

# NADIS Health Bulletin



Knowledge transfer to farmers

## Trace element deficiency in growing lambs

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The trace element deficiency states generally considered in sheep are: cobalt, copper, and vitamin E and selenium. These deficiency states are commonly diagnosed by NADIS veterinary practices as a cause of poor lamb growth.

The clinical signs associated with trace element deficiency in sheep are often insidious in onset and usually present as poorly-thriven lambs with considerable faecal staining of the perineum during late summer/early autumn. There is considerable interplay between chronic parasitism, malnutrition, and trace element deficiencies (Figs 1 and 2). Losses from trace element deficiency states include extended periods to slaughter, lighter slaughter weights, and extra feed costs which could amount to £5 per lamb.



**Fig 1 : Poor quality lambs in September. Is the cause chronic parasitism, poor nutrition due to overgrazing, or trace element deficiency?**

### Cobalt deficiency

Clinical signs of cobalt deficiency (pine) are most commonly observed in grazing lambs after weaning (Figs 1 and 2). Signs are non-specific and include lethargy, poor appetite, poor quality wool with an open fleece, small size and very poor body condition despite apparent adequate nutrition, and tear-staining of the cheeks.

It is reported that cobalt-deficient sheep suffer from a non-specific immunosuppression and are more susceptible to infectious diseases including the clostridial diseases and pasteurellosis.

Diagnosis is based upon clinical signs in areas with known cobalt-deficient soils supported by low plasma and/or liver vitamin B12 concentrations collected by a veterinary surgeon. As a general guide, a growth response is expected within one to two weeks of oral supplementation.

Oral cobalt supplementation is very cheap indeed, and with many anthelmintics belonging to Group 1-BZ and Group 2-LM the cobalt supplement is already added to the drench. Monthly dosing from around three months-old with proprietary cobalt-supplemented anthelmintic drench should supply sufficient cobalt to growing lambs in most situations.

Cobalt oxide containing boluses, which lodge in the reticulum, provide a continuous supply of cobalt but are expensive in those lambs which require a short supplementation period of only two to three months.



**Fig 2 : Trace element deficiency states can cause extended periods to slaughter, lighter slaughter weights, and extra feed costs with losses amounting to £5 per lamb**

Soluble glass boluses containing cobalt, selenium and copper are available in some countries but are a very expensive means indeed of supplying cobalt and are only indicated in situations where all three deficiency conditions (cobalt, copper, and vitamin E and selenium) are considered to exert a negative influence on health.

## Copper deficiency

In growing lambs copper deficiency may result in a poor fleece without its natural "crimp" which has been described as "steely wool". Other reports describe poor liveweight gain and anaemia. Copper deficiency is most reliably diagnosed in growing lambs based upon a dose/response study where a small number of sheep remain unsupplemented. Copper deficiency during mid-gestation of the dam may lead to swayback in her lambs.

As well as being susceptible to copper deficiency, sheep are also prone to copper accumulation and toxicity. There is

considerable breed variation with respect to copper absorption and therefore to copper deficiency and toxicity. While copper deficiency is often a perennial problem on certain farms, farmers must always be aware of the risks of copper toxicity and seek veterinary advice. Copper is usually given by injection as copper heptonate. Supplementation can also be effected with copper oxide needles administered orally in a gelatin capsule at a dose rate of 0.1 g copper oxide per kg liveweight.

## Selenium and vitamin E deficiency

White muscle disease occurs in the UK with recognised risk factors such as feeding home grown cereals and root crops, and incorrectly mineralised rations. However, the disease prevalence is generally low. In the UK, white muscle disease typically affects rapidly-growing two to six week-old lambs, often ram lambs of meat breeds such as the Suffolk and Texel. There is sudden onset stiffness with lambs reluctant to move such that they are easily caught. After one or two days, affected lambs are unable to rise and remain lying down.

Intramuscular or subcutaneous injection of young lambs suffering from white muscle disease as directed by a veterinary surgeon results in return to full mobility within two to three days.

Selenium supply via regular anthelmintic drench (often monthly) is a cheap and reliable means of supplementation for growing lambs but not all anthelmintic preparations are suitable for combined drenching. This latter point is important for those



**Fig 3 : Four week-old pedigree Suffolk lamb with white muscle disease.**

farmers who follow an annual rotation between the three anthelmintic groups.

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A better understanding of disease control and prevention will save you money and improve animal health and welfare.

[CLICK HERE](#) to test your knowledge on the NADIS Animal Health Quiz

The following question is amongst those to be found in the quiz:-

Signs of cobalt deficiency include which of the following:

- A lethargy,
- B poor appetite, poor quality wool with an open fleece,
- C small size
- D very poor body condition despite apparent adequate nutrition
- E all of the above

(Answer at bottom of page 1)

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