Trisetum spicatum (L). Richt.
spike trisetum

Family: Poaceae

Figure 48. Documented range of Trisetum spicatum in northern British Columbia.

Figure 49. Growth habit of Trisetum spicatum in cultivation.
**Background Information**

*Trisetum spicatum* has a circumpolar distribution, found north to Alaska, the Yukon and Northwest Territories, east to Newfoundland and south to Virginia, Tennessee, Minnesota, South Dakota, New Mexico, Arizona, California and Mexico, and is also found throughout Eurasia and South America. It is common throughout B.C., although is less frequent along the coast (Douglas et al. 2001b).

**Growth Form:** Long-lived densely tufted bunchgrass; flat lax leaves with thin tips, no auricles, ligules 0.5-2 mm long; inflorescence is a dense spike-like panicle 5 to 15 cm long, lemma has a distinctive long bent awn from near the middle; mature plant size is 10-50 cm long (Hardy 1989, MacKinnon et al. 1992).

**Site Preferences:** Usually found on dry, often rocky sites, but occasionally in moist areas, dry open forests and alpine tundra, found at low to high elevations (Hardy 1989, MacKinnon et al. 1992). In northern B.C., this species is reported to vary from shade-tolerant to light-demanding and to be commonly found in openings and open forests. It is found on xeric to subxeric, poor to rich sites in the SBSx, SBSd, and SBSm subzones; on xeric to subxeric, poor to rich sites in the ESSFx or ESSFd subzones; on xeric to mesic, very poor to medium sites in the SBPSx or SBPSd subzones; on xeric, very poor to poor sites in the SBPSmc, and on xeric to submesic, poor to medium sites in the SBPSwk (Beaudry et al. 1999). It tolerates a minimum of 305 mm and a maximum of 1270 mm annual precipitation; can tolerate minimum temperatures to -39°C (NRCS 2002).

**Seed Information**

**Seed Size:**
- Length: 2.03 mm (1.64 - 2.44 mm)
- Width: 0.98 mm (0.81 - 1.17 mm)

**Seeds per gram:** 5,622 (range: 5,000 - 6,352)

**Volume to Weight Conversion:** 51.3 g/L at 82.5% purity

**Germination Capacity:**
- At 30°/20° C untreated: 64.3%
  (60 - 68%)
- At 25°/15° C untreated: 52.7%
  (51 - 59%)
- stratified: 26.0%
  (7 - 45%)

**Germination Speed:**
- To first germination: 10.1 days.
- To 50% potential: 10.4 days.

**Seed Longevity:** Unknown

**Considerations for Growing**

**Techniques for Seed Production**

*Seed treatment:* Two months stratification at 5°C resulted in germination capacity cut in half, so no germination pre-treatment is recommended.

*Stand establishment:* Loamy firm seedbed recommended; untreated seed germinates best in warm soils; site should be free of all weeds, although grass species can be sprayed with a selective broadleaf herbicide without damage.

![Figure 50. Seeds of *Trisetum spicatum.*](image)

Rule divisions are 1.0 mm.
Trisetum spicatum (L). Richt.  
(continued)  

(Techniques for Seed Production, continued)  

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.  
Seeding depth: 1.3-2.5 cm (Smith and Smith 2000).

Stand maintenance: Regularly cultivate rows and spot spray with herbicide to keep plot weed free; wild stands are long-lived even on poor sites, so fertilization an annual basis should be done sparingly, and with a low nitrogen formulation.

Harvesting and Seed Processing  

Dates of selective harvesting in the Bulkley Valley of northwestern B.C. have ranged from July 11th to August 15th. This species shatters moderately easily.

Hand clipping: Harvest manually with a hand sickle or clippers when seeds are ripe in late July or early August, followed by drying outdoors in the sun, or indoors in a warm dry area.
Vacuum: It is unknown at present if seed can be harvested directly from the stock with a vacuum. Like all wild grass species this species shatters when ripe; plastic placed between rows will enable you to harvest lost seeds that shattered early or were scattered while being harvested by hand clipping or mechanical methods. We recommend that scattered seed be vacuumed from weed cloth immediately after any method of harvesting.

Seed stripper: This species may be harvested with a seed stripper having a soft-threaded harvesting head. If harvesting mechanically and seed scatters, use a vacuum to retrieve scattered seed. Dry harvested seed outdoors in the sun, or indoors in a warm dry area.

Combine/thresher settings: 1850 rpm with a 1 - 2 mm gap. Rotary flail works best if harvested with long stalks.
Seed cleaning: Run through fanning mill with the following configuration: prescreen 1.2 x 7.1 mm slot; top screen 1.8 x 12.7 mm slot; bottom screen blank.

Considerations for Use in Revegetation  

• In Alberta, Trisetum spicatum is reported to grow on coarse textured mesic to dry soils and to be tolerant of drought, acidic and alkaline conditions (Gerling et al. 1996).

• According to NRCS (2002), this species has a high tolerance to fire and medium tolerance to drought, with low nutrient requirements. Hardy (1989) reports that it is moderately to extremely drought tolerant (Hardy 1989).

• This is a pioneer species on calcareous talus slopes, so probably has low nutrient requirements and tolerance of mildly alkaline to mildly acidic conditions (Hardy 1989).

• Trisetum spicatum has a high root:shoot ratio and may be useful, therefore, for soil building and erosion control (Hardy 1989).

• This is a useful species in revegetation mixtures where a medium-statured, long-lived grass is desired, especially in high-altitude and high-latitude environments.

• NRCS (2002) report that it has high palatability to both browsing and grazing animals, with protein content rated as medium.

• Trisetum spicatum is an important forage plant for wildlife in the subalpine and alpine zones throughout the growing season and late in the fall (Stubbendieck et al. 1982, MacKinnon et al. 1992, Hardy 1989, Gerling et al. 1996).
Trisetum spicatum (L). Richt.  
(continued)  
spike trisetum

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