



Selenium & Vitamin E deficiencies in cattle and sheep



Vitamin E (Vit E) and selenium (Se) have important complementary roles as antioxidants. They protect tissues from oxidising agents absorbed from the diet (e.g. polyunsaturated fatty acids) or produced in normal metabolic activities.

Feeding animals a diet low in Vitamin E may lead to disease. Propionic acid preservation of cereal grains has also been associated with destruction of dietary Vit E and increased risk of a deficiency. Calves and lambs seem to be particularly at risk with muscle tissues affected. This condition has been termed stiff lamb, white muscle disease (WMD) or nutritional muscular dystrophy.

Continued

Please contact your nearest VLA regional laboratory for advice on tests and services available. Contact details can be found on the VLA website.

Contact details

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● Clinical signs

The signs depend on the muscles affected. When cardiac muscle is affected the first sign is usually sudden death. When skeletal muscles are affected the presentation is usually related to the muscle groups affected, therefore gait abnormalities, stiffness and upper limb lameness may be seen.

Vit E and Se also contribute to immune function and therefore mild deficiency, insufficient to precipitate white muscle disease, may possibly reduce immune responses in conditions such as mastitis.

Other conditions that have been associated with deficiency, but not proven, are retained foetal membranes and poor fertility. Se deficiency has been associated with poor growth in cattle and lambs but the level necessary to depress growth is severe and is probably quite rare in the UK.

There is a relatively small margin of safety (10 fold) between the minimum dietary concentration of Se and the toxic concentration. Toxicity has occurred when Se supplements have been inadequately mixed with worm drenches.

Consequently take care that Se status is measured to confirm the need for supplementation and ensure that the amount of supplement given is not likely to cause intoxication. The signs of deficiency may be vague and other infectious, parasitic and nutritional factors should be considered in cases of poor growth or ill thrift, or in herds with reproduction problems.

Furthermore in some situations low levels of Vit E or Se may be detected in blood samples and yet the animals seem to be clinically unaffected.

● Diagnosis

White Muscle disease is usually diagnosed at post mortem. Assessment of Se status can be made from the analysis of blood and liver samples; Vit E from blood samples.

● Treatment & Prevention

Contact your veterinary practitioner for further advice.