

***Setaria verticillata*** 简体中文 正體中文

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

## Common name

Kransnaaldaar (English, Netherlands), bur bristle grass (English), pata de gallina (Spanish), bristly foxtail (English), pega-pega (Spanish), rough bristle grass (English), almorejo (Spanish), hooked bristlegrass (English), carreig (Spanish), bur grass (English), khishin (English, Lebanon), rabo de zorro (Spanish), capim-grama (Portuguese), zacate pegarropa (Spanish), alorejo (Spanish), lagartera (Spanish), almorejo verticilado (Spanish), quam el-far (Arabic), oehoe (English, Indonesia), kamala (English, Indonesia), milha-vorticilada (Portuguese), pega-saias (Portuguese), Kletten Borstenhirse (German), Quirl Bortenhirse (German), Wirtel Borstenhirse (German), dukhain (English, Lebanon), panico maggiore (Italian), fieno stellino (Italian), zaratsukienokorogusa (Japanese), amor de hortelano (Spanish), foxtail (English), lossaig (English, Sudan), kolvhirs (English, Sweden), yah hang chnig-chok (English, Thailand), kirpi dari (English, Turkey), whorled pigeon grass (English), cola de zorro (Spanish), panissola (Spanish), setaria spondyloti (Greek), mau' pilipili (Hawaiian), setaire verticillée (French)

## Synonym

*Panicum verticillatum*, L.  
*Pennisetum verticillatum*, R. Br.  
*Chaetochloa verticillata*, (L.) (Scribn.)  
*Panicum verticillatum*, (L., 1762)  
*Setaria carnei*, (A.S. Hitchc.)  
*Panicum adhaerens*, (Forssk., 1775)  
*Setaria nubica*, (Link)  
*Pennisetum respiciens*, (A. Rich., 1851)  
*Setaria respiciens*, (A. Rich, 1852)  
*Panicum aparine*, (Steud., 1854)  
*Panicum respiciens*, (A. Rich., 1854)  
*Setaria virdis*, (Terracc., 1894)  
*Setaria aparine*, (Stued. 1912)  
*Setaria adhaerens*, (Forssk., 1919)  
*Panicumrottleri*, (Nees, 1841)  
*Panicum asperum*, (Lamk., 1778)  
*Pennisetum verticillatum*, (L.) (Nash, 1817)  
*Ixophorus verticillatus*, (L.) (Nash, 1859)  
*Setaria verticilliformis*, (Dumort.)  
*Setaria ambigua*, (Guss.)

## Similar species

## Summary

*Setaria verticillata* is a native European grass, invading agricultural, urban, and other disturbed areas throughout North America, Central America, South America, Africa, Asia, and the North and South Pacific. A problematic crop weed *S. verticillata*, has inflicted considerable environmental and economic costs, is known to adapt to local conditions rapidly, and has developed resistance to atrazine and other C 1/5 herbicides.



[view this species on IUCN Red List](#)

## Species Description

*Setaria verticillata* is a loosely tufted, annual grass. Its culms reach 10-100 cm high or more, geniculately ascending. Leaf-blades broadly linear, 5-30 cm long, 4-16 mm wide, flaccid, glabrous to loosely pilose; sheaths glabrous to pubescent. Panicle spiciform, linear to untidily lobed, 2-15 cm long, often entangled, the rachis hispidulous; bristles 3-8 mm long, retrorsely barbed, tenaciously clinging. Spikelets ellipsoid, 1.5-2.5 mm long; lower glume 1/3-1/2, the upper as long as the spikelet; lower floret sterile, the palea minute; upper lemma finely rugose (Aluka, 2008).

## Notes

Some authorities recognize *Setaria verticillata* and *Setaria adhaerens* as one species while others recognize them as two. The more temperate *S. verticillata* has ciliate sheath-margins, glabrous blades and spikelets over 2 mm long. The more tropical *S. adhaerens* has glabrous sheath-margins, hairy blades and spikelets under 2 mm long. However, these are only two among a number of intergrading populations, and some recommend treating the whole complex as a single polymorphic species (Aluka, 2008).

## Uses

In South Africa the seeds of *Setaria verticillata* are used to produce malt for beer. In Namibia, the Topnaar people harvest *S. verticillata* seeds and use them in making porridge (Biodiversityexplorer, undated).

## Habitat Description

*Setaria verticillata* generally occurs in temperate to tropical climates, altitudes 0-2200 m, and agricultural or other disturbed locations. It has been reported to prefer shady damp sites, but is rarely found in wetlands generally (PIER, 2008; Aluka, 2008; Calflora, 2009)

## Reproduction

*Setaria verticillata* is a self pollinated annual which forms long-lived, heterogeneous seed pools in the soil resulting from a dormant seed rain. In soil seed pools, after-ripening, the occurrence and timing of seedling emergence, and the induction of secondary, summer dormancy are regulated by seasonally and diurnally varying soil oxygen, water, and temperature signals. This precise and adaptable seed emergence contributes greatly to *S. verticillata*'s success in disturbed areas. It is known to have a considerably low intrapopulation genetic diversity and huge genetic diversity between populations compared to similar plant species (Dekker, 2003).

## General Impacts

*Setaria verticillata* is problematic, cosmopolitan crop weed. It has the ability to adapt to a wide range of habitats enabling widespread infestation in temperate, disturbed areas throughout the world. It exhibits phenotypic plasticity and is quite resilient to a number of conditions being resistant to several herbicides, mechanical damage, and drought. Its invasive nature has resulted in significant damage to corn crops and the displacement of native grasses (Dekker, 2003).

## Management Info

Chemical: *Setaria verticillata* was found to develop resistance to Photosystem II inhibitors, or C 1/5 herbicides when it became resistant to field levels of atrazine treatment in one study (Gimenez-Espinosa *et al*, 1996; Heap, undated). Its rates of recovery of net CO<sub>2</sub> mg per dm<sup>2</sup> per h/h following a treatment of atrazine, cyanazine, and cyprazine at 1.16x10<sup>-5</sup> M leached through silica sand media were 1.5, 0.5, and 0.3 CO<sub>2</sub> mg per dm<sup>2</sup> respectively (Jensen *et al*, 1977)..

**Principal source:** Pacific Island Ecosystems at Risk (PIER), 2008. *Setaria verticillata* (L.) P. Beauv., Poaceae Aluka, 2008. Entry for *Setaria verticillata* (L.) P. Beauv. [family POACEAE]

**Compiler:** National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

**Review:** Christos A. Damalas, Department of Agricultural Development of Pieria.

**Publication date:** 2010-03-27

## ALIEN RANGE

[5] AUSTRALIA	[5] CANADA
[1] CHILE	[1] CHINA
[3] FRENCH POLYNESIA	[1] GUAM
[1] GUATEMALA	[1] INDONESIA
[1] ISRAEL	[1] KENYA
[1] KIRIBATI	[3] MARSHALL ISLANDS
[1] MAURITIUS	[1] MEXICO
[1] MICRONESIA, FEDERATED STATES OF	[1] NAMIBIA
[1] NEW ZEALAND	[1] PERU
[2] PITCAIRN	[2] SAINT HELENA
[1] SOUTH AFRICA	[1] STATE OF PALESTINE
[1] TANZANIA, UNITED REPUBLIC OF	[1] THAILAND
[1] UGANDA	[42] UNITED STATES
[3] UNITED STATES MINOR OUTLYING ISLANDS	

## BIBLIOGRAPHY

42 references found for ***Setaria verticillata***

### Management information

De Prado, Rafael A. and Antonio R. Franco., 2004. Cross-resistance and herbicide metabolism in grass weeds in Europe: biochemical and physiological aspects. *Weed Science* [0043-1745] De yr:2004 vol:52 iss:3 pg:441 -447

Giménez-Espinosa, Rosa; Eva Romera, Manuel Tena, Rafael De Prado., 1996. Fate of Atrazine in Treated and Pristine Accessions of Three Setaria Species. *Pesticide Biochemistry and Physiology* 56, 196–207 (1996) Article NO. 0073

Heap, I. [The International Survey of Herbicide Resistant Weeds. Group C1/5 ResistantT Bristly Foxtail \(\*Setaria verticillata\*\) Spain. Online. Internet. June 19, 2008 . Available \[www.weedscience.com\]\(http://www.weedscience.com\)](#)

**Summary:** Available from: <http://www.weedscience.org/Case/Case.asp?ResistID=436> [Accessed 20 June 2008]

Jensen, K. I. N., G. R. Stephenson, L. A. Hunt, J. D. Bandeen., 1977. The effect of atrazine, cyanazine and cyprazine on photosynthesis and growth of nine grasses\* *Weed Research* 17 (6) , 379–386 doi:10.1111/j.1365-3180.1977.tb00497.x

Steel, M G; Cavers, P B; Lee S M., 1983. The Biology of Canadian Weeds 59. *Setaria glauca* and *Setaria verticillata*. *Canadian Journal of Plant Science*. 63(3). 1983. 711-726.

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

**Summary:** This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

### General information

Agnew, A. D. Q. and John E. C. Flux Plant Dispersal by Hares (*Lepus capensis* L.) in Kenya. *Ecology*, Vol. 51, No. 4 (Jul., 1970), pp. 735-737

[Aluka, 2008. Entry for \*Setaria verticillata\* \(L.\) P. Beauv. \[family POACEAE\]](#)

**Summary:** Available from: <http://www.aluka.org/action/showMetadata?doi=10.5555%2FAL.AP.FLORA.FTEA008587> [Accessed 20 June 2008]

Amigo, J; Bujan, M; Romero M I., 1991. Taxonomic review of Genus *Setaria* Gramineae in the Iberian peninsula. *Bulletin de la Societe Botanique de France Lettres Botaniques*. 138(2). 1991. 155-166.

Auquier, P., 1979. The Genus *Setaria* Poaceae in Belgium and Luxembourg. *Lejeunia*.(97). 1979. 1-13.

Banfi, E., 1989. Notes On Italian Species of *Setaria* P. Beauv. Poaceae. *Atti della Societa Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano*. 130(13). 1989. 189-196.

[Biodiversity explorer, undated. \*Setaria verticillata\*. Biodiversity explorer: The Web of Life of South Africa. \[Www.biodiversityexplorer.org\]\(http://www.biodiversityexplorer.org\)](#)

Brooke, M de L., Hepburn, I. & Trevelyan, R.J., 2004. *Henderson Island world heritage site management plan. Available from the Pitcairn Desk, Foreign and Commonwealth Office, King Charles Street, London, SW1, UK, or from URL. In: Varnham, K. (2005) Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough, United Kingdom*

Buyankin, V., 1975. New Weeds For The Uralsk Oblast USSR. *Botanicheskii Zhurnal* (St. Petersburg). 60(8). 1975. 1190-1191.

[CABI, Crop Protection Compendium., 2007. \*Setaria verticillata\*](#)

**Summary:** Available from: [http://www.cabicompendium.org/NamesLists/CPC/Full/SET\\_VE.htm](http://www.cabicompendium.org/NamesLists/CPC/Full/SET_VE.htm) [Accessed 20 June 2008]



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Setaria verticillata***

Calflora, 2009. Taxon Report 7539 *Setaria verticillata* (L.) P. Beauv. Information on California plants for education, research and conservation. [web application]. 2008. Berkeley, California: The Calflora Database [a non-profit organization]. Available: <http://www.calflora.org/>. (Accessed: Jun 19, 2008)

**Summary:** Available from: [http://www.calflora.org/cgi-bin/species\\_query.cgi?where-taxon=Setaria+verticillata](http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Setaria+verticillata) [Accessed 20 June 2008]

CONABIO. 2008. Sistema de informacin sobre especies invasoras en Mxico. Especies invasoras - Plantas. Comisin Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.

**Summary: English:**

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Plants is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

**Spanish:**

La lista de especies del Sistema de informacin sobre especies invasoras de Mxico cuenta actualmente con informacin acerca de nombre cientfico, familia, grupo y nombre comn, as como hbitat, estado de la invasin en Mxico, rutas de introduccin y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la pgina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizacin, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la seccin novedades, para conocer los cambios.

Especies invasoras - Plantas is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

Cox, George W., 2001. An Inventory and Analysis of the Alien Plant Flora of New Mexico. The New Mexico Botanist. A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agriculture and Home Economics, New Mexico State University.

Danin, Avinoam and Hildemar Scholz ., 1997. On the Occurrence of Two Taxa of the Setaria verticillata Complex in Israel and the Sinai. Willdenowia, Bd. 27, H. 1/2 (Nov. 17, 1997), pp. 177-179

Dekker, Jack., 2003. The foxtail (*Setaria*) species-group. Weed Science, 51:641-656. 2003

[FloraBase, the Western Australian Flora., 1993. \*Setaria verticillata\* \(L.\) P.Beauv. Whorled Pigeon Grass](#)

**Summary:** Available from: <http://florabase.calm.wa.gov.au/browse/profile/613> [Accessed 20 June 2008]

[FloraBase, the Western Australian Flora., 2008. Distribution. \*Setaria verticillata\* \(L.\) P.Beauv. Whorled Pigeon Grass](#)

**Summary:** Available from: <http://florabase.calm.wa.gov.au/browse/map/613> [Accessed 20 June 2008]

[Global Compendium of Weeds \(GCW\)., 2007. \*Setaria verticillata\* \(Poaceae\)](#)

**Summary:** Available from: [http://www.hear.org/gcw/species/setaria\\_verticillata/](http://www.hear.org/gcw/species/setaria_verticillata/) [Accessed 20 June 2008]

Gudzhinskas, Z. A., 1991. Addition to adventive flora of Kaliningrad Oblast: Poaceae. Botanicheskii Zhurnal (St. Petersburg). 76(10). 1991. 1441-1446.

Gutzte, A.R.; S.S. Cilliers, H. Bezuidenhout and K. Kellner. 2003. Analysis of the riparian vegetation (la land type) of the proposed Vhembe-Dongola National Park, Limpopo Province, South Africa. Koedoe 46(2): 45-64. Pretoria. ISSN 0075-6458.

Hovenden, Mark J. and Dennis I. Morris., 2002. Occurrence and distribution of native and introduced C4 grasses in Tasmania. Australian Journal of Botany, 2002, 50, 667-675.

[HYPPA., 2007. \*Setaria verticillata\* \(L.\) P. Beauvois Unit de Malherbologie & Agronomie, Weed Science & Agronomy INRA-Dijon](#)

**Summary:** Available from: [http://www2.dijon.inra.fr/hypa/hypa-a/setve\\_ah.htm](http://www2.dijon.inra.fr/hypa/hypa-a/setve_ah.htm) [Accessed 20 June 2008]

[ITIS \(Integrated Taxonomic Information System\), 2009. Online Database. \*Setaria verticillata\* \(L.\) Beauv.](#)

**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=41232](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=41232) [Accessed 20 June 2008]

Kaantonen, M., 1976. Notes on the establishment and survival of some adventive plants in the Tampere region South Finland. Memoranda Societatis pro Fauna et Flora Fennica. 52 1976. 15-18.

[New South Wales Flora Online., 2009. \*Setaria verticillata\* \(L.\) P.Beauv.](#)

**Summary:** Available from: <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Setaria~verticillata> [Accessed 20 June 2008]

Oppenheimer, H. R, undated. Sand Swamp and Weed Vegetation at the Estuary of the Rubin River (Palestine). Division of Citriculture and Agricultural Botany, Agricultural Research Station of the Jewish Agency for Palestine, Rehovot

[Pacific Island Ecosystems at Risk \(PIER\)., 2008. \*Setaria verticillata\* \(L.\) P.Beauv., Poaceae](#)

**Summary:** Available from: [http://www.hear.org/pier/species/setaria\\_verticillata.htm](http://www.hear.org/pier/species/setaria_verticillata.htm) [Accessed 20 June 2008]

Pond, U., B.B. Beesley, L.R. Brown & H. Bezuidenhout. 2002. Floristic analysis of the Mountain Zebra National Park, Eastern Cape. Koedoe 45(1): 35-57. Pretoria. ISSN 0075-6458.

Rathi, A. S.; Panwar, M. S., 1993. *Setaria verticillata*: A new host record of *Claviceps fusiformis* Loveless. Indian Journal of Mycology & Plant Pathology. 23(3). 1993. 332.

Rostanski, Krzysztof., 1996. Bristle-grasses (*Setaria*, Poaceae) in Poland. Fragmenta Floristica et Geobotanica. 41(2). 1996. 507-512.

Salimi, H.; Termeh, F., 2002. A study on seed dormancy and germination in ten species of grass weeds. Rostaniha. 3(1-4). 2002. 9-12.

Torma, M; Hodsi, L., 2002. Reproduction biology of some important monocot weeds in Hungary. Zeitschrift fuer Pflanzenkrankheiten und Pflanzenschutz.(Sp. Iss. 18). 2002. 191-196.

[USDA, ARS, National Genetic Resources Program., 2009. Germplasm Resources Information Network - \(GRIN\) \[Online Database\]. National Germplasm Resources Laboratory, Beltsville, Maryland.](#)

**Summary:** Available from: [http://www.ars-grin.gov/cgi-bin/npgs/html/tax\\_search.pl?Setaria%20verticillata](http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Setaria%20verticillata) [Accessed 20 June 2008]

Global Invasive Species Database (GISD) 2024. Species profile *Setaria verticillata*. Available from:

<https://www.iucngisd.org/gisd/species.php?sc=927> [Accessed 26 April 2024]



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Setaria verticillata***

---

USDA, NRCS. 2009. The PLANTS Database (<http://plants.usda.gov>, 19 June 2008). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

**Summary:** Available from: <http://plants.usda.gov/java/profile?symbol=SEVE3> [Accessed 20 June 2008]  
Veblen, Thomas T., 1975. Alien Weeds in the Tropical Highlands of Western Guatemala. Journal of Biogeography, Vol. 2, No. 1, (Mar., 1975), pp. 19-25  
Villaseñor, Jose L; Francisco J. Espinosa-Garcia., 2004. The alien flowering plants of Mexico. Diversity and Distributions 10 (2) , 113–123 doi:10.1111/j.1366-9516.2004.00059.x  
[Waldren, S., Weisler, M.I., Hather, J.G. & Morrow, D. 1999 The non-native vascular plants of Henderson Island, South-Central Pacific Ocean. Atoll Research Bulletin 463: 1-14.](#)

**Summary:** Available from: <http://si-pddr.si.edu/dspace/bitstream/10088/5080/1/00463.pdf> [Accessed 12 September 2010]