentations, etc.)

- Special conditions of activity: various activities are implied: bibliography, data analysis, modeling (computer-aided, R, Excel, programming/coding) but also field or laboratory work.

## TRAINING AND SKILLS REQUIRED

- Recommended training: PhD in crop *x* climate modelling; preferably with some experience with perennial species working in the context of environmental stressors.
- Desired knowledge: plant modelling (ideally experience working with fruit crop models), climate modeling, metrology, agronomy, statistics.
- Experience appreciated: previous experience in the above fields, modelling, scientific publications.
- Skills sought: rigor, autonomy and interest in research, teamwork, critical analysis, but also data analysis and visualization, some experience with field experimentation, and an understanding of the physical basis of ecophysiology. Experience coding in different languages such as Python/Fortran/R/etc.

## INRAE'S LIFE QUALITY

By joining our team, you benefit from (depending on the contract):

- up to 30 days of leave + 15 RTT per year (for full-time);
- parenting support: CESU childcare, leisure services;
- skills development schemes: training, career guidance, counselling;
- 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.

## ↘ Reception modalities

- Unité: Unité Mixte de Recherche 1287 EGFV (Ecophysiologie et Génomique Fonctionnelle de la Vigne)
- Zip code + city: 33140 VILLENAVE D'ORNON
- Type of contract : postdoctoral position
- Duration: 36 months
- Entry date: Early 2025, to be negotiated
- Gross monthly remuneration: according to experience (from 2600€ gross/month)

## ↘ How to apply

Send **cover letter** and **CV** to:
Prof. Gregory Gambetta and Dr. Clément Saint Cast

- by e-mail :
  gregory.gambetta@agro-bordeaux.fr
  clement.saint-cast@inrae.fr

✖ **Application deadline: 29/11/2024**