

## Health and Disease Issues

### Vitamins (General)

Vitamins are important for the control of many physiological processes in the body.

Inadequate intake of vitamins A, D and E are the most common deficiency conditions. Vitamin B<sub>12</sub> deficiency occurs when cobalt intake is inadequate.

Injectable forms of vitamin A, D, E and B<sub>12</sub> are commercially available. These are reasonably cheap, and are generally recommended if sheep and lambs have not had access to green feed within three months of entering an intensive feeding system, or are from cobalt-deficient areas.

---

© Sheep Solutions. Unauthorised copying, distribution or technical use of this publication and its contents is prohibited.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the user's independent adviser.

## Health and Disease Issues

### Vitamin A

Has a role in normal growth, protecting mucous membranes, reproduction and sight.

Vitamin A is produced in sheep through the conversion of beta-carotene (found in green feed) into Vitamin A in the intestine and liver.

#### **Predisposing Factors:**

Green feed is a major source of Vitamin A for sheep and lambs.

Vitamin A is particularly susceptible to damage during processing of feeds. Availability can be reduced through oxidation by moisture or heat (e.g. during pelletising process), hay making, grinding or during extended storage periods.

#### **Signs and Symptoms:**

- Night blindness and/or conjunctivitis and a blue haze over the eyeball
- Inappetence
- Poor coordination, muscular weakness, lameness and/or paralysis
- Scouring
- Urinary calculi
- Convulsions and death.

#### **Control and Prevention:**

Adult sheep normally have sufficient stores within the liver of Vitamin A for up to 6 months without supplementation. Lambs however, do not have the same amount of bodily stores and may need supplementation once they reach 4 months of age.

Green feed or a Vitamin A injection or drench can be used to prevent deficiency occurring.

#### **Treatment:**

Sheep with signs of Vitamin A deficiency respond rapidly to treatment which can include access to green feed or injection or drenches of vitamin A.

---

© Sheep Solutions. Unauthorised copying, distribution or technical use of this publication and its contents is prohibited.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the user's independent adviser.

## Health and Disease Issues

### Vitamin B<sub>12</sub>/Cobalt

Cobalt is required for the production of Vitamin B<sub>12</sub> by micro-organisms in the rumen. Absorption of Vitamin B<sub>12</sub> occurs primarily in the small intestine and is enhanced by slower rates of movement of material through the intestine. Most is stored within the liver.

Vitamin B<sub>12</sub> is essential for the growth of cells, energy production and wool production in sheep. Production losses, particularly in young sheep can be significant if Vitamin B<sub>12</sub> levels are low.

#### **Predisposing Factors:**

Spring pastures generally have lower levels of trace elements due to faster growth, and lower uptake of elements from the soil. Feeds used for finishing lambs sourced from these pastures may conceivably be cobalt deficient.

#### **Signs and Symptoms:**

- Poor appetite/weakness
- Poor condition/anaemia
- Wool becomes open and lifeless
- Discharge from the eyes
- Death.

Growth rates and wool production are affected by marginal cobalt/Vitamin B<sub>12</sub> deficiency, with these losses exceeding 15% in severely cobalt-deficient areas. A 'tail' in the flock is characteristic of this form of the deficiency.

#### **Control and Prevention:**

Sub-cutaneous injection of vitamin B<sub>12</sub> is recommended for the immediate treatment of deficient animals and for short-term (up to 3 months) prevention of deficiency.

Intra-ruminal cobalt pellets ('bullets') are the most efficient method of long-term prevention in endemically deficient areas.

Oral drenches of cobalt salts are used but give only short-term protection. Salt licks and mineral blocks may be effective provided sheep ingest sufficient amounts to meet requirements.

#### **Treatment:**

Intramuscular and subcutaneous injections of Vitamin B<sub>12</sub> are available.

---

© Sheep Solutions. Unauthorised copying, distribution or technical use of this publication and its contents is prohibited.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the user's independent adviser.

## Health and Disease Issues

### Vitamin D

Vitamin D is formed by the action of sunlight or other sources of ultraviolet light rays upon sterols in the skin of animals or in plant tissue.

Ewes can supply sufficient vitamin D in their milk for the first 4-6 weeks of a lamb's life. Vitamin D is stored in the animal's fat so an adult animal is less susceptible compared to younger classes simply due to higher fat reserves.

Vitamin D increases the absorption and metabolic use of calcium and phosphorus. It helps regulate blood calcium levels.

#### **Predisposing Factors:**

Deficiencies are rare in Australia. Sheep with black pigmented skins or long wool receive less sun exposure than white skinned and short-wooled sheep.

#### **Signs and Symptoms:**

- Ill thrift
- Stiffness
- Hunched back
- Abnormally high incidence of broken bones
- Ricketts.

#### **Control and Prevention:**

Provision of good quality sun-cured hay will generally prevent Vitamin D deficiencies. Injectable and oral vitamin D supplements are also available.

#### **Treatment:**

Consult your veterinarian regarding the best options for diagnosis and treatment.

---

© Sheep Solutions. Unauthorised copying, distribution or technical use of this publication and its contents is prohibited.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the user's independent adviser.

## Health and Disease Issues

### Vitamin E

The specific physiological function of vitamin E is not clear. Health issues such as stiff-lamb and white-muscle disease can be prevented through administering supplemental Vitamin E. A close relationship exists between selenium and vitamin E.

#### **Predisposing Factors:**

- Feeding weaners on hay or grain over extended periods
- High-grain rations with limited or no roughage, especially high-moisture grains
- Feeding grains or roughages that are low in selenium
- High fat levels in ration
- Lengthy storage of feeds

#### **Signs and Symptoms:**

The fastest growing lambs are the most susceptible to showing signs of Vitamin E deficiency.

- 'Stiff muscled' appearance
- Recumbency
- Animals appear bright and alert but are reluctant to stand
- Death through heart failure when stressed or excited

#### **Control and Prevention:**

Vitamin E supplements can be used to help ensure sufficient levels are in the diet.

#### **Treatment:**

When the diagnosis is confirmed, treat with an oral drench of water-soluble Vitamin E using a dose rate of 3000 IU per animal.

---

© Sheep Solutions. Unauthorised copying, distribution or technical use of this publication and its contents is prohibited.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the user's independent adviser.