

Research engineer position in agronomy and phytochemistry

44 months

(from 01/09/2024 to 30/04/2028)

Interreg France-Wallonie-Vlaanderen

TOMORR'HOP - The resilience of hops in a context of climate change and agroecological transition

Location: UMRt BioEcoAgro 1158, University of Lille, Faculty of Pharmacy, Lille (France)

<https://www.bioecoagro.eu/>

Situated in Lille, northern France, UMRt BioEcoAgro offers a vibrant interdisciplinary research environment in the field of plant sciences, phytochemistry, agro-food and biotechnology with dedicated equipment.

Background:

Hops have been historically grown in the Hauts-de-France region for brewing beer. The recently renewed interest in this representative product of the region has led to research on its properties in human and plant health in our team, as well as into the diversity of wild hops (see references below). This project aims to continue on this theme while opening up prospects for agronomic development that meets the expectations of the hop growers of Hauts-de-France and Belgium in the face of climatic change but also meet the expectations of brewers and beer connoisseurs.

Project description:

Over the past years, it has become evident that hop cultivation is strongly affected by the changing climate. Particularly, drought and sometimes extreme temperatures during the growing season have a detrimental impact on hop yields. Additionally, climate change and rising temperatures also affect the spread of pests and the development of diseases. Furthermore, growers are increasingly aware of the need to implement sustainable cultivation techniques to mitigate global warming.

To address all these challenges, hop growers on both sides of the border (France-Belgium) are actively seeking innovative cultivation techniques. To minimize the difficulties in transitioning to these new cultivation techniques, growers need support to secure their businesses, as many questions remain unanswered regarding the feasibility, application, effectiveness, cost, etc., of these new techniques.

Through this project, cross-border cooperation is supported with the aim of development and the promotion/demonstration of innovative cultivation techniques for a more resilient and sustainable hop cultivation in a changing climate.

To adapt hop cultivation to the risks associated with climate change, innovative cultivation techniques will be explored to prevent water and heat stress in hops, and the most suitable techniques will be identified. Several techniques will be selected and applied on practical hop fields in the border region. The impact of these different techniques will be objectively assessed, including their effect on crop temperature and plant water management. The impact of irrigation on the development and promotion of potential hop diseases will also be examined, as well as its impact on hop yield and quality. With a view to the rational use of water resources, the minimum amount of water required by hops in the border region and the best times for its availability to the hop plant will also be quantified.

Field trials with sustainable cultivation techniques will be conducted on one or more fields to measure their impact through observations of yield, quality, and effects on soil life. The targeted themes include also sowing cover crops, the presence of beneficial insects in relation to pest insects, and reducing the drift of crop protection products.

Based on the results of this project, the aim is to offer hop growers in the border region a collectively developed innovative solution.

Keywords:

Hop (*Humulus lupulus*), climatic change, agronomy, phytochemistry

Eligibility:

The desired candidate must have a solid interest in plant sciences, and preferentially have already worked in plant models with notions in agronomy. The candidate will have to master techniques in phytochemistry and in vitro cultivation. The candidate must have completed training in organic hop cultivation and experience in the field. The candidate must have solid knowledge of botany in order to be able to interact with our partner on the monitoring of plants and insects associated with hop crops. The candidate must have good knowledge and experience of brewing in order to interact with our brewing partners and beer sensorial analysis partners. The candidate must have established knowledge of the brewing and hop growing environment in the Haut-de-France region. He/she will be required to travel to the various experimental sites and therefore have a driving licence and a car. The candidate must also have excellent communication skills in written and spoken French and English and a team spirit to integrate and to interact with different partners. Indeed, soft skills will be essential to interact with numerous partners from diverse professional backgrounds at different hierarchical levels: students and researchers from universities and the private sector, agronomists, brewers, farmers, technicians and engineers from institutions such as chambers of agriculture. In summary, he must have good experience in organizing results-oriented multi-partner projects in the field considered.

How to apply:

Application must include your more recent (and relevant) certificate, a CV, a short motivation letter and the email address of at least one referee before the 24 of August 2024.

Application should be sent to Professor Céline Rivière: celine.riviere@univ-lille.fr

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References:

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