



**HAL**  
open science

# Predicting the spore infection depending on climate to model the *Heterobasidion annosum* dynamics in even-aged *Pinus pinaster* stands: results from FORRISK project

Céline Meredieu, Didier Bert, Xavier Capdevielle, Thierry Labbé, Gilles Saint-Jean, Raphael Segura, Brigitte Lung

## ► To cite this version:

Céline Meredieu, Didier Bert, Xavier Capdevielle, Thierry Labbé, Gilles Saint-Jean, et al.. Predicting the spore infection depending on climate to model the *Heterobasidion annosum* dynamics in even-aged *Pinus pinaster* stands: results from FORRISK project. 24. IUFRO World Congress, Oct 2014, Salt Lake City, United States. 22 p. hal-02801674

**HAL Id: hal-02801674**

**<https://hal.inrae.fr/hal-02801674v1>**

Submitted on 5 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

*Title of the paper (less than 20 words long): should clearly summarize the topic of the abstract.*

Predicting the spore infection *depending on climate to model the Heterobasidion annosum dynamics* in even-aged *Pinus pinaster* stands

*Name, organizational affiliation and email address of each author.*

Celine Meredieu, INRA, UMR1202 BIOGECO, [Celine.Meredieu@pierroton.inra.fr](mailto:Celine.Meredieu@pierroton.inra.fr) (

Didier Bert, INRA, UMR1202 BIOGECO, [Didier.Bert@pierroton.inra.fr](mailto:Didier.Bert@pierroton.inra.fr)

Xavier Capdevielle, INRA, UMR1202 BIOGECO, [Xavier.Capdevielle@pierroton.inra.fr](mailto:Xavier.Capdevielle@pierroton.inra.fr)

Thierry Labbé, INRA, UMR1202 BIOGECO, [Thierry.Labbe@pierroton.inra.fr](mailto:Thierry.Labbe@pierroton.inra.fr)

Raphaël Segura, INRA, UMR1202 BIOGECO, [Raphael.Segura@pierroton.inra.fr](mailto:Raphael.Segura@pierroton.inra.fr)

Gilles Saint-Jean, INRA, UMR1202 BIOGECO, [gilles.saint-jean@bordeaux.inra.fr](mailto:gilles.saint-jean@bordeaux.inra.fr)

Brigitte Lung-Escarmant, INRA, UMR1202 BIOGECO, [Lung@bordeaux.inra.fr](mailto:Lung@bordeaux.inra.fr)

*Key words or phrases (up to 5).*

Risk, forest management, Heterobasidion annosum, Pinus pinaster

*Main text of abstract (170-200 words).*

Over the past 30 years, in the Landes de Gascogne forest (maritime pine; one million hectares), Heterobasidion root disease has increased its distribution. A previous study showed that it occurs more frequently in well-drained sites than in humid and dry, sandy soils.

Understanding how the forecast increase in warm dry summers and wet winters along the Atlantic coast of France will change the incidence of the pathogen is crucial for integrating the losses and managements costs against this disease. In order to investigate the intra-annual climate variability, a three-year experiment was carried out on air-borne infection. H.

annosum spore deposition was monitored on freshly cut wood discs exposed during 24h.

Another key point concerns growth losses in trees depending on annual and individual growth rate. Diameter growth loss was investigated by analyzing annual growth increment of pairs of healthy trees vs. infected trees during few years. After implementation of these results into a model, simulations were carried out with different levels of infected stumps.

The model provides a means of incorporating the impact of root disease into the future forest planning.

## **Division 7 – Forest Health**

**Session 8 : Modeling as a tool for improving the knowledge on forest vulnerability and risk exposure in a changing world**