



Federal Ministry
of Food, Agriculture and
Consumer Protection

Management of Mycotoxins

Dr. Sabine Kruse

Federal Ministry of Food, Agriculture and Consumer Protection

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Undesirable substance

Maximum levels

- For two mycotoxins (aflatoxin B1 and rye ergot) **maximum levels are fixed in Annex I** of the Directive 2002/32/EC.
- Feed containing levels of an undesirable substance that exceed the maximum levels fixed in Annex I may **not be mixed for dilution purposes** with the same, or other, products intended for animal feed.

Mycotoxins with maximum levels

Maximum levels for aflatoxin B₁ laid down in Annex I

✚ Aflatoxin B ₁	Feed materials	0.02 mg/kg ¹⁾
	Compound feed except dairy cattle and calves dairy sheep and lambs dairy goats and kids piglets and young poultry	0.01 mg/kg ¹⁾
		0.005 mg/kg ¹⁾
	Compound feed for other cattle, sheep, goats, pigs and poultry	0.02 mg/kg ¹⁾

¹⁾ Relative to feedingstuffs with moisture content of 12%

Mycotoxins with maximum levels

Maximum level for rye ergot laid down in Annex I

↘ **Rye ergot***)

(Claviceps purpurea)

Feed materials and compound feed
containing ungrounded cereals

1000 mg/kg¹⁾

¹⁾ Relative to feedingstuffs with moisture content of 12%

Management Strategy for undesirable Substances

Working group „Carry over of undesirable substances in feed“ by the federal Ministry of Food, Agriculture and Consumer protection



Experts of different scientific fields deal with all questions regarding feed and the circle of undesirable substances in the feed and food chain including soil, air and water.

The working group **assist the Ministry** in all questions regarding undesirable substances in the feed chain.

The opinions of the working group are published on the web.

Management Strategy for undesirable Substances

Working group „Carry over of undesirable substances in feed“ by the federal Ministry of Food, Agriculture and Consumer protection **publishes opinions, studies and organized workshops**



Management Strategy of Mycotoxins



Opinion of the „Carry over” working group regarding the minimisation of the mycotoxin content in the feed (July 2000)



Prevention

= Minimisation of toxin formation



Detoxification

= Destruction, inactivation or binding of toxins



Chemisorptions

= Binding of toxins in the digestive tract



Feeding

= of animals less sensitive

Management Strategy of Mycotoxins



Opinion of the „Carry over” working group regarding the minimisation of the mycotoxin content in the feed (July 2000)



Establishing of Guidance values for mycotoxins which are only relevant to animal health and productivity



Purpose of Guidance values

- = Assessment of mycotoxins in accordance to the feed legislation
- = Support the determination of the sources if there are health problems as result of high mycotoxin content in feed
- = Support of uniform measures of the competent authorities
- = Concentration on prevention measurements by the farmers and the industry

Recommendation 2006/576/EC on the presence of DON, ZEA, OTA, T-2, HT-2 and fumonisins

Member States undertaken with the active involvement of the feed business operators

- **Monitoring** on the presence of deoxynivalenol, zearalenon, ochratoxin A and fumonisin B1 +B2, T-2 and HT-2 in cereals and cereal products (i.e. by or co-products of the food production) intended for animal feeding and compound feedingstuffs.
- **Analysis of samples simultaneously** for the presence of deoxynivalenol, zearalenon, ochratoxin A and fumonisin B1 +B2, T-2 and HT-2 in order to enable an assessment of the extent of co-occurrence.
- The following **guidance values** are used as guidance for judging the acceptability of compound feed and cereals and cereal products for animal feeding.

Recommendation 2006/576/EC on the presence of DON, ZEA, OTA, T-2, HT-2 and fumonisins

Mycotoxin	Products intended for animal feed	Guidance value mg/kg (12 % MC)
Deoxynivalenol	Feed materials - cereals and cereal products Complementary and complete feedingstuffs with the exception of - complementary and complete feedingstuffs for pigs - complementary and complete feedingstuffs for calves, lambs and kids	8 5 0,9 2
Zearalenon	Feed materials - cereals and cereal products Complementary and complete feedingstuffs - piglets and gilts (young sows) - sows and fattening pigs - calves, dairy cattle, sheep, goats	2 0,1 0,25 0,5
Ochatoxin A	Feed materials - cereals and cereal products- Complementary and complete feedingstuffs - pigs - poultry	0,25 0,05 0.1
Fumonisin B1 and B2	Feed materials - maize and maize products Complementary and complete feedingstuffs - pigs horses, rabbits and pets - fish - Poultry, calves, lambs and kids - adult ruminants and mink	60 5 10 20 50

Recommendation 2006/576/EC on the presence of DON, ZEA, OTA, T-2, HT-2 and fumonisins

- Feed business operators should use in their **HACCP system***) the guidance values for the monitoring (as critical limits at critical control points) and for the prevention, elimination or reduction of identified hazards.
- The **guidance value for cereals and cereal products** is determined with regard to the most tolerant animal species.
- For the **feeding of and the production of feedingstuffs** for more sensitive animals lower guidance value have to be applied taking into account the sensitivity of the animal species and enabling compliance with the guidance values determined for compound feedingstuffs for these animal species.

*) According to the Regulation (EC) No 1831/2003 in feed hygiene

Recommendation 2013/165/EU on the presence of T-2 and HT-2 toxin in cereals and cereal products

- Member States should collect more data (occurrence, reasons for year to year variation, effect of food processing, agricultural practices).
- On the basis of those data the human and animal exposure should be assessed.
- Recommendation of indicative levels for the sum of T-2 and HT-2 µg/kg:

Cereal products for feed and compound feed (*****)	
oat milling products (husks)	2000
other cereal products	500
compound feed, with the exception of feed for cats	250

*****) The indicative levels for cereals and cereal products intended for feed and compound feed are relative to a feed with a moisture content of 12 %.

Recommendation 2006/583/EC on the prevention and reduction of Fusarium toxins in cereals and cereal products

Code of Practice for the **Prevention and Reduction of Mycotoxin Contamination in Cereals**, including Annexes on Ochratoxin A, Zearalenone, Fumonisin and Tricothecenes (CAC/RCP 51 -2003)

Principles of prevention to minimize the occurrence using good agricultural practices

- ✓ Crop rotation
- ✓ Choice of variety/hybrid
- ✓ Crop planning
- ✓ Soil and crop management
- ✓ Harvesting
- ✓ Drying
- ✓ Storage
- ✓ Transport from storage

Recommendation 2012/154/EU on the presence of ergot alkaloids in feed and food

- Member States undertaken with the active involvement of the feed business operators a **monitoring** on the presence of ergot alkaloids in cereals and cereal products intended for animal feeding and compound feedingstuffs.
- **Determination simultaneously** the sclerotia content in the sample.
- **Analysis of the samples** for at least the following ergot alkaloids:
 - ✓ ergocristine/ergocristinine,
 - ✓ ergotamine/ergotaminine,
 - ✓ ergocryptine/ergocryptinine,
 - ✓ ergometrine/ergometrinine,
 - ✓ ergosine/ergosinine,
 - ✓ ergocornine/ergocorninine

Regulation (EC) No 1831/2003 on feed hygiene

Requirements for feed hygiene

- Feed business operators (with the exception of primary production) shall put in place, implement and maintain procedures based on the **HACCP principles**.
- Specific requirements are described in the Annex II of the Regulation.
- Feed business operators at the level of primary production of feed shall comply with the provisions in Annex I of the Regulation.

*“**Guides to good practice** shall include appropriate information on hazards ... and actions to control hazards ... such as:*

a) the control of contamination such as mycotoxins ...”.

Mycotoxin-binders

- **Mycotoxin –binders are feed additives and must be approved.**

Regulation (EC) 386/2009 the establishment of a new functional group of feed additives:

“substances for reduction of the contamination of feed by mycotoxins: substances that can suppress or reduce the absorption, promote the excretion of mycotoxins or modify their mode of action”



Until now, no mycotoxinbinder is approved in the EU.