

## Grasses

***Agrostis exarata* Trin.**  
spike bentgrass

**Family: Poaceae**



**Figure 16.** Documented range of *Agrostis exarata* in northern British Columbia.



**Figure 17.** Growth habit of *Agrostis exarata* in cultivation.

***Agrostis exarata* Trin.  
(continued)**

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**Background Information**

Douglas et al. (2001b) report that *Agrostis exarata* is found commonly throughout B.C., north to Alaska, the Yukon and Northwest Territories, to southern Saskatchewan and south to Texas, New Mexico, Arizona and California, South America, and is also amphiberian (i.e., it grows on both sides of the Bering Strait), being found in eastern Asia as well. Earlier literature reported that it was primarily a western grass, occurring from Manitoba, South Dakota, Nebraska, Texas and Mexico, west to the Pacific States, and into British Columbia and Alaska (\*Mason 1957, \*Hitchcock 1971, \*GPFA 1986).

**Growth Form:** A perennial bunch grass with leaves 2 - 10 mm wide, auricles absent, ligules 3 - 8 mm long; inflorescence 4.5 - 18 cm long, densely covered in spikelets to the base, branches barely visible; spikelets may be awned or awnless on separate plants or in the same inflorescence; mature plant size: 20 - 120 cm tall (Hitchcock 1971, Douglas et al. 1994, Pojar and MacKinnon 1994). It occasionally develops slender rhizomes (\*Hickman 1993, \*Larson 1993).

**Site Preferences:** Mesic to wet open fields, at upper levels of beaches and river bars, clearings at low to middle elevations (Douglas et al. 1994, Pojar and MacKinnon 1994). Relatively intolerant of competition and shade, *Agrostis exarata* thrives in open sunny locations and can establish on bare mineral soil, and on forest soils that have been recently harvested of trees (Klinka et al. 1985).

**Seed Information**

**Seed Size:** Length: 1.48 mm (1.28 - 1.78 mm).

Width: 0.45 mm (0.38 - 0.52 mm).

**Seeds per gram:** 26,145 (range: 22,108 – 30,181).

**Volume to Weight Conversion:** 190.4 g/L at 76.7% purity.

**Germination Capacity:** At 30°/20° C untreated: 99%.

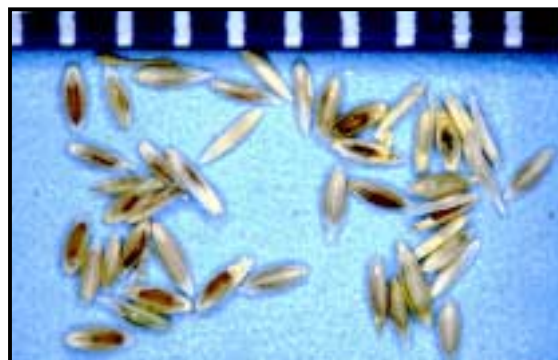
At 25°/15° C untreated: 75%.

stratified: 13.0%.

**Germination Speed:** To first germination: 7.3 days.

To 50% potential: 9.9 days.

**Seed Longevity:** To date, Symbios seeds have been tested after only one year of storage under cool dry conditions, after which they retained their full viability. Link (1993) reports that *Agrostis hyemalis* retains viability for three years or more, and that commercial *Agrostis* seed is often stored more than one year.



**Figure 18.** Seeds of *Agrostis exarata*.  
Rule divisions are 1.0 mm.

**Considerations for Growing**

**Techniques for Seed Production**

**Storage requirements:** Cool dry storage. Link (1993) recommends that seed from the related species, *Agrostis scabra*, should be stored in cloth bags in cool to room temperature.

**Seed treatment:** Untreated seeds germinate best in warmer soils; does not benefit from stratification.

**Soil considerations:** Establish on loamy, well prepared soil with a firm seedbed (Gerling et al. 1996).

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(continued)**

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(Techniques for Seed Production, continued)

*Stand establishment:* Site should be free of all weeds. Broadleaf weeds can be controlled with the use of a selective broadleaf herbicide without damage to the grass seedlings.

*Row spacing:* Unknown; suggest 75-120 cm under dryland conditions, 30-90 cm under irrigation.

*Seeding density:* Unknown at present; suggest 60-100 PLS per linear metre (Smith and Smith 2000).

*Seeding depth:* 0.5 - 1.5 cm.

*Stand maintenance:* Regularly cultivate rows and spot spray with herbicide to keep plot weed free; annual fertilization with low N formulations will extend the life of the plot.

Harvesting and Seed Processing

*Dates of selective harvesting:* In the Bulkley Valley of northwestern B.C., seed has been harvested as early as August 13th. Seed shatters moderately easily.

*Hand clipping:* Use sharp hand clippers. Hold the seed heads over bins placed alongside the plants being clipped or place a bag over the seed heads before clipping to minimize seed loss.

*Vacuum:* It is unknown at present if seed can be harvested directly from the stalk with a vacuum. If necessary, use a vacuum immediately after manual or mechanical harvesting to harvest seed that scatters. Plastic placed between the rows will assist this type of salvage harvesting.

*Seed stripper:* Unknown suitability at present.

For both hand clipping and mechanical harvesting, use of plastic between rows is recommended so any scattered seeds can be salvaged by sweeping or vacuuming.

*Combine/thresher settings:* 1850 rpm with 3 mm gap; rotary flail if harvested with long stems.

*Seed cleaning:* Put through fanning mill two times: prescreen 1.2 x 7.1 mm, top 1.8 x 12.7 mm slot, bottom blank; then prescreen 1.5 mm square, top 1.2 x 7.1 mm, bottom 1 mm square.

**Considerations for Use in Revegetation**

- *Agrostis exarata* has excellent forage value for livestock and wildlife and can be grazed throughout the summer (Stubbendieck et al. 1982).
- This species germinates rapidly and has high germination capacity as well, so it is a good candidate species for revegetating mesic to moist degraded lands.
- Reproduces primarily from seed, but may also spread laterally by rhizomes (\*Sampson et al. 1951, \*Hickman 1993).
- *Agrostis exarata* hybridizes with *Agrostis scabra* and *A. stolonifera* (\*Welsh et al. 1987).
- *Agrostis exarata* can be used as a soil stabilizer in degraded areas (\*Welsh et al. 1987, Gerling et al. 1996).
- This species grows well on soils derived from schists, limestones, sandstones and conglomerates (\*Severson and Thilenius 1976).

\* *fide* Esser 1994a

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## Notes

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