



**HAL**  
open science

# Mycotoxins throughout the life cycle of a wheat grain. A case study of organic farming with on-farm storage and processing

Camille Vindras-Fouillet, Marie-Hélène Robin, François Brionnet, Frédéric Bigey, Delphine Sicard, Jean-Michel Savoie

## ► To cite this version:

Camille Vindras-Fouillet, Marie-Hélène Robin, François Brionnet, Frédéric Bigey, Delphine Sicard, et al.. Mycotoxins throughout the life cycle of a wheat grain. A case study of organic farming with on-farm storage and processing. 43rd Mycotoxin Workshop, May 2022, Toulouse, France. hal-03727947

**HAL Id: hal-03727947**

**<https://hal.inrae.fr/hal-03727947>**

Submitted on 19 Jul 2022

**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.

## **Mycotoxins throughout the life cycle of a wheat grain. A case study of organic farming with on-farm storage, processing and marketing**

Camille Fouillet-Vindras<sup>1</sup>, Marie-Hélène Robin<sup>2</sup>, Gwénaëlle Jard<sup>2</sup>, Francois Brionnet<sup>3</sup>, Maria Paula Arias Benavides<sup>4</sup>, Lauriane Mietton<sup>5</sup>, Pierrick Prangère<sup>3</sup>, Ella Vannieuwenhuysse<sup>5</sup>, Frédéric Bigey<sup>5</sup>, Delphine Sicard<sup>5</sup>, Jean-Michel Savoie<sup>4\*</sup>

<sup>1</sup>ITAB, Etoile sur Rhône, France

<sup>2</sup>EI Purpan, Toulouse

<sup>3</sup>ENILIA-ENSMIC, Surgères, France

<sup>4</sup>INRAE UR MycSA, Bordeaux, France

<sup>5</sup>INRAE UMR SPO, France

\*corresponding author: jean-michel.savoie@inrae.fr

Knowing what it happens with mycotoxins throughout the grain production chain from the field to the final product, is a challenge for small-scale organic growers who store and process their wheat grains production on the farm. This is the topic of the French research program Myco3C. Preliminary data on mycotoxin concentrations and fungal species present in grains harvested in 2020, stored for about 6 months, milled and transform into bread are presented. Grains from 13 out 39 fields located in different French regions contained TCTBs, but none reached the regulated maximum limits of the European legislation. They came mainly from Southwestern France, having a wet climate at spring, and they had followed maize or soya crop in the previous year. Sub-optimal storage conditions (spots of high level of humidity at temperatures > 20°C) were applied to a set of grains for allowing OTA contamination. Grains were transformed into flour with stone mill and cylinder mill, and bread was produced using either 3 sourdoughs or a yeast starter. Changes in mycotoxin concentrations and in the mycobiota during bread making were analysed and discussed.