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Mycotoxins VI

The trichothecenes

The trichothecenes include at least 150 structurally related compounds. The trichothecenes of veterinary significance are produced by fusarial moulds, particularly Fusarium graminearum and F. sporotrichioides. The fusarial mycotoxins of most significance are T-2 toxin, diacetoxyscirpenol (DAS) and vomitoxin (DON). Of these three, DON is a common contaminant of feedstuffs with multiple effects in animals. DON is a commonly found mycotoxin in wheat, barley and maize and is important because it induces feed refusal and, thereby, reduced feed intake.

Clinical picture with DON

Feed refusal caused by DON is dose related and at a 10ppm level feed refusal is usually total, while no effects ae seen at <1ppm. Obviously feed refusal correlates with weight gain loss.

Most effects of DON are transitory and occur at levels of 2-8ppm. At these levels, DON mycotoxicity in pigs is characterised by lethargy, restlessness, weight loss and cannibalism. Examination of bloods reveals decreased serum proteins, globulin and α-globulin and an increased albumin:globulin ratio.

Evidence of immune dysfunction is variable, but DON tends to increase immunoglobulin A concentration in the blood.

Diagnosis

Mycotoxin induced feed refusal often presents a difficult differential diagnosis with other toxins, drugs, concurrent disease, bad weather and reduced water intake all coming into consideration.

Unfortunately, trichothecenes are rapidly metabolised on absorption so analysis of tissue or bloods is not a very fruitful exercise. Detection of DON in feed is the usual basis for confirming suspicions of DON toxicity.

Treatment and control

There is no effective treatment. Prevention centres around the use of anti-mycotoxin products in the feed.