

Feeding Livestock in Temporary Holding Facilities in the Northern Territory Part 1. Cattle

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INTRODUCTION

It is often necessary for livestock to be confined in temporary holding facilities such as export depots, saleyards and private yards for logistical or husbandry reasons. During such periods, it is important to ensure that animals receive their basic needs according to welfare standards. The Australian Model Code of Practice for the Welfare of Animals comprises a set of guidelines of "best practice" standards for the care of cattle. The most basic provisions that must be met include adequate food, water, shelter, protection from injury and freedom to express normal behaviour patterns, such as to move, stand, or lie down.

To determine the minimal level of feeding for livestock within welfare standards can be complex. The process requires reference to livestock feeding standards and feed composition tables, published by a number of advisory councils. This Agnote is a general guide for private owners/managers and saleyard/export depot managers feeding cattle in temporary holding facilities in the Northern Territory (NT).

FEED REQUIREMENTS

Livestock should be provided with adequate feed to satisfy appetite and meet maintenance requirements. Animals should not be deprived of feed for longer than 48 hours. However, those in poor condition, late pregnancy, early lactation or animals that have been travelling for up to 24 hours, should not be deprived of feed for more than 24 hours. The minimal level of feeding required to meet welfare standards depends on the animals to be fed and the feeds available.

ANIMAL FACTORS

The most important nutritional requirement of the animal is energy for maintenance. This can be defined as the amount of feed energy required for essential metabolic processes and physical activity, which results in no net loss or gain from, or to, the tissues of the animal (NRC 1996). Demand for energy depends on breed, live-weight, sex and physiological state (pregnancy, lactation) of the animal.

CATTLE BREEDS

The maintenance energy requirements of *Bos indicus* breeds of cattle are about 10% lower than those of British breeds (NRC 2000). Maintenance requirements of tropical x British cross breeds are about 5% lower than for British cattle (NRC 2000). Most cattle in the NT have high *Bos indicus* content, which is taken into account in the recommendations given in this Agnote.

BREEDER COWS

Late stages of pregnancy and peak-lactation cause a substantial drain on energy and other nutrients in the animal. For example, energy requirements for maintaining a lactating breeder are about 20% greater than for a dry cow (NRC 2000). Unable to shut down these processes, a cow on inadequate nutrition will utilise body tissues as sources of nutrients which will cause a decline in body condition. Pregnant and lactating animals therefore require a higher quality diet in order to maintain body condition.

BULLS

Entire males have a slightly higher energy requirement for maintenance than castrates or females of the same breed and weight. However, it is important to consider the future use of bulls if they are being confined for a prolonged period. Young bulls that will be joining a breeding herd should be in good body condition to provide energy and protein reserves for increased physical activity and decreased feed intake when in the herd (NRC 2000).

FEED FACTORS

The amount of feed needed to meet maintenance requirements will vary with the type and quality of feed available. Energy, protein, and digestibility of feeds are central in determining nutritional adequacy and feeding levels for different classes of stock. The range of feeds available in the NT is limited, particularly in the central and southern regions. When sourcing feeds, importance should be placed on nutritional suitability as well as cost.

FEEDING LOCAL FEEDS IN THE NT

Table 1 provides the nutritional composition of a range of feeds seasonally available in the NT. These are approximate figures only, and there will be a considerable range within and between batches of feeds. Nutritional information of feeds is always provided on a dry matter (DM) basis. Most grains and hays contain of about 90% DM, whereas silages contain about 30% DM, with the remaining portion being water. This must be taken into consideration when determining how much fodder to feed.

Table 1. Nutrient composition of feeds readily available in the NT

Feed	Metabolisable energy ¹ (MJ ME/kg DM)	Crude protein (%)
Cattle cubes	10	12
Good legume hay (e.g. lucerne)	8.5–10	12-15
Cavalcade hay	7	12
Good grass hay (e.g. pangola, Rhodes)	7–9	7.5-10
Forage sorghum hay	8-8.5	8-10
Forage sorghum silage	8.5	9
Sorghum grain	13-13.5	10-11
Rangeland pastures (e.g. Mitchell, Flinders, mature buffel)	5–8	4-7.5

1. Energy unit commonly used in ruminant nutrition

Table 2. Minimum* feed requirements for full hand feeding of cattle ('as fed' kg/head/day)

Class and Liveweight (kg)	FEED TYPE						
	Cattle cubes	Good legume hay (e.g. Lucerne)	Cavalcade hay	Good grass hay	Forage sorghum hay	Forage sorghum silage	Grain: rangeland pasture 30 : 70
Weaners							
100-120	1.8	2.3	2.9	2.8	2.5	6.8	2.7
120-140	2.1	2.6	3.3	3.2	2.8	7.7	3.0
Dry cattle							
200-300	3.8	4.7	6.0	5.8	5.1	14.2	5.5
300-400	4.6	5.7	7.2	7.0	6.1	17.0	6.6
400-500	5.3	6.5	8.3	8.0	7.0	19.5	7.6
500-600	5.8	7.1	9.1	8.8	7.7	21.4	8.3
Breeders (approx. 450 kg)							
Late-pregnancy/early lactation	5.6	7.0	8.9	8.6	6.4	17.8	8.2
Bulls							
500	6.1	7.5	9.5	9.2	8.1	22.4	8.7
600	6.7	8.2	10.4	10.1	8.8	24.6	9.6
700	7.3	9.0	11.4	11.1	9.7	26.9	10.5

Note: Calculations are based on the minimum feed values given in Table 2. Figures are intended as a guide only.

* Compliant with Animal Welfare feed requirements guidelines (PISC 2004) and energy maintenance requirements of different classes of cattle (SCA 1990)

Table 2 provides the minimum dietary requirements of cattle for a range of local feed options. It is important to note that not all feeds will be nutritionally adequate to meet the requirements of all classes of animals due to their daily feed intake ability.

Good grass and legume hays are adequate for maintaining most classes of livestock, particularly those in a non-productive state. Rangeland pasture hays are inexpensive but may be too fibrous for sufficient intake of energy and protein by animals to meet their maintenance requirements and will need to be supplemented with grain. Lucerne and/or copra may also be used to supplement poor quality hay when feeding lactating breeders or working bulls which have higher maintenance requirements.

THE FEEDING ENVIRONMENT

While it is possible to calculate accurate feeding levels for livestock, the feeding environment can greatly influence the amount that animals will actually eat. The feed must be free of contamination and spoilage, and be presented to the animals in a system that allows easy and equal access. Animals should be grouped in similar classes to limit bullying and protect shy feeders. If shy feeders do not commence eating within 24 hours, they should be separated from the group for feeding.

Stocking density for adult cattle in holding pens should not be greater than one animal per 2.7 m² (SCA 2002) and minimum allowances for head space at feed troughs should be 250-300 mm (yearlings), 300-380 mm (15 month to 2 years old), 380-460 mm (bullocks) or 1metre per six animals for self feeders (PISC 2004).

WATER

Livestock must have access to an adequate supply of cool, clean drinking water. Water should not be deprived for more than 24 hours (PISC 2004). The watering system must be monitored closely to ensure a continual supply. Approximate consumption rates for cattle are provided in Table 3. **During temperatures higher than 30°C, *Bos indicus* cattle require 30% more water and British/European breeds require 65% more water than the maximum consumption rates provided in Table 3.**

Table 3. Average daily water consumption of cattle

Bodyweight (kg)	Average water consumption (L/day)
50	6-7
70	7-9
90	10-11
120	14-16
150	18-20
190	20-25
350	25-35
450	35-45
Lactating female	45-110

Source: SCA (1992)

Note: These are average figures only. There will be variation in intake depending on ambient temperature and water content of feed.

Note: Nutritional composition figures used in this Agnote represent a range of values sourced from feed tables (NRC 1996), Australian stockfeed nutrient labels, state government publications, analysis of NT stock feeds and pastures.

This Agnote provides general feeding guidelines for a selection of local feeds. Further advice should be sought from the Department of Primary Industry, Fisheries and Mines, or a private nutrition consultancy service.

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