Mycotoxins

Explains the dangers surrounding mycotoxins and the food safety regulations in place in the UK concerning them.

Mycotoxins are a group of naturally occurring chemicals produced by certain moulds. They can grow on a variety of different crops and foodstuffs including cereals, nuts, spices, dried fruits, apple juice and coffee, often under warm and humid conditions.

The mycotoxins of most concern from a food safety perspective include:

- aflatoxins (B1, B2, G1, G2 and M1)
- ochratoxin A
- patulin toxins produced by Fusarium moulds, including fumonisins (B1, B2 and B3)
- trichothecenes (principally nivalenol, deoxynivalenol, T-2 and HT-2 toxin)
- zearalenone
- ergot alkaloids, citrinin, sterigmatocystin and alternaria toxins

Mycotoxins can cause a variety of adverse health effects in humans including cancer (some are genotoxic), kidney and liver damage, gastrointestinal disturbances, reproductive disorders or suppression of the immune system. Aflatoxins are the most harmful type of mycotoxin, they can potentially cause cancer or problems with digestion, reproduction or the immune system.

Mycotoxins are naturally occurring, so their presence in foods cannot be completely avoided. It is however appropriate to ensure that controls are in place to ensure that exposure from food is as low as reasonably achievable. These controls range from ensuring that good practice is undertaken during growing, harvesting and storage of foods in addition to establishing maximum levels where necessary.

Legislation

To protect consumer safety there are rules and strict limits in place for aflatoxins, ochratoxin A, patulin and Fusarium toxins in certain foods. Maximum levels (MLs) are established in:

- retained EU Regulation 1881/2006 for England and Wales
- EU Regulation 1881/2006 for Northern Ireland

Mycotoxins occur in hotspots because they are not evenly distributed throughout the food. To ensure that the testing samples are representative of the entire batch of food - provisions for sampling and analysis for the official control of the maximum levels (MLs) for mycotoxins have been made. This is set out in:

- retained EU Regulation 401/2006 for England and Wales
- ?EU Regulation 401/2006 for Northern Ireland

Provisions for sampling and analysis are applicable for enforcement bodies only, this includes local authorities, port health authorities and public analysts. However, it is important for food business operators to be aware of these provisions when carrying out due diligence checks.

We have produced sampling advice to enforcement authorities and food business operators on this.

England, Northern Ireland and Wales

PDF
View Mycotoxin sampling guidance as PDF(Open in a new window) (223.54 KB)

If a food business operator wishes to have samples analysed for mycotoxins in the UK, it is recommended that a laboratory accredited for mycotoxin analysis is used. Further information on accredited laboratories can be found on the United Kingdom Accreditation Services website.

Special conditions on imports

Maximum levels for mycotoxins apply to the specified foods whether they are imported or produced domestically. Consumers are protected by special import conditions for certain foods from certain countries where the risk from aflatoxin contamination is increased. These foods will therefore be subjected to additional checks and will have to be accompanied by specific documentation attesting to their compliance with regulations. This includes a certificate of analysis and a health certificate from the competent authority of the country of origin.

There is further information concerning controls for importing high-risk foods into England and Wales or into Northern Ireland.

Codes of practice – fusarium and ochratoxin A

We have developed two specific codes of practice for England, Wales and Northern Ireland to reduce fusarium and ochratoxin A mycotoxins in cereals, and a leaflet which summarises these codes of practice for cereal farmers.

These UK codes of practice are based on a set of general principles to minimise the amount of mycotoxins in cereals.

England, Northern Ireland and Wales

PDF
View Code of good storage practice to reduce ochratoxin A in cereals as PDF(Open in a new window) (63.6 KB)

England, Northern Ireland and Wales

PDF
View Code of good agricultural practice to reduce fusarium mycotoxins in cereals as PDF(Open in a new window) (215.76 KB)

England, Northern Ireland and Wales

PDF
View Code of good agricultural practice to reduce mycotoxins in UK cereals as PDF(Open in a new window) (422.55 KB)
Important

EU references in FSA guidance documents

The FSA is updating all EU references, to accurately reflect the law now in force, in all new or amended guidance published since the Transition Period ended at the end of 2020. In some circumstances it may not always be practicable for us to have all EU references updated at the point we publish new or amended guidance.

Other than in Northern Ireland, any references to EU Regulations in this guidance should be read as meaning retained EU law. You can access retained EU law via HM Government?EU Exit Web Archive. This should be read alongside any EU Exit legislation that was made to ensure retained EU law operates correctly in a UK context. EU Exit legislation is on?legislation.gov.uk. In Northern Ireland, EU law will continue to apply in respect to the majority of food and feed hygiene and safety law, as listed in the Northern Ireland Protocol, and retained EU law will not apply to Northern Ireland in these circumstances.