

New monocotyledonous weed species detected in Hungary (*Pennisetum alopecuroides* Regel)

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Pennisetum alopecuroides - Fountain Grass

Pennisetum alopecuroides is a species of perennial grass native to Asia and Australia. The plant is a warm season ornamental grass which typically grows in graceful, spreading clumps with a diameter of 20 up to 50 cm. Before it shows signs of life in spring, the soil must warm up and be warm for possibly as long as two weeks. In terms of vegetative form, fountain grass can develop into an imposing mound of gracefully arching foliage and flowers. Until recently it has never been invasive in colder climates. As ornamental plant, this grass is willingly used in functional gardens for small children.

Ideal growing conditions in terms of soil: *Pennisetum alopecuroides* prefers moist, well-drained soil and will grow in any soil except for poorly drained one.

Additional information

It features narrow, medium to deep green leaves in summer, changing to golden yellow in fall and fading to beige in late fall. Foliage usually remains attractive throughout winter. Showy, silvery to pinkish-white, bristly, bottle brush-like flower spikes arch outward from the clump in late summer like water spraying from a fountain (hence the common name). Flower spikes turn brownish as the seeds form, and spikes usually persist until late fall or early winter before shattering.

Name

Genus name comes from the Latin penna, meaning feather, and seta meaning bristle in reference to the flowers having long, feathery bristles. This special feature makes it similar to foxtail grass. The name of this weed in Australia is 'swamp foxtail' (*Susumu O.*).

Synonyms

Chinese *pennisetum*, Chinese fountaingrass, dwarf fountain grass, foxtail fountain grass, or swamp foxtail grass.

Presently, nine *Pennisetum* taxa are commonly used as ornamental grasses, including four wild species [*Pennisetum alopecuroides* (L.) Sprengel, *P. setaceum*, *P. orientale* and *P. villosum*], one artificial hybrid (*P. glaucum* × *P. purpureum*) and four cultivars (*P. alopecuroides* 'Little Bunny', *P. alopecuroides* 'Moudry', *P. setaceum* 'Rubrum', and *P. purpureum* 'Prince'), all of which are cultivated widely in tropical and subtropical regions (Zhang et al., 2015 and references cited therein). In addition, many more cultivars exist both for *P. setaceum* and *P. alopecuroides*. There is conflicting information on the sterility of *P. setaceum* 'Rubrum'. This cultivar is listed as invasive by the University of Florida (<http://edis.ifas.ufl.edu/fp464>), but breeding for the production of sterile cultivars is of course an option.

Taxonomy of *Pennisetum alopecuroides*

Kingdom: Plantae

Phylum: Tracheophytes

Clade: Angiosperms

Clade: Monocots

Clade: Commelinids

Order: Poales

Family: Poaceae

Genus *Pennisetum*

Species: *Pennisetum alopecuroides*

Description of the *Pennisetum alopecuroides* Regel

Culm: Culms are erect, tufted and stout, 30-120 cm tall, hispid below the inflorescence.

Leaves: The linear leaves are arranged in a dense rosette and alternately on green culms. The arching sharply pointed blades are smooth, 3-6mm wide and up to 10-45cm long. The acuminate and rigid leaves are long haired at the base.

Ligule: Ring of hairs.

Showy, silvery to pinkish-white, bristly, bottle brush-like flower spikes arch outward from the clump in late summer like water spraying from a fountain (hence the common name). Flower spikes turn brownish as the seeds form, and spikes usually persist until late fall or early winter before shattering.

Detection and spread in Europe

Until recently, there has been no information about the spread of *Pennisetum alopecuroides* in Europe, but another taxa called *Pennisetum setaceum* has been detected in Portugal, Spain (including Balears and Canary Islands), France, Italy (Italian mainland and islands, including Sardinia, Sicily and small Sicilian islets such as Isola delle Femmine; Caldarella et al., 2010; Celesti-Grapow et al., 2009), in Malta (e.g. Brunel et al., 2010) and Cyprus. Actually, this distribution pattern is supported by a sound scientific literature and can be accepted with a high degree of confidence. In addition, *Pennisetum setaceum* is reported also for Greece in the island of Lesbos (Arhonditis et al., 2000) and if we take into account “grey literature” as well, it is reported also for Bulgaria and Slovenia (CoE, 2015). In addition, quite a lot of localities have been recorded for continental Spain since 2006 (Devesa and Arnelas, 2006).

Characteristics in the colonized place in Hungary

The first location where *Pennisetum alopecuroides* was found in Hungary was in the old town of Budapest (district No 7.) along the multi-lane road. The originally planted plants controlled growing between the lines - on the separating island - year by year. This location was the base for the spreading. The colonized area is typical wasteland in the cracks on the pavement. This is not yet a serious threat from the agriculture point of view.

Detection and Spread in Hungary

Pennisetum alopecuroides is a wind-dispersed, perennial, C4, bunch grass native to arid regions. This species is apomictic and although it reproduces mainly by seed, it can form pseudo-viviparous plantlets when inflorescences are inundated. In terms of Plant Protection this species does not immediately create a risk for agriculture because up to date it grows in an isolated venue at safe distance from the cropped land. Unfortunately, we do not have any information about herbicide tolerance and speed of spreading.

Conclusion

As far as we are concerned, *Pennisetum alopecuroides* is not as widely spread as *Pennisetum satacetum*, however, due the sale of seeds for gardening we can be sure that *P. alopecuroides* will be part of the flora sooner or later. Hence, the question is whether we want to implement a policy, for instance, a ban on keeping, importing, selling, breeding and growing this plant.

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