

Scientific Name: *Deschampsia cespitosa* (L.) Beauv

Family: *Poaceae*

Common Names: tufted hair grass, tussock grass

Plant Description

Culms in dense tufts, 20 to 120 cm tall with shallow roots, leafy at base; leaves often elongate, mostly 1.5 to 4 mm wide, rather firm, flat or folded; panicle loose open, nodding, 10 to 25 cm long, the capillary branchlets spikelet-bearing toward the tips; 2 flowered spikelets 3 to 5 mm long, pale purplish, shining; glumes 3 to 4.5 mm long; lemmas smooth, 2.5 to 3.5 mm long awn near the base, the callus hairs short (Moss 1983, Pahl and Smreciu 1999).

Fruit/Seed: 2.5 to 3.5 mm long grain with a callus (Pahl and Smreciu 1999).



Tufted formation *Deschampsia cespitosa* ideal for erosion control.

Habitat and Distribution

Moist open areas, high elevation sites; sandy or rocky shores; bogs and fens (Lady Bird Johnson Wildflower Center 2012).

Seral Stage: Early to mid seral.

Soil: A wide range of soil conditions with pH 3.7 to 8.3 (Davy 1980).

Distribution: Alaska to Ellesmere Island south to California, Arizona, New Mexico, South Dakota, Great Lakes, Appalachia (Moss 1983).

Phenology

Short-lived cool season perennial; starts growth in early spring; seeds mature from late June to mid-July (Pahl and Smreciu 1999).

Pollination

Wind; cross-pollinating (Pahl and Smreciu 1999).

Seed Dispersal

Wind.

Genetics

$2n=28$ (Moss 1983).

Symbiosis

Some colonization by arbuscular mycorrhizae on acidic soils (Goransson et al. 2008).

Seed Processing

Collection: Collect seed heads and place loosely in paper bag so that there is airflow to promote drying



Deschampsia cespitosa seed



(Archibald and Dremann 2004). Seed is hard and brown when ripe (Tilley 2010).

Seed Weight: 0.5 to 0.9 g/1,000 seeds (Smreciu et al. 2002). 5,510 PLS/g (Hammermeister 1998).

Harvest Dates: Late July into early August (Smreciu et al. 2002).

Cleaning: Thresh seed once dry, use blower and or screens to remove chaff (Smreciu et al. 2002).

Storage Behaviour: Orthodox; seeds can be dried, without damage, to low moisture contents; their longevity increases with reductions in both moisture content and temperature (Royal Botanic Gardens Kew 2008).

Storage: Before planting seed can be stored in cool dry conditions at 10°C (Tilley 2010). Long-term storage under IPGRI preferred conditions are recommended by Royal Botanic Gardens Kew (2008).

Longevity: Smreciu et al. (2002) found viability was not severely hampered after five years.

The oldest banked collection is 12 years old (mean storage period 11 years) with an average germination reduction from 93.4% to 91.5% (Royal Botanic Gardens Kew 2008).

Propagation

Natural Regeneration: Reproduces primarily by seeds (Tannas 2001).

Germination: First emergence occurs 3 to 5 days after planting at temperatures of 32 to 43°C during the day and about 30°C at night. Full stands (90% to 100%) are reached in 12 days (Tilley 2010).

Pre-treatment: Seed is not stratified before planting (Tilley 2010).

Direct Seeding: Approximately half of seeds emerged on a disturbed test site in northeastern Alberta, however survival was limited (Smreciu et al. 2002). Seed is difficult to handle with conventional machinery (Tannas 2001).

Does best if seed is sown in the fall (USDA NRCS n.d.).

Seeding Density: 0.056 kg seed/ha to 0.114 kg/ha if species diversity is the end goal, 0.183 kg/ha to 0.367 kg/ha if used as turf (USDA NRCS n.d.).

Vegetative Propagation: No literature found.

Micro-propagation: No literature found.

Wildlife/ Forage Usage

Wildlife: Heavily used in summer by rocky mountain elk and also on occasion by mule deer (Pahl and Smreciu 1999). In native meadows provides cover for birds, water fowl and small mammals. It is also grazed by feral horses in the foothills (Walsh 1995).

Livestock: It is good forage for many types of livestock (Walsh 1995).

Grazing response: Tufted hair grass is a decreaser when exposed to heavy grazing (Walsh 1995).

Reclamation Potential

It is valuable for soil stabilization in disturbed areas and has been found naturally colonizing on abandoned coal mine spoils (Walsh 1995).



A highly adaptable species, it can colonize calcareous mine waste and acidified soils.

It is tolerant of heavy metal contamination (Pahl and Smreciu 1999). This species is adapted to tolerate zinc and a variety of other metals (Cox and Hutchinson 1980, Goransson et al. 2008, von Frenckell-Insam and Hutchinson 1993).

Commercial Resources

Availability: Available in a few Alberta nurseries (ANPC 2010). Seed is in short supply and expensive (Tannas 2001). Species is distributed worldwide but only native genetics are suitable for reclamation (Tannas 2001).

Uses: Is used in landscaping as an ornamental plant, as well as food for livestock in native pastures (Walsh 1995).

It is excellent for use as a soil stabilizer in disturbed areas due its ability to tolerate heavy metals, acidic conditions and low nutrient soils (Davy 1980).

Notes

Synonym: *Deschampsia caespitosa* (Tilley 2010). *D. caespitosa* is listed as 78% intact (more occurrences than expected) in the Alberta oil sands region (Alberta Biodiversity Monitoring Institute 2014).

Photo Credits

Photo 1: Blokenarexeter 2010. Wikimedia Commons.

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Photo 3: Wild Rose Consulting, Inc. 1998.

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