

Animal Feed Resources Information System

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Pennisetum purpureum

Elephant grass, Napier grass, Uganda grass

Tall erect perennial with thick stems up to 4.5 m high, found on moist soils in areas with over 1 000 mm of rainfall annually and widely distributed along the banks of watercourses. Grows best on deep soils of moderate to fairly heavy texture.

Tolerates short droughts, but does not withstand waterlogging. The most widely grown fodder grass. Sometimes grazed for six to eight weeks at a time. Yields very large quantities of dry matter, but is low in protein content unless cut very young. With poor drainage, best grown on raised beds. Should not be cut closer than 10-15 cm from the ground. Under normal management, stands are invaded by weeds and "run out" after two or three years, so that they have to be ploughed up and replanted.

The grass is planted in the same way as sugar cane (*Saccharum officinarum* L.): the culms are cut into pieces, each with three nodes, and are buried in the soil just deep enough to cover the second node and to leave the third above the ground.

The hybrid Giant Napier (*P. purpureum* x *P. typhoides*) has a high sugar content and leaf-stem ratio, but it needs highly fertile soil.

As % of dry matter

	DM	CP	CF	Ash	EE	NFE	Ref
Fresh, vegetative, 40 cm, Tanzania	20.0	9.8	29.7	14.0	2.6	43.9	175
Fresh, vegetative, 80 cm, Tanzania	20.0	9.0	28.6	14.8	1.1	46.5	"
Fresh, early bloom, 240 cm, Tanzania	25.0	7.2	36.1	12.4	1.0	43.3	"
Fresh, tops only, 220 cm, Tanzania		13.2	32.9	10.3	2.4	41.2	312
Fresh, cut at intervals of 6 weeks, Malaysia	19.0	10.0	31.6	15.3	2.1	41.0	292
Fresh, cut at intervals of 8 weeks, Malaysia	19.5	9.7	33.3	16.4	1.5	39.1	"
Fresh, cut at intervals of 10 weeks, Malaysia	21.0	7.6	35.2	14.8	1.4	41.0	"
Hay, vegetative, South Africa		15.1	34.9	12.1	2.4	35.5	489

Hay, mature, South Africa	7.5	40.3	11.7	1.4	39.1	"	
Silage, 120 cm, Zimbabwe	23.5	6.8	35.8	13.7	0.9	42.8	143
Silage, 210 cm, Zimbabwe	21.4	4.2	35.3	15.2	1.2	44.1	"
Fresh, var. merkeri, late bloom, Puerto Rica	24.0	8.6	36.1	10.2	3.1	42.0	33
Fresh, var. merkeri, cut every 6 wks, Malaysia	20.5	9.8	32.2	12.2	1.5	44.3	292
Fresh, var. merkeri, cut every 8 wks, Malaysia	20.5	8.8	34.6	14.1	1.5	41.0	"
Fresh, var. merkeri, cut every 10 wks, Malaysia	23.5	7.7	35.7	14.0	0.9	41.7	"
Fresh, Giant Napier, 4 weeks, 50 cm, Thailand	15.8	10.8	28.5	13.9	3.8	43.0	219
Fresh, Giant Napier, 6 weeks, 75 cm, Thailand	17.1	8.8	32.2	12.9	3.5	42.6	"
Fresh, Giant Napier, 8 weeks, 135 cm, Thailand	18.3	8.7	32.8	10.9	3.3	44.3	"
Fresh, Giant Napier, 10 weeks, 150 cm, Thailand	18.5	6.5	33.0	11.4	2.7	46.4	"
Fresh, Giant Napier, 12 weeks, 150 cm, Thailand	20.4	5.9	31.9	10.3	2.9	49.0	"

Digestibility (%)

	Animal	CP	CF	EE	NFE	ME	Ref
Fresh, vegetative, 40 cm	Sheep	61.2	74.7	50.0	71.8	2.30	175
Fresh, vegetative, 80 cm	Sheep	54.4	60.5	45.0	62.2	1.92	"
Fresh, early bloom, 240 cm	Sheep	50.0	60.1	30.0	52.9	1.79	"
Fresh, tops only	Zebu	73.4	65.7	66.4	57.0	2.17	312
Hay, vegetative	Oxen	73.2	77.2	66.5	67.8	2.44	489
Hay, mature	Oxen	40.7	56.0	30.9	33.8	1.46	"
Merker grass, late bloom	Sheep	66.0	61.0	57.0	58.0	2.06	143
Giant Napier, 75 cm	Sheep	33.0	62.0	53.0	62.0	1.94	"
Giant Napier, 135 cm	Sheep	38.0	64.0	53.0	58.0	1.96	33

Giant Napier, 10 weeks, 150 cm	Sheep	50.0	60.0	54.0	54.0	1.87	219
Giant Napier, 12 weeks, 150 cm	Sheep	28.0	60.0	39.0	54.0	1.81	"

Nylon bag degradability

		a (%)	b (%)	c (/hour)	12hr (%)	48hr (%)	Ref
Elephant grass, Portugal	DM	12.9	45.4	0.0214		43.7	627

$$[P \text{ (rumen degradability at time } t) = a+b*(1-\exp(-c*t))]$$

Amino acid composition as % of crude protein

Leaf	Arg	Cys	Gly	Hys	Ils	Leu	Lys	Met	Phe	Thr	Try	Ref	376
	2.1	0.2	-	1.9	4.7	6.2	3.1	1.4	7.3	3.8	0.6	Tyr	Val
												4.9	5.9

References

[33](#), [143](#), [175](#), [219](#), [292](#), [312](#), [376](#), [489](#), [627](#)

Abstracts

[Cattle\(114\)](#), [Cattle\(248\)](#), [Cattle\(282\)](#), [Cattle\(293\)](#), [Cattle\(496\)](#), [Cattle\(656\)](#), [Composition\(31\)](#), [Composition\(33\)](#), [Composition\(278\)](#), [Composition\(297\)](#), [Composition\(395\)](#), [Composition\(455\)](#), [Dairy\(280\)](#), [Dairy\(443\)](#), [Dairy\(479\)](#), [Dairy\(507\)](#), [Degradability\(419\)](#), [Goats\(49\)](#), [Goats\(113\)](#), [Goats\(158\)](#), [Goats\(299\)](#), [Goats\(339\)](#), [NaOH treatment\(498\)](#), [NaOH treatment\(500\)](#), [NaOH treatment\(555\)](#), [Sheep\(67\)](#), [Sheep\(113\)](#), [Silage\(25\)](#), [Silage\(101\)](#), [Silage\(281\)](#), [Silage\(343\)](#), [Silage\(364\)](#), [Silage\(412\)](#), [Silage\(479\)](#), [Silage\(521\)](#), [Silage\(550\)](#), [Urea/ammonia treatment\(498\)](#), [Urea/ammonia treatment\(500\)](#)