

Bionit-S

Natural feed additive & Mycotoxin binder



Effective Micro-organisms Limited

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Product Information



Physical description

Aspect	Beige-grey powder
Particle size	20-40% > 63 micro -m
Moisture content	max 12%
Bulk density	ca 850g/l
pH-value	ca 10 (80g/H ² O)

Chemical composition (typical analysis)

SiO ²	57.1%
MgO	3.3%
Al ² O ³	16.8%
Na ² O	0.4%
Fe ² O ³	5.4%
K ² O	2.1%
CaO	3.6%

Bionit-S is a mineral feed additive for use in animal nutrition. It is a partially modified aluminosilicate with a large selective surface area, designed to bind secondary fungal metabolites found in animal feedstuff.

Packaging: 25 Kg bags

Storage: To maintain the high performance of Bionit-S it should be stored in a cool dry area. It should not be stored next to chemicals that give off a strong smell or evaporate easily, since it can adsorb fumes. Its shelf life is 3 years from manufacture.

Local Dealer:

EM Effective Micro-organisms Ltd

E-mail › info@effectivemicro-organisms.co.uk Website › www.effectivemicro-organisms.co.uk

Bionit-S is a natural feed additive which regulates feed conversion and improves vitality and health in livestock. Bionit-S is a selected aluminosilicate with a high binding surface area, derived from bentonite - montmorillonite active clay.

Benefits of feeding Bionit-S

- Acts as natural dietary fibres and has a positive effect on the digestive process
- Protects the intestinal flora and stabilises the health of the animal
- Binds harmful substances such as mycotoxins
- Reduces diarrhoea caused by certain feeds
- Strengthens the animals immune system
- Aids performance levels

Bionit-S is suitable for all species and categories of animals, all ages and all feedstuffs.



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What are mycotoxins?

Mycotoxins are harmful substances produced by various mould fungi most commonly from the species aspergillus, penicillium and fusarium. These occur in the environment and under favourable conditions of temperature and humidity grow on crops, particularly cereals and maize, contaminating them with mycotoxins. Mature and physically damaged crops are most prone to infection. The fungi, especially fusarium can overwinter on trash from the previous year's harvest to infect the current year's crop. Contamination can also occur during storage of damp grain, particularly resulting from the growth of penicillium.

Mycotoxin	Pigs	Poultry	Ruminants
Aflatoxin B	++++	++++	++++
Ochratoxin A	+++	+++	+
Ergot	+++	++	+++
Fumonisin	++	+	+
Deoxynivalenol	+++	+	+++
Zearalenone	++++	+	+++
T-2 Toxin	++	++++	++

Sensitivity + = low ++ = medium +++ = high ++++ = very high

Table 1: Sensitivity of Farm Animals to Mycotoxins



Bionit-S is a mineral feed additive for animals which is designed to protect the health of animals in a natural way. It has a positive effect on the digestive process. It is derived from naturally occurring bentonite- montmorillonite clay with specific properties. It is a natural aid which permits the genetic performance potential of the animals to be expressed to better effect. It is a valuable management tool in today's intensive livestock systems.



It is composed of aluminosilicate that has a high adsorption affinity for polar mycotoxins, which is achieved by a special modification of its mineral surface. This activation process improves its selective adsorption of polar mycotoxins, so that they can form a stable complex - a lock and key effect.

Bionit-S deactivates the undesirable substances within the animal's digestive tract, protecting it from the damaging effects of the toxins and relieving the burden on the liver.

What problems do they cause ?

Mycotoxin	NOEL (No observable effect level) ppb	Symptoms
Aflatoxin B1	pigs 5-20 poultry 5-20 cattle 5-20	Reduced feed intake and feed efficiency. Depressed immune system. Reduced milk production. Reduced fertility.
Ochratoxin A	pigs 20-100 poultry 100-200 cattle 200-1000	Depressed immune system. Kidney damage. Decreased egg production.
Ergot Alkaloids	pigs < 0.1% sclerotia poultry < 0.1% sclerotia cattle < 0.1% sclerotia	Reduced feed intake and feed efficiency. Depressed immune system. Necrosis of ears and tails. Abortion
Fumonisin B1	pigs 1000-2000 poultry 1000-2000 cattle 2000-4000	Reduced feed intake and slower growth. Liver and lung damage.
Deoxynivalenol (DON)	pigs 100-200 poultry 1000-2000 cattle 100-200	Reduced feed intake and vomiting. Decreased weight gain. Depressed immune system.
Zearalenone (ZON)	pigs 20-50 poultry 500-1000 cattle 100-500	Reduced feed intake and slower growth. Reduced fertility
T-2 Toxin	pigs 200-1000 poultry 100-200 cattle 200-1000	Reduced feed intake and slower growth. Depressed immune system. Reduced fertility. Drop in egg production.

Table 2: Effects of Mycotoxins on Farm Animals

Hundreds of different mycotoxins have been identified, of which seven have been most widely studied (Table 1). These harmful metabolites can have a range of effects when inadvertently fed to animals, depending on the type and concentration of toxin and species of animals. (Table 2)

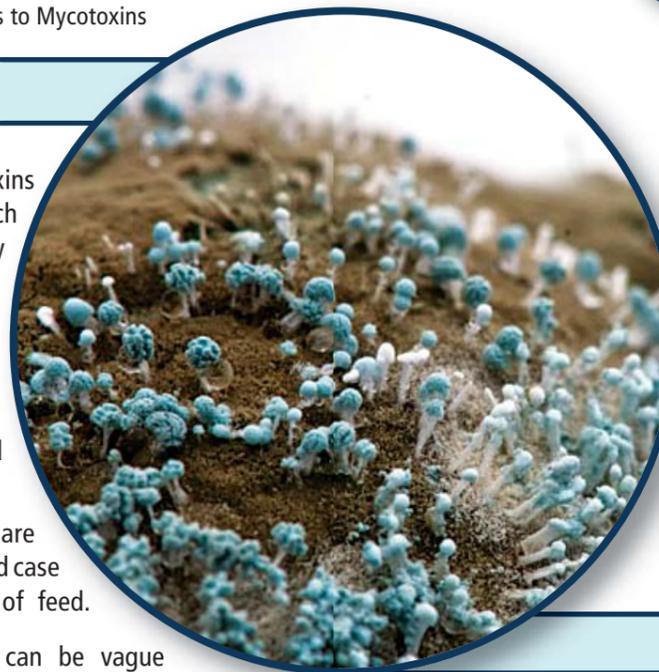
Special screening tests are available to confirm a suspected case of mycotoxin contamination of feed.

Sub clinical symptoms can be vague and difficult to diagnose but usually result in

- decreased performance
- reduced feed intake
- poor feed conversion
- suppression of the animals' immune system making them more prone to infectious disease.

Clinical symptoms can include

- feed refusal
- vomiting and diarrhoea
- internal bleeding
- reproductive disorders and swollen teats or joints in cattle.



The Solution

Mycotoxins in Ruminants

Ruminants have an advantage over mono-gastric animals when it comes to dealing with mycotoxins. Rumen microbes are to some extent able to partially modify and deactivate mycotoxins. However when rumen function is disrupted by subacute rumen acidosis this ability is much reduced.

Bionit-S has a further protective role to play here in the rumen where it has a balancing effect on acidity levels by binding hydrogen ions.

Feeding Rates

Mycotoxin Challenge	Feeding Rate
Low levels of mycotoxin / preventative	2Kg / tonne feed
Increased levels of mycotoxins	3Kg / tonne feed
Acute symptoms	4Kg / tonne feed
Ruminants and horses	40-80 gms / head / day
Calves	30-50gms / head / day
Pigs	30-50gms / head / day
Piglets	10-20gms / head / day

For all kinds of animals the recommended feeding rate depends on the level of contamination of toxins present in the feed or severity of the existing symptoms. **Bionit-S** should be added to the feed at the recommended quantity. It is important that it is thoroughly mixed into the feed.

