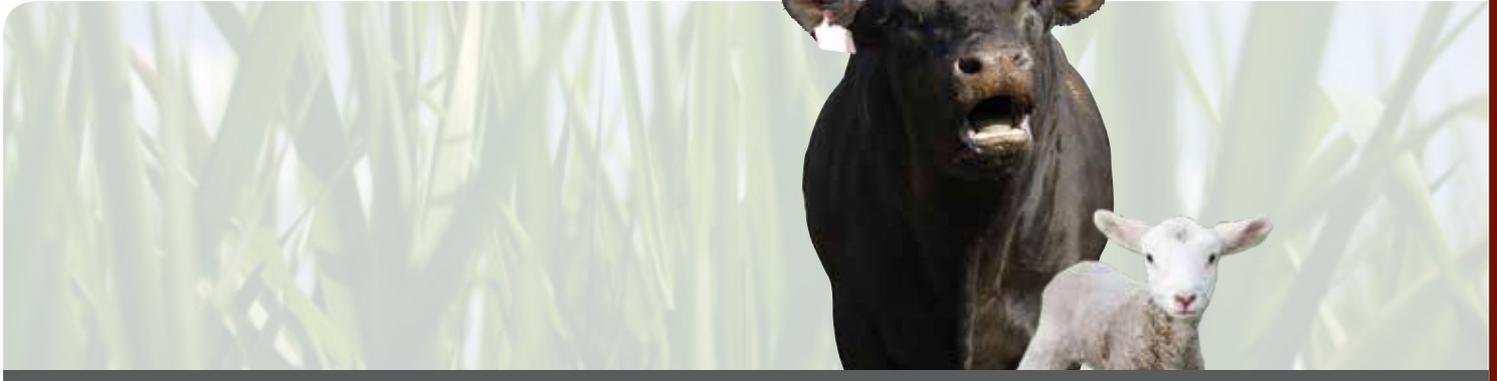


Sheep & Beef Talk

October 2017



Cobalt/Vitamin B12 Deficiency:

Cobalt deficiency, often known as bush sickness or vitamin B12 deficiency can be a serious problem in young lambs after weaning. Cobalt in feed is converted to vitamin B12 by the bacteria in the rumen. All ruminant animals need vitamin B12 in order to get the energy out of pasture but deficiency is usually only seen in young lambs after weaning. Before weaning, lambs get most of their energy from the lactose in milk so have lower requirements for vitamin B12. When young lambs transition from a milk-based diet to eating pasture in the field, their rumens develop. With this development comes an increased requirement for cobalt. As they get older, their requirements for cobalt decrease. During the lambs first winter the amount of cobalt required in the liver drops to low levels.

The signs of cobalt deficiency include reduced appetite, poor live-weight gain or live-weight loss and watery eye discharge. With severe deficiency, ewes can have reduced fertility and lower milk production. Claims that vitamin B12 can fix a range of conditions including recovery from facial eczema, boosting energy and reducing the effects of "stress" are not supported by good science.

Soil and pasture factors contributing to deficiency

Some New Zealand soils are naturally low in cobalt such as the volcanic soils of the central plateau and greywacke soils of Southland and Canterbury. Plants don't require cobalt to grow. However, some plants uptake more cobalt than others with clovers and herbs generally being higher in cobalt than grasses. Plant uptake of cobalt can be affected by high levels of manganese, high soil pH and with rapid pasture growth. With all of these complicating factors, unfortunately, testing soil or plants for cobalt levels does not tell us if lambs on that soil type or eating that pasture will become deficient or not.

Should I supplement my lambs?

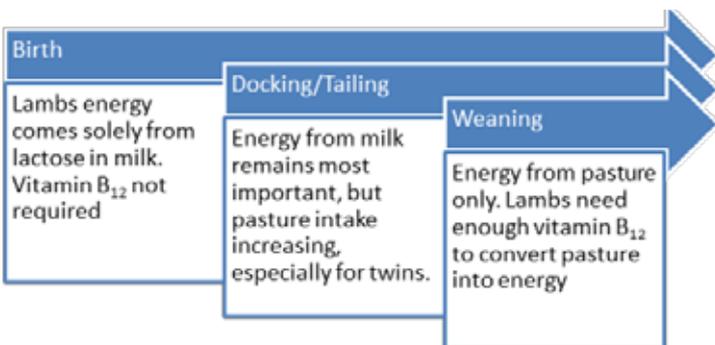
The question we really need to answer is: Will supplementing the lambs add value to the farm business? There are two approaches to answering this question:

1. Collect three liver samples for vitamin B12 testing.

Liver is the sample of choice as blood samples are affected by changes in daily intake, time off feed before sampling and facial eczema. This can be done in live lambs kept on the farm or collected as lambs are processed.

The result from your lambs will be compared by your vet to those from many New Zealand studies where lambs have been given vitamin B12 and growth responses were measured. From the comparison you can get a very good indication of whether your lambs will grow faster if they are given vitamin B12 or not.

There is a cost to getting this information but it should be thought of as an investment being spread across all lambs on the farm. So the more lambs you have the lower the investment cost per lamb. Added to that, the more lambs you have, the greater the potential gains from either correcting cobalt deficiency or saving some costs by not treating if levels are adequate.



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2. Insurance against cobalt deficiency in young lambs with vitamin B12 injections.

This could be based on testing done on your farm in previous season's which has shown lambs will give a growth response to supplementation or just a decision to treat as insurance.

Vitamin B12 is given by injection as either a water-based injection which lasts about one month or an oily injection that lasts 3-6 months depending on the dose given.

Both options come at a relatively small cost and the "premium" is paid back if the lambs gain approximately an extra 7 grams/day (water-based injection) or 14 grams per day (oily injection) (assuming lambs are worth \$2.00/kg LW). The advantage of the oily injection is that one shot will generally get them through the summer-autumn risk period, compared to monthly injections with water-based vitamin B12.

Insuring against cobalt deficiency will only pay for itself if the lambs are cobalt deficient. A growth response to supplementation will only occur if the majority of the lambs' energy is coming from pasture. Depending on how well the ewes are milking, some lambs might self-wean before the whole mob is physically weaned so supplementing all lambs at docking/ tailing can provide some insurance for these self-weaned lambs. Added to that, we can only expect a growth response if there is high enough pasture quality and quantity and other issues such as worms, facial eczema and selenium deficiency are taken care of.

Other cobalt supplement options

Cobalt can be given orally for conversion to vitamin B12 by the rumen bacteria but this process might not be very efficient in young lambs and oral cobalt, such as in worm drenches, will only last a few days.

Topdressing or pasture spraying with cobalt sulphate is an option; especially if soil and pasture cobalt levels are low. The highest levels in

pasture are found in the first few months following application. As our young lambs are at greatest risk this would mean applying cobalt in late spring. High levels of manganese and/or iron and high soil pH or recent liming can all affect cobalt uptake by plants and therefore the effectiveness of topdressing.

Topdressing can be an effective long-term strategy to reduce the risk of cobalt deficiency in lambs and other stock classes. It can take years to build up soil and pasture cobalt levels and therefore, needs to be done over all of the paddocks where lambs are grazed.

What about cattle and deer?

There are no recent published New Zealand trials demonstrating a response to vitamin B12 supplementation in cattle, although several have been done with no response to supplementation measured. Further to that, cattle requirements for cobalt are half of that for sheep on a per kgDM basis.

From the limited amount of information on deer cobalt requirements they are likely similar to cattle and much lower than what sheep need.

Summary

Cobalt deficiency has been well researched in New Zealand and is a known cause of poor growth in lambs. October is a good time to have a chat with your animal health advisor to make sure you have a plan in place to reduce the impact of cobalt deficiency on your farm business.

