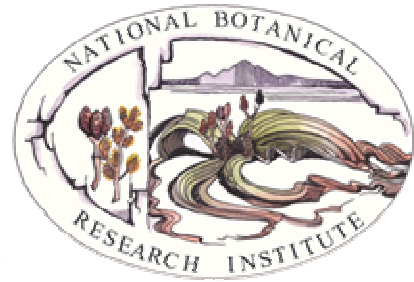


# Kew

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This report was generated from the SEPASAL database ([www.kew.org/ceb/sepasal](http://www.kew.org/ceb/sepasal)) in August 2007. This database is freely available to members of the public.

SEPASAL is a database and enquiry service about useful "wild" and semi-domesticated plants of tropical and subtropical drylands, developed and maintained at the Royal Botanic Gardens, Kew. "Useful" includes plants which humans eat, use as medicine, feed to animals, make things from, use as fuel, and many other uses.

Since 2004, there has been a Namibian SEPASAL team, based at the National Botanical Research Institute of the Ministry of Agriculture which has been updating the information on Namibian species from Namibian and southern African literature and unpublished sources. By August 2007, over 700 Namibian species had been updated.

Work on updating species information, and adding new species to the database, is ongoing. It may be worth visiting the web site and querying the database to obtain the latest information for this species.

## Internet SEPASAL

New query

Edit query

View query results

 *Display help*In names list include:  synonyms  vernacular names and display: All  names per page*Your query found 111 taxa***Panicum coloratum L. [1808]**

Family: POACEAE

**Synonyms**

None recorded

**Vernacular names**

(Mozambique)	chihundze [5480], guihangang-hanga [5480]
Afrikaans (Namibia)	bont panicum [5083] [5115] [5116], buffelsgras [2259]
Afrikaans (South Africa)	(kleinbuffels)blousaad(gras) [2259], buffelsgras [2259], kleinbuffelsgras [2259], makarikari-buffelsgras [2259], miergras [2259], witbuffelsgras [2259] [5117]
Afrikaans (Southern Africa)	witbuffelgras [2182]
Dinka (Sudan)	abiet [6719]
English (American)	klein grass [5664]
English (Australia)	klein grass [5664]
English (Kenya)	coloured Guinea grass [1375], keria grass [1375]
English (Namibia)	buffalo grass [2259], coloured guinea grass [5115], makarimakari grass [2259], small panicum [2259] [5083] [5116]
English (South Africa)	makarikari grass [2259], makarikari panicum [2259], small buffalo grass [2259], white buffalo grass [5117]
English (Southern Africa)	small buffalo grass [5664], white buffalo grass [2182], small Panicum [1375]
English (Zimbabwe)	(small) buffalo grass [1375] [2259], makarikari panicum [2259]
German (Namibia)	Buntes Hirsegras [2259] [5083] [5115] [5116]
USA	klein grass [1375]

**Distribution**

Plant origin	Continent	Region	Botanical country
Native	Africa	East Tropical Africa	Kenya [1362] [2259] [6573], Tanzania [1362] [2259] [6573], Uganda [1362] [2259] [6573]
		Northeast Tropical Africa	Ethiopia [1362], Somalia [1126] [1362], Sudan [623] [1362] [6719]
		Northern Africa	Egypt [1126] [1362] [1617]

		South Tropical Africa	Angola [ <a href="#">1362</a> ] [ <a href="#">2259</a> ] [ <a href="#">5126</a> ], Malawi [ <a href="#">3</a> ] [ <a href="#">2259</a> ], Mozambique [ <a href="#">3</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5480</a> ], Zambia [ <a href="#">3</a> ] [ <a href="#">2259</a> ] [ <a href="#">5481</a> ], Zimbabwe [ <a href="#">3</a> ] [ <a href="#">1362</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5125</a> ]
		Southern Africa	Botswana [ <a href="#">3</a> ] [ <a href="#">1362</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5104</a> ] [ <a href="#">5186</a> ], Cape Province [ <a href="#">2259</a> ] [ <a href="#">5104</a> ], Caprivi Strip [ <a href="#">2259</a> ] [ <a href="#">5115</a> ], Lesotho [ <a href="#">5550</a> ], Namibia [ <a href="#">3</a> ] [ <a href="#">1362</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5115</a> ] [ <a href="#">5183</a> ], Natal [ <a href="#">2259</a> ] [ <a href="#">5104</a> ], Orange Free State [ <a href="#">5104</a> ], Swaziland [ <a href="#">2259</a> ] [ <a href="#">5104</a> ] [ <a href="#">5452</a> ], Transvaal [ <a href="#">2259</a> ] [ <a href="#">5104</a> ]
		West Tropical Africa	Nigeria [ <a href="#">1126</a> ] [ <a href="#">1360</a> ]
Introduced	Australasia	Australia	New South Wales [ <a href="#">1808</a> ], Queensland [ <a href="#">1808</a> ], Victoria [ <a href="#">1808</a> ], Western Australia [ <a href="#">1808</a> ]
	Europe	Northern Europe	Great Britain
Status Unknown	Africa	Northeast Tropical Africa	Chad
		West Tropical Africa	Ghana, Senegal
		West-Central Tropical Africa	Cameroon, Zaire
	Asia-Temperate	Arabian Peninsula	North Yemen, Oman, Saudi Arabia, South Yemen
		China	Hong Kong
	Asia-Tropical	Indian Subcontinent	Pakistan

**ISO countries:** Australia [[1375](#)] , United States [[1375](#)] , South Africa [[1126](#)] [[1360](#)] [[2182](#)] [[2259](#)] [[5104](#)] [[5664](#)]

## Descriptors

Category	Descriptors and states
DESCRIPTION	Herb [ <a href="#">1126</a> ] [ <a href="#">2255</a> ]; Prostrate/Procumbent/Semi-erect [ <a href="#">2182</a> ]; Tussock Forming/Tufted/Caespitose [ <a href="#">3</a> ] [ <a href="#">1126</a> ] [ <a href="#">2182</a> ]; Erect [ <a href="#">3</a> ] [ <a href="#">2182</a> ] [ <a href="#">6573</a> ]; Terrestrial; Rhizomatous [ <a href="#">5664</a> ]; Perennial [ <a href="#">3</a> ] [ <a href="#">1126</a> ] [ <a href="#">1375</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5104</a> ] [ <a href="#">5115</a> ] [ <a href="#">6573</a> ]; Stoloniferous [ <a href="#">2259</a> ]; Plant Height 0.4-2 m [ <a href="#">2259</a> ] [ <a href="#">5664</a> ]
CLIMATE	Not Frost Tolerant [ <a href="#">1375</a> ]; Frost Tolerant [ <a href="#">1375</a> ]; Subtropical, Hot and Arid [ <a href="#">2182</a> ] [ <a href="#">5123</a> ] [ <a href="#">5664</a> ]; Annual Rainfall 500-1700 mm [ <a href="#">1375</a> ] [ <a href="#">5664</a> ]
SOILS	Sometimes Waterlogged (frequency unknown) [ <a href="#">2259</a> ] [ <a href="#">5116</a> ] [ <a href="#">5117</a> ] [ <a href="#">5664</a> ]; Weakly Saline [ <a href="#">1375</a> ]; Poorly Drained [ <a href="#">5664</a> ]; Sandy [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5116</a> ] [ <a href="#">5117</a> ] [ <a href="#">5664</a> ]; Seasonally Waterlogged [ <a href="#">6573</a> ]; Clayey [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5116</a> ] [ <a href="#">5117</a> ] [ <a href="#">5664</a> ]; Clays [ <a href="#">1375</a> ] [ <a href="#">6719</a> ]
HABITAT	Woodland [ <a href="#">1375</a> ] [ <a href="#">2259</a> ]; Shrubland/Bushland/Scrub [ <a href="#">5117</a> ] [ <a href="#">5664</a> ] [ <a href="#">6573</a> ]; Grassland/Forb-Land [ <a href="#">1375</a> ] [ <a href="#">2182</a> ] [ <a href="#">2259</a> ] [ <a href="#">5117</a> ] [ <a href="#">5664</a> ] [ <a href="#">6573</a> ]; Wooded Grassland [ <a href="#">2182</a> ] [ <a href="#">5117</a> ]; Semi-Desert [ <a href="#">2182</a> ] [ <a href="#">5117</a> ]; Non-Permanent Watercourses [ <a href="#">2182</a> ] [ <a href="#">5116</a> ];

	Pans [2182]; Altitude 0-2300 m a.s.l. [1375] [5104] [6573]
PHYSIOLOGY	Drought Tolerant [2182] [2259] [5116] [5664]
SOURCES OF PLANTING MATERIAL	RBG Kew Seed Bank; Other Seed Sources [5181]
CONSERVATION	IUCN Status - Lower Risk, Least Concern (LC) [5400]
FURTHER DATA SOURCES	Botanical Illustration [2259] [5116]; Regional Distribution Map [2259] [5664]; Botanical Photograph [5117] [5664]; Databases [5123] [5341]; Habit Illustration/Photograph [5116] [5117] [5664]; Grid Map [2182] [5115] [5116] [5117]
SEPASAL DATASHEET STATUS	Nomenclature Checked
CHEMICAL ANALYSES	Nutritional Analyses - aerial parts [5251]; Proteins - aerial parts [5251]

## Uses

Major use	Use group	Specific uses
FOOD [2514]	Seeds	
ANIMAL FOOD	Aerial Parts	leaves, game mammals, grazing; leaves, grazing; unspecified aerial parts, grazing [2182] [5117] [5664]; unspecified aerial parts, hay/straw [5117] [5664]; unspecified aerial parts, mammals, grazing [5116]; unspecified aerial parts, silage [5117]; unspecified aerial parts, game mammals, grazing [5117]; unspecified aerial parts, forage [2259]; grazing [6573] [6719]; hay/straw [6573]; forage [1126]; fodder [1126]
	Other Parts	entire plant ex situ, grazing [388]
ENVIRONMENTAL USES	Erosion Control	croplands/orchards [1537]
	Shade/Shelter	shelterbelts
	Revegetators	deserts [1537]

## Picture

None recorded

## Notes

### NOMENCLATURE/TAXONOMY

A highly variable species belonging to the *P. coloratum* - *P. stapfianum* complex, which includes *P. bechuanense* and *P. merkeri* [2182] .

*Name derivation:*

'Panicum' is the old Latin name for the common millet, *Setaria italica* Beauv. [2259] .

*Name derivation:*

The specific name is derived from the Latin word for colour, which probably alludes to the green spikelets, which are sometimes tinged with purple [2259] [5116] .

### DISTRIBUTION

*Africa:*

Variety *makarikariense* appears to be limited to south-eastern tropical Africa; Zambia, Zimbabwe, Malawi, Mozambique, Botswana and Transvaal [2259] .

*Namibia:*

Occurs in the central and northern areas [5115] [5116] .

*Namibia:*

Rare to common [5115] .

*Southern Africa:*

Only var. *coloratum* occurs [2182] [5104] .

*Worldwide:*

Occurs throughout tropical and subtropical Africa. It has been introduced to other countries, including the USA and Australia, as cultivated pasture [5664] .

*Worldwide:*

Tropical and subtropical Africa, introduced elsewhere [2182] .

Throughout tropical Africa, introduced to the United States and Australia [1375] .

Throughout Kenya in its various forms; also from Uganda, Tanzania, tropical and subtropical Africa [6573] .

## ORIGIN/DOMESTICATION

Occurs throughout tropical and subtropical Africa. It has been introduced to other countries, including the USA and Australia, as cultivated pasture [5664] .

A polymorphic species from southern Africa [1360] .

Native to tropical and subtropical Africa and introduced elsewhere [1362] .

## DESCRIPTION

*Height:*

0.5 - 1.5 m [5664] .

*Height:*

Up to 1 m [2182] [5104] .

*Height:*

Up to 1.5 m (rarely 2 m) [5117] .

*Inflorescences:*

2 - 3 mm long, hairless, green, sometimes shaded with purple [5116] .

*Inflorescences:*

An open panicle with a single (seldom 2) lower branch, 60 - 300 mm long. Spikelets 2 - 3 mm long. Stamens and anthers yellow or orange [5664] .

*Leaves:*

Leaf blade 60 - 300 mm long, 5 - 10 mm wide. Open leaf blade. Ligule a ring of hairs [5664] .

*Roots:*

Variety Bushman Mine is stoloniferous [2259] .

*Stems:*

Culms 0.5 - 1.5 m tall, with knee-like bent nodes at the base. Nodes are usually purple [5664] .

*Height:*

1.2 m [1126] .

*Height:*

From 8-9 to over 100 cm [1375] .

## IDENTIFICATION

Could be confused with *P. maximum* which has the lower branches of the inflorescences in whorls and not solitary or in pairs as in *P. coloratum* var. *coloratum* [5117] [5664] .

*P. coloratum:*

Cultivar Bambatsi is an erect form, while Bushman Mine is stoloniferous. Variety *makarikariense* is conspicuously blue-green, and has a sprawling habit, with geniculate culms that spread out from the base. The inflorescence is an open panicle of small, light green spikelets sometimes with purple variegation. They are turgid and rounded, abruptly pointed at the apex [2259] .

*Panicum stapfianum* Fourc. which occurs in South Africa (the southern Transvaal, Orange Free State and eastern and southern Cape Province), is very similar to *P. coloratum*. It is distinguished by its caespitose habit, short, erect culms 22 - 50(90) cm high and smaller panicle 7 - 10(18) cm long. Apart from the basal differences the only other

difference is its small size; in spikelet characteristics it is similar to *P. coloratum* [3] .

## FOOD - SEEDS

Seeds eaten by humans [2514] .

## ANIMAL FOOD - AERIAL PARTS

*Unspecified aerial parts, forage:*

Productive and palatable forage grasses in the natural veld. Reported to have excellent feeding value in the Kalahari [2259] .

*Unspecified aerial parts, game mammals, grazing:*

Preferred by white rhinoceros, roan, buffalo and reedbuck [5117] .

*Unspecified aerial parts, grazing:*

A palatable pasture grass with a high production, well utilized by grazers [5117] .

*Unspecified aerial parts, grazing:*

High grazing value [5664] .

*Fodder:*

Introduced as a fodder grass to West Africa and other tropical countries [1126] .

*Unspecified aerial parts, grazing:*

Palatable pasture [2182] .

*Grazing:*

Grazed by all livestock in Abyei District of South Kordofan [6719] .

*Unspecified aerial parts, grazing:*

Selected drought-resistant cultivars such as 'Bambatsi' and 'Bushman Mine' are used for grazing in South Africa [5117] .

*Unspecified aerial parts, hay:*

Selected drought-resistant cultivars such as 'Bambatsi' and 'Bushman Mine' are used for hay in South Africa [5117] .

*Unspecified aerial parts, mammals, grazing:*

Valuable as grazing for large animals [5116] .

*Unspecified aerial parts, silage:*

Selected drought-resistant cultivars such as 'Bambatsi' and 'Bushman Mine' are used for silage in South Africa [5117] .

*Grazing, hay:*

A drought resistant and very valuable grazing grass which is also used in hay-making. The bigger forms become rather stemmy at maturity and less palatable [6573] .

## ANIMAL FOOD - OTHER PARTS

*Entire plant ex situ, game mammals, grazing:*

Whole plant is grazed by impala [388] .

## ENVIRONMENTAL USES - EROSION CONTROL

*Croplands:*

Can be used as a wind barrier without affecting cotton yield in a cotton farm [1537] .

## ENVIRONMENTAL USES - REVEGETATORS

*Deserts:*

In revegetation of arid areas trials in Chihuahuan and Sonoran Deserts it was among the species that showed greatest adaptation [1537] .

## NUTRITIONAL VALUE

*Aerial parts, crude protein, P, Ca, OM, DM, crude fibre, ADF, NDF, fat, in-vitro digestibility:*

In Namibia one sample was analysed during April 1995. Crude protein 13.80%, P 0.21%, Ca 1.38%, OM 89.36%,

DM 94.86%, crude fibre 33.45%, ADF 41.90%, NDF 52.40%, fat 1.47%, in-vitro digestibility 51.08% [5251] .

## **RAINFALL**

*Southern Africa:*

Grows in low to moderate rainfall areas [5117] [5664] .

500-1000 mm [5664] .

It grows in areas with a rainfall in excess of 500 mm. The range is 650-1700 mm [1375] .

## **TEMPERATURE**

It is susceptible to frost but usually recovers [1375] .

The mean temperature for the coldest months ranges from 5.8-11.8°C. Cultivar 'Kabulabula' has good winter growth [1375] .

The mean annual temperature ranges from 17.7 to 21.7°C [1375] .

## **ALTITUDE**

Sea level to 1000-2000 m a.s.l. [1375] .

50-2300 m a.s.l. [6573] .

50-2300 m a.s.l. [5104] .

## **TOPOGRAPHY/SITES**

*Southern Africa:*

Occurs in riverbeds, drainage courses, around pans or in depressions [2182] .

## **DRAINAGE**

*Namibia:*

Occurs on damp, sandy soils of omiramba [5116] .

*Southern Africa:*

Grows where water collects during the rainy season [2259] [5116] [5117] [5664] .

## **SOILS**

*Namibia:*

Occurs on heavy, clayey soils as well as damp, sandy soils of omiramba [5116] .

*Southern Africa:*

Mostly in clay and other fertile soil, but also grows in other types such as sand [5664] .

An introduction from Eastern Africa, 'CPI 14375', close to cv. 'Kabulabula', tolerates moderate salinity [1375] .

Heavy clay soils [1375] .

It occurs chiefly on red and black clay soils in Kenya [1375] .

Both on light and seasonally wet soils [6573] .

## **VEGETATION**

*South Africa:*

Open grassland and bushveld, Savanna and Nama-Karoo [5117] .

*Southern Africa:*

Open bushveld and grassland [5664] .

*Southern Africa:*

Savanna, Grassland and Nama-Karoo [2182] .

Open woodland [1375] .

Grassland and deciduous bushland [6573] .

## ENVIRONMENTAL FACTORS - MISCELLANEOUS

### *Southern Africa:*

A climax grass as well as a decreaser (grasses that are abundant in good veld, but that decrease in number when the veld is overgrazed or undergrazed) [5664] .

### *Southern Africa:*

Grows where water collects during the rainy season [2259] [5116] [5117] [5664] .

## POLLINATION

It cross pollinates, with some lines incompatible [1375] .

## FLOWERING/FRUITING/SEED SET

### *Flowering, South Africa:*

December to April [5117] .

### *Flowering, southern Africa:*

December to April [2259] [5664] .

### *Flowering, southern Africa:*

October to May [2182] .

## GERMINATION

In the Sudan, *P. coloratum* germinated after only 10 mm of rain, when planted at 1 cm [1375] .

Minimum germination and quality required for commercial sale is 20% germinable seed and 80% purity in Queensland [1375] .

## VEGETATIVE GROWTH

Season of growth is summer [1375] .

## CYTOLOGY

For the genus,  $x = 7, 9, 10$  (high polyploidy) [5150] .

$2n=18, 32, 36, 44, 54$  [1375] .

## CULTIVATION

### *Southern Africa:*

A robust variety, var *makarikariense*, was originally collected at the Makarikari pans in Botswana and is a popular cultivated pasture today [2259] [5664] .

### *Southern Africa:*

It is often cultivated as pasture and various cultivars such as 'Bambatsi', 'Bushman Mine', 'Pollock' and 'Burnett' have been selected. These are popular due to their ability to grow in heavy clay soil and also to endure conditions of flooding as well as droughts. This grass has also been cultivated in the USA where it is known as 'klein grass' [5664] .

'Bushman Mine' is a tufted, erect perennial up to 1 m high that spreads by long creeping stems. It is deep rooting and very drought resistant, yet it will grow in heavy, seasonally waterlogged soils. It will thus tolerate a wide range of soil conditions and is suitable for use in low or high rainfall areas. It is palatable to cattle, makes good hay and responds well to nitrogen. It mixes with legumes. Seed production is generally poor and establishment is usually by root-stock or stem cuttings. It was developed in Botswana from indigenous stock [1375] .

Cultivar 'Selection 75' is used in Texas [1375] .

### *Southern Africa:*

The variety '*makarikariense*' is cultivated all over southern Africa, gives a high mass-yield and is reasonably drought-resistant [5116] .

### *Southern Africa:*



There are many distinct ecotypes, a number of which have been selected for pastures such as var. makarikariense, a tall, robust, glaucous plant [2182] .

*Zimbabwe:*

In Rhodesia cultivars such as 'Bambatsi' and 'Bushman Mine' which are said to be drought tolerant, have been selected. Henderson Research Station, near Salisbury (Harare), should be consulted for up-to-date information on these cultivars [2259] .

Several cultivars exist which are 'Bushman Mine', 'Kabulabula' and 'Selection 75'. Kabulabula has been introduced as CPI 16796 [1375] .

## PROPAGATION FROM SEED

In cv. 'Kabulabula', the tight envelopment of the caryopsis by the lemma and palea delays germination. This can be overcome by a light mechanical scarification but scarified seed will not remain viable after laboratory storage for 3 years whereas unscarified seed stored for 3 years remained viable and there was still some hardseededness [1375] . It requires a well prepared seed bed [1375] .

Sowing methods include drilling or broadcasting [1375] .

Sown in the wet season at 11-16 Kg/ha (2-3 Kg/ha in Texas) [1375] .

The best sowing depth is about 1 cm but *P. coloratum* germinated from a depth of 5 cm in the Sudan [1375] .

## 'CROP' MANAGEMENT

*Fertilizer application:*

*P. coloratum* was found to fix 23 Kg N/ha in 100 days in southern Texas [1375] .

## HARVESTING

Seed is matured over a long period, well in excess of 15 days with no peak maturation, and at the end of the period virtually all the seed has been shed. Direct heading yielded only 19% of the seed; cutting with a reaper and binder, drying under cover and subsequently threshing gave 42%, cutting with reaping hook, drying in the field and threshing gave 49%; and collecting seed several times by hand shaking gave 62% of possible yield [1375] .

## YIELDS

*Southern Africa:*

The variety 'makarikariense' is cultivated all over southern Africa, gives a high mass-yield and is reasonably drought-resistant [5116] .

In the wet zone of Vita Levu, Fiji, Roberts (1970a, b) recorded an average of 4517 Kg/ha of dry matter with 9% crude protein over 3 years [1375] .

*Seeds:*

Seed yield is about 400 Kg/ha if most of the seed is collected [1375] .

## PRODUCTION

Cultivar 'Kabulabula' introduced as 'CPI16796' has a good winter growth and produced 5810 Kg DM/ha (1852 Kg leaf) in autumn (14 March-16 July) in southeastern Queensland when fertilized with 30 Kg P, 75 Kg K and 300 Kg N/ha. Spring growth was 2181 Kg/ha from 15 August to 30 October. Recovery of nitrogen was 53.9% [1375] .

## FIELD TRIALS

Tested in Dhamar montane plains of YAR, one of comparatively few species to give good results [1259] .

## SEED/GENE BANK SOURCES

National Plant Genetic Resources Centre, National Botanical Research Institute, Private Bag 13184, Windhoek, Namibia .

## ACKNOWLEDGEMENTS AND DATASHEET PROGRESS

Data transferred from SEPASAL Paper Files by Ruth Adeka, KENRIK, National Museums of Kenya, May 2007 .  
Updated for southern Africa by E. Irish; checked by A. Jarvis; Sepasal Namibia, National Botanical Research Institute, September 2005 .

*Floras checked 1994:*

FWTA; FTEA; F. Aldabra; Flowering Plants Seychelles; F. sudan 1929; F. Iraq; F. Zambes.; Key Egyptian Grasses .

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