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## Introduction

- Mycotoxins are toxic fungal food contaminants which pose an emerging health risk and major cost to cereal production.
- Regulatory mycotoxin limits in food [1,2] are developed by the EU and UK, and significant data gaps exist in mycotoxin occurrence and risk factors impacting prevalence.
  - This project aims **to provide evidence on mycotoxin occurrence** and **identify mitigation strategies** to minimize risk.

### Impact overview

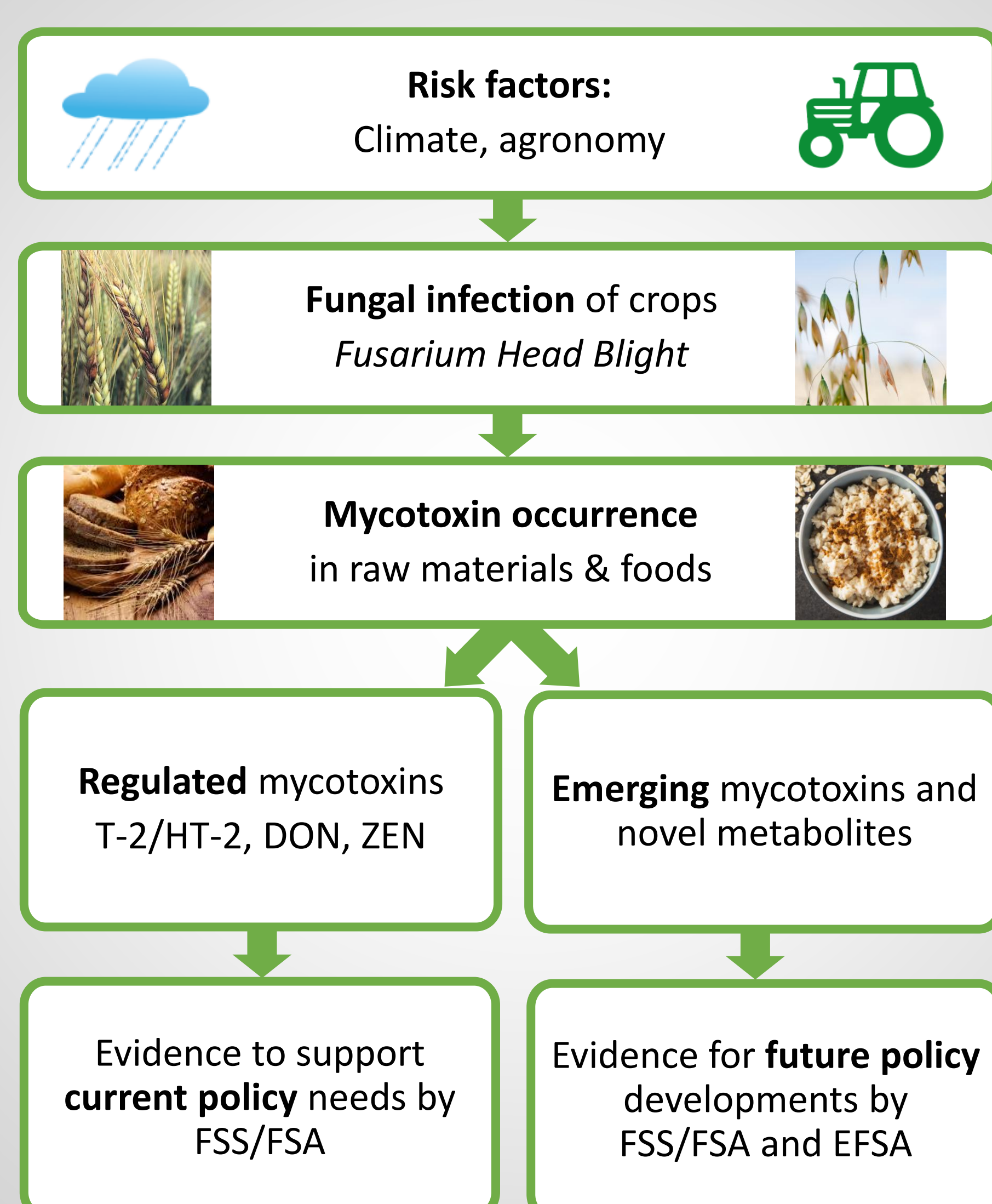


Figure 1. Impact overview - Evidence to support policy needs.

## Materials & methods

Cereal samples were milled and mycotoxins extracted prior to fully targeted analysis of free mycotoxins and mycotoxin metabolites using LC-MS/MS [3]. Results were reported in scientific publications and submitted to calls for evidence by Food Standards Scotland/Food Standards Agency (FSS/FSA) as well as the European Food Safety Authority (EFSA).

## Summary & conclusions

- This project has generated evidence on mycotoxin occurrence in oats and oat foods in Scotland.
- This evidence **informs risk analysis by FSS/FSA and EFSA on national and international level** to protect consumers and support trade.
- Agronomy practices including organic production and low-cereal rotations have been identified as mitigation strategies.
  - **Future work** needs to assess how **sustainable and regenerative agricultural practices will impact mycotoxin risks**.
  - **Predictive modelling** will assess known and **emerging fungal mycotoxin risks in a changing climate**.

### Acknowledgements

This project was co-constructed with Food Standards Scotland. This work was funded by the Scottish Government, Rural & Environmental Science and Analytical Services.

### References

1. Commission Regulation (EU) 2023/915; 2. Commission Regulation (EU) 2024/1038; 3. Daud N et al. (2023): Toxins 15(4), 247, doi:10.3390/toxins15040247

## Results – Mycotoxin occurrence

This project has demonstrated frequent occurrence of regulated mycotoxins as well as co-occurrence of a range of mycotoxin metabolites in Scottish oats and oat foods.

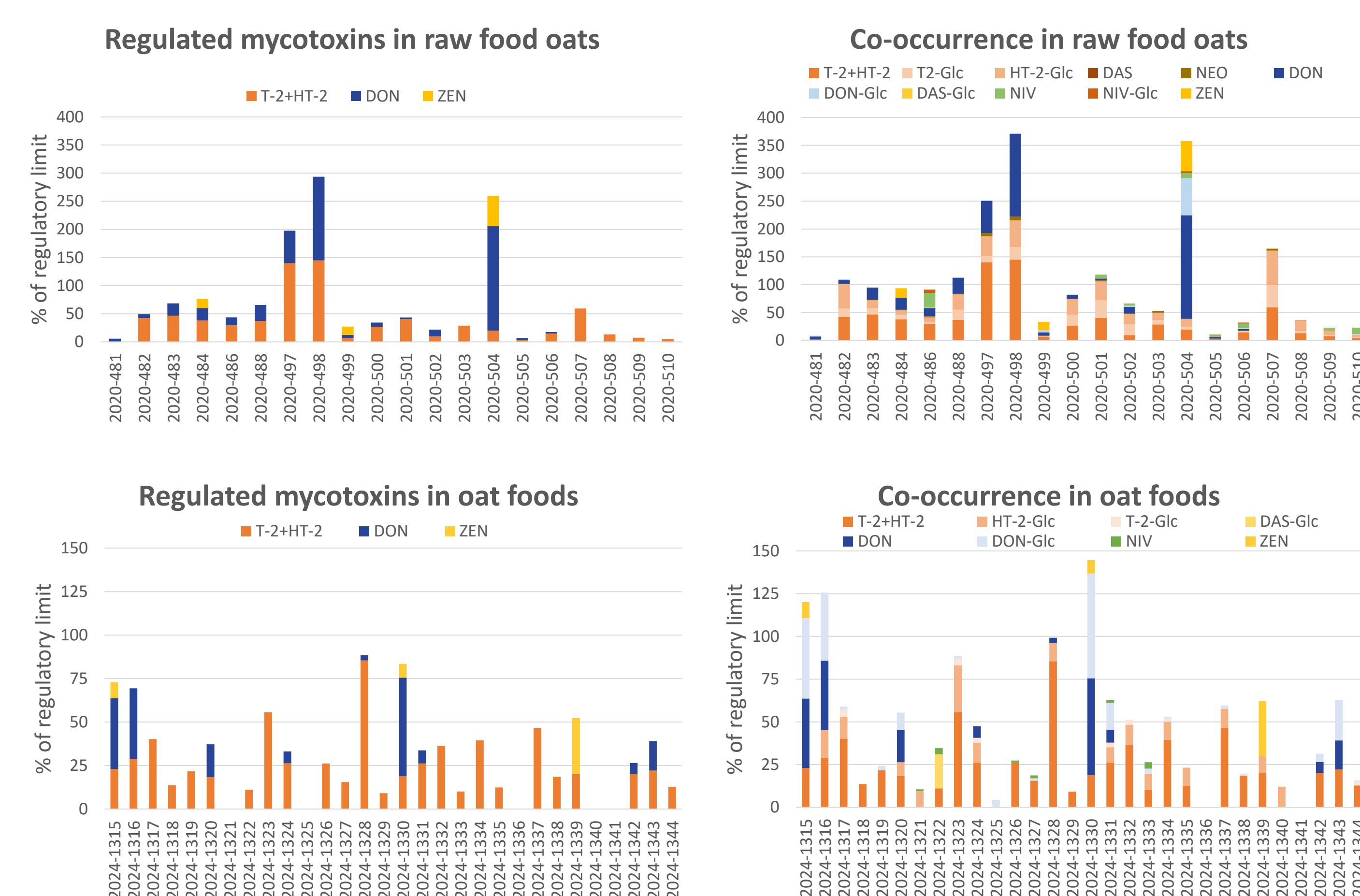


Figure 2: Mycotoxin occurrence in oat raw materials and foods.

## Results – Mycotoxin risk mitigation

This project has identified organic production and low-intensity cereal rotations as mitigation strategies to lower mycotoxin prevalence in Scottish oats.

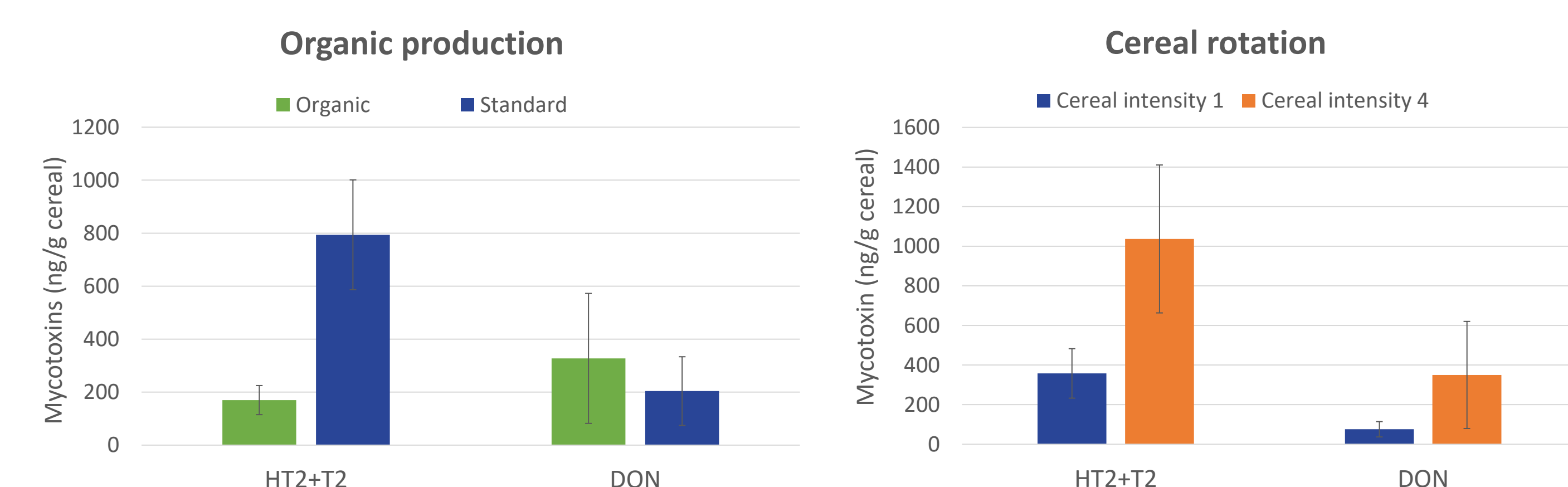


Figure 3. Organic production and low cereal intensity lower mycotoxin risks in oats.