

How useful are blocks and dry licks for livestock in a drought?

Doug Alcock

Livestock Officer, Extensive Industries
Development, Cooma

Introduction

Use of licks for grazing livestock is still a relatively common practice, but how much benefit do ruminant animals really derive from their use? Several reasons are commonly cited for their use:

- Animals need salt.
- Stock are licking patches of soil, so they must be lacking in something.
- There is a need to provide extra vitamins and minerals.
- Licks help prevent specific diseases and conditions in the animals.
- Animals will eat what they need.
- Licks provide energy and protein.

Usually, either these reasons are not valid at all, or there are far more efficient ways of achieving improvements in animal health and performance than by providing blocks or licks.

The need for salt

Only when ruminant animals are under full hand feeding with high levels of grain will they require supplementary salt in their diet. Under these circumstances it is far better and more efficient to simply add 0.5% of fine salt to the feed than it is to provide salt blocks. Since stock actually like the taste, salt is also often used in feed mixes to improve palatability.

Stock licking soils

Stock will sometimes acquire cravings for certain flavours and it is certainly not uncommon for them to lick soil along creeks and dam banks. Also, stock

will usually readily eat salt whether they need it or not.

Taken on the balance of evidence, it is unlikely that the behaviour of stock is a good indicator of their need for extra nutritional supplements. Stock will even readily eat substances that are detrimental to their health; the grazing of poisonous plants is a good example of this. As a livestock manager you should always ensure that animals have adequate energy, protein and good quality water before looking to finetune their diet with added minerals and vitamins.

Which minerals and vitamins do ruminants really need?

It is suggested that as many as 40 mineral elements may have some role in animal metabolism. However, only seven of these are required in quantities sufficient to be considered major essential elements. These are calcium, phosphorus, potassium, sodium, chlorine, sulfur and magnesium. The more important minor mineral elements include iron, iodine, copper, manganese, zinc, cobalt, selenium and chromium.

While these elements may be essential, it is also true that they are only required in minute quantities. In typical ruminant feeds and pastures, most minerals are present in sufficient quantities to supply the needs of stock.

Under dry or drought conditions, calcium and sodium deficiencies are the most common. These are most likely to occur in diets based on cereal grains. In this case it is far more efficient to add lime and salt to the feed ration than it is to allow free access to licks. When added to the ration, animals will consume the additional minerals they need in proportion to the feed they eat.

Phosphorus deficiency

Deficiencies in phosphorus are common on red soil scrub country in the Western Division of NSW.



Under these circumstances a dry lick or block lick formulated from safe phosphorous sources remains the most practical solution to phosphorus deficiencies in stock (see Primefact 273 *Making your own protein blocks for cattle*).

Sulfur deficiency

Sulfur deficiencies often occur in cattle grazing forage sorghum and Sudan grass crosses. Sulfur supplementation has been shown to improve cattle performance by up to 40% when grazing Sudax. Access to salt blocks containing at least 8% sulfur should alleviate deficiencies in cattle grazing these crops.

Magnesium and selenium deficiencies

Other common deficiencies specific to certain environments and seasonal conditions include those of magnesium and selenium. A magnesium deficiency leads to grass tetany, and a selenium deficiency leads to white muscle disease. Both problems need to be treated with specific supplements to ensure uniform treatment. Selenium deficiency is often treated with 'bullets' placed in the rumen, or by specially formulated selenium drenches.

Toxicity

Overdosing with minerals such as selenium, zinc, manganese, iodine, copper, molybdenum and cobalt can have toxic effects. For this reason voluntary-intake licks and blocks often contain very low levels of these elements to ensure that these toxic effects will be avoided even if animals gorge themselves. Unfortunately this means that typical dosage rates will be below required levels if the element is deficient in the paddock feed. It is invariably better to treat animals for the specific deficiency than to try to treat them with a 'shotgun' approach.

Vitamins

Unlike minerals, vitamins are organic compounds. They are required by animals for normal growth and maintenance. Animals' vitamin requirements are very small, and vitamins or their precursors (provitamins) are relatively widespread in pasture, cereal grains and other feed supplements.

Vitamins are generally unstable compounds which are easily oxidised, so their inclusion in blocks and licks is not really an ideal method of supplementation. Two vitamins that may become deficient in drought circumstances are vitamins A and E. It is far better to treat these deficiencies with drenches or injectable preparations that supply sufficient levels to last stock up to 6 months.

Animals will eat what they need

The use of 'free choice' supplements to enable animals to select what they need presupposes some level of 'nutritional wisdom' on the part of the animals. While there is some evidence that, given the choice, animals will select a diet that is balanced for protein and energy, the same cannot be said for mineral and vitamin supplements. It is highly unlikely that animals will freely choose the correct type and quantity of supplement to ensure a balanced intake of these micronutrients.

Prevention of diseases

It is often suggested that calcium blocks and licks be used to try to offset the effects of metabolic disorders such as pregnancy toxaemia and milk fever. There is often confusion about the causes of these diseases.

Pregnancy toxaemia

Pregnancy toxaemia (hypoglycaemia) occurs due to a lack of dietary energy in heavily pregnant ewes. This causes the animal to mobilise body reserves too quickly, causing a build-up in ketones that causes damage to the brain and nervous system. On a flock scale, the only cure for this disease is providing feed of adequate quantity and quality – no amount of blocks or licks in the paddock can alleviate this problem.

Milk fever

Milk fever (hypocalcaemia) is the manifestation of low blood-calcium levels, but this is often not the result of a diet low in calcium. Many interactions occur between mineral elements in the metabolism of animals, and the most obvious solution is often not appropriate. Hypocalcaemia is often related to intake of high-oxalate plants such as sorrel and oxalis, but may also be related to grass tetany and low magnesium levels. Dietary intake of calcium can be a factor in animals fed cereal grain diets; in this case, ground limestone should be added to the grain at 1.5% w/w. On lush green grass pastures and cereal crops, it would be more beneficial to supply extra roughage than to supply a calcium block. (For more information on cattle health issues in a drought, refer to Primefact 333 *Preventing animal health problems during drought*.)

Provision of energy and protein

The key dietary elements for ruminant animals are energy and protein. For most efficient use, these must be in balance. Blocks and licks do not provide appreciable levels of energy to animals. The majority of the block make-up contains **no** energy

at all. If the principal deficiency in the diet of animals is energy, then provision of blocks or dry licks will serve little purpose and will add considerable expense.

Blocks that contain urea and protein meals do provide a source of protein for livestock grazing protein-deficient dry pastures (see Primefact 334 *Protein supplements for cattle in drought* and Primefact 331 *Supplementary feeding of sheep*). However, proprietary blocks are not usually the most cost-effective way of supplying supplementary protein to grazing animals. Based on their 'cost per kilogram protein' value, blocks are typically 2.5 times the cost of lupins. For more information on how these costs are calculated, refer to Primefact 374 *Buying feed at the right price*.

Conclusion

In drought situations, blocks and dry licks are seldom the most cost-effective method of providing protein. Their suitability is restricted to supplementing adequate quantities of dry pasture. Their use beyond this window of opportunity, without additional adequate hand feeding, is at best ineffective and costly, while at worst will lead to major stock losses through malnutrition.

In most cases, blocks and licks are wholly unsuited to the efficient correction of specific mineral or vitamin deficiencies, particularly in drought feeding situations. When paddock feed is plentiful, dry licks may be used to supplement phosphorus-deficient cattle, and commercial or homemade blocks are an effective way to supplement sulfur to cattle grazing forage sorghum.

Animals know what they like, but they very seldom know what they need for best performance and health. It is advisable therefore not to use cravings or other behaviour as indicators of nutritional deficiencies.

© State of New South Wales
through NSW Department of Primary Industries 2007

ISSN 1832-6668

Replaces Agnote DAI-238

Check for updates of this Primefact at:
www.dpi.nsw.gov.au/primefacts

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (February 2007). 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 appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

Job number 7203