Setaria verticillata

**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-verticilada (Portuguese), pega-saias (Portuguese), Kletten Borstenhirse (German), Quirl Bortenhirse (German), Wirtel Borstenhirse (German), dukhain (English, Lebanon), panico maggiore (Italian), fiien stellino (Italian), zaratsukienokorogusa (Japanese), amor de hortelano (Spanish), foxtail (English), lossaig (English, Sudan), kolvhirs (English, Sweden), yah hang chnig-chok (English, Turkey), whorled pigeon grass (English), cola de zorro (Spanish), panissola (Spanish), setaria spondyloki (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., 1851)
- 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)
- Panicum rotleri, (Nees, 1841)
- Panicum asperum, (Lamk., 1778)
- Pennisetum verticillatum, (L.) (Nash, 1817)
- Ixophorus verticillatus, (L.) (Nash, 1859)
- Setaria verticillformis, (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](http://www.iucngisd.org/gisd/species.php?sc=927)

**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 rhachis 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 Nambia, 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 CO2 mg per dm2 per h/h following a treatment of atrazine, cyanazine, and cyprazine at 1.16 x 10^-5 M leached through silica sand media were 1.5, 0.5, and 0.3 CO2 mg per dm2 respectively (Jensen *et al.*, 1977).

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.

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ALIEN RANGE

[5] AUSTRALIA
[1] CHILE
[3] FRENCH POLYNESIA
[1] GUATEMALA
[1] ISRAEL
[1] KIRIBATI
[1] MAURITIUS
[1] MICRONESIA, FEDERATED STATES OF
[1] NEW ZEALAND
[1] PERU
[5] CANADA
[1] CHINA
[1] GUAM
[1] INDONESIA
[1] KENYA
[3] MARSHALL ISLANDS
[1] MEXICO
[1] NAMIBIA
[1] PALESTINIAN TERRITORY, OCCUPIED
[2] PITCAIRN
GLOBAL INVASIVE SPECIES DATABASE
FULL ACCOUNT FOR: **Setaria verticillata**

[2] SAINT HELENA
[1] SOUTH AFRICA
[1] TANZANIA, UNITED REPUBLIC OF
[1] UGANDA
[3] UNITED STATES MINOR OUTLYING ISLANDS

**BIBLIOGRAPHY**

42 references found for *Setaria verticillata*

**Management information**


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


**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**


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]


**Biodiversity explorer, undated.** *Setaria verticillata*. Biodiversity explorer: The Web of Life of South Africa. www.biodiversityexplorer.org

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


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

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.


Spanish: La lista de especies del Sistema de informac?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 s?itios 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.


FloraBase, the Western Australian Flora., 1993. Setaria verticillata (L.) P.Beauv. Whorled Pigeon Grass


FloraBase, the Western Australian Flora., 2008. Distribution. Setaria verticillata (L.) P.Beauv. Whorled Pigeon Grass


FloraBase, the Western Australian Flora., 2008. Distribution. Setaria verticillata (L.) P.Beauv. Whorled Pigeon Grass


Global Invasive Species Database (GISD) 2015. Species profile Setaria verticillata.

USDA, ARS. National Genetic Resources Program. 2009. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.
Summary: Available from: http://si-pddr.si.edu/dspace/bitstream/10088/5080/1/00463.pdf [Accessed 12 September 2010]