



Vaccination is an ideal time to supplement with Vitamin B12

What is Vitamin B12?

Vitamin B12 is an essential vitamin for all mammals. The vitamin is necessary for the metabolism of proteins, fats and carbohydrates.

Microorganisms in the rumen of cattle and sheep manufacture vitamin B12. Cobalt is an essential element for the production of vitamin B12. Without sufficient cobalt, vitamin B12 is not produced and symptoms of vitamin B12 deficiency begin to develop.

The symptoms of vitamin B12 deficiency are^{1,2}

- loss of appetite
- weight loss
- reduced milk production
- birth of weak calves
- decreased wool growth
- decreased fertility
- abortion
- increased susceptibility to parasites
- emaciation and death

Studies have shown that symptoms of vitamin B12 deficiency can lead to a 14-17% depression in liveweight, and a 10-15% depression in wool growth.³

Where does Vitamin B12 (cobalt) deficiency occur in Australia?

Vitamin B12 levels are related to the intake of cobalt from the pasture, which in turn is influenced by several factors including soil type, pasture species, rainfall and seasonal conditions.

Cobalt deficiency is well documented throughout coastal areas of Australia, including southern Australia and has also been found to occur in many inland regions as well.

Known deficient areas include coastal sandy soils, high rainfall granite soils and krasnozems soils, which may be exacerbated by application of lime and superphosphates. Intensive cropping, leaching and weathering can also decrease the amount of cobalt in the soil.

Vitamin B12 deficiency occurs in three situations:

1. Severe cobalt deficiency

In areas of Australia with severe cobalt deficiency, symptoms are controlled with regular dosing of vitamin B12 to young stock. Breeding and older stock are administered with cobalt bullets or pellets for longer term protection.

2. Marginal cobalt deficiency

In areas with marginal cobalt deficiency, seasonal factors predispose to symptoms of vitamin B12 deficiency:

- long compared to short pastures
- grasses predominating over clovers
- spring and summer rather than autumn and winter

3. Feedlots

Boosting vitamin B12 levels is of tremendous value in stimulating the appetite of incoming stock, stressed by travelling long distances⁴. As stock are sourced from wide areas, including those with cobalt deficiency, supplementing the vitamin B12 levels of all new stock is sound practice.



**WEBSTERS®****5 IN 1 VACCINE WITH VITAMIN B12**
for Cattle and Sheep

Clostridial Diseases

Clostridial diseases are important diseases for both sheep and cattle. Valuable stock losses occur annually, caused by the clostridial diseases of pulpy kidney (enterotoxaemia), tetanus, black disease, malignant oedema and blackleg. These diseases may be prevented by vaccination.

WEBSTERS® 5 in 1 with B12

WEBSTERS 5 in 1 Vaccine with Vitamin B12 provides protection against the 5 major Clostridial diseases, as well as supplementing vitamin B12 levels for cattle and sheep.



Directions For Use

Unvaccinated stock

Active immune response requires two injections. A priming dose must be followed by a secondary dose 4 to 6 weeks later. Annual boosters are necessary to maintain immunity. Vitamin B12 levels will persist for 2-3 months, following injection.

Breeding stock

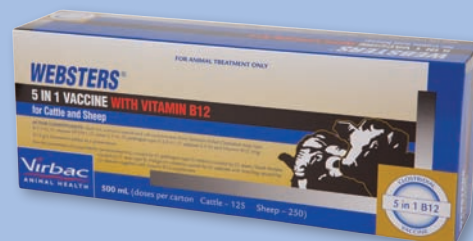
Sheep and cattle previously vaccinated need one dose of WEBSTERS 5 in 1 with B12 to confer twelve months protection against the clostridial diseases. Vitamin B12 levels will last for persist for 2-3 months.

To ensure high levels of protective antibodies to the clostridial diseases, and maximum levels of vitamin B12 in lambs and calves, the annual booster injection should be given three to four weeks prior to lambing or calving.

Young stock

Lambs: 2mL dose at marking followed by a second 2mL dose 4-6 weeks later.

Calves: 4mL dose at 4 to 6 months of age, followed by a second 4mL 4-6 weeks later.



- Protects against the 5 major clostridial diseases
- Contains Vitamin B12 - essential for appetite and efficient energy production
- Contains the most effective form of Vitamin B12 (hydroxocobalamin)

For more information on WEBSTERS 5 in 1 Vaccine, contact your Area Sales Manager who can be found at www.virbac.com.au or by calling **Customer Support 1800 242 100.**

1. Peverill KI, Judson, GJ, Cobalt. In Soil Analysis: an Interpretation Manual. CSIRO Publishing, Melbourne, 1999; 319-23. 2. Hungerford TG. Diseases of Livestock, 9th edn McGraw-Hill, Sydney 1990:1542 3. Judson GJ, Caple IVV, Langlands JP and Peter DW. Mineral nutrition of grazing animals in southern Australia. In: Temperate Pastures – their Production, Utilisation and Management. 1987 Australian Wool Corporation/CSIRO: East Melbourne. 4. Crook A. Inducting cattle – do it right the first time. In Proceedings of Queensland feedlot field days 1993. DPI Warwick