

Mini data sheet on *Cenchrus longispinus*

Added to the EPPO Alert List in 2015 - Deleted in 2018

Reasons for deletion:

Cenchrus longispinus was added to the EPPO Alert List in 2015 but as no immediate risk was perceived, it was transferred to the Observation List in 2018.

Why

Cenchrus longispinus (Poaceae) is an annual grass species native to North America and invasive in South America, Australia and parts of the EPPO region. Historically, in the introduced range *C. longispinus* has been misidentified as one of its close congeners (*C. tribuloides* and *C. spinifex*).

Where

EPPO region: Belgium, Croatia, France, Greece, Hungary, Iran, Israel, Italy, Morocco, Romania, Ukraine.

North America: Canada (British Columbia, Ontario, Quebec), Mexico and the USA (Alabama, Arkansas, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming).

South America: Argentina and Venezuela.

Oceania: Australia.

Morphology

C. longispinus is an annual or short lived perennial grass species. A mature plant can grow to 0.2 - 0.9 m tall, often with many stems from the base. Sheaths are strongly compressed with the outer margin hairy. Ligules 0.6 - 1.8 mm length. Leaf blades are 4-27 cm long, 1.5 -7.5 mm wide, glabrous or pilose. Stems either upright or spreading along the ground, often forming mats. Stems root at nodes. Inflorescences are spiciform and linear 4.1 - 10.2 cm long and 1.2 - 2.2 cm wide. Fused panicle, with irregular axis branching. Flowers attached to stems rather than main axis. In the USA, flowering takes place from July through to September. The fruits persist in the burs which when dry become solid with sharp points. *C. longispinus* has often been confused with a number of closely related congeners including *C. tribuloides* and *C. spinifex*. This is highlighted in Verloove and Gullon (2012) who have explored the taxonomy of the genus throughout Europe and in many cases re-identified the aforementioned species as *C. longispinus*.

Biology and ecology

Species within the genus *Cenchrus* are generally well adapted to survive in harsh environments. The genus contains 20-40 species native to tropical and sub-tropical regions of the Old and New World. *Cenchrus longispinus* burs contain two types of seeds which varying in their innate dormancy. Primary seeds are formed on the upper spikelet and germinate within a year whereas secondary seeds are formed on the lower spikelets and can remain dormant for much longer periods. Seeds of *C. longispinus* can remain viable in the soil for up to 5 years and germinate after a period of rain. Each plant can contain up to 1000 egg shaped seeds.

Habitats

In the native range *C. longispinus* is found growing in sandy and recently disturbed soils. *C. longispinus* is found growing alongside roads and in abandoned fields. When growing in a soil substrate the plant prefers well-drained soil. In Maine, USA, the species grows in partial to full sun along river banks and beaches. In the native range the plant has weedy tendencies, where it invades agricultural habitats causing problems for harvesting. In Australia, the plant is recorded to invade irrigated agricultural areas where it is most commonly found. It is also found invading native rangeland, grassland, open woodlands, coastal environments and other sandy habitats. In Belgium, *C. longispinus* is associated with granaries, grain dumps, and unloading quays and is often found alongside roadsides, railways and tracks. In Ukraine, *C. longispinus* is an aggressive weed in sandy habitats in the south of the country and in ruderal habitats within the city of Dnipro. *C. longispinus* is invading the Black Sea nature reserve in Ukraine where it colonises sandy steppes and alluvial habitats. In Hungary the plant is recorded in open grasslands in particular in the great Hungarian Plain.

Pathways for movement

Spread by water is regarded as a minor pathway for the movement of *C. longispinus*. Movement by livestock and animals, by the burs sticking to fur and hair is regarded as one pathway for the spread of this species. Soltani *et al.* (2009) highlight that burs from *C. longispinus* will adhere to virtually anything from machinery, tyres and livestock. Repeated tillage aids dispersal of the plant via seed propagules.

Impacts

In Ontario Canada, *C. longispinus* has been shown to be an increasing problem in agricultural systems where it competes for moisture, nutrients and light. *C. longispinus* can reduce yields, hamper harvesting efficacy and degrade the overall quality of the yield through contamination. In Australia, the sharp burs are recorded to contaminate dry fruits reducing the marketability of the product.

Control

Chemical control of *C. longispinus* is effective using glyphosate, paraquat, fluazifop and a range of pre-emergent herbicides. Integrated control (the use of chemical and physical control methods) is the most effective method to manage infestations of this plant. Post-emergence chemical application is generally more successful than pre-emergent application.

Sources

- Anderson RL (1997) Longspine sandbur (*Cenchrus longispinus*) ecology and interference in irrigated corn (*Zea mays*). *Weed Technology* **11**(4), 667-71.
- Chemisquy AM, Giussani LM, Scataglini MA, Kellogg EA, Morrone O (2009) Phylogenetic studies favour the unification of *Pennisetum*, *Cenchrus* and *Odontelytrum* (Poaceae): A combined nuclear, plastid and morphological analysis, and nomenclatural combinations in *Cenchrus*. *Annals of Botany* **106**(1), 107-30.
- Parsons WT, Cuthbertson EG (2000) Noxious Weeds of Australia. 2nd Ed. Inkata Press.
- Protopopova VV, Shevera MV and Mosyakin SL (2006) Deliberate and unintentional introduction of invasive weeds: A case study of the alien flora of Ukraine. *Euphytica* **148**, 17-33.
- Soltani N, Kumagai M, Brown L, Sikkema PH (2009) Long-spine sandbur [*Cenchrus longispinus* (Hack. in Kneuck.) Fernald] control in corn. *Canadian Journal of Plant Sciences* **90**, 241-45.
- Szigetvári C (2002) Distribution and phytosociological relations of two introduced plant species in an open grassland in the Great Hungarian Plain. *Acta Botanica Hungarica*. **44**, 163-83.
- Twentyman JD (1974) Environmental control of dormancy and germination in the seeds of *Cenchrus longispinus* (Hack.) Fern. *Weed Research* **14**, 1-11.
- Verloove F, Sanchez Gullon E (2012) A taxonomic revision of non-native *Cenchrus* S.str. (Paniceae, Poaceae) in the Mediterranean area. *Willdenowia* **42**, 67-75.
- Verloove F, Vandenberghe C (1999) Nieuwe En Interessante Voederadventieven Voor de Belgische Flora, Hoofdzakelijk in 1998. *Dumortiera* **74**, 23-32.