



**HAL**  
open science

## Assessing the risk of resistance selection towards Qil fungicides in *Zymoseptoria tritici*

Guillaume Fouche, Anne-Sophie Walker, Sabine, Helma S. H. Fillinger-David, Brigitte Meunier, David Young

► **To cite this version:**

Guillaume Fouche, Anne-Sophie Walker, Sabine, Helma S. H. Fillinger-David, Brigitte Meunier, David Young. Assessing the risk of resistance selection towards Qil fungicides in *Zymoseptoria tritici*. Journées Jean Chevauchon JJC2018 - 12èmes Rencontres de Phytopathologie & Mycologie,, Jan 2018, Aussois, France. , p.65, 2018. hal-02787513

**HAL Id: hal-02787513**

**<https://hal.inrae.fr/hal-02787513>**

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.

PO05

**Assessing the risk of resistance selection towards Qil fungicides in *Zymoseptoria tritici*.**

Guillaume Fouché<sup>1,3</sup>, Anne-Sophie Walker<sup>1</sup>, Sabine Fillinger<sup>1</sup>, Brigitte Meunier<sup>2</sup> and David Young<sup>3</sup>

<sup>1</sup> INRA UMR 1290 Biologie et Gestion du Risque (BIOGER), Avenue Lucien Brétignières, BP 01 78850 Thiverval-Grignon, France

<sup>2</sup> CNRS Institute for Integrative Biology of the Cell (I2BC), Avenue de la Terrasse, 91198 Gif-sur-Yvette, France

<sup>3</sup>Dow Agrosiences Research Center, Indianapolis, USA

email: [guillaume.fouche@inra.fr](mailto:guillaume.fouche@inra.fr)

*Zymoseptoria tritici* is responsible for leaf blotch disease on wheat that represents the first threat for wheat production in Europe today. Consequently, following the intensive use of chemical control, fungicide resistance was selected and generalized for several modes of action (Leroux et al. 2007; Leroux & Walker 2011), leading to poor efficacy in the field. Towards this threat, the development of compounds with new modes of action is a priority. Among these, new molecules targeting the cytochrome bc1 (complex III of the mitochondrial respiration), at the Qi binding site are being developed. In this context, this poster will present the objectives and approaches of a beginning PhD (2018-2021), aiming to address the following questions: what are the most probable resistance mechanisms to Qils in *Z. tritici*? What characteristics would the resistant strains present? And what are the most effective anti-resistance strategies? In order to answer these questions, we will produce strains of *Z. tritici* resistant to Qils, using experimental evolution, to study the resistance at a genetic and a biochemical level, before measuring their fitness and competitiveness and comparing the sustainability of anti-resistance strategies. We will also decipher the impact of active drug efflux and activation of the alternative oxidase (AOX) pathway on Qil resistance.

Leroux P. *et al.*, 2007, Pest Management Science 63, 688-698.

Leroux P. *et al.*, 2011, Pest Management Science 67, 44-59.