



# Upper North Farming Systems Native Grass Nutrition Factsheet

## INTRODUCTION

This fact sheet summarises feed test information for 12 common native grasses growing in the Upper North of South Australia, as well as defining different types of grasses, common feed terms used in this fact sheet and in feed test results.

## TYPES OF GRASSES

### C3 Grasses

Also known as winter active grasses that photosynthesise using a biochemical system that fixes carbon in molecules containing three atoms, or C<sub>3</sub> pathway e.g. Wallaby Grasses (*Austrodanthonia* species) and Spear Grasses (*Austrostipa* species).

### C4 Grasses

Also known as summer active grasses that photosynthesise using a biochemical system that fixes carbon in molecules containing four atoms, or C<sub>4</sub> pathway e.g. Windmill Grass (*Chloris truncata*) and Kangaroo Grass (*Themeda triandra*).



## FEED TERMS

The following is a list of the meanings of the terms used in this fact sheet. You will find this list helpful for understanding nutrition and analysis of feed test results.

### Dry Matter (DM)

The total amount of feed remaining after water has been removed. It may vary from less than 10% for lush pasture to 90% for dry straw or grains. All analysis are expressed on a dry matter basis, as the water content can vary considerably, and the dry matter contains the active ingredients (protein, energy, fibre, minerals and vitamins).

### Digestible Dry Matter (DMD)

An estimate of the percentage of dry matter digested by animals **including** minerals in the feed. As minerals have no energy value, this figure tends to overestimate the energy content of feed stuffs - especially if feed is mineral rich.

### Digestible Organic Dry Matter (DOMD)

An estimate of the percentage of dry matter digested by animals **excluding** minerals. This only takes into account the energy in the organic matter in the feed stuff. This is now used (from September 2005) to calculate ME.



Wallaby Grass, White top  
(*Austrodanthonia caespitosa*)



Kangaroo Grass (*Themeda triandra*).

## FEED TEST RESULTS

Plant Samples	Test Date	Green: Dead Ratio	Dry Matter %	Digestibility % (DMD)	Digestibility % (DOMD)	Energy ME MJ/kg DM	Protein %	NDF %	Comments
<b>C<sub>3</sub> Grasses</b>									
White top ( <i>Austrodanthonia caespitosa</i> )	Summer	100:0	46.2	50.7	49.8	7.1	7.5	69.5	
	Winter	50:50	62.4	51	50	7.2	10.6	65	
Elegant spear-grass <i>Austrostipa elegantissima</i>	Summer	100:0	51.1	35.7	37.1	4.5	11.1	74.3	
	Winter	100:0	27.4	61.4	58.8	8.9	24.1	60	
Desert spear-grass <i>Austrostipa eremophila</i>	Summer	100:0	48.0	53.1	53.1	7.5	14.3	64.1	
	Winter	100:0	28.3	72	67.8	10.8	33.3	47.8	
<i>Austrostipa nodosa</i>	Summer	100:0	42.7	48.0	47.5	6.6	10.6	72.8	
	Winter	100:0	38.3	69.1	73.5	11	21.8	55.2	
<b>C<sub>4</sub> Grasses</b>									
Brush Wire Grass ( <i>Aristida behriana</i> )	Summer	100:0	51.0	52.4	51.2	7.4	10.0	67.5	
	Winter	20:80	60.1	49.1	48.4	6.8	8.6	65.2	
Red-leg Grass ( <i>Bothriochloa macra</i> )	Summer	100:0	34.7	61.9	59.3	9.0	8.9	53.6	
	Winter	0:100	53.2	42.6	42.9	5.7	4.6	66.6	



White top  
(*Austrodanthonia caespitosa*)



Elegant spear-grass  
*Austrostipa elegantissima*



Desert spear-grass  
*Austrostipa eremophila*



*Austrostipa nodosa*



Brush Wire Grass  
(*Aristida behriana*)



Red-leg Grass  
(*Bothriochloa macra*)

## FEED TEST RESULTS CONTINUED

Plant Samples	Test Date	Green: Dead Ratio	Dry Matter %	Digestibility % (DMD)	Digestibility % (DOMD)	Energy ME MJ/kg DM	Protein %	NDF %	Comments
<b>C<sub>4</sub> Grasses</b>									
Windmill Grass ( <i>Chloris truncata</i> )	Summer	100:0	37.1	53.1	51.8	7.5	11.0	62.2	
	Winter								
Lemon-scented Grass <i>Cymbopogon ambiguus</i>	Summer	100:0	37.1	52.7	51.4	7.4	9.7	66.2	
	Winter								
Silky Blue Grass ( <i>Dichanthium sericeum</i> )	Summer	100:0	31.8	51.0	50.1	7.2	10.4	66.1	
	Winter	95:5	26.1	65.4	62.2	9.6	17.3	53.1	
Black-heads ( <i>Enneapogon nigricans</i> )	Summer	100:0	34.6	49.7	48.9	6.9	12.5	72.6	
	Winter	60:40	47	49.4	48.7	6.9	9.7	63.9	
Umbrella-grass, Curly Windmill Grass ( <i>Enteropogon acicularis</i> )	Summer	100:0	29.8	58.5	56.4	8.5	19.0	65.6	
	Winter	0:100	87.4	48.4	47.8	6.7	6.4	69.5	
Kangaroo Grass ( <i>Themeda triandra</i> )	Summer	100:0	35.5	61.3	58.7	8.9	13.5	63.1	
	Winter	95:0	40.1	57.2	55.28	8.22	12.13	61.82	

## SUMMARY OF SHEEP AND CATTLE NUTRIENT REQUIREMENTS

	Energy density ME (MJ/KG DM)	Protein content (%)	NDF (%)
Ewe / wether - maintenance	8	8 %	30-55 %
Ewe - late pregnancy	10	14 %	30-43 %
Ewe - lactating	11	15 %	30%
Weaner lamb	11	16 %	30-35 %
Dry cow – maintenance	8	8 %	30-60 %
Cow – lactating	10.5	15 %	30-35 %
Weaner Steer	11	16 %	30-40 %

### FEED TERMS (CONTINUED FROM PAGE 1)

#### Metabolisable Energy (ME)

The feed energy actually used by the animal, calculated from digestible organic matter percentage, and expressed as megajoules per kilogram of dry matter (MJ/kg DM).

#### Crude Protein (CP)

The amount of true protein (composed of amino acids) plus non-protein nitrogen, expressed as a percentage of dry matter.

#### Neutral Detergent Fibre (NDF)

The percentage of total cell wall material or plant structure in a feed. This includes lignin (not digestible), cellulose (partly digestible) and hemicellulose (digestible). NDF is the most useful measure of fibre content currently available. Usually, the lower the NDF, the more an animal will eat.

### FURTHER INFORMATION

#### Feed tests

Foster, P., Reseigh, J. and Myers, R. J. (2009). An Introduction to the Nutritional Composition of Australian Native Grasses: Forage and Seed. Adelaide, Rural Solutions SA.

#### Plant identification

Jessop, J., Dashorst, G. R. M. and James, F. M. (2006). Grasses of South Australia. Kent Town, Wakefield Press.

Mid North Grasslands Working Group (2007). Grasses, Gums and Groundcovers. Clare, South Australia, Mid North Grasslands Working Group.

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