

Specially developed for pigs, poultry and cattle

• Application

The **Vitafix** product range is designed for monogastric animals as well as ruminants. Apply **Vitafix** products in case a mycotoxin contamination of the feed is suspected or confirmed. Although the dose can be farm specific, the following inclusion rates are advised.

	Pigs/Poultry	Cattle
Low risk contamination	1 - 2 kg/Mton of complete feed	50 - 100 g/animal/day
High risk contamination	2 - 3 kg/Mton of complete feed	100 - 150 g/animal/day

• Packaging

Bags of 25 kg.

• Storage

Store cool and dry.

Claims associated with products may be different based on government requirements. Certain statements may also not be applicable in all regions.

The starting point for rearing healthy, productive animals is **safe nutrition**.

Active in over 80 countries worldwide, we produce premixes, concentrates, nutritional concepts and functional feed ingredients for the animal feed industry.

We strive to constantly innovate, and at the heart of our unique ingredients are our ongoing research, development and testing programmes. We are widely acknowledged as the industry's benchmark for increasing yields and reducing disease naturally.

Through our worldwide reach, constant innovation, thorough testing and proven results, we are proud to say that, today and tomorrow, Nuscience will remain your knowledge partner in nutrition and health.



Visit us at www.nusciencegroup.com



KNOWLEDGE PARTNER IN NUTRITION AND HEALTH

Booiebos 5
B-9031 Ghent (Drongen), Belgium
T +32 (0)9 280 29 00
F +32 (0)9 282 34 27
E info@nusciencegroup.com

Protonweg 10
3542 AJ Utrecht, The Netherlands
T +31 (0)30 248 20 60
F +31 (0)30 241 02 34
www.nusciencegroup.com

health4U | **nutrition4U**
by nuscience | by nuscience

vitafix
countering mycotoxins

As feed directly influences animal performance, it should be of the highest quality, not only nutritionally but also in terms of safety. Fungi growing on crops can produce mycotoxins during growth or post-harvest. It cannot be tolerated that these often invisible, tasteless and heat-stable mycotoxins contaminate the animals' diet and this way impair the animals' health and performance.

nuscience
safe & innovative nutrition

Vitafix, countering the negative effects of mycotoxins

Mycotoxins are toxic compounds produced by different types of fungi, belonging mainly to the *Aspergillus*, *Penicillium* and *Fusarium* genera. Under favourable environmental conditions, when temperature and moisture are conducive, these fungi proliferate and may produce mycotoxins.

The presence of mycotoxins in food and feed may affect human and animal health as they can cause many different adverse health effects such as reproductive, gastrointestinal and liver/kidney disorders and a depressed immunity.

Toxic effects

Monogastrics

- reduced feed intake
- increased feed conversion ratio
- damage to several organs
- fertility problems
- depressed immunity
- increased mortality

Ruminants

- loss of milk production
- reduced fertility
- embryo mortality, weak calves
- increased Somatic cell count and mastitis
- depressed immunity
- reduced feed intake



Mycotoxin	Pigs	Poultry	Cattle	Symptoms
Zearalenon (ZEA)	Very susceptible	-	Corn!	powerful oestrogenic effect, reproduction: prolapse of uteri/recti
Deoxynivalenol (DON)	Very susceptible	✓	Corn!	feed refusal, vomiting, weakening of the immune system
Aflatoxin (AFLA)	✓	✓	✓	liver damage, weakening of the immune system, reduced feed intake
Ochratoxin A (OTA)	✓	✓	- Rumen detox	reduced feed intake and growth, kidney and liver damage
T2-toxin	✓	Very susceptible	✓	reduced feed intake and growth, weakening of the immune system, skin damage
Fumonisine (FUM)	✓	✓	✓	reduced feed intake, liver, lungs and heart damage



Reducing bioactivity

One of the strategies for reducing the effects of mycotoxins is to decrease their bioactivity by including mycotoxin adsorbing agents in the feed. This leads to a reduction of both mycotoxin uptake and their distribution in the blood and target organs. Aflatoxins can be present in feedstuffs because of *Aspergillus* contamination before or after harvest. Next to a decrease in animal performance, the carry-over from feed to milk could result in unacceptable levels of aflatoxin exposure to human. **Vitafix Select**, consisting of carefully selected aluminosilicates, is able to bind aflatoxins up to 99%.

Besides aflatoxins, also other mycotoxins are very disadvantageous to animal health and performance. **Vitafix Plus/Ultra**, containing a.o. activated and purified aluminosilicates, ensure an optimal binding spectrum of a wide range of mycotoxins:

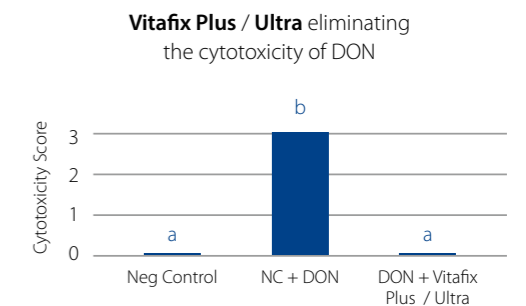
Binding capacity (%)	AFLA	ZEA	OTA	T2	FUM
Vitafix Plus / Ultra	99	96	90	70	90



Biotransformation

Fusarium graminearum and *F. culmorum* produce next to zearalenone (ZEA) also deoxynivalenol (DON). Whereas ZEA can be efficiently bound by adsorbing agents, this is not the case for DON.

Therefore this mycotoxin needs another countering strategy, i.e. the degradation into non-toxic metabolites by using biotransforming agents. Yeast cell fractions in **Vitafix Plus / Ultra** are able to eliminate the toxicity of DON by changing its chemical structure.



Support

Next to real mycotoxin detoxifying agents, the use of supporting agents in **Vitafix Ultra** is very effective for reducing the negative effects of mycotoxins. In case of mycotoxin uptake through the feed, endogenous detoxification takes place in the liver, causing a high burden of this organ. With components supporting an optimal functioning of the liver, such as betain, this endogenous mycotoxin detoxification is enhanced.

Mycotoxins are considered to be among the most important nutritional stress factors having a negative effect on the antioxidant/oxidant balance. Natural antioxidants restore this imbalance.