

# COCERAL

## Presentation for Dg Agri Expert Group Crops Market Observatory

*“Impact of the effect of climate change on food security and trade patterns for grains/oilseeds/pulses as a driver to quality and safety issues”*

7 October 2024

# What is COCERAL?

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COCERAL is the European association of trade in cereals, oilseeds, pulses, olive oil, oils and fats, animal feed and agrosupply.

It represents the interest of the European collectors, traders, importers, exporters and port silo storekeepers of the above-mentioned agricultural products.

With almost 3,000 companies as part of COCERAL's national members, the sector trades a considerable volume of agricultural raw materials destined to the supply of the food and feed chains, as well as for technical and energy uses.

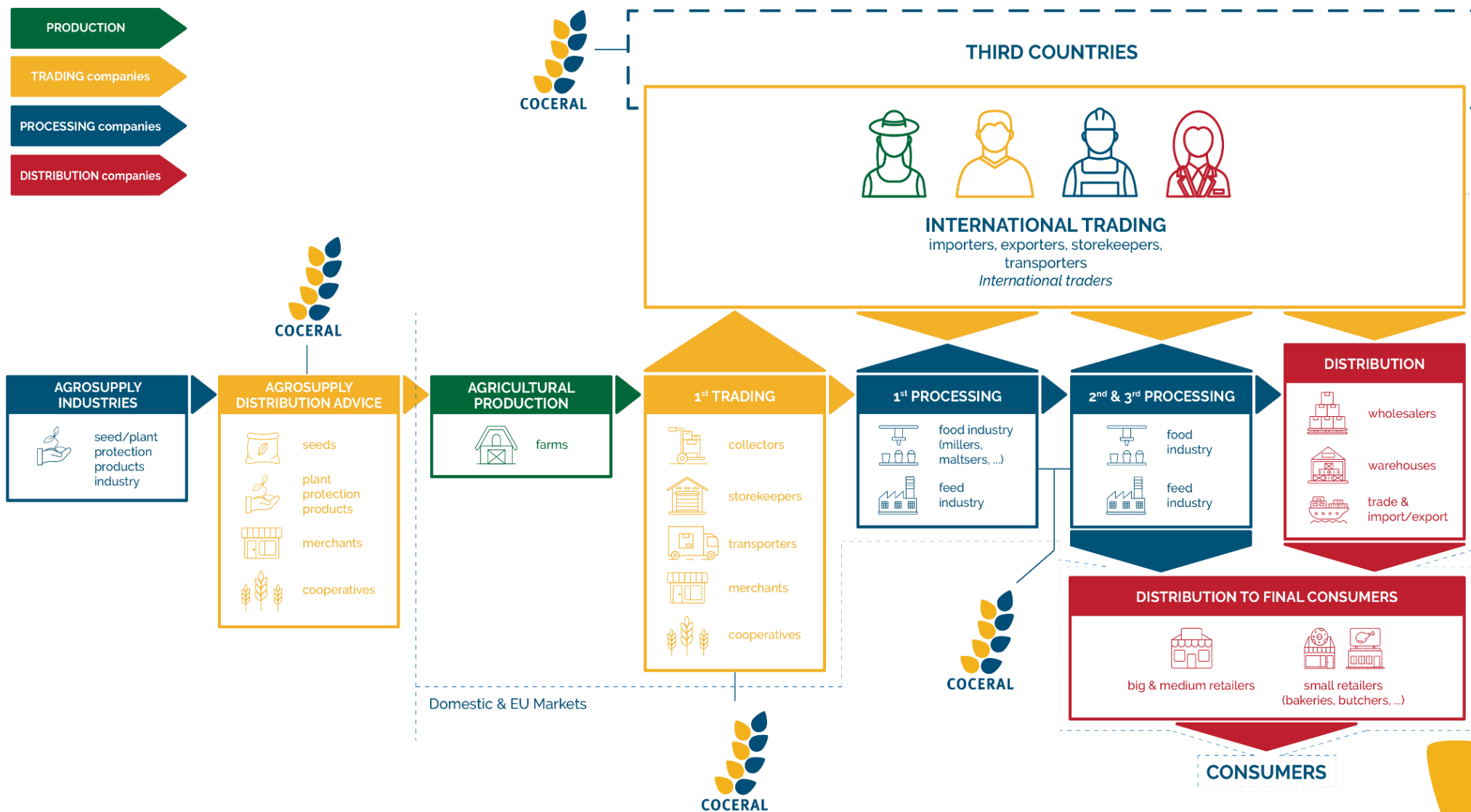
## **Mission:**

to ensure that its members can operate within a policy environment (at EU and International level) that does not hinder trade, while promoting strategies for the supply of safe food ingredients and feed raw materials for downstream industries and consumers.



# FOOD & FEED CHAIN

# COCERAL Representation



# Impact of the effect of climate change on food security and trade patterns for grains/oilseeds/pulses as a driver to quality and safety issues

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## Some key considerations:

- effect of climate change might impact in an unpredictable way food security and trade patterns for grains/oilseeds/pulses, throughout altered capacity to produce and deliver food and feed of minimum quality and safety standards, at a time when analytical performance criteria are improving, with an ongoing decrease of limit of detection for several agricultural contaminants, including mycotoxins
- More studies might be needed to evaluate the impacts on food and feed security and safety

## What could be the potential impact on humans, animals, and the environment? (*economic indicators*)

1. Variability in crop yields, hence affecting rentability of farm operations in some parts of the world and the EU (depending on unpredictable change in weather patterns).
2. Changes in crop patterns (use of different crops and cultivars, more adapt to changed agri-environmental conditions)
3. Changes in international and EU trade patterns for grains, oilseeds and pulses



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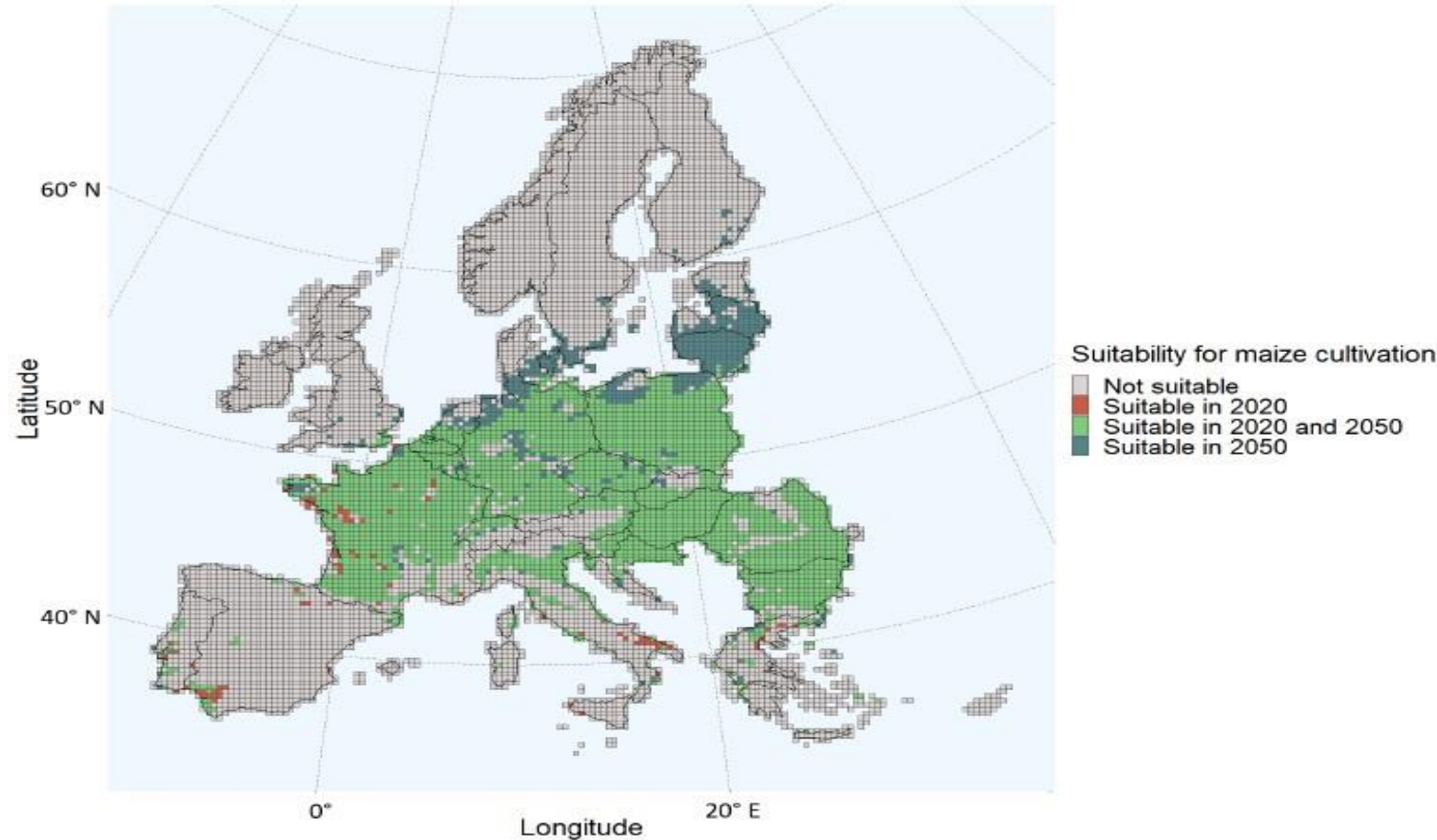
- What could be potential impacts on human and animal health, and the environment? (*other indicators*)
  1. Climate change can impact water quality, and contaminated water sources used for irrigation or processing can introduce pathogens and contaminants. This might lead to an increase in prevalence of different agricultural contaminants, which might not be fully predicted (depending on unpredictable changes in weather patterns)
  2. Climate change may increase the presence of pests, noxious weeds, and diseases in crops (in the field).\* (*see next slide*)
  3. Climate change can affect the conditions in which grains are stored. Increased temperature and humidity can create a favourable environment for the growth of moulds and bacteria in storage facilities leading to spoilage and contamination of grains, oilseeds (and their by-products) and pulses
  4. Climate change can alter the nutritional content of grains. Increased CO<sub>2</sub> levels in the atmosphere can lead to a decrease in the concentration of essential nutrients like iron, zinc, and protein in some grains, which can have adverse effects on human nutrition\*\*



# Impact of the effect of climate change on food security and trade patterns for grains/oilseeds/pulses as a driver to quality and safety issues

- Possible changes in suitability of EU regions for maize cultivation - opportunities

Source: *Effects of Climate Change on Areas Suitable for Maize Cultivation and Aflatoxin Contamination in Europe*. *Toxins* 2023, 15, 599.  
<https://doi.org/10.3390/toxins15100599>



**Figure 1.** Changes in suitability for maize cultivation for each grid of the European Union Member States and/or regions in the Schengen area.

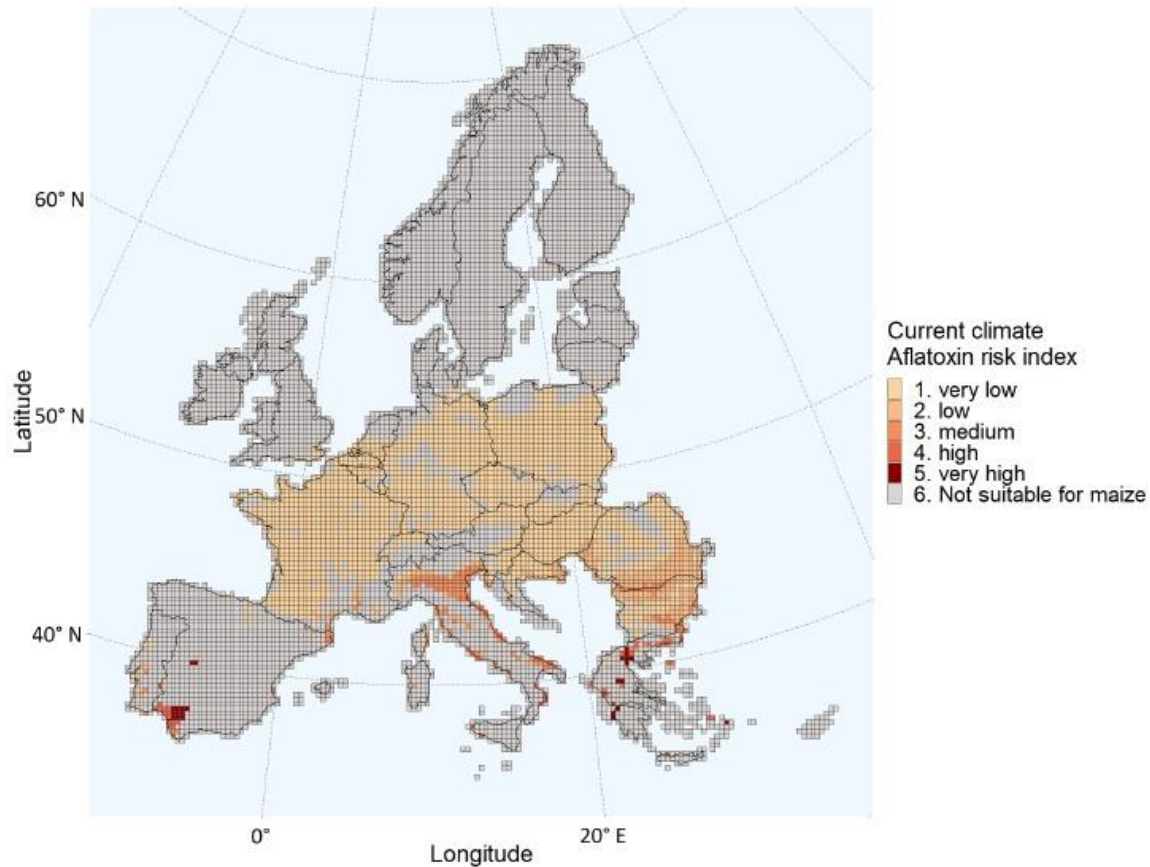




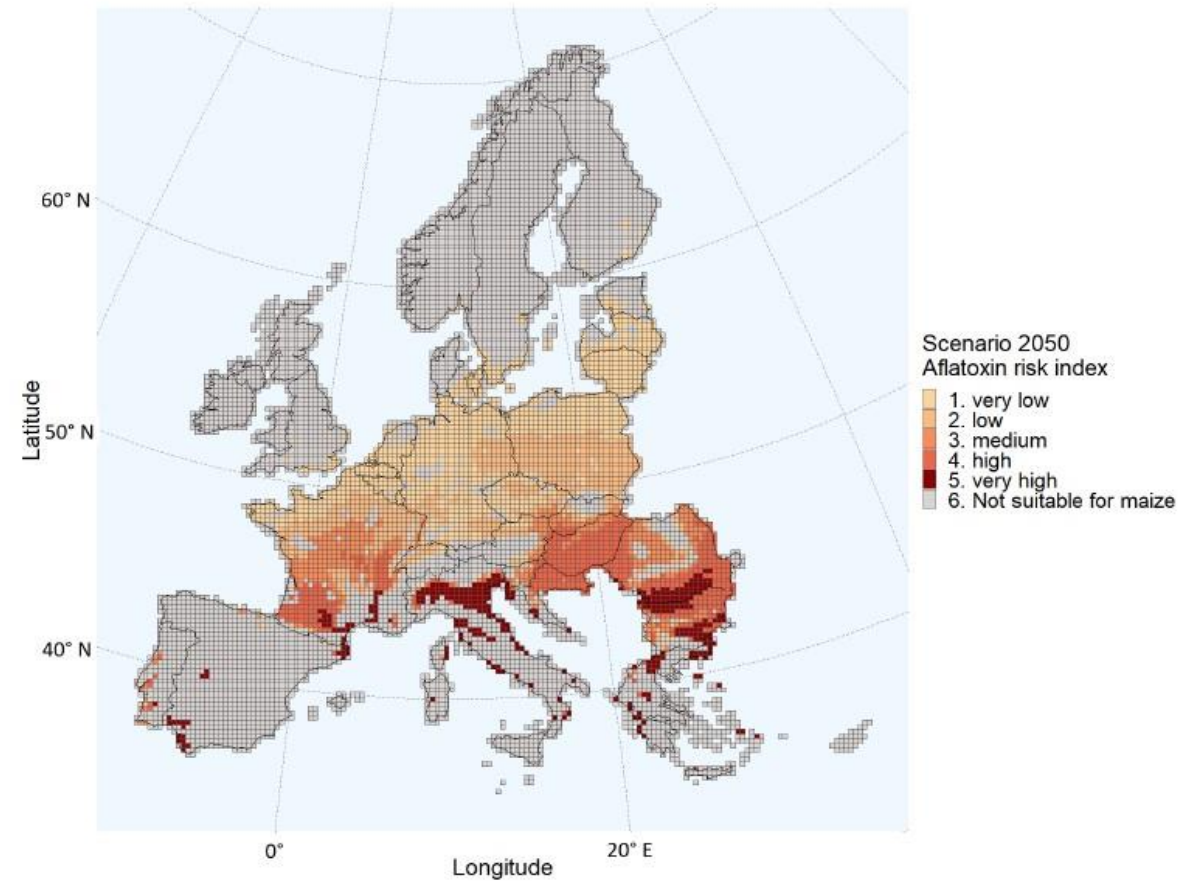
# Impact of the effect of climate change on food security and trade patterns for grains/oilseeds/pulses as a driver to quality and safety issues

## ● Possible changes in suitability of EU regions for maize cultivation - threats

Source: *Effects of Climate Change on Areas Suitable for Maize Cultivation and Aflatoxin Contamination in Europe*. *Toxins* 2023, 15, 599.  
<https://doi.org/10.3390/toxins15100599>



**Figure 2.** Aflatoxin Risk Index estimated for each grid of the European Union Member States and/or regions in the Schengen area under the present climate conditions.



**Figure 3.** Aflatoxin Risk Index estimated for each grid of the European Union Member States and/or regions in the Schengen area under the 2050 climate scenario.

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- Climate change and effects on mycotoxins prevalence and co-occurrence (actions, and challenges, by grain collectors and traders)
  1. Sampling and testing protocols are integrated part of the traders' routine in view of ensuring the safety of raw materials against presence of mycotoxins (see slide 12 to see the details of most frequently tested ones)
  2. International recognised standards for sampling\* are followed as a general practice together with the EU legislation and other internal/contractual methods drafted in collaboration with multiple organizations to be consistent with the worldwide, EU included, operators' practices
  3. Particular years of incidence lead to strengthened monitoring and increased frequency of analysis, **and subsequent recalls in case EU regulatory levels for contaminants in food\*\* and feed\*\*\* are exceeded.**
  4. Challenges
    - Mycotoxins are not uniformly distributed, neither within the content of the cargoes nor in the collected samples (Importance of using international recognized sampling methods)
    - Reliability of quick tests for mycotoxins detection
    - Co-occurrence of several mycotoxins (also in combination with other contaminants)

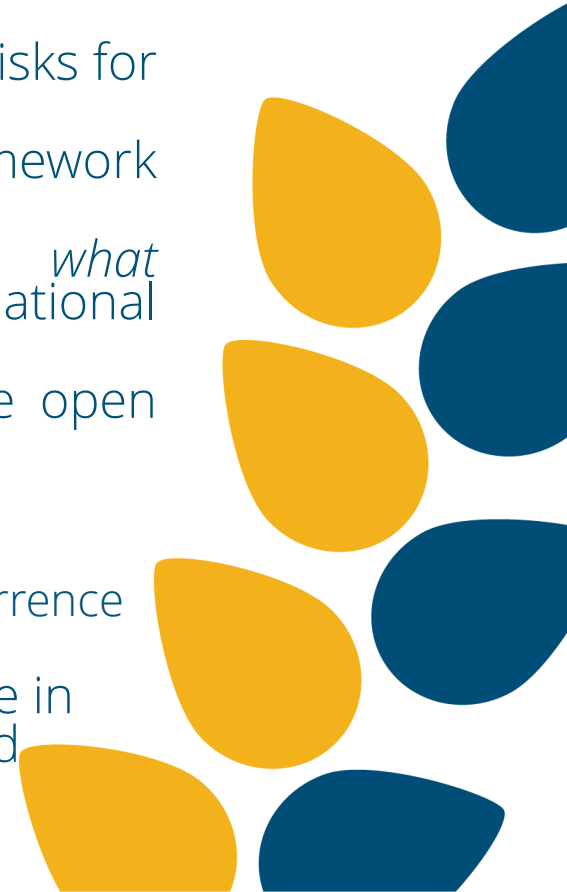




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- Main changes of COCERAL mycotoxins management report 2023 (since previous editions)
  1. 19 answers received covering a total volume of traded grains of 36.5 million tonnes (16.4% of total EU market share) : Austria, Belgium, Bulgaria, Croatia, Denmark, France, Greece, Ireland, Italy, Romania, Spain, The Netherlands, and UK)
  2. This new edition is:
    - Explaining (for a general audience) what mycotoxins are and what are the risks for human and animal health
    - Providing detailed info on how EFSA works and how the EU regulatory framework (and how decision to introduce new regulatory levels are taken) works
    - Listing sampling and testing practices (*when, where, on what commodities/mycotoxins, and how*) pursued by grain collectors and international traders\*\*
    - Listing the answers provided by our members to a series of qualitative open questions, meant to assess:
      - how our members perceive the risk of mycotoxins,
      - how they prevent it, and
      - how they think that the effect of climate change might impact mycotoxins occurrence in the next 10 years.
  3. Moreover, the report lists the constraints that (considering a possible increase in occurrence and co-occurrence of different mycotoxins in cereals, oilseeds and pulses) current or new EU regulatory levels for such mycotoxins will pose to COCERAL members.



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## ● Main findings of COCERAL mycotoxins management report 2023

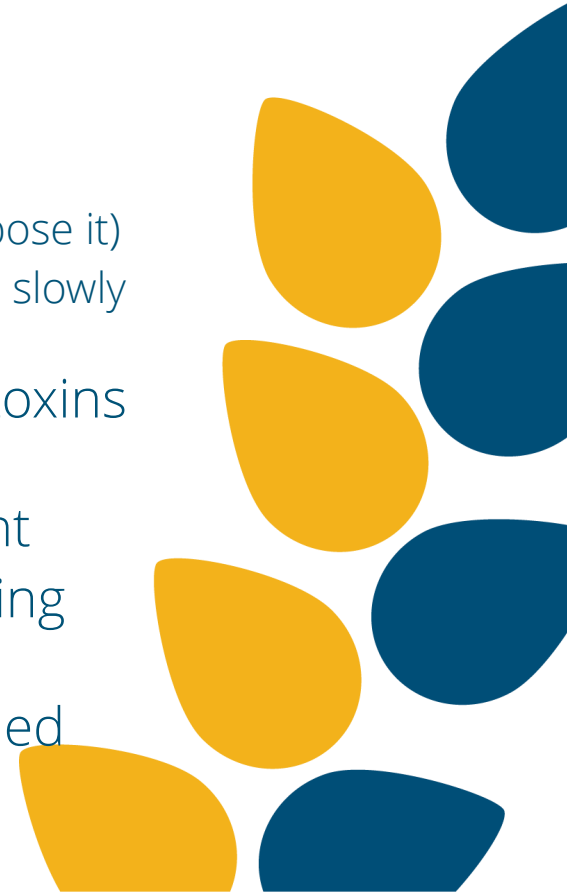
1. Most of our members expect that the following mycotoxins might become more prevalent in next 10 years in the country/ies they collect/source grains and oilseeds, also in relationship with effect of climate change (*most frequently observed effect are increasingly common heat waves, especially in southeastern Europe*).
  - Aflatoxins and Ochratoxins in corn
  - Deoxynivalenol, sum of T-2 and H-T2 toxins in all cereals
  - Zearalenone and Alternaria toxins in oilseeds
  - A growing concern on the rise is Ambrosia spp, and, to a minor extent, other rust fungi
2. Possible expected future constraint is that an increasing % of grains, oilseeds and pulses (fit for human consumption) will have to be declassified as feed, as EU regulatory levels for mycotoxins in food\* will likely not be met (as the prevalence and co-occurrence of different mycotoxins will likely increase). **In the worst-case scenario, a certain % of grains (i.e., corn), oilseeds and pulses will not even meet the maximum levels foreseen by the EU for feed material\*\*, and such grains will have to be used for bioethanol production or even incinerated!**



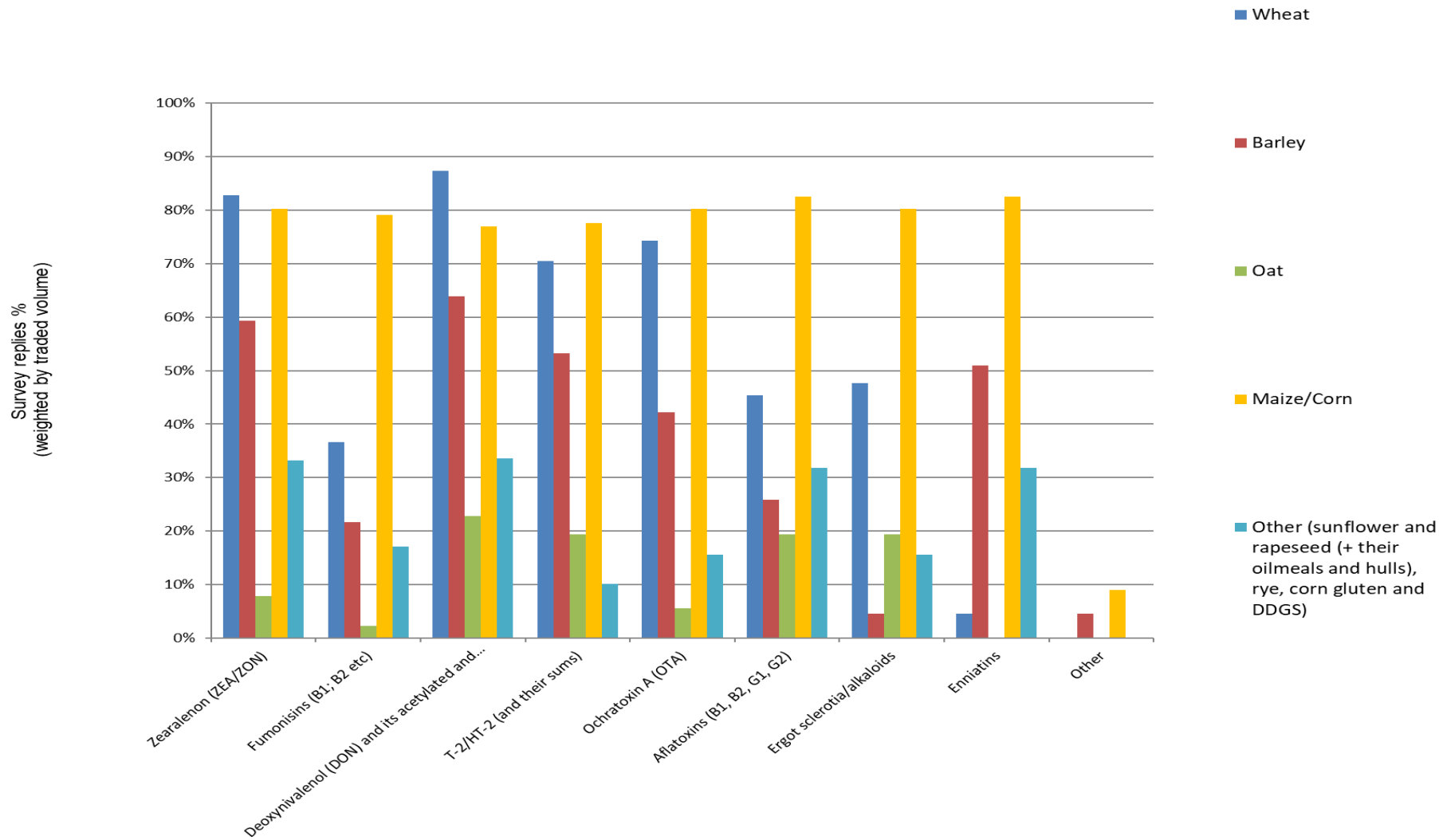
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- Main findings of COCERAL mycotoxins management report 2023
  - 3. Our members will do the most to make sure that such constraints will be contained by:
    - Recommending farmers to
      - Performing meteorological survey during critical stages of the crops (i.e., flowering)
      - Use only certified seed material
      - Use better crop rotation practices
      - Use of allowed fungicides at the right dose and right time (i.e. when the weather impose it)
      - Harvest grains, oilseeds and pulses when they are ready and dry and cool the grains slowly and gently in storage
    - Use good storage practices (cooling, ventilation) to avoid storage mycotoxins to occur
    - Perform (*even more*) sampling and testing at collection and pre-shipment
    - Use of contract specifications (purchase and sale) and internal monitoring programs
    - Perform (*even more*) sampling and testing at all stages, always using skilled personnel (i.e., surveyors) and accredited laboratories\*



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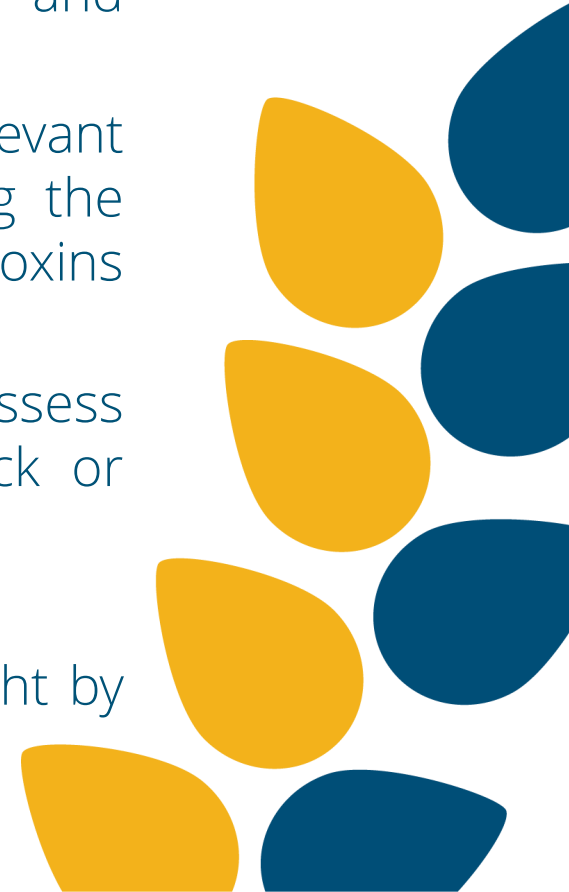
Most frequently tested mycotoxins (survey 2023), showing the complexity of mycotoxins sampling and testing practices our members need to adopt to meet EU food and feed safety regulatory (and customer) standards

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## ● Conclusions

1. An increased prevalence and occurrence of mycotoxins will lead to unpredictable food and feed safety issues, and the huge economic repercussions for our members (increased sampling, testing, recalls, rejections etc.), leading ultimately to food and feed insecurity at EU and international level.
2. More cooperation with the EFSA, FAO, the scientific community, and relevant services of the European Commission, is sought, especially regarding the forecast models to understand how climate change effects and mycotoxins prevalence and co-occurrence are related
3. New tools should be soon made available for collectors and traders to assess better and faster mycotoxins occurrence in grains and oilseeds (lack or reliable quick tests for certain mycotoxins (i.e., ergot alkaloids))
4. Representativity of samples taken is key to a reliable mycotoxin test
5. Simplification of mycotoxins occurrence data collection by EFSA is sought by the industry (a huge dataset is available but cannot meet the current EFSA standards)







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