

Protein supplements for cattle in drought

Bruce Mackay

Former Technical Specialist (Beef Grazing Systems)

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

'Crude protein percentage' (CP%) is the term used to describe the effective protein content of ruminant feeds. However, not all protein is the same, as it may be available to the animal in any of three forms:

- non-protein nitrogen (NPN)
- rumen-degradable protein (RDP)
- undegraded dietary protein (UDP)

RDP and UDP are known as 'true proteins', and both are present in all stock feeds in varying proportions.

RDP and NPN are broken down by micro-organisms in the rumen of the animal, whereas UDP passes through the rumen to be utilised by the animal in the true stomach and intestines.

NPN supplementation is suited to the dry standing feed phase of a 'drought'. This stage might better be described as a 'dry spell', with abundant roughage available. NPN stimulates rumen microbes and increases feed intake, so that cattle consume more dry feed than they otherwise would. However, there must be adequate dry standing feed available. See Primefact 277 *Supplementary feeds suitable for cattle in drought*.

For information on feeding NPN, see Primefact 272 *Urea roller drum mixes for cattle*.

Protein meals

Protein meals, pellets and legume grains can also be used with grain or molasses to increase the protein level of energy-based supplements or full drought rations.

The available protein meals are predominantly vegetable meals which are by-products of oil extraction. Because of their varying base materials and manufacturing processes, they have different crude protein (CP) levels and by-pass protein ratings (see Table 1).

Table 1. Approximate crude protein and by-pass percentages of protein meals and pellets

Protein meal	CP (%)	Approx. by-pass protein (%)
Cottonseed meal	41	30–40
Sunflower meal (SFM)	40–45	20
Formaldehyde-treated SFM	36	50–70
Copra meal	22	70
Linseed meal	32	40
Soya bean meal	50	30
Peanut meal	42	30
Canola meal	50	30
Protein pellets	30	30
Lupins	32	25
Field peas	16	25
Faba beans	26	10

The recommended feeding rates for providing a protein supplement using protein meals are as follows:

- Weaners: up to 1 kg/hd/day
- Dry cattle: up to 1 kg/hd/day
- Cows/calves: up to 2 kg/hd/day



Initially, feed daily to educate the stock; from then on, feed twice weekly. Molasses or salt can be used as an attractant to get stock started. Meals are best fed in troughs to avoid wastage. Do not feed ad lib (that is, do not have feed always available).

Protein pellets

Protein pellets are based on protein meal and grain, with urea and mineral pre-mix added. A range of products is available, but anything below 25% CP should not be considered a protein pellet.

The recommended feeding rates are as follows:

- Weaners: up to 1 kg/hd/day
- Dry cattle: up to 1 kg/hd/day
- Cows/calves: up to 2 kg/hd/day

Initially, feed daily to educate the stock; from then on, feed twice weekly. Lower-level protein pellets should be introduced slowly as you would grain, building up in stages. Pellets are best fed in troughs or can be dumped on the ground.

For further information on feeding pellets, see Primefact 321 *Feeding pelleted rations*.

Manufactured blocks

While manufactured protein blocks offer a convenient form of providing protein supplements, performance and consumption rates can be very erratic, with variable results. Purchase should be based on available protein (as high as possible) and a comparison made with the cost of buying and feeding the base protein source.

An alternative to commercial blocks are 'home made' blocks that can be tailored to suit individual needs and available supplements. There are a number of recipes available containing differing levels of protein. See Primefact 273 *Making your own protein blocks for cattle*.

Full hand feeding

Protein meals and pellets can be used in drought rations to provide protein for lactating cows and early-weaned calves. The addition of protein meals and pellets will increase dietary crude protein of cereal-grain-based rations.

Further information

For further information, see the NSW DPI Drought pages at www.dpi.nsw.gov.au/drought or contact your nearest NSW Department of Primary Industries Livestock Officer (Beef Cattle).

Acknowledgments

The contributions of Douglas Alcock (Livestock Officer, Dubbo) and Ian Blackwood (Livestock Officer, Paterson) to the writing of this Primefact are gratefully acknowledged.

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

ISSN 1832-6668

Replaces Agnote DAI-240

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 7125