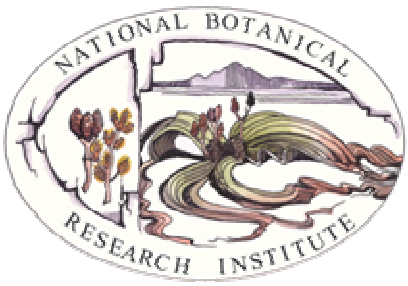

This report was generated from the SEPASAL database (www.kew.org/ceb/sepasal) in August 2007. This database is freely available to members of the public.

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which has been updating the information on Namibian species from Namibian and southern African literature and unpublished sources.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.

Hyparrhenia hirta (L.)Stapf [1808]

Family: POACEAE

Synonyms

Andropogon hirtus L.

Vernacular names

(Egypt)	hamra [2255], hemaar [2255], hemeira [2255], homareet [2255], sabad [2255], sabat [2255], sabt [2255], safsoof [2255]
(Jordan)	senan [2255]
(Morocco)	barbou herisse [2255], himar [2255], namas [2255], safsoof [2255]
(Mozambique)	lupuxi [5480]
(Qatar)	garaz [2255]
(Saudi Arabia)	heimeira [2255]
Afrikaans (Namibia)	dekgras [2259] [5083] [5115] [5116]
Afrikaans (South Africa)	Boesman(s)gras [2259], blougras [2259], bosluisgras [2259], dekgras [2259], dektamboekiegras [2259], soetgras [2259], steekgras [2259], vaalgras [2259]
Afrikaans (Southern Africa)	dekgras [2795], dektamboekiegras [2182]
Arabic	aamar [2255], amad [2963], elmad [2255], gousmir elmad [2255], hafer [2255], hamra [2255], hamrette errass [2255], nzimi [2255], nzoumi [2255], seibouss [2255], sibouss [2255]
English	blue stem [2255]
English (Namibia)	thatching grass [2259] [5115] [5116]
English (South Africa)	South African blue stem [2255], blue grass [2259], common thatching grass [2259], thatch grass [2259]
English (Southern Africa)	common thatching grass [2182] [2795]
German (Namibia)	Rauhes Deckgras [2259] [5083] [5115] [5116]
Sotho	leqokoana [2259], manasi [2259], matatane [2259], moful a tsephe [1340] [2259], mohlomo [1340] [2259], mookoana oa tsephe [1340] [2259], qokoana [2259], qokoanyana [2259]
Tsonga (South Africa)	deke [5139], ntsenga [5139], tlongwe [5139]
Zulu	inTunga [2259], umNcele [2259]

Distribution

Plant origin	Continent	Region	Botanical country
Native	Africa	East Tropical Africa	Kenya [2259], Tanzania

			[2259] [6573], Uganda [2259] [6573]
		Macaronesia	Canary Is, Cape Verde, Madeira
		Middle Atlantic Ocean	Ascension
		Northeast Tropical Africa	Djibouti, Ethiopia, Socotra, Somalia, Sudan
		Northern Africa	Algeria, Egypt, Libya, Morocco, Tunisia
		South Tropical Africa	Angola [3] [2259] [5126], Mozambique [5480], Zambia [3] [2259] [5481], Zimbabwe [3] [2259] [5125]
		Southern Africa	Botswana [3] [2259] [5104] [5186], Cape Province [2259] [5104], Lesotho [2259] [5550], Namibia [5104] [5115] [5116] [5183], Natal [2259] [5104], Orange Free State [5104], Swaziland [5104] [5452], Transvaal [2259] [5104]
		West-Central Tropical Africa	Zaire [2259]
		Western Indian Ocean	Madagascar
	Asia-Temperate	Arabian Peninsula	Bahrain, Saudi Arabia
		Western Asia	Afghanistan, Cyprus, Iran, Iraq, Israel, Jordan, Lebanon, Syria
	Europe	Southeastern Europe	Albania, Greece, Italy, Malta, Sicilia, Yugoslavia
		Southwestern Europe	Baleares, Corse, France, Portugal, Sardegna, Spain
.			
Introduced	Australasia	Australia	New South Wales [1808], Northern Territory [1808], Queensland [1808], South Australia [1808], Victoria [1808], Western Australia [1808]
	Northern America	Northern Mexico	Nuevo Leon
		Southwestern U.S.A.	California
	Southern America	Caribbean	Cuba, Dominican Republic
		Northern South America	Venezuela
.			
Status Unknown	Africa	West Tropical Africa	Niger [3]
	Asia-Temperate	Arabian Peninsula	North Yemen, Oman, Qatar, South Yemen, United Arab Emirates
	Asia-Tropical	Indian Subcontinent	Pakistan [2259]

ISO countries: India , Mexico , Turkey , United States , South Africa [2182] [2259] [5104] [6573]

Descriptors

Category	Descriptors and states
DESCRIPTION	Herb; Tussock Forming/Tufted/Caespitose [3] [6573]; Erect [2795]; Densely Tufted [2795] [5116]; Terrestrial [2182]; Rhizomatous [3] [2182] [5116] [5117] [6573]; Perennial [3] [2182] [5115] [5664] [6573]; Plant Height <= 1.5 m [5664]
CLIMATE	Tropical Summer Rains [2259]; Frost Tolerant [5117]; Subtropical, Hot and Arid [2259] [5115]; Annual Rainfall 250-500 mm
SOILS	Well Drained [5117] [5664]; Gravels/Stony [2182] [5116] [5117] [5664]; Dry [2182] [5116]
HABITAT	Littoral Zones [2255]; Forest [6573]; Upland [6573]; Forms Co-Dominant Stands [5117]; Montane [2255]; Dominant within Stands of Natural Vegetation [2138] [2182]; Grassland/Forb-Land [2259] [5117] [6573]; Wooded Grassland [2182] [5117]; Hillsides/Slopes [5116] [6573]; Wooded Shrubland [2182]; Semi-Desert [5117] [5363]; Watercourses [5115] [5116]; Anthropogenic Landscapes [2795] [5117]; Croplands [5117]; Altitude 5-2700 m a.s.l. [5104] [6573]
PHYSIOLOGY	Short-Day Plant [1653]; Shade Tolerant [5116]; Drought Tolerant [5117]
SOURCES OF PLANTING MATERIAL	RBG Kew Seed Bank
FURTHER DATA SOURCES	Botanical Illustration [3] [2182] [2259] [5116]; Additional References [6167] [6168]; Regional Distribution Map [2259] [5664]; Botanical Photograph [2182] [5117] [5664]; Habit Illustration/Photograph [5116] [5117] [5664]; Grid Map [2182] [5115] [5116] [5117]
SEPASAL DATASHEET STATUS	Nomenclature Checked

Uses

Major use	Use group	Specific uses
ANIMAL FOOD	Unspecified Parts	mammals, grazing [5116]
	Aerial Parts	leaves, grazing [6573]; unspecified aerial parts, hay/straw; unspecified aerial parts, silage; unspecified aerial parts, grazing, spring [5117]; unspecified aerial parts, game mammals, grazing [5117]; unspecified aerial parts, fodder [2259]; unspecified aerial parts, forage [2259]; unspecified aerial parts, sheep, grazing [2255]; unspecified aerial parts, grazing [2259]
MATERIALS	Fibres	stems, thatch, roofs [2795]; unspecified aerial parts, thatch [2259] [5139]; unspecified aerial parts, basketry (from fibre), baskets [2259]
ENVIRONMENTAL USES	Erosion Control	sands [5117]
	Indicators	rangelands [2182] [5664]
GENE SOURCES		drought resistance [5117]; cold tolerance [5117]

Picture

None recorded

Notes

NOMENCLATURE/TAXONOMY

Name derivation:
The generic name is composed from the Greek 'hypo' which means 'under' and 'arren' which means 'male', which alludes to the male spikelets at the base of the raceme. The specific name is derived from Latin which means 'hairy', and alludes to the hairy spikelets [5116] .

DISTRIBUTION

Angola:
Occurs only in the Moxico province [5126] .
Mozambique:
Nampula, Tete provinces [5480] .
Namibia:
Kaokoland, Grootfontein, Outjo, Okahandja, Windhoek, Rehoboth and Maltahoehe districts [5183] .
Worldwide:
From the shores of the Mediterranean eastwards to Pakistan and southwards to the Cape Peninsula. Uganda, Kenya, Tanzania, Zaire, Angola, Zambia, Zimbabwe, Botswana, Namibia, Transvaal, Natal, Lesotho, Orange Free State and the Cape province [2259] .
Worldwide:
Mainly in the Mediterranean region and NE tropical Africa, and extending eastwards through Arabia and SW Asia to Pakistan. Absent from much of the rest of tropical Africa, except for isolated records from Niger and Angola as well as the Flora Zambesiaca area. Reappearing in South Africa and probably introduced in Australia and Central America [3] .
Worldwide:
Throughout Africa to the Mediterranean and Pakistan [2182] .
Zambia:
Central province only [5481] .
Uganda, Tanzania, tropical and South Africa, the Meditterranean to Asia [6573] .

DESCRIPTION

Height:
0.3-0.8 m [2182] .
Height:
0.6 m (up to 1 m in exceptionally robust specimens) [3] .
Height:
Up to 1 m [5104] [5116] .
Inflorescences:
Panicle scanty, of 2-10 raceme pairs, the pairs with 0-1 homogamous pairs at base of upper racemes and 8-14 awns 10-35 mm long with hairs to 0.3 mm long. Raceme bases terete, unequal, never deflexed, 20-40 mm long. Spikelets (sessile) 4.0-6.5 mm long (yellowish green to violet, white, villous, callus acute) [2182] .
Leaves:
Leaf blades 20-150 mm long, 1-2(-4) mm wide [2182] .
Lifeform:
Graminoid [5104] .

IDENTIFICATION

Hyparrhenia hirta can be distinguished by the four hairy brown thorns on each flower cluster. The latter are borne in pairs and the two clusters are erect and close together in this species. The closely related H. filipendula and H. anamesa are both used as thatch and are often confused with H. hirta. Both these grasses usually have fewer than four awns per flower cluster and the two clusters or racemes point away from another in these species, often downward in H. anamesa (Van Oudtshoorn 1999). H. hirta is widely distributed over most parts of southern Africa, while H. filipendula is restricted to bushveld regions along the eastern part of southern Africa [2795] .
Hyparrhenia hirta may be recognised by its hard basal tussock, harsh narrow leaves and scanty panicle of white villous racemes which do not deflex [2182] .
It is best recognised by its scanty panicle of white-villous racemes which never deflex, by the many-awned racemes with 0-1 homogamous pairs at the base of the superior, and by the harsh narrow leaves forming a basal tussock [3] .

ANIMAL FOOD - AERIAL PARTS

Unspecified aerial parts, fodder, grazing:
In South Africa can be a valuable fodder grass (soetgras), even when young, and probably provides fairly good grazing even when mature [2259] .
Unspecified aerial parts, game mammals, grazing:
In South Africa preferred by oribi, roan and sable [5117] .
Unspecified aerial parts, grazing, spring:
A relatively good pasture grass, particularly early in the season before it becomes hard and fibrous. Grazing value average [5117] .
Unspecified aerial parts, grazing:
Tetraploid forms reported to be more palatable than diploid forms [2255] .
Unspecified aerial parts, mammals, grazing:
It is well-utilised by animals in the young stages, but as it gets older it becomes hard and unpalatable [5116] .
Unspecified aerial parts, sheep, grazing:
Used in sheep grazing experiment in Yemen Arabic Republic. It remained abundant after controlled grazing was allowed [2138] .
Leaves, grazing:
Well grazed when young, drought resistant and of some importance on dry grassy slopes [6573] .

MATERIALS - FIBRES

Basketry (from fibre), baskets, unspecified aerial parts:
In Lesotho it is used for weaving into very large (4-6 foot high) grain storage baskets (lisiu) [2259] .
Thatch, roofs, stems:
The grass is prepared by shaking each bundle vigorously to remove all loose material. The lower two thirds of the stems are then cleaned of leaves by repeatedly passing a sickle between them and working towards the thick ends. If high quality thatch is required, the bundles are combed to remove all leaves so that the stalks are perfectly cleaned. This operation is usually performed at the construction site, but it may also be done in the field, immediately after harvesting. A comb is made by driving a row of nails into a horizontal pole, leaving even gaps about 10 mm wide. Combed thatch is required for the bottom layer or 'spreilaag' on a roof, immediately above the thatching battens. Van Wyk (2000) describes the thatching process in detail [2795] .
Thatch, unspecified aerial parts:
In southern Africa, where common, it is widely used as a good thatching grass [2259] .

ENVIRONMENTAL USES - EROSION CONTROL

Sands:
Plays an important role in stabilizing bare and sandy soils, protecting them against erosion [5117] .

ENVIRONMENTAL USES - INDICATORS

Rangelands:
In southern Africa it is a climax grass [2182] .
Rangelands:
In southern Africa it is classified as an Increaser I grass i.e. grasses that are abundant in underutilised veld. These grasses are usually unpalatable, robust climax species that can grow without any defoliation [5664] .

CONSTRAINTS - MISCELLANEOUS

Flowering over a long period makes it difficult to harvest seeds in large quantities [2255] .
It has been cultivated in the U.S.A. but appears to have little forage value [2259] .

ALTITUDE

Southern Africa:
5-2600 m [5104] .

1300-2700 m a.s.l. (as from 600 m a.s.l. elsewhere) [6573] .

TOPOGRAPHY/SITES

Southern Africa:
Along roadsides and in disturbed places, such as uncultivated lands and roadsides [2795] [5117] .

SOILS

Southern Africa:
Occurs on most soil types, with a preference for well drained soils [2259] [5117] .
Tunisia:
Calcareous soils in Tunisian steppe [2255] .

VEGETATION

Africa:
In the tropics particularly on highveld grassland. In parts of South Africa an important constituent of open grassland [2259] .
Southern Africa:
Open grassland, Savanna, Nama-Karoo and Fynbos [2182] [5117] .
Grassland at edges of upland forest and often on dry, grassy slopes [6573] .

ENVIRONMENTAL FACTORS - MISCELLANEOUS

Frost:
Where upper foliage is killed by frost, re-growth will occur at the beginning of the spring [2255] .

FLOWERING/FRUITING/SEED SET

Flowering, Syria, Lebanon:
Generally continuous over a long period - possibly all year [1218] .
Flowering, southern Africa:
September to June [2182] .
Flowering, southern Africa:
September to March [2259] [5117] [5664] .
Flowering:
Short day plant. Flowers earlier under short than under long photo periods [1653] .

GERMINATION

Germination of seeds is slow and requires warm temperatures after autum rains in the Mediterranean region. If autumn rains are late, germination will be retarded until late winter or early spring. Floral envelopes contain germination inhibitors and their removal, from mature and stored seed, has increased the percentage germination at 5 degrees C in Israel [1218] .

CYTOLOGY

2x = 30. 3x = 45. According to Bogdan (1977) the chromosome number can be 30, 40 or 60, with irregular numbers of 44 and 45 being encountered [1218] .
For the genus x = 10, 15 (polyploidy) [5150] .

BREEDING SYSTEM

Species exhibit widespread apomixis. Propagation by seed [2255] .

PHOTOSYNTHESIS

C4-NADP-ME pathway with K-MS-NADP anatomy [6146] .

PHYSIOLOGICAL TOLERANCES

Extremely drought resistant, as well as cold resistant to some extent. Humphries (1965) records species as deep rooted, with maximum root penetration of 3 m on deep sands in Western Australia [1218] .

ASSOCIATED ORGANISMS - MISCELLANEOUS

Arachnida:
The dense tufts are locally common (Fauresmith, RSA) and said to be favourite haunts and breeding place of the bushtick [2259] .

CULTIVATION

Australia:
Was tried under cultivation in Australia without much success [2255] .
Morocco, Egypt:
Successful dryland plantings have been made with local cultivars in the littoral zone of Morokko (400 mm rainfall) and Egypt (150 mm rainfall). Flowering over a long period makes it difficult to harvest seeds in large quantities [2255] .
U.S.A.:
It has been cultivated in the U.S.A. but appears to have little forage value [2259] .

'CROP' MANAGEMENT

Fertilisation:
Intolerant to high nitrogen supplies [2255] .

HARVESTING

Southern Africa:
It is cut in autumn or winter (March to August), after the first frost has killed the leaves. Harvesting is usually done with a sickle, but mechanical cutters are sometimes used. Hand cutting will produce about 50-100 bundles per day and a mechanical cutter and binder about 6000 bundles a day. Bundle sizes vary from region to region. In Botswana, most bundles are about two hands (37-41 cm) in circumference, while in South Africa they are usually one and half hands (about 30 cm) in circumference (Van Voorthuizen and Odell 1976). Commercial bundles are often between 7.5-10 cm in diameter in South Africa (Long 1978) [2795] .

PRODUCTION

In West Australia Humphries reports that about half the florets are imperfect and never set seed, while under dryland conditions seed set by the potentially fertile remainder may be poor in some seasons [1218] .

FIELD TRIALS

YAR:
Used in sheep grazing/vegetation experiment. Area in montane plains S. of Dhamar. It is the dominant grass over the area, and the type sheep select for preference, but it remained abundant after controlled grazing was allowed - possibly because they had finished the palatable parts of the plant [2138] .

RESEARCH NEEDS

More studies needed on seed production, seeding techniques, palatability and utilisation before species can receive

wider recognition or agronomic use [1218] .

ACKNOWLEDGEMENTS AND DATASHEET PROGRESS

Nomenclature checked by Liana May, March 2002 .
Updated for southern Africa by E. Irish; checked by A. Jarvis February 2006. Entire species edited by C. Mannheimer, May 2007. SEPASAL Namibia, National Botanical Research Institute .

References

[3] Flora Zambesiaca. 1960-. London: Crown Agents for Overseas Governments and Administrations. En. Edited by A.W. Exell et al.
[1218] Kernick, M.D. 1978. *Indigenous arid and semi-arid forage plants of North Africa, the Near and Middle East: technical data*. Rome: FAO. 689p. En. Ecological management of arid and semi-arid rangelands in Africa and the Near and Middle East (EMASAR - Phase II, Volume 4).
[1340] Watt, J.M. and Breyer-Brandwijk, M.G. 1962. *The medicinal and poisonous plants of southern and eastern Africa*. Edinburgh and London: E. and S. Livingstone. ix, 1457p. En. 2nd ed.
[1653] Bogdan, A.V. 1977. *Tropical pasture and fodder plants (grasses and legumes)*. London: Longman. xiii, 475p. En.
[1808] Simon, B.K. 1993. *A key to Australian grasses. 2nd ed*. Brisbane: Queensland Department of Primary Industries. 206p.
[2138] Briede, J.W., Kessler, J.J., Hoenen, J.G.L.G.M. and Mufareh, M.M. 1985. *Sheep behaviour and vegetation changes during a village grazing trial at the Dhelan Hill exclosure (montane plains, YAR)*. Amersfoort, The Netherlands: DHV Consulting Engineers and RIN. 25p. En. Range and Livestock Improvement Project Communication No. 1.
[2182] Gibbs Russell, G.E., Watson, L., Koekemoer, M., Smook, L. et al. 1990. *Grasses of Southern Africa*. Pretoria, South Africa: National Botanic Gardens/Botanical Research Institute. 437p. Mem. Bot. Survey South Africa No. 58.
[2255] SEPASAL.. *Survey of Economic Plants for Arid and Semi-Arid Lands. Notes from SEPASAL datasheet*. Kew, U.K.: Centre for Economic Botany, Royal Botanic Gardens, Kew.
[2259] Chippindall, L.K.A. and Crook, A.O. 1976. *Grasses of Southern Africa*. Salisbury, Rhodesia: M.O. Collins. 240 parts in loose leaf form.
[2795] Van Wyk, B.-E. and Gericke, N. 2000. *People's plants: a guide to useful plants of Southern Africa*. Pretoria, South Africa: Briza Publications. 351p. En.
[2963] SEPASAL. 2002. *Nomenclature check*. Royal Botanic Gardens, Kew.
[5083] Craven, P. and Kolberg, H. In prep. *Common names of Namibian plants*. Windhoek.
[5104] Germishuizen, G. and Meyer, N.L., eds. 2003. *Plants of southern Africa: an annotated checklist*. Strelitzia 14. Pretoria: National Botanical Institute.
[5115] Klaassen, E.S. and Craven, P. 2003. *Checklist of grasses in Namibia. SABONET Report No. 20*. Pretoria and Windhoek: Southern African Botanical Diversity Network.
[5116] Müller M.A.N. 1984. *Grasses of South West Africa/Namibia*. Windhoek: Department of Agriculture and Nature Conservation.
[5117] Van Oudtshoorn, F. 1992. *Guide to grasses of South Africa*. Arcadia, Pretoria: Briza Publications. 301p.
[5125] Chapano, C. 2002. *A checklist of Zimbabwean grasses. SABONET Report No. 16*. Pretoria: Southern African Botanical Diversity Network.
[5126] Costa, E., Martins, T. and Monteiro, F. 2004. *A checklist of Angola grasses - Checklist das Poaceae de Angola. SABONET Report No. 28*. Pretoria: Southern African Botanical Diversity Network.
[5139] Liengme, C.A. 1981. Plants used by the Tsonga people of Gazankulu. *Bothalia*. 13(3&4): 501-518.
[5150] Leistner, O.A., ed. 2000. *Seed plants of southern Africa: families and genera. Strelitzia 10*. Pretoria: National Botanical Institute.
[5183] Prodromus einer Flora von Suedwestafrika. 1966-1972. J. Cramer, Lehre. Ge.
[5186] Kabelo, M. and Mafokate, D. 2004. *A checklist of Botswana grasses. SABONET Report No. 24*. Gaborone and Pretoria: Southern African Botanical Diversity Network.
[5363] Giess, Volk, O.H. and Bleissner, B. 1963. *Herbarium specimen: Giess, Volk, O.H., Bleissner, B. WIND 5499. Witpütz, Farm Zebrafontein, 21 Feb. 1963*. National Herbarium of Namibia (WIND), Windhoek.
[5452] Braun, K.P., Dlamini, S.D.V., Mdladla, D.R., Methule, N.P. et al. 2004. *Swaziland flora checklist. SABONET*

Report No. 27. Pretoria: Southern African Botanical Diversity Network.
[5480] Da Silva, M.C., Izidine, S. and Amude, A.B. 2004. *A preliminary checklist of the vascular plants of Mozambique. SABONET Report No. 30*. Pretoria: Southern African Botanical Diversity Network. 183p.
[5481] Phiri, P.S.M. 2005. *A checklist of Zambian vascular plants. SABONET Report No. 32*. Pretoria: Southern African Botanical Diversity Network. 167p.
[5550] Kobisi, K. 2005. *Preliminary checklist of the plants of Lesotho. SABONET Report No. 34*. Pretoria and Roma: Southern African Botanical Diversity Network. 84p.
[5664] Van Oudtshoorn, F. 2004. *Guide to grasses of Southern Africa*. Pretoria: Briza Publications. En. 288p.
[6146] 2006. http://www.bgc-jena.mpg.de/bgc-processes/publdata.namibia.pdf. 09/02/2006.
[6167] Long, K. 1978. *Introductory guide to thatching*. Pretoria: National Building Research Institute, CSIR.
[6168] Van Voorthuizen, E.G. and Odell. M. 1976. Thatching in Botswana: the social-ecology of traditional construction. *Botswana Notes and Records*. 8: 165-174.
[6573] Kamal, M. Ibrahim and Kabuye, H.S. Christine. 1987. *An illustrated manual of Kenyan grasses*. Food and Agriculture Organization of the United Nations. En.

SEPASAL's development has been funded by The Clothworkers' Foundation and its Internet development is funded by The Charles Wolfson Charitable Trust. Nutritional information on African wild foods is funded by Nestlé Charitable Trust.