

Managing the risk from fusarium mycotoxins

The Food Standards Agency is currently developing a Code of Practice to reduce fusarium mycotoxins in cereals. This will not be available until November so the advice below is to help farmers who grow wheat plan ahead and reduce the risk for next season.

Assessing Risk Factors

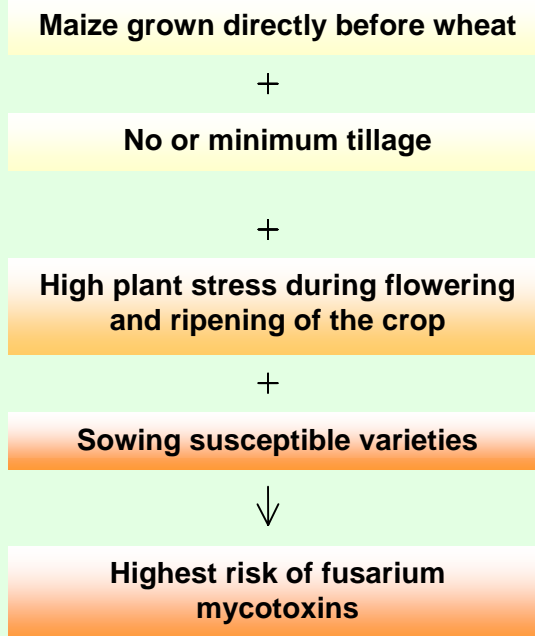
Mycotoxins are toxic compounds that may, under some conditions, be produced by certain species of fungi. Grain is susceptible to contamination from fusarium mycotoxins produced by species of Fusarium fungi while the crop is growing.

Studies¹ have shown that fusarium mycotoxin levels, although quite varied, are generally low in the UK. However, an assessment of overall risk should be undertaken for all wheat intended for human consumption. Risk varies from year to year, so risk assessment should be carried out every year.

Although the single most significant risk factor - weather – cannot be controlled, the following factors will help you assess the risk in your own crop:

- **Rainfall** - higher risk if significant rainfall in June, when the crop flowers.
- **Regional** - greatest risk in the warmest areas (south and east England).
- **Crop rotation** – higher risk if maize is grown before wheat.
- **Cultivation** – non-ploughed crops will have a higher risk.
- **Variety** – highest risk for varieties with low *Fusarium* ear blight resistance.

For example, the factors below lead to a higher overall risk of contamination:



Recommended Agricultural Practice

The fungi produce the mycotoxins in the crop while in the field and levels remain stable in storage once grain has been dried. Therefore preventative action is best taken in the field.

If one or more of the risk factors applies to your wheat crop, the following may reduce the likelihood of fusarium mycotoxins:

Avoid growing wheat after maize

Plough rather than minimum tillage after maize, wheat or potatoes

Use T3 Triazole fungicides recommended for controlling fusarium ear blight, especially if weather is expected to be wet during flowering

Choose varieties with higher *Fusarium* ear blight resistance

The above suggestions are only intended as indicative guidance; always consider your local conditions and consult a professional agronomist. Mycotoxin testing is encouraged where the overall risk is high.

Regulatory Limits for Fusarium

Since fusarium mycotoxins are stable during processing and, if present in the raw grain, may occur in foods containing wheat flour, maximum limits for fusarium mycotoxins intended for human consumption have been set for unprocessed cereals as well as for consumer products.

These limits will apply to all European Community Member States, including the UK, from 1st July 2006.

Product	Legal Limit (parts per billion – ppb)	
	DON	ZEAR
Unprocessed wheat	1,250	100
Flour	750	75
Finished Products	500	50
Infant food	200	20

The fusarium mycotoxins covered by these limits are deoxynivalenol (DON) and zearalenone (ZEAR). Although studies have shown that fusarium mycotoxin levels are generally low in the UK, a small proportion of the UK wheat crop has exceeded these limits in recent seasons.

Some processors may specify their own limits for unprocessed grain to be used for certain products. Unprocessed grain is intended to mean cleaned and sorted grain, which has not undergone any physical action such as scouring.

At present there are no EU limits for DON in animal feed but a 'guidance value' of 8000 ppb has been agreed for wheat intended for feed. Lower guideline values have been set for complimentary and complete feedstuffs intended for particular livestock, such as pigs, which are particularly sensitive to DON.

Code of Practice

The EU has produced a set of general principles to minimise the amount of fusarium mycotoxins in cereals and have tasked Governments in EU Member States to develop national Codes of Practice. The Food Standards Agency, in consultation with DEFRA, has commissioned Harper Adams University College to develop a UK-specific Code of Practice to reduce fusarium mycotoxin contamination in cereals. This will be available on the FSA website from November 2006.

Further Information

If you require further information regarding the Code of Practice or the above, please contact:

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¹ Investigation of fusarium toxins in UK wheat production in collaboration with Harper Adams University College (FSA project code: C04022). For updates visit: www.food.gov.uk

KEY POINTS

- EC maximum limits for fusarium mycotoxins in cereals for human consumption will apply from July 2006.
- Fusarium mycotoxin levels are generally low in the UK, however an assessment of overall risk should be undertaken.
- **Action can be taken:** changing your agronomic practices can reduce the risk of exceeding fusarium mycotoxin limits.

