USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

SIBERIAN WHEATGRASS

Agropyron fragile (Roth) P. Candargy

Plant Symbol = AGFR

Contributed by: USDA NRCS Idaho State Office

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Alternate Names

Agropyron cristatum (L.) Gaertn. ssp. *fragile* (Roth) A. Löve

Uses

Grazing/rangeland/hayland: Crested wheatgrass is commonly recommended for forage production. It is palatable to livestock and wildlife and is a desirable feed in spring, and in the fall if it re-grows enough. It is used for cattle and horse winter forage, but protein supplements are required to ensure good animal health. It withstands heavy grazing pressure (65% use and greater) once stands are established. The best forage types in order are Siberian, desertorum, and Hycrest.

Erosion control/reclamation: Crested wheatgrasses are useful for soil stabilization. They compete well with other aggressive introduced grasses, but because of this trait, they are not compatible in mixes with native species. Their drought tolerance, fibrous root systems, and good seedling vigor make these species ideal for reclamation in areas with 8 to 20 inches annual precipitation. These grasses can be used in urban areas where irrigation water is limited to provide ground cover and to stabilize ditchbanks, dikes, pipelines, powerlines and roadsides.

Wildlife: Birds and small rodents eat crested wheatgrass seeds; deer, antelope and elk graze it, especially in spring and fall. Upland and song birds utilize stands for nesting.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

Crested wheatgrasses *Agropyron cristatum*, *Agropyron desertorum*, and Siberian wheatgrass *Agropyron fragile* are perennial grasses commonly seeded in the western United States. They are long-lived, cool season, drought tolerant, introduced grasses with extensive root systems. Crested wheatgrass grows from 1 to 3 feet tall and seed spikes may be 1.5 to 3 inches long. Spiklets flattened, closely overlapping, located divergent (flatwise) at a slight angle on the rachis flower stem. The lemmas generally narrow to a short awn and glumes are firm, keeled, tapering into a short bristle. Culms are erect, in a dense tuft and leafy. Leaves are flat, smooth below, slightly coarse above and vary in width from 2 to 6 mm.

Adaptation and Distribution

Crested wheatgrasses are adapted for non-irrigated seedings where annual precipitation averages 8 inches or more and where the frost free period is generally less than 140 days. On droughtier sites with 8 inches or less annual precipitation, Siberian wheatgrass may be the best choice; it is known to surpass the desertorum and Hycrest types in rate of establishment, stand persistance, and total forage yield on the more arid sites. Siberian wheatgrass has been seeded in areas with as little as 5 inches of

precipitation with some success. Crested wheatgrass should generally be seeded below 7,000 feet elevation. Crested wheatgrass does well on shallow to deep, moderately course to fine textured, moderately well to well drained and weakly acidic to moderately alkaline soils. Under saline conditions, vigor and production are reduced. Siberian types are well adapted to light, droughty soils.
All crested wheatgrasses are cold tolerant, can withstand moderate periodic flooding in the spring, and are very tolerant of fire. They will not tolerate long periods of inundation, poorly drained soils or excessive irrigation.

Crested wheatgrass is distributed in the Midwestern United States. For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment
Crested wheatgrass should be seeded with a drill at a depth of 1/2 inch or less on medium to fine textured soils and 1 inch or less on coarse textured soils. Single species seeding rates recommended for Siberian wheatgrasse is 6 pounds Pure Live Seed (PLS) or 24 PLS per square foot. If used as a component of a mix, adjust to percent of mix desired. For mined lands and other harsh critical areas, the seeding rate should be increased to 40 to 50 PLS per square foot. Mulching and light irrigations on highly disturbed areas are beneficial for stand establishment.

The best seeding results are obtained in very early spring on heavy to medium textured soils and in late fall on medium to light textured soils. Late summer (August - mid September) seedings are not recommended unless irrigation is available. Crested and Siberian wheatgrasses establish fairly quickly, with 'Hycrest' and 'Vavilov' noted for the best seedling vigor. They should not be seeded with native species. Under favorable conditions they can become a good weed barrier.

Stands may require weed control measures during establishment, but application of 2,4-D should not be made until plants have reached the four to six leaf stage. Mow when weeds are beginning to bloom to reduce weed seed development. New stands may also be damaged by grasshoppers and other insects; pesticides may be required.

Management
Crested wheatgrasses produce leaves in the spring about 10 days after bluegrass species and about 2 to 3 weeks earlier than native wheatgrasses. New stands of crested wheatgrass should not be grazed until they are firmly established and have started to produce seed heads. Six inches of new growth should be attained in spring before grazing is allowed in established stands. Three inches of stubble should remain at the end of the grazing season to maintain the long term health of the plant.

Crested wheatgrasses are low maintenance plants; however, spring/fall deferment or grazing rotations are recommended to maintain plant health and to maximize forage production potential. Crested wheatgrass can be used for hay production and will make nutritious feed, but is more suited to pasture use. Light, infrequent applications of nitrogen (25 pounds/acre) and irrigation will increase total biomass production and lengthen the green period.

Environmental Concerns
Crested wheatgrasses are long-lived, spread primarily via seed, but may also spread via rhizomes in the case of the cristatum types. They are not considered "weedy" or invasive species. Most seedings do not spread beyond original plantings, or if they do spread, the rate of spread is not alarming. They will cross with each other, but do not cross with native species. Crested wheatgrasses resist winter annual competition better than native species because they germinate earlier and grows more rapidly at colder temperatures. Due to commonly being planted in monocultures (single species) stands in the past, some feel crested wheatgrasses are not ecologically appropriate. It is important to consider multiple species mixes to avoid this conception.

Cultivars, Improved, and Selected Materials (and area of origin)
'P27' (Kazakhstan) is awnless, has finer leaves, and retains greenness and palatability later into the summer than other crested wheatgrasses. It yields less and has poorer seedling vigor than other crested wheatgrasses. 'Vavilov' (former USSR, Turkey) has better seedling vigor than 'P-27' and will not cross with other crested wheatgrasses. It is expected that 'Vavilov' will eventually replace 'P-27' on the commercial seed market.

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