

Risk assessment for fusarium mycotoxins in wheat



Always consider your local conditions and consult a professional agronomist, if necessary.

Action

- Follow best practice to minimise fusarium mycotoxins in cereals
- Use this sheet or the online tool to assess risk of fusarium mycotoxins.
- Assess risk pre-flowering and consider T3 fungicide (ear spray).
- Take accurate measurements of rainfall at flowering and pre-harvest.
- Calculate final risk score at harvest and record on grain passport.
- Check end-user requirements to determine whether mycotoxin testing is required.

Further information

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For other relevant publications, tools, videos and further information, please see www.hgca.com/mycotoxins

For rainfall information from the Met Office, please see wow.metoffice.gov.uk

The need for accurate risk assessment

There are legal limits for fusarium mycotoxins deoxynivalenol (DON) and zearalenone (ZON) in wheat intended for human consumption and guidance limits for grain for feed. The owner (farmer, merchant

or processor) is legally obliged to ensure the grain is safe for human consumption. For information on the current legal limits, please see www.hgca.com/mycotoxins

Assurance schemes

Crop assurance schemes are designed to help farmers comply with food laws. They include an audit of the risk assessment and an HGCA risk assessment score is required on the grain passport.

Risk factors

Region – DON and ZON levels in wheat tend to be highest in southern and eastern England. Higher humidity in coastal areas may increase risk. Information from www.cropmonitor.co.uk may be used to assess overall risk on a yearly and regional basis.

Previous crop – Crop residue on the soil surface is the major source of inoculum. The greatest risk is after grain maize or forage maize. Rotations should aim to minimise wheat sown after maize.

Cultivation – Complete burial of debris by ploughing is most effective at reducing the risk, while risk is highest with direct drilling. Intensive non-inversion tillage (three or more passes with discs or tines) is more effective at reducing risk than reduced non-inversion tillage (one or two passes).

Wheat variety – The risk assessment includes varietal resistance based on the HGCA Recommended List rating for fusarium ear blight (www.hgca.com/varieties)

T3 ear fungicide – Using an appropriate dose rate of a T3 ear fungicide with activity against fusarium and/or mycotoxin production reduces the risk. See HGCA Information Sheet 38 for information on fungicide performance and activity.

Rainfall at flowering – Wet weather promotes fusarium development. The score is based on total rainfall during flowering (GS59–69 – full ear emergence to end of flowering).

Rainfall pre-harvest – Based on total rainfall from GS87 (dough development stage/start of ripening stage) to harvest.

Instructions

- Enter details of the store into which wheat from a single or multiple fields has been placed.
- Enter individual field names; fields can be grouped if grown with the same agronomy and subject to the same rainfall.
- For each field, enter the appropriate risk score for the factors stated.
- Record the final risk score on the grain passport. If a load contains grain from multiple fields, record the highest score on the passport.

Please photocopy this form, download from www.hgca.com/mycotoxins or request more copies by email (publications@hgca.ahdb.org.uk)

Farm name									
Town		County			Postcode				
Store name		Field	Field	Field	Field	Field	Field	Field	Field
Factor	Details	Risk	Score	Score	Score	Score	Score	Score	Score
Region (see map)	High	4							
	Moderate	2							
	Low	-2							
	Very Low	-4							
Previous crop	Maize	6							
	Other	0							
Cultivation	Direct-drilled	4							
	Standard non-inversion tillage	3							
	Intensive non-inversion tillage	2							
	Plough (soil inversion)	0							
Wheat variety	RL rating 1–5	1							
Recommended List fusarium ear blight resistance rating	RL rating 6–9	0							
	RL rating unknown	1							
Your pre-flowering risk score									
T3 ear fungicide	Under 50% dose rate of approved fungicide	0							
	50–74% dose rate of approved fungicide	-2							
	75% or above dose rate of approved fungicide	-3							
Rainfall at flowering (GS59–69)	More than 80 mm	9							
	40–80 mm	6							
	10–40 mm	3							
	Less than 10 mm	0							
Rainfall pre-harvest (GS87 to harvest)	More than 120 mm	12							
	80–120 mm	9							
	40–80 mm	6							
	20–40 mm	3							
	Less than 20 mm	0							
Your final risk score									

Date	Signature

Record final risk score on the grain passport and check end-user requirement to determine whether mycotoxin testing is required. If a load contains grain from multiple fields, record the highest score on the passport.

Risk	Final score
High	Over 15
Medium	10–15
Low	Under 10

