

Is there any benefit in providing lick blocks to sheep over summer?

There is a common belief that the use of lick blocks over summer are beneficial to sheep grazing dry pastures or stubbles. Generally, people say, “we need to provide salts, vitamins and minerals over summer”, or “licks provide energy and protein”, or “licks help the stock utilise the dry feed.”

As a general rule of thumb, there are more efficient and cost effective methods of improving stock performance than providing mineral blocks. Firstly, you need to ensure that stock are receiving adequate energy, protein and water. Given that energy is usually the most limiting factor in a ruminant diet, the majority of lick blocks provide little or no energy and are therefore an added expense. Blocks containing molasses can be a useful source of energy however, molasses is low in protein and the energy value decreases rapidly when it is increased from 10% to 30% w/w of the total ration. It is usually used to increase the palatability and bind and mould the dry ingredients into a block.

Blocks that contain urea and other sources of protein do supply protein but it is not the most cost effective way. Urea is not a protein, it is a source of non-protein nitrogen (NPN) that is used by the rumen bacteria, converted to ammonia in the rumen and used to produce microbial protein. Adequate energy in the ration is needed to make full use of the NPN, and it can take 4 weeks for the rumen to adjust to additional nitrogen in the system. Urea can be toxic and is less suited to growing animals as they perform better on true protein supplements. At around 1% w/w of the ration, urea can increase diet crude protein by ~2 – 2.5% but levels above 2% w/w usually results in a reduction of feed intake. In a cereal grazing trial in the Horsham district, wethers on weed free wheat stubbles lost 4kg over a 12-week period. In the same trial, the addition of molasses and urea blocks resulted in a live weight loss of 1.5kg whereas the addition of 100g of lupins/hd/day gave a 0.5kg gain over the same period. A review of 13 trials comparing the use of blocks as a form of supplementation for stock grazing stubbles showed that there was only a positive response to lick blocks in three instances.

Based on the cost of protein supplied by blocks, lupins are normally about a quarter of the price compared to blocks and provide more valuable protein and energy.

Mineral blocks usually contain salts and minerals. Salt is usually only required in a feedlot environment as it improves the palatability of feed mixes and increases water intake. Water intake is important for sheep eating high quantities of cereal grains, as cereal grains are high in phosphorus and low in calcium which can lead to a condition called water belly. Water belly occurs because the Ca:P ratio is low, resulting in minerals precipitating in the urine to form crystals and stones that cause blockages in the urethra, which reduces urine production and flow. Reduced urine flow leads to the formation of calculi. By adding salt to the diet, water intake is increased, therefore increasing urine flow and mineral solubility. It is always more cost effective to provide fine salt (table salt you put on your steak) in the diet at ~0.5% rather than to use blocks. In intensive situations, such as

feedlots, up to 4% NaCl can be included into the diet gradually. In a grazing environment with a balanced diet of roughage, energy and protein, nine times out of ten, additional salt in the diet is not required.

Minerals are required by ruminants and are involved in many metabolic processes in the animal. Although they are essential, they are only required in minute quantities and usually always are supplied through the feed or soil. They are classified as either macro or trace minerals. Pregnant and lactating animals are more susceptible to macro mineral deficiencies, while young growing lambs are more susceptible to trace mineral deficiencies. It has been estimated that mineral and vitamin deficiencies probably cause less than 2% of the overall production losses in sheep. In contrast, production losses caused by sheep worms, flystrike and lice contribute a far greater economic impact on production. Macro minerals include Calcium, Magnesium, Phosphorus, Sodium, Sulphur, Potassium and Chloride. Deficiencies of these minerals can result in a number of clinical diseases, including milk fever (hypocalcaemia) and grass tetany. Milk fever is caused by low blood concentrations of calcium and sheep during late pregnancy and early lactation are most at risk. Sheep that are consuming grain based diets and very short lush green feed that is devoid of both calcium and fibre are most affected. Lack of fibre reduces rumination and rumination improves calcium utilisation through buffering activity. To prevent milk fever, avoid mustering in late pregnancy and if you have to muster in the last 3 weeks before lambing, feed well before and after muster and ensure animals are not off feed for more than 12 hours. Even non-pregnant animals are susceptible if off food during transport for more than 48 hours.

If supplementing with grain in late pregnancy or during lambing, it is critical to ensure

- a minimum of 0.7kg of fibre(*hay or straw*) per ewe per week
- 1-1.5% limestone added to grain on the point of lambing only
 - 5% salt to limestone improves palatability
 - Course limestone is more palatable

Avoid feeding calcium supplement to pregnant animals as this makes them more vulnerable to calcium problems at or soon after lambing.

Similarly, grass tetany is caused by a deficiency of Magnesium in the diet. Magnesium is usually sufficient in pastures and deficiencies in sheep are rarely seen. Therefore, there is rarely a need to supplement with Magnesium.

Of particular interest is pregnancy toxaemia or twin lamb disease. Contrary to popular belief, pregnancy toxaemia is caused by a lack of energy prior to lambing. The foetus takes up room in the abdomen and thus reduces eating capacity. This is exacerbated by the increased energy demands of maintaining the foetus. Multiple foetuses take up even more room and have even higher energy demands than single pregnancies hence the common name of “twin lamb disease”.

This leaves pregnant ewes vulnerable to acute energy deficiency with inadequate quality or quantity in their diet. This condition is exacerbated by any mustering.

Acute pregnancy toxaemia leads to weakness and animals flop down if mustered. Rapid mobilization of body fat to make up for the deficit leads to “ketosis” or acetone breath. Ketotic sheep lose their appetite which only exacerbates the energy crisis. Treatments required include providing energy supplements and inducing pregnancy either by prescription injections or emergency caesarean. Even with expensive and intensive treatment, results are invariably

disappointing. Response to cattle 4 in 1 milk fever injections (*Calcium, Magnesium, Phosphorous and Dextrose*) generally lead to a temporary response only. No amount of lick blocks in the paddocks can solve this problem!

Trace minerals include Iron, Zinc, Manganese, Copper, Cobalt, Iodine, Molybdenum, and Selenium.

It is rare to see Iron and Zinc deficiencies in sheep, however, deficiencies of other trace minerals can occur and this is largely dependant on soil type, mineral uptake and seasonal conditions.

Oversupplying minerals such as Selenium, Copper, Iodine and Molybdenum can cause toxicities in sheep and as a result, these minerals are usually not added to blocks or added in such small quantities, they are of no benefit. Identification of suspected mineral deficiencies is critical to understand how to treat and correct the deficiency. Usually, drenches, injections or capsules can be supplied to the animal to correct a deficiency. For repeated seasonal deficiencies, top dressing pastures and incorporating minerals into your fertiliser program is a more effective way of correcting on-going deficiencies.

Vitamins are organic compounds and are made in the rumen by the rumen bacteria. Vitamin A and E are sourced from green plants. Vitamins are easily broken down and therefore, manufacturers of lick blocks seldom put vitamins in. For those that do, the vitamins are usually broken down in a day or two and are of little or no benefit to the stock. In dry conditions, when stock have had no access to green feed, a Vitamin E deficiency can occur. It is far better to treat animals with specific Vitamin E drenches or injectable preparations that supply sufficient quantities to last for longer periods and at higher levels. Vitamin D is produced by the action of sunlight on the skin so is only required for shedded sheep. Hay contains sufficient quantities of vitamin D and deficiencies in grazing stock are very rare.

If you do have a deficiency, treatment by injection or oral drench is far more effective and ensures that all animals receive treatment. In a paddock situation, shy feeders will tend to miss out on the lick block so that not all animals have a go. Similarly, lick blocks should be housed undercover to avoid rain or direct sunlight from breaking down the product. Intakes of supplements by sheep grazing dry pastures or stubbles are extremely variable and often well below desired levels.

Just because you notice the sheep eating the lick blocks, it doesn't mean they need it. Sheep eat toxic and poisonous plants too!

In summary, if stock are in good condition (i.e \geq CS3.0) and have adequate nutrition (energy, protein and water) the requirement for lick blocks is virtually non-existent. If you suspect a mineral deficiency, contact your veterinarian or call Livestock Logic for advice. Blood testing will identify suspected deficiencies that can be corrected through more robust and evidence based treatments.

So in future before you purchase your next ute load of blocks, ask yourself - What benefit will my stock get? If providing lick blocks to your stock makes you feel warm and fuzzy – ask the wife (or husband) for a hug instead. It will cost you nothing and give you that same warm fuzzy feeling!