

Mycotoxins in Scottish cereals: Understanding and mitigating food safety risks in a changing climate

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Riaghaltas na h-Alba
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SEFARI

LEADING IDEAS
FOR BETTER LIVES



The policy driver



- **Regulatory Review on Mycotoxins**
 - EFSA opinion on T-2/HT-2
 - Introduction of maximum levels in EU regulations
- **UK Risk Analysis Process**
 - Call for evidence to inform UK position
 - Need to reflect public health risks and impacts on food industry in Scotland



FOOD AND FEED SAFETY RISK ANALYSIS PROCESS

This process flowchart shows the UK's risk analysis process which is one of the ways we will ensure that the high standard of food safety and consumer protection we enjoy in the UK is maintained after the Transition Period.



Our RISK ANALYSIS PROCESS is open and transparent. We publish the advice we provide to others and the analysis and evidence on which that advice is based. The process is underpinned by collaborative working across FSA, FSS and other government departments as well as consultation with interested parties.

Our independent risk, science and evidence-based advice and recommendations are presented to Ministers and others for decision. Decisions are then implemented and reviewed as needed. This process operates on a four-country model and can deliver, where appropriate, unified food and feed safety risk management recommendations for the UK. It will form the basis of all risk analysis activities but individual stages are flexible and can be adapted on a case-by-case basis.

This diagram is for illustrative purposes.

RISK COMMUNICATION

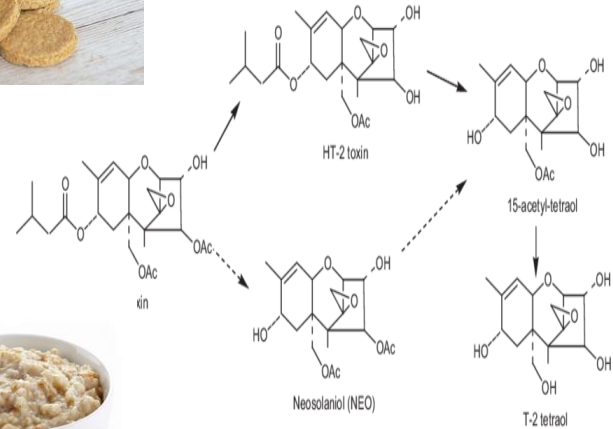
We will embed effective risk communication mechanisms, ensuring interactive exchange of opinions and options throughout the process.

We will provide clear explanations of the findings of risk assessments and the analysis of other legitimate factors, and the basis of risk management decisions, using effective evidence-based and outcome-focused methods to communicate with consumers, industry stakeholders and other interested parties.

KEY
● Risk management
■ Risk assessment and analysis of other legitimate factors

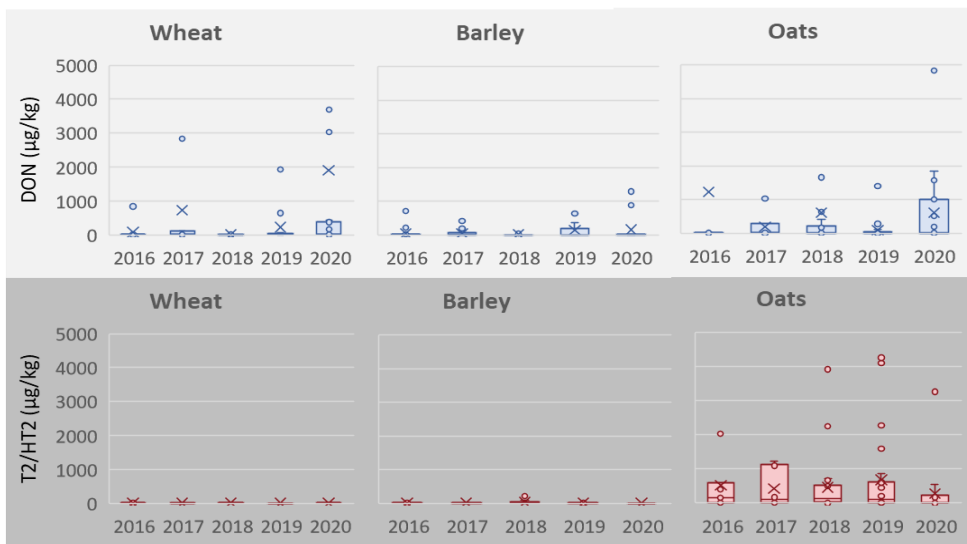
Addressing the evidence needs

- **Collecting the data** – reviewed published studies and commissioned a survey on mycotoxins in Scottish oats and oat-based food items
- **Understanding impacts on industry** – consulting stakeholders on key challenges
- **Engaging the experts** – collaboration with SEFARI institutes on the co-design of research requirements through the SRP

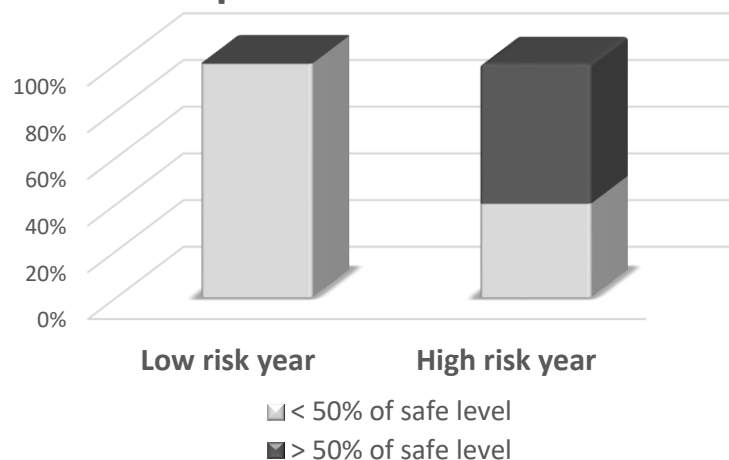


Current and future impacts of mycotoxins in Scotland: what the evidence is telling us

- Frequently detected in Scottish cereals, T-2/HT-2 toxins in oats are a particular problem
- Individuals are frequently exposed to mycotoxins, higher exposure in years of high-risk climate for mycotoxins



DON exposure in Scottish adults

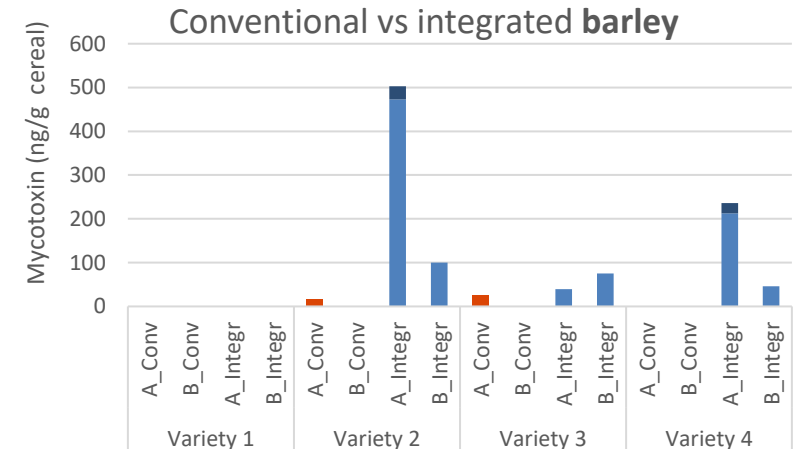
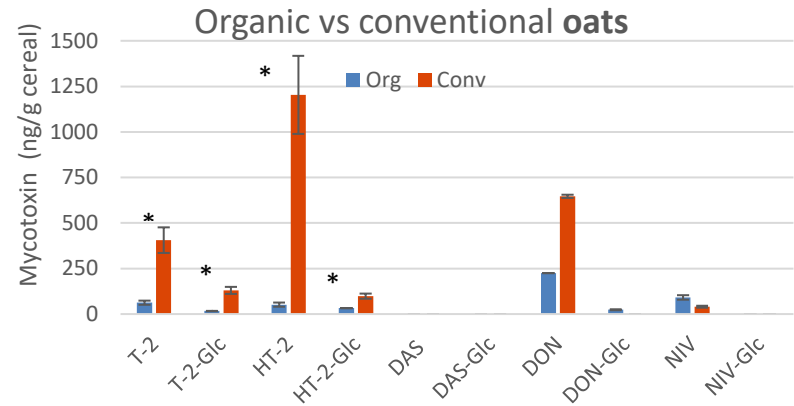


Mitigation strategies

- **Organic production** clearly lowers risk of T-2/HT-2 contamination in oats (farm survey & field trial)
- **Low cereal intensity score** lowers risk for T-2+HT-2 in oats

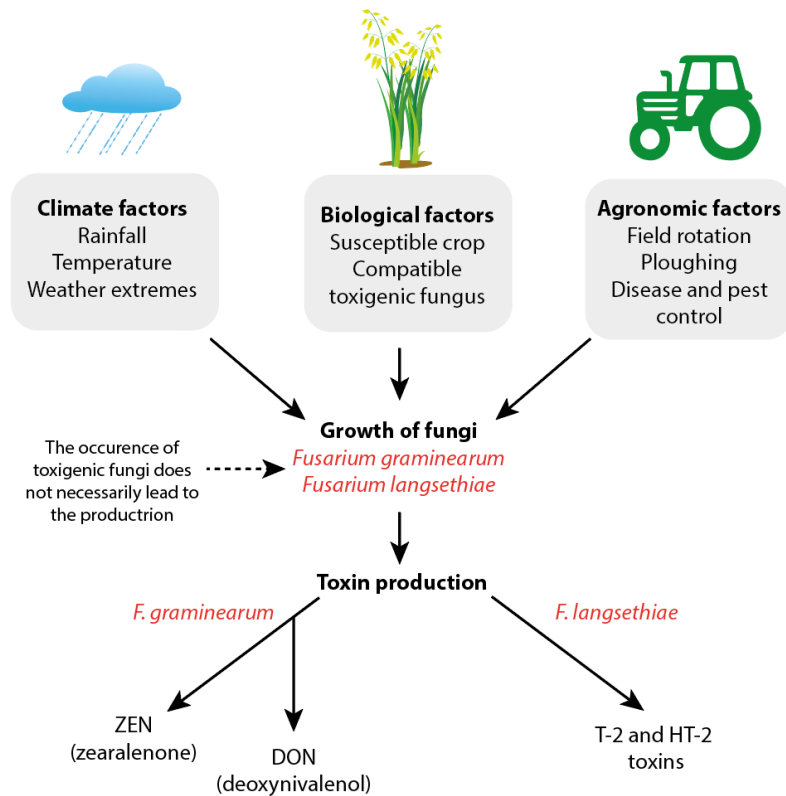
BUT...

Pilot data on sustainable/integrated practice (direct drill vs ploughing, reduced fungicide) show increased mycotoxins in barley



Future outlook

- Understand impact of climate and severe weather
- Understand the role of soil microbiome and mycobiome
- Assess the impact of changing agronomy to sustainable and regenerative agriculture (unintended consequences?)
- Predictive modelling of fungi and mycotoxins in the environment, farm and food



Reflections on policy-science collaboration



Benefits

- A shared understanding of priorities and challenges –collaborative problem solving
- Enables FSS to access scientific expertise needed for policy development and targeting of research needs
- Helps to optimise the impact of SEFARI research outputs for the benefit of future policy on food, public health and climate change

Challenges

- Making space to engage on research needs and enabling scientists to adapt to changing policy needs
- Funding – scope for better collaboration between funders to improve the targeting of resources

Code	Description	Value
2.4	Deoxyvalenol	
2.4.1	Unprocessed cereals other than durum wheat, oats and maize	1 250
2.4.2	Unprocessed durum wheat and oats	1 750
2.4.3	Unprocessed maize, with the exception of unprocessed maize intended to be processed by wet milling	1 750
2.4.4	Cereals intended for direct human consumption, cereal flour, bran and germ as end product marketed for direct human consumption, with the exception of foodstuffs listed in 2.4.7, 2.4.8 and 2.4.9	750
2.4.5	Pasta (dry)	750
2.4.6	Bread (including small bakery wares), pastries, biscuits, cereal snacks and breakfast cereals	500
2.4.7	Processed cereal-based foods and baby foods for infants and young children ^{FV}	200
2.4.8	Milling fractions of maize with particle size > 500 micron falling within CN code 1103 13 or 1103 20 40 and other	750

