

Making your own protein blocks for cattle

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WARNING

Drought increases the risk of unacceptable residues in stock. Risks include contaminated feed, increased intake of contaminated soil, concentration of existing residues as animals lose condition, and many other causes. Refer to Primefact 312 *Drought increases residue risks* for details before purchasing stockfeed or making feeding decisions.

Introduction

Using lick blocks is a popular way of supplying protein to cattle. Blocks are easy to use and with plentiful supplies of dry paddock feed can be effective. Commercial protein blocks are expensive and other, cheaper alternatives are available.

It may be cheaper and more effective to feed small amounts of high quality protein supplement direct to cattle. Suitable supplements include cottonseed meal, 'protected' protein meals like Nor-pro[®], high-protein pellets, and lupins.

The objective with protein supplementation on dry feed is to provide crude protein (CP) at 150–300 g/day. With the highest analysis block (62% crude protein) this means 250–500 g of block per head per day.

The same result can be achieved by providing 0.5–1 kg lupins or 350–750 g of cottonseed per day.

You must choose which method is best for your production system.

Alternatively you could make your own protein blocks.

Home-made protein blocks

Home-made protein blocks use urea and protein meal to supply rumen protein to the animal. Urea blocks need to be introduced so that cattle gradually increase their urea intake. Start with 2% blocks at first, then introduce 5% and eventually 10% urea mix blocks after several weeks.

Carefully weigh all ingredients, mix them thoroughly with a cement mixer and pour into moulds.

Basic mixes

High molasses content

Ingredient	Proportion by weight	Mixing order
Hot water	–	
Molasses (heated)	40%	1
Urea	0–10%	2
Salt	5–10%	3
Phosphorus source	2%	3
Protein meal	30–40%	4
Cement	10–15%	5



Low molasses content

Ingredient	Proportion by weight	Mixing order
Hot water	10%	1
Urea	0–10%	1
Salt	5–10%	2
Molasses (heated)	20%	3
Phosphorus source	2%	4
Protein meal	30–40%	5
Cement	10–15%	6

The ingredients

Molasses

Molasses is used to dissolve urea and salt and to encourage stock to eat the block. Molasses contains high levels of sulphur. It should be heated before mixing and then the dry ingredients added to it.

Protein meal

The best protein meals are cottonseed meal and Nor-Pro® (around 41% CP). Other sources include lupins, rapeseed meal and canola meal.

Note: It is illegal to feed ruminant animals with meatmeal derived from ruminant animals.

Urea

Urea provides a source of nitrogen which cattle can convert into usable protein. For maximum effect, it must be consumed daily, so don't let blocks run out; keep them constantly available. Consumption of more than 60 g of urea per head per day can be dangerous, particularly if blocks are rained on (urea dissolves into the rainwater and the cattle drink this), or if they crumble and are eaten in lumps.

Use stockfeed grade urea only.

Cement

Cement supplies calcium and acts as a block hardener.

Salt

Salt may be essential when scrub feeding or feeding on sorghum stubble. It acts as both an attractant and an appetite limiter.

Phosphorus sources

The following products provide sources of phosphorus:

- Kynofos 21® (21% phosphorus)
- Biofos® (21% P)
- Dicalcium phosphate (18% P)
- Palaphos® (15.3% P)

Do not use fertilisers like superphosphate, MAP (monoammonium phosphate — Starter 12) or DAP (diammonium phosphate) as phosphorus sources as they are now unsuitable for animal feeding. They contain fluorine at levels that can cause fluorosis if fed to stock for an extended period.

Handy hints

- Allow 7–10 days for blocks to harden.
- Successful moulds include cardboard boxes, timber frames, fertiliser bags, plastic garbage cans and half-tyres.
- Coat the inside of moulds and mixer with some oil (avoid using sump oil from petrol engines because it may contain lead).
- Large mixers mix more thoroughly than small mixers.
- Make sure urea is dissolved in molasses or water first. It is important to thoroughly mix the required amount of urea into the molasses first, otherwise poisoning can occur.
- Experiment with different combinations while keeping in mind the warnings about high levels (over 10% by weight) of urea.
- It is not possible to make a home-made block with a protein content above 40% unless urea is included in the ingredient mix. This is also true of manufactured blocks.
- Drum molasses consistency can vary as a result of different molasses sources.

Uses and limitations of blocks

Protein blocks are useful when dry standing feed, which is 'reasonable' in energy but low in protein, is abundant (more than 2.5 t of dry matter per hectare). Intake of this feed is increased by block protein supplementation.

Protein blocks can only maintain liveweight or control liveweight loss in breeders.

Don't feed protein blocks to cattle once the dry standing feed quantity falls below 1–1.5 t dry matter/hectare. Change to energy feeds such as grain, silage, molasses and hay.

The major limitations to blocks are as follows:



- If cattle are not 'trained' to eat or lick blocks, then intake across the mob can be uneven.
- Blocks are sometimes used for far too long (when dry feed quantity falls below 1 t DM/ha).
- Blocks are not useful as an energy supplement.

Further information

For further information see 'Drought feeding and management of stock'

www.dpi.nsw.gov.au/reader/drtfeeding

or contact your nearest NSW Department of Primary Industries Livestock Officer (Beef Cattle).

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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 (November 2006). 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.

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