



NATIONAL LISTING OF APPROVED FEED INGREDIENTS FOR FEEDMILL

NIAS/RA/LAFI-2026

CLASS	INGREDIENTS	Moisture%(max)	Crude Protein%(min)	Energy ME(Kcal/kg)(min)	Ether Extract(Oil)%(max)	Crude Fiber %(max)	Lysine %(min)	Methionine %(min)	Threonine %(min)	Tryptophan %(min)	Calcium % (max)	Phosphorus %(Available)	QUALITY INDEX
ENERGY SOURCES	Maize (White)	12	8	3200	4	3	0.24	0.15	0.28	0.06	0.02	0.27	
	Maize (Yellow)	12	7.5	3200	4	3	0.25	0.15	0.32	0.06	0.02	0.27	
	Guinea Corn (White)	10	8	3100	3	5	0.21	0.16		0.1	0.04	0.32	
	Guinea Corn (Yellow)	10	8	3100	3	5	0.21	0.16		0.1	0.04	0.32	
	Millet	12	11	2700	4	8	0.4	0.18			0.02	0.1	
	Whole soft Wheat	12	12	3000	2	10	0.31	0.19	0.32	0.13	0.05	0.4	
	Wheat Flour	12	11	3000	1.5	1	0.26	0.18	0.3	0.12	-	-	
	Cassava Chips/Flour	11	2.5	3000	0.5	3.5	0.07	0.02			0.2	0.03	
	Cassava Grits (Unpeeled)	12	5	2800	0.5	5	0.07	0.03			0.2	0.03	
	Cassava Starch	10	2	2800	1	2							
	*Dried Cassava Peel meal	11	2	3000	1.5	7	0.1	0.04	0.08	0.22	0.04		
	Refined Soya Oil	1	-	8200	97	-	-	-			-	-	
	Fish Oil	1	-	7800	97	-	-	-			-	-	
	Crude soya oil	-	-	8370	-	-	-	-			-	-	Peroxide value = 21.38Meq/peroxide/kg
	Palm Oil	-	-	7710	-	-	-	-			-	-	Peroxide value = 8.35 Meq/peroxide/kg
	Molasses	40	3	2343	0.1	-	-	-			0.8	0.08	

NB: For \*Dried Cassava Peel meal- HQCP is recommended

PLANT SOURCE PROTEIN													
	*Groundnut Cake	10	38	2400	6	9	1.14	0.38	0.93	0.34	0.2	0.2	
	**Groundnut Meal	10	40	2340	1.5	8	1.2	0.4	0.1	0.42	0.2	0.2	

	***Full fat Soya	10	38	3060	15	8	2.37	0.52		0.5	0.2	0.5	****Sol. KOH between 75-85%, Urease Index (0.05-0.2 pH)
	***Soya bean Meal	10	45	2500	1.5	7	2.8	0.6	1.76	0.61	0.2	0.6	****Sol. KOH between 75-85%, Urease Index (0.05-0.2 pH)
	***Soya bean Cake	10	40	2700	10	8	2.5	0.55		0.54	0.2	0.6	****Sol. KOH between 75-85%, Urease Index (0.05-0.2 pH)

\* Groundnut Cake: Please note that this is mechanically pressed without shells  
\*\*Groundnut Meal: Please note that this is solvent extracted without shells  
All Soya products (meal/Full fat) must conform with the value stated above  
For cook test of Soya bean products: If soya sample is between 75% and 85%, it is well cooked  
<75% - it is overcooked and < 85% - it is undercooked  
\*\*\*\*Potassium Hydroxide solubility (KOH),

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CLASS	INGREDIENTS	Moisture%(max)	Crude Protein%(min)	Energy ME(Kcal/Kg)(min)	Ether Extract(Oil)%(max)	Crude Fiber %(max)	Lysine %(min)	Methionine %(min)	Threonine %(min)	Tryptophan %(min)	Calcium % max	Phosphorus %(Available)	QUALITY INDEX
PLANT SOURCE CONTD	Brewers' Yeast	7	30	2420	1	3	3.4	0.7			0.1	0.46	
	Cottonseed Meal (Delinted, Decorticated and Solvent Extract)	9	35	2146	2	10	1.15	0.4			0.25	0.3	
	Cotton Seed Cake (Mechanically pressed)	9	25	2146	5	25	1	0.3	3.13	1.04	0.15	1.1	
	Roselle Seed Cake (Zobo)	12	26	2500	6	17	1.6	0.45			0.45		
	Sunflower Cake	10	45.4	2320	2.9	12.2	1	0.5			0.37	0.16	
	Corn Gluten	10	60	3500	5	2.5	1	1.5	0.3		0.02	0.18	

	Wheat Gluten	10	75	3852	6	-	1.39	1.3			-	-	
<b>ANIMAL SOURCE PROTEIN</b>													
	Fishmeal (72%)	8	72	2900	9	1	4.8	1.5	0.6		6 max	3 max	
	Fishmeal (65%)	8	65	2860	7	1	4.5	1.5	0.6		8 max	5 max	
	Local Fish Meal	8	45	2700	7	2	3.3	1.1	0.4		10 max	7 max	
	Blood Meal (Spray-dried)**	8	90	2900	1	1	7.5	1.1	1		0.28	0.22	

\*\*Please note that Blood Meal is for Fish Feed only

CLASS	INGREDIENTS	Moisture%(max)	Crude Protein%(min)	Energy ME(Kcal/Kg)(min)	Ether Extract(Oil)(max)	Crude Fiber %(max)	Lysine %(min)	Methionine %(min)	Threonine %(min)	Tryptophan %(min)	Calcium % (max)	Phosphorus %(Available)	QUALITY INDEX
ANIMAL SOURCE PROTEIN CONTD	Hydrolysed Feather Meal	10	80	2460	7	2	1.74	0.54	3.69	0.53	0.35	0.25	
	Poultry Meal	10	62.00	3160	13	1	3.8	1.75	2.34	0.72	4.1	2.42	

AGRO	Maize Offal	9	11	2500	3	12	0.4	0.18	0.36	0.07	0.01	0.09	
INDUSTRIAL	Sorghum Offal	9	9	2700	5	6	0.25	0.18			0.01	0.09	
BY-PRODUCTS	Wheat Offal	11	13	1650	2	8.5	0.51	0.2	0.5	0.21	0.1	0.3	
	Palm Kernel Meal	10	15	2175	3	15	0.64	0.39			0.21	0.16	
	Palm Kernel Cake	10	14	2450	7.5	15	0.64	0.39			0.21	0.16	
	Rice Bran	10	10	2300	20	17	0.4	0.24	0.37	0.1	0.04	0.46	
	Rice Husk	10	3	1200	1	28	-	-	-	-	-	-	
	Rice Offal (parboiled)	10	3.5	1200	3	36	0.2	0.07			0.16		
	Rice Offal (Un-parboiled)	10	5.5	1300	3.5	30	0.2	0.07			0.15		
	Deoiled Rice bran	12	16.5	1400	2	12.5	0.6	0.3			0.07	0.18	
	Broken Rice	12	7.4	3275	4.6	0.8							
	Corn Cobs	4	17.4	2474	2.7	16.5	-	-			0.3	0.3	
	Cassava sifting	13	2	2900	1	20	0.17	0.01	0.14	0.04	-	-	
	Cocoa bean shell	11.00	14.60	2308	2.80	15.60	0.69	0.14	0.56	0.18	0.34	0.4	

CLASS	INGREDIENTS	Moisture%(max)	Crude Protein%(min)	Lysine %(min)	Methionine %(min)	Valine %(min)	Calcium %	Phosphorus %(Available)	QUALITY INDEX
MICRO	L Lysine			94					
INGREDIENTS	Lysine HCL	1	95	78					
	Lysine SO <sub>4</sub>	1	55	54.5					
	Liquid lysine		50	50					
	Methionine	1			100				
	L- Methionine				100				
	DL- Methionine		58.1		99				
	Liquid Methionine	12			88				
	Methionine Hydroxyl Analogue (MHA)	1	39		84			12	
	Threonine	1	73.5						
	Tryptophan	1					98.5		
Isoleucine	1	66.75							
Valine	1	74.75				98			

CLASS	INGREDIENTS	Moisture%(max)	Calcium %	Phosphorus %(Available)	QUALITY INDEX
MACRO	Bone Meal		35	15	
	Oyster Shell		35		
	Periwinkle Shell		32		
	Limestone		35		
	***Dicalcium Phosphate(DCP)		22	18	
	***Monocalcium phosphate		18	20	
	Salt(NaCl)	5			98.5% (min) Purity

\*\*\*Manufacturers to provide a brief write-up on process of production stating difference from rock phosphate . and Importers of Phosphate requires clearance from NSA office due to security risk attached to the product

**VITAMINS AND MICRO-MINERALS**

	SOURCE	POTENCY (MIN)
VITAMINS		

ADDITIVES	
1	Anti-mould

Vitamin A	Vitamin A 500	500,000 IU/g
	Vitamin A 1000	1000000 IU/g
	Vitamin AD <sub>3</sub> 500/100	500,000 IU/g of Vit A; 100,000 IU/g of VitD <sub>3</sub>
	Vitamin AD <sub>3</sub> 1000/200	1,000,000,000 IU/g of Vit A; 200,000 IU/g of VitD <sub>3</sub>
Vitamin D	Vitamin D <sub>3</sub>	500,000 IU/g
	Vitamin AD <sub>3</sub>	500,000 IU/g of Vit A; 100,000 IU/g of VitD <sub>3</sub>
	Vitamin AD <sub>3</sub>	1,000,000,000 IU/g of Vit A; 200,000 IU/g of VitD <sub>3</sub>
Vitamin E	Vitamin E 50	500 IU /g
Vitamin K	Vitamin K <sub>3</sub>	44%
Vitamin B <sub>2</sub> (Riboflavin)	Vitamin B <sub>2</sub>	80%
Vitamin B <sub>12</sub>	Vitamin B <sub>12</sub>	1%
Vitamin B <sub>6</sub> Pyridoxine HCl	Vitamin B <sub>6</sub>	100%
Niacin (Vit. B <sub>3</sub> )	Niacin (Vit. B <sub>3</sub> )	100%
	Nicotinamide	100%
Folic Acid	Folic Acid	45%
		80%
Pantothenic Acid	Calcium Pantothenate	80%
		98%
Biotin	Biotin	2% & 10%
Thiamine (Vit B <sub>1</sub> )	Thiamine	98%
Vitamin C	Ascorbic Acid (Aqua)	35%
	Ascorbic Acid (Coated)	98-100

2	Emulsifier
3	Mycotoxin decontaminants
4	Acidifiers
5	Prebiotics
6	Probiotics
7	Synbiotics
8	Carophyll
9	Lucantin
10	Formic Acid
11	Butyric Acid
12	Propionic Acid
13	Acetic Acid
14	Butylated Hydroxy Anisole (BHT)
15	Butylated Hydroxy Acetate (BHA)
16	Enzymes

Choline	Choline Chloride	50% - 70%
	Liquid choline	60%-75%
	Silica carrier	50%
	Corncob carrier	60%
Iodine	Potassium iodate	59%, 68%
	Calcium iodate	62%
Copper	Copper Sulphate** ****	25%
	Organic Copper*** ****	
Manganese	Manganese Oxide	57%
	Manganese Sulphate	31%
	Organic Manganese *****	
Zinc	Zinc Oxide	72%
	Zinc Sulphate	35%
	Organic Zinc ***** *	
Iron	Ferrous Carbonate	36%
	Ferrous Sulphate	30%
Selenium	Sodium Selenite	3%,45%
	Organic Selenium** *****	
Cobalt		5%,20%

## B. FODDER

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CLASS	GRASS		Megathyrus maximums cv BRS Zuri	Megathyrus maximums cv CV1	Megathyrus maximums cv Mombasa	Megathyrus maximums cv Tanzania-1	Megathyrus maximums cv agrosaviana	Urochloa brizantha cv BRS paiguas	Urochloa brizantha cv marandu	Urochloa brizantha cv Xaraes	Urochloa decumbens cv Basilisk	Urochloa mulato II
	Dry matter %		92.35	92.48	92.54	92.58	91.63	92.49	92.62	92.59	92.57	92.46
	Ash %		11.39	11.70	11.97	11.41	12.06	11.16	11.00	10.47	10.52	11.54
	Crude Protein %		9.90	10.40	11.25	10.87	11.19	11.06	11.81	11.16	11.73	13.29
	Ether Extract %		0.74	0.79	0.61	0.39	0.83	1.00	1.35	1.10	1.38	1.75
	Crude Fibre %		19.45	20.01	19.03	19.13	18.15	19.20	19.05	19.62	18.77	17.50

Nutritional Composition	Neutral Detergent Fibre %	69.50	69.55	67.74	69.72	65.60	67.30	66.26	67.27	65.13	61.79
	Acid Detergent Fibre %	43.70	43.76	43.00	43.88	41.13	40.44	38.78	38.57	36.94	34.62
	Acid Detergent Lignin %	3.48	3.31	3.46	3.68	3.12	3.06	2.93	2.50	2.49	2.07
	Metabolizable Energy (MJ/Kg DM)	7.67	7.64	7.69	7.63	7.90	7.84	7.86	7.90	8.01	8.18
Essential Amino Acid Profile	In Vitro Organic Matter Digestibility	53.27	53.74	53.95	53.45	55.74	54.99	55.30	55.57	56.02	57.66
	Histidine	0.05	0.05	0.11	0.08	0.08	0.10	0.14	0.14	0.15	0.17
	Threonine	0.20	0.19	0.25	0.23	0.26	0.29	0.31	0.28	0.35	0.42
	Valine	0.40	0.41	0.48	0.47	0.52	0.50	0.54	0.49	0.55	0.63
	Methionine	0.12	0.11	0.15	0.14	0.17	0.15	0.16	0.14	0.16	0.19
	Lysine	0.12	0.08	0.21	0.09	0.17	0.10	0.22	0.10	0.15	0.25
	Tryptophan	0.06	0.07	0.10	0.09	0.10	0.09	0.11	0.08	0.10	0.13
	Isoleucine	0.27	0.26	0.34	0.30	0.38	0.32	0.35	0.28	0.35	0.45
	Leucine	0.50	0.51	0.61	0.58	0.63	0.69	0.78	0.70	0.82	0.90
	Phenylalanine	0.40	0.41	0.49	0.43	0.44	0.47	0.47	0.43	0.49	0.58
Non-essential Amino Acid	Aspartic acid	0.75	0.78	0.92	0.90	1.02	0.81	0.88	0.68	0.83	1.03
	Serine	0.31	0.33	0.37	0.41	0.37	0.36	0.35	0.33	0.36	0.43
	Glutamine	1.42	1.60	1.68	1.65	0.91	1.87	1.58	1.74	1.88	2.15
	Glycine	0.78	0.75	0.83	0.84	0.86	0.79	0.81	0.77	0.83	0.93
	Arginine	0.45	0.46	0.56	0.62	0.60	0.48	0.52	0.37	0.37	0.47
	Alanine	0.45	0.43	0.51	0.50	0.55	0.53	0.61	0.58	0.63	0.69
	Proline	0.60	0.60	0.66	0.72	0.53	0.74	0.67	0.73	0.79	0.84
	Cystine	0.21	0.23	0.23	0.26	0.22	0.26	0.26	0.27	0.28	0.28
Minerals	Trypsin	0.35	0.35	0.40	0.39	0.38	0.42	0.40	0.38	0.44	0.53
	Sodium%	1.39	1.08	1.39	1.63	1.44	1.23	1.09	0.99	1.25	1.45
	Potassium%	15.64	16.33	16.08	16.78	11.52	15.37	13.93	15.08	14.77	15.68
	Magnesium%	3.25	3.04	3.56	3.74	3.52	3.59	3.31	3.07	3.65	4.06
	Calcium%	2.84	2.33	3.26	3.58	3.47	3.30	3.11	2.51	3.59	4.25
	Manganese%	0.03	0.02	0.03	0.05	0.06	0.02	0.02	0.01	0.02	0.03
	Ferric%	0.27	0.22	0.35	0.34	0.66	0.31	0.50	0.24	0.33	0.40
	Copper (ppm)	0.99	0.95	1.07	0.99	0.17	2.06	2.61	1.66	2.38	2.39
	Zinc (ppm)	10.59	8.12	10.75	11.76	14.29	11.94	11.98	10.60	13.84	16.04
	Phosphorous%	2.11	1.78	2.24	2.23	1.60	2.39	2.22	2.52	2.79	3.19

CLASS	GRASS		Urochloa ruzizien sis cv Ruzizien sis	Urochloa cayan a	Urochloa sabia	Pennisetum purpureum (BRS Capiçau)	<i>Panicum maximum</i> Jacq	Purple Napier grass ( <i>Pennisetum purpureum</i> 'Prince')	Elephant grass ( <i>Pennisetum purpureum</i> )
		Dry matter %	92.40	92.42	92.39	92.93	91.92	93.88	93.32
		Ash %	12.14	11.52	12.25	9.21	11.32	12.94	11.84
		Crude Protein %	11.70	14.04	14.21	8.12	10.38	9.36	12.27
		Ether Extract %	1.48	2.21	2.06	3.40	1.27	2.99	0.63
		Crude Fibre %	19.06	16.96	17.09	17.69	18.61	20.29	18.59

Nutritional Composition	Neutral Detergent Fibre %	65.09	63.14	62.91	66.55	66.67	67.10	69.85
	Acid Detergent Fibre %	39.00	35.83	36.71	38.25	40.35	44.18	40.44
	Acid Detergent Lignin %	2.90	2.21	2.41	4.09	3.43	4.52	2.96
	Metabolizable Energy (MJ/Kg DM)	7.84	8.05	7.98	7.41	7.92	7.27	7.8
Essential Amino Acid Profile	In Vitro Organic Matter Digestibility	55.50	57.06	56.64	51.00	53.85	49.47	54.68
	Histidine	0.12	0.24	0.24	0.15	0.12	0.18	0.14
	Threonine	0.32	0.53	0.55	0.27	0.26	0.28	0.3
	Valine	0.56	0.80	0.80	0.49	0.41	0.38	0.53
	Methionine	0.16	0.26	0.25	0.18	0.21	0.17	0.17
	Lysine	0.23	0.53	0.53	0.19	0.15	0.14	0.11
	Tryptophan	0.10	0.17	0.17	0.04	0.06	0.02	0.1
	Isoleucine	0.38	0.65	0.65	0.35	0.26	0.19	0.38
	Leucine	0.78	1.24	1.18	0.76	0.54	0.48	0.71
	Phenylalanine	0.48	0.66	0.66	0.39	0.44	0.36	0.55
Non-essential Amino Acid	Aspartic acid	0.90	1.36	1.30	0.81	0.75	0.61	0.89
	Serine	0.37	0.51	0.51	0.35	0.33	0.20	0.41
	Glutamine	1.68	1.39	1.38	0.93	1.21	0.82	2.3
	Glycine	0.85	0.86	0.81	0.82	0.75	0.59	0.85
	Arginine	0.47	0.66	0.69	0.42	0.83	0.65	0.55
	Alanine	0.59	0.81	0.78	0.63	0.51	0.55	0.53
	Proline	0.74	0.71	0.69	0.76	0.44	0.36	0.75
	Cystine	0.26	0.27	0.25	0.20	0.19	0.20	0.25
Minerals	Tyrosine	0.42	0.57	0.55	0.34	0.34	0.29	0.43
	Sodium%	1.20	1.24	1.33	2.47	1.15	0.97	1.81
	Potassium%	16.02	10.14	10.48	11.28	14.12	12.38	18.50
	Magnesium%	3.39	3.53	3.19	2.12	1.74	1.25	3.01
	Calcium%	2.99	3.57	3.26	1.32	1.34	1.97	1.18
	Manganese%	0.03	0.03	0.03	0.09	0.07	0.03	0.05
	Ferric%	0.40	0.40	0.25	0.35	0.23	0.48	0.16
	Copper (ppm)	1.86	2.66	3.06	1.69	0.23	2.86	2.1
	Zinc (ppm)	10.41	15.47	16.20	21.75	17.66	20.16	19.3
	Phosphorous%	2.32	1.74	1.88	3.04	1.18	1.11	3.53

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CLASS	LEGUMES		Desmodium intortum (Greenleaf)	Desmodium uncinatum (Silverleaf)	Lablab purpureus	Stylosanthes hamata cv verano	Stylosanthes scabra	SOYA TGX 1951-3F	Cajanus cajan	Eweogbo (Parquetina nigrescens)	Mucuna pruriens	Centrosema pascuorum	Groundnut ha
		Dry matter %	92.63	93.63	94.63	95.63	96.63	97.63	98.63	99.63	100.63	101.63	102.63
		Ash %	93.63	94.63	95.63	96.63	97.63	98.63	99.63	100.63	101.63	102.63	103.63
		Crude Protein %	94.63	95.63	96.63	97.63	98.63	99.63	100.63	101.63	102.63	103.63	104.63
		Ether Extract %	95.63	96.63	97.63	98.63	99.63	100.63	101.63	102.63	103.63	104.63	105.63
		Crude Fibre %	96.63	97.63	98.63	99.63	100.63	101.63	102.63	103.63	104.63	105.63	106.63

<b>Nutritional Composition</b>	Neutral Detergent Fibre %	97.63	98.63	99.63	100.63	101.63	102.63	103.63	104.63	105.63	106.63	107.63
	Acid Detergent Fibre %	98.63	99.63	100.63	101.63	102.63	103.63	104.63	105.63	106.63	107.63	108.63
	Acid Detergent Lignin %	99.63	####	101.63	102.63	103.63	104.63	105.63	106.63	107.63	108.63	109.63
	Metabolizable Energy (MJ/Kg DM)	100.63	####	102.63	103.63	104.63	105.63	106.63	107.63	108.63	109.63	110.63
	In Vitro Organic Matter Digestibility	101.63	####	103.63	104.63	105.63	106.63	107.63	108.63	109.63	110.63	111.63
<b>Essential Amino Acid Profile</b>	Histidine	0.37	0.33	0.36	0.28	0.35	0.16	0.50	0.62	0.43	0.22	0.19
	Threonine	0.56	0.56	0.78	0.62	0.65	0.72	0.80	1.26	0.64	0.53	0.02
	Valine	0.89	0.86	0.95	0.77	0.81	0.76	1.11	1.11	0.94	0.72	0.28
	Methionine	0.20	1.20	2.20	3.20	4.20	5.20	6.20	7.20	8.20	9.20	10.20
	Lysine	0.76	1.76	2.76	3.76	4.76	5.76	6.76	7.76	8.76	9.76	10.76
	Tryptophan	0.18	0.17	0.20	0.17	0.17	0.15	0.15	0.21	0.16	0.16	0.01
	Isoleucine	0.67	0.66	0.82	0.70	0.69	0.80	0.96	1.24	0.78	0.64	0.15
	Leucine	1.37	1.32	1.33	1.15	1.16	1.50	2.39	2.44	1.52	1.03	0.87
	Phenylalanine	0.95	0.86	0.87	0.79	0.86	0.60	0.93	1.32	0.87	0.76	0.27
	Aspartic acid	1.63	1.49	1.99	1.87	1.86	1.33	1.42	3.05	1.90	1.83	0.40
<b>Non-essential Amino Acid</b>	Serine	0.72	0.72	0.82	0.74	0.78	0.44	0.60	1.22	0.70	0.61	0.14
	Glutamin	1.40	1.46	1.36	1.23	1.32	1.21	0.09	2.25	1.25	0.65	0.64
	Glycine	1.24	1.23	1.18	1.23	1.25	0.83	1.22	1.60	1.45	0.98	0.90
	Arginine	0.89	0.78	1.00	0.93	1.08	0.33	0.03	1.09	1.14	0.94	0.37
	Alanine	1.01	0.95	0.99	0.83	0.81	0.81	1.29	1.10	0.87	0.77	0.52
	Proline	0.74	0.80	0.78	0.70	0.72	0.96	0.82	1.26	0.90	0.40	0.78
	Cystine	0.15	0.14	0.22	0.18	0.19	0.14	0.07	0.18	0.14	0.14	0.05
	Trypsin	0.50	0.48	0.63	0.52	0.53	0.63	0.49	1.04	0.45	0.46	0.29
	Sodium%	2.74	2.78	1.72	1.78	1.55	2.42	3.41	2.00	2.54	1.38	
	Potassium%	6.51	9.21	9.00	10.21	9.77	2.53	3.66	13.87	5.46	5.91	
<b>Minerals</b>	Magnesium%	3.33	3.09	3.67	4.89	4.02	5.83	6.71	6.00	3.83	3.92	
	Calcium%	4.79	4.47	7.41	7.78	7.76	10.34	10.67	13.41	6.52	6.82	
	Manganese%	0.11	0.11	0.07	0.12	0.11	0.06	0.07		0.15	0.04	
	Ferric %	1.24	1.00	1.42	1.22	1.16	1.50	1.57	1.44	0.79	1.29	
	Copper (ppm)	5.31	5.24	4.76	2.54	2.08	3.31	10.43	5.59	3	3.51	
	Zinc (ppm)	10.21	12.48	18.09	17.65	11.87	29.03	21.65	17.61	17	11.26	
	Phosphorous%	2.57	3.25	1.51	1.61	1.07	2.93	6.14	1.26	2.78	0.74	

NIAS/RA/LAFI-2026

CLASS	BROWSE		Terminalia catappa	Leucaena leucoccephala	Gliricidia sepium	Moringa oleifera
		Dry matter %	92.38	92.46	92.32	94.69
		Ash %	9.45	9.34	8.07	9.31
		Crude Protein %	21.42	25.05	18.94	23.38
		Ether Extract %	4.85	7.67	7.28	5.30

<b>Nutritional Composition</b>	Crude Fibre %	18.20	14.27	7.59	1.60
	Neutral Detergent Fibre %	34.08	32.13	39.50	46.87
	Acid Detergent Fibre %	29.56	22.36	22.91	26.88
	Acid Detergent Lignin %	5.71	7.98	7.97	5.77
	Metabolizable Energy (MJ/Kg DM)	7.79	8.28	7.94	7.79
	In Vitro Organic Matter Digestibility	56.36	60.54	55.37	54.34
<b>Essential Amino Acid Profile</b>	Histidine	0.19	0.36	0.48	0.35
	Threonine	0.40	0.69	0.78	0.88
	Valine	0.62	1.00	1.00	1.27
	Methionine	0.01	0.24	0.34	0.46
	Lysine	0.30	0.76	1.24	1.19
	Tryptophan	0.18	0.23	0.21	0.22
	Isoleucine	0.39	0.71	0.94	1.16
	Leucine	1.07	1.30	1.80	2.27
	Phenylalanine	0.97	1.17	0.95	0.91
	Aspartic acid	1.66	1.99	2.00	1.32
<b>Non-essential Amino Acid</b>	Serine	0.55	0.80	0.62	0.56
	Glutamine	0.20	1.48	1.52	1.11
	Glycine	0.46	1.15	1.31	1.46
	Arginine	0.64	1.12	0.48	0.33
	Alanine	0.60	1.11	1.21	1.47
	Proline	0.08	0.59	0.83	1.23
	Cystine	0.07	0.15	0.20	0.16
	Trypsin	0.50	0.67	0.62	0.85
<b>Minerals</b>	Sodium%	0.13	2.47	3.68	3.45
	Potassium%	7.55	2.35	7.87	7.94
	Magnesium%	6.65	5.22	4.96	8.87
	Calcium%	16.46	9.65	7.78	15.54
	Manganese%	0.05	0.03	0.14	79.19
	Ferric %	1.00	1.28	1.41	1.57
	Copper (ppm)	2.27	7.20	9.97	5.66
	Zinc (ppm)	8.39	16.91	26.38	12.97
	Phosphorous%	1.27	3.35	3.94	5.36

#### Units

1. The units for our ruminant traits are % for all on a Dry matter basis, e
2. For all Amino acids are % (Gms/100Gms) as is DM basis.
3. For all Fatty acids are milligrams (Mg/100Gms) as is DM basis.
4. All macro/micro minerals are in percentage except PPM (parts per mi

#### Procedure

F), *in vitro* organic matter digestibility (IVOMD), Amino acids are % (Gms/100Gms), metabo