

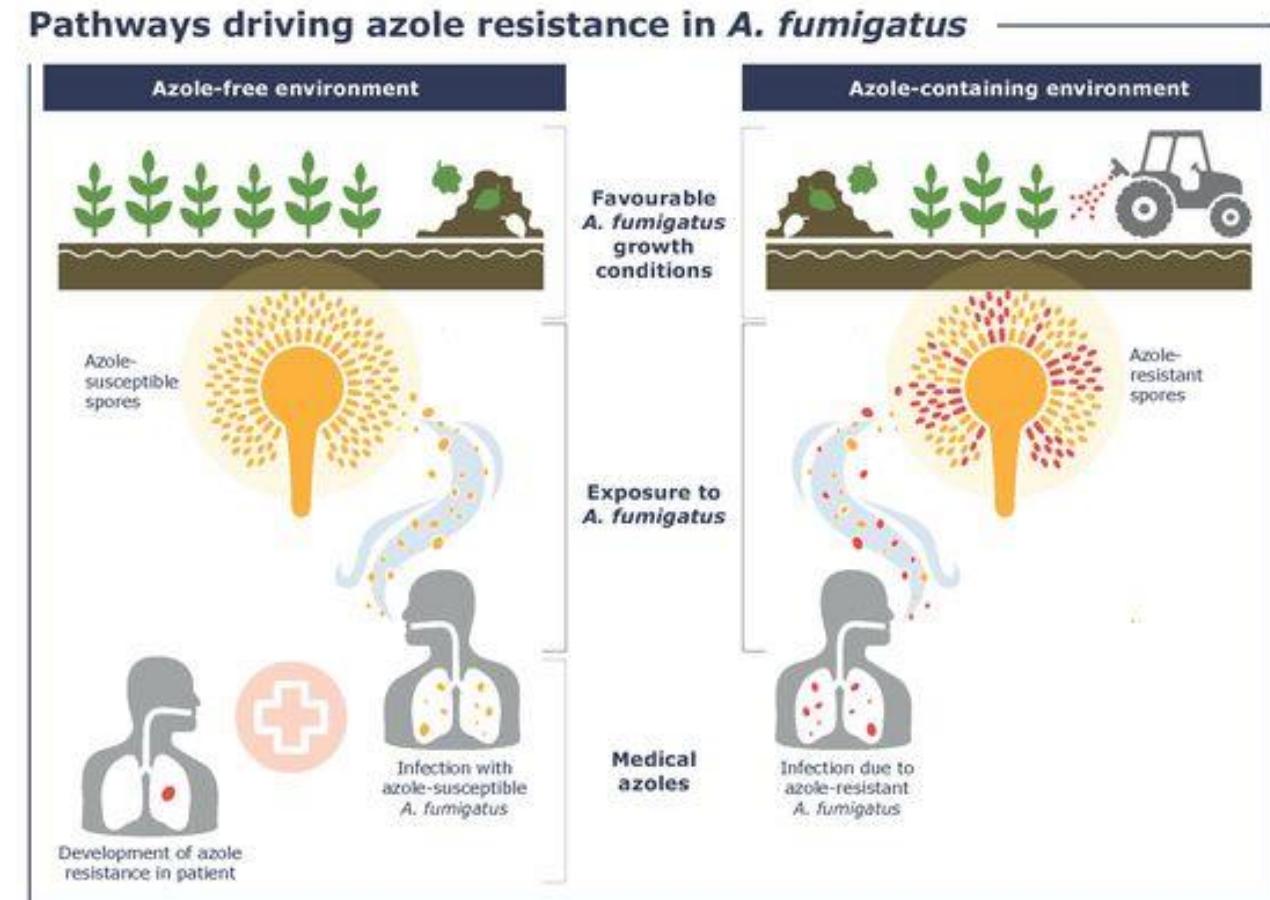
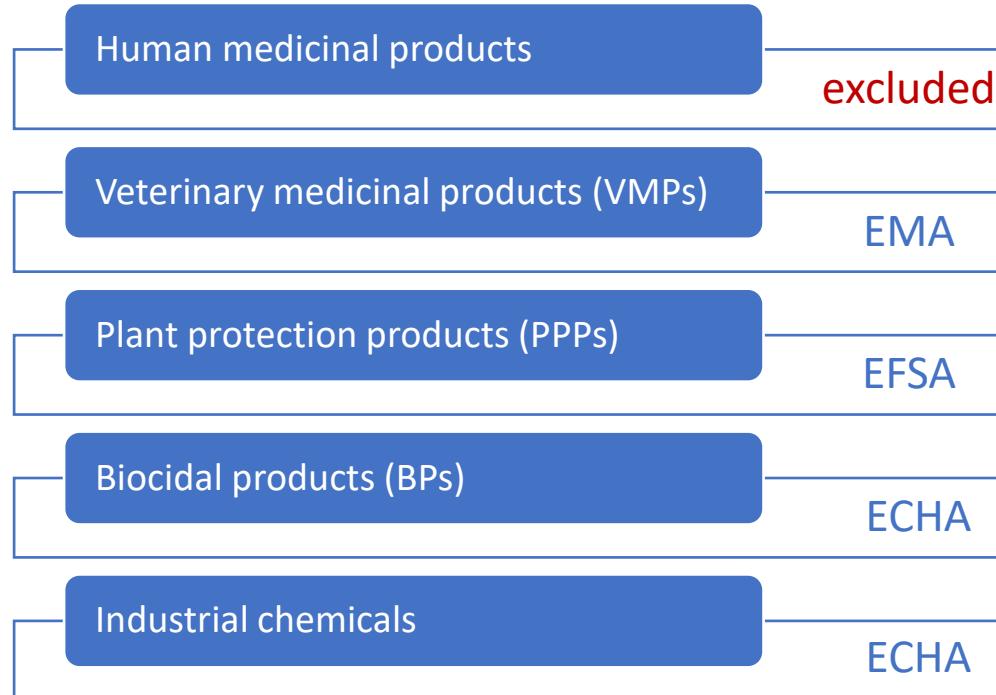


# ONE HEALTH INTERAGENCY REPORT ON AZOLE RESISTANCE IN *ASPERGILLUS SPP.*

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EFSA Advisory Forum  
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# BACKGROUND

Azoles are broad-spectrum antifungals:



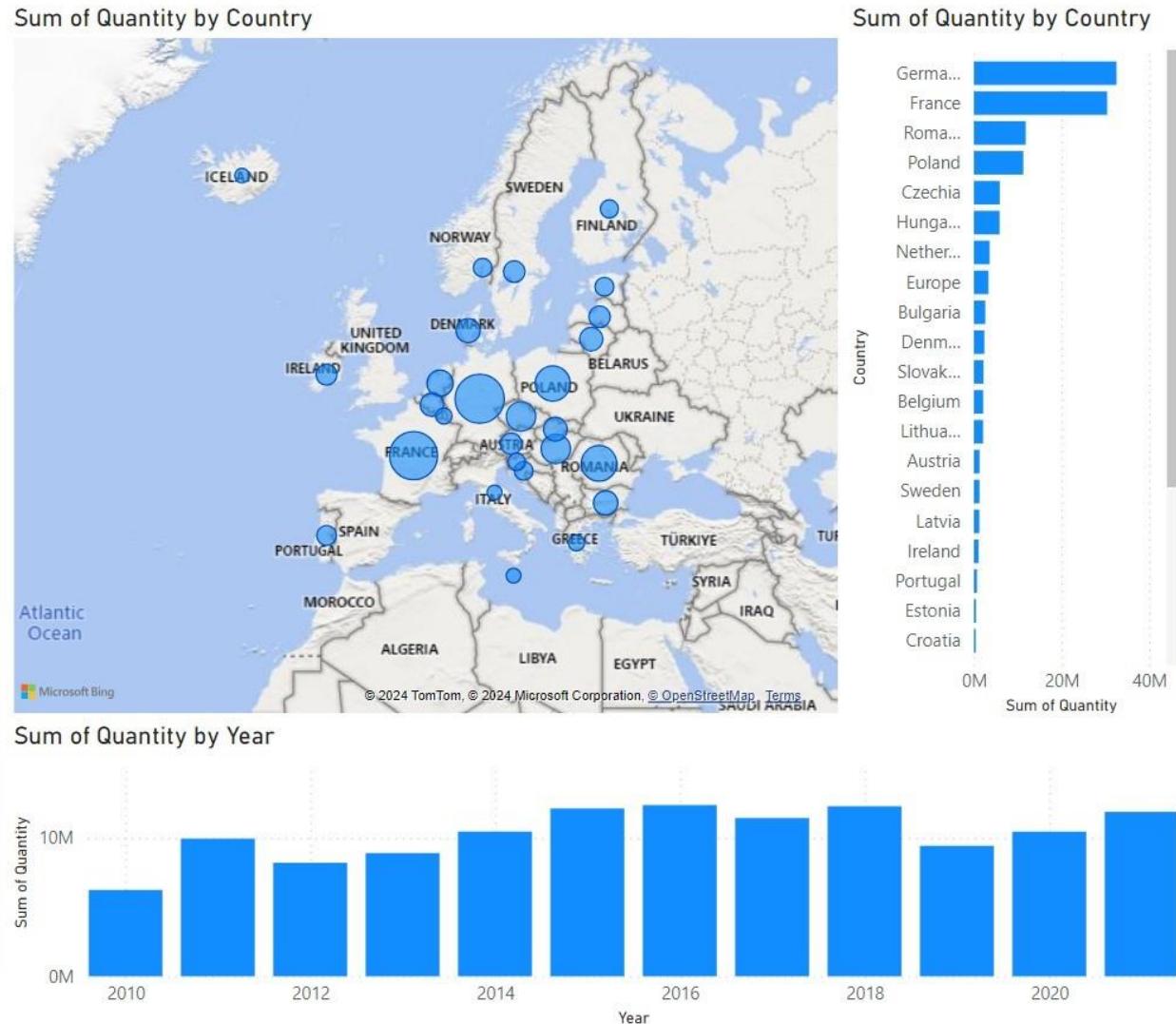
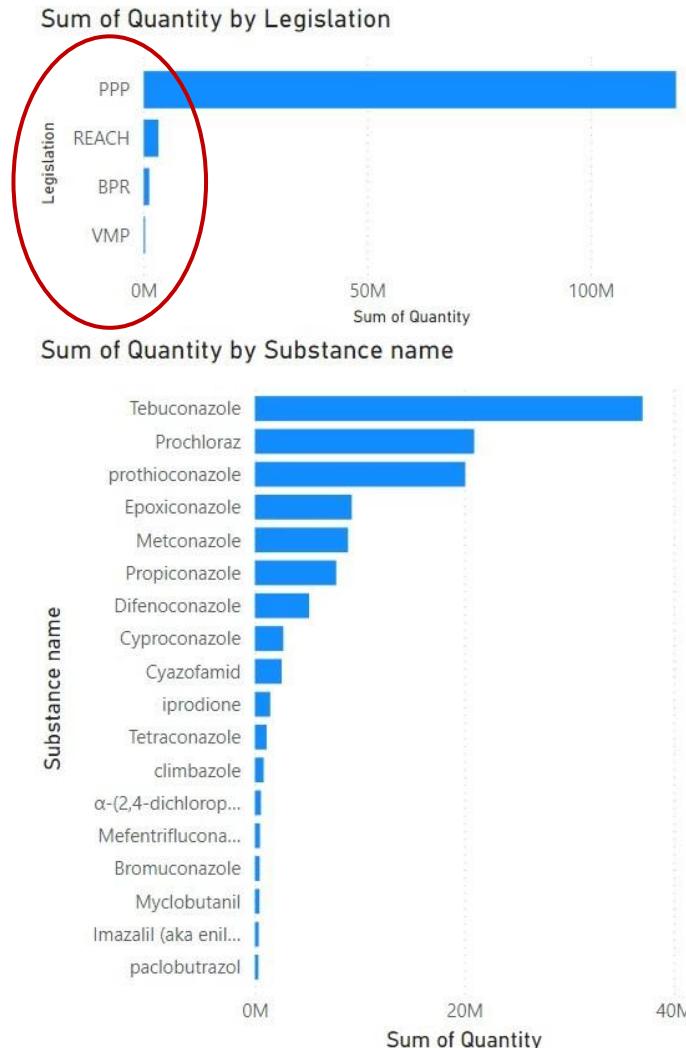
- Azole resistance in *A. fumigatus* high in Europe:

	<b>Invasive aspergillosis</b>	<b>Chronic pulmonary aspergillosis</b>	<b>Allergic bronchopulmonary aspergillosis</b>
Prevalence (ARAf/Af)	0.7 – 63.6%	5.9 – 59.2 %	0.7 – 63.6 %
Mortality	36-100%		less documented

- Substantial evidence supports a **link between azole fungicide exposure in the environment and cross resistance selection to medical azoles** in *Aspergillus* species
- Evidence supports hypothesis that transmission of ARAf occurs **from the environment to humans**
- **Aazole usage outside the human domain is likely or very likely to contribute** to the selection of ARAf isolates that could cause severe disease such as IA, but the extent of this contribution needs to be better understood

# USE OF AZOLE FUNGICIDES

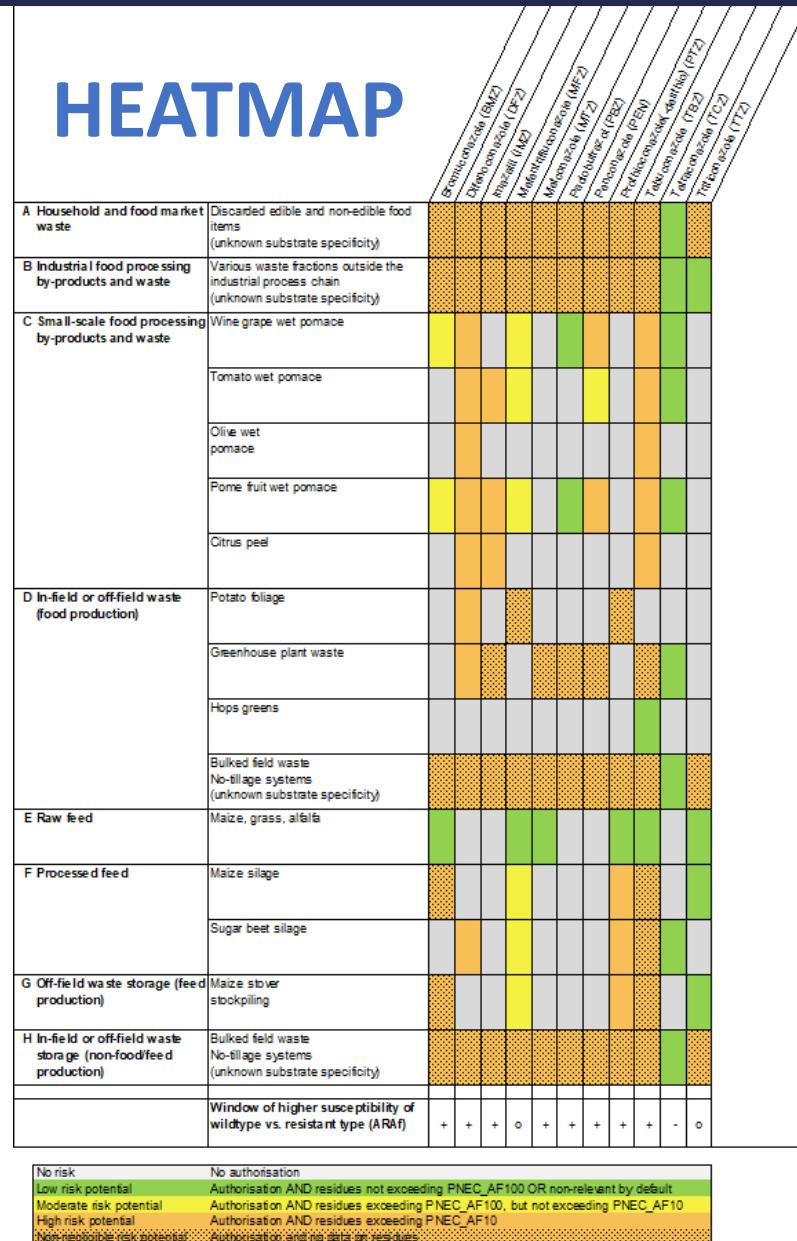
- Overall 2010-2021
- Total 120,000 tonnes
- PPPs 119,000 tonnes
- Only indicative, please note data limitations



# ENVIRONMENTAL HOTSPOTS



## HEATMAP



## Environmental hotspots identified:

### PPPs

stockpiling of agricultural waste and their possible use as soil amendment or fertiliser for several agricultural crops

### BPs

freshly cut wood

## Agriculture

- thoughtful use of azole fungicides
- promoting best practices for waste management and soil fertilization as well as further research

## Biocides use

- optimise concentrations of azole fungicides when treating wood
- ensure proper wood waste management

## Human medicine

- enhanced disease diagnostics
- surveillance
- increased awareness of this topic

## Research and development

- developing new antifungals with novel mechanisms of action

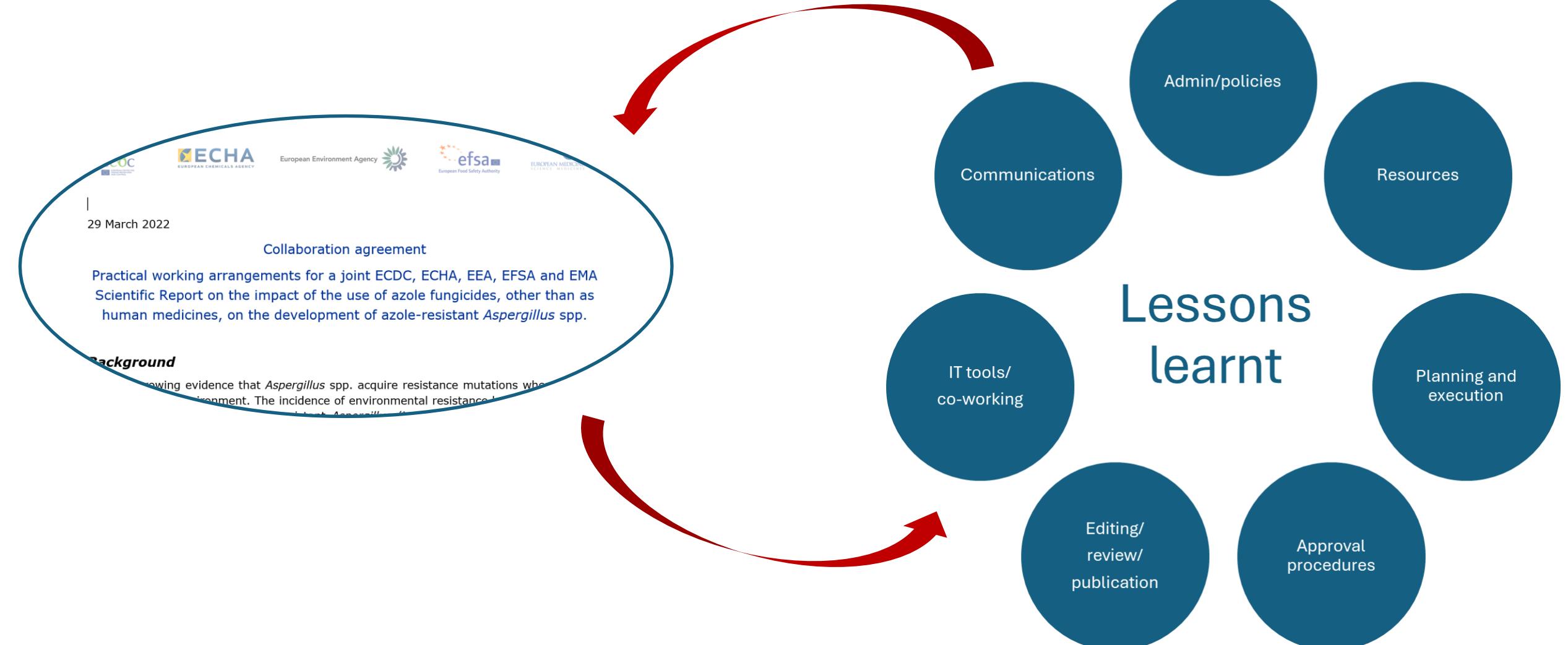
## Approval process

- assess potential for cross-resistance with antifungals used in human medicine before approving new fungicides

# DATA GAPS

Areas	Possible actions to address gaps
Use of azole fungicides	<p>Establishment of a <b>mandatory reporting system</b> at national level with the appropriate level of detail related to the substance/product used and its specific application (e.g. crop of application)</p> <p><b>Overcoming confidentiality issues</b> that limit dissemination and analysis of the data collected and double reporting</p>
Epidemiology of ARAf	Standardised prevalence studies, strengthen <b>genomic testing</b> , screening of different environments
Spread of ARAf	Investigations on <b>pathways for spread</b> including cross-border
Hazard-related data	Investigations of resistance mechanisms, effect of other substances, <b>combined exposure</b> , other <b><i>Aspergillus</i> species</b>
Residues in the environment	Investigate <b>fate and persistence</b> in environment, levels in crops/wood waste, waters/soil, human exposure
Environmental hotspots	Investigate growth conditions in specific substrates, waste management practices, <b>field studies</b>
Risk assessment methodology	To provide technical specifications for specific studies to be submitted within approval procedures, <b>refine</b> preliminary framework for risk assessment

# TESTING OH COLLABORATION



# JOINT COMMUNICATIONS

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One Health: EU agencies unite to tackle azole fungicide resistance in Aspergillus fungi

Published: 30 January 2025 | 3 minutes read

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The extensive use of azole fungicides (azoles), particularly in some agricultural and horticultural settings, is an essential part of modern agriculture. The use of azoles has increased significantly over the past two decades, particularly in Europe. This has led to concerns about the development of resistance in Aspergillus fungi, which can cause serious health problems in humans and animals. The European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA) have conducted a joint study to investigate this issue. The study found that the use of azoles in agriculture and horticulture is contributing to the development of resistance in Aspergillus fungi. The findings of this study will be used to inform policy makers and stakeholders about the risks associated with the use of azoles and to develop strategies to combat resistance.

News story 30 January 2025

EN English

Translate

For the first time, the five EU health and environment agencies – supported by the European Commission’s Joint Research Centre (JRC) – have joined forces to address this growing threat.

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**efsa** European Food Safety Authority

EN English

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## PLS: Azole resistance in *Aspergillus* spp.

Published date: 30 January 2025

### Disclaimer

- This plain language summary (PLS) is a simplified communication of the report on the *Impact of the use of azole fungicides, other than as human medicines, on the development of azole-resistant Aspergillus spp.* The full report can be found [here](#).
- The purpose of the PLS is to enhance transparency and inform interested parties on the work of EU agencies on the topic using simplified language to present a summary of the main findings.

### Background

**Driving forces of azole resistance**

**Main risk factors**

- Azole use
- Substrate properties and environmental conditions
- Crop waste management
- Good agricultural and waste management practices
- Azole use in wood preservatives
- Wood waste management
- Optimised application conditions and proper wood waste management

**Environmental hotspots**

- Agricultural settings: Green waste material, Field heaps
- Biocides: Apple-treated wood, Wood waste

Mitigating the risk: measures for combating azole resistance

Resistance to azole fungicides in *Aspergillus* sp. is treated with medicines based on azole substances, with few alternative options.

Watch on YouTube