

Plants for Solving Resource Problems

'EPHRAIM' CRESTED WHEATGRASS

Species: *Agropyron cristatum*
Common Name: Crested Wheatgrass
Plant Symbol: AGCR
Accession Number: PI-109012

Source: 'Ephraim' crested wheatgrass was introduced from Ankara, Turkey. Detailed collection site information is not available.

Native Site Information: Crested wheatgrass is native to Eurasia. It was first introduced into the U.S. from Siberia in 1898 and is now widely used in dryland pasture and rangeland seedings throughout the western United States.

Method of Selection: Ephraim was originally tested in Utah at Majors Flat in 1946. Later plantings were evaluated at the John K. Olsen farm and the Gilbert Jorgensen farm near Ephraim, Utah. A selection was made from the Jorgensen planting and all subsequent plantings came from this selection. Evaluation plantings were conducted in northern Arizona, Utah, Idaho and Montana. Cooperators in the release include the USDA Forest Service Intermountain Forest and Range Experiment Station, Utah Division of Wildlife Resources and the USDA Natural Resources Conservation Service.

Description: Although crested wheatgrass is typically a bunchgrass, Ephraim is a weakly rhizomatous grass under conditions exceeding 14 inches mean annual precipitation.

Culms are approximately 12 to 15 inches tall. Leaf blades are flat or loosely rolled and $\frac{1}{4}$ inch wide. The inflorescence is a spike approximately $\frac{3}{4}$ inches wide at the base with numerous tightly packed



'Ephraim'
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ascending florets spreading at wide angles to the rachis.

Use: The rhizomatous nature of Ephraim makes it a good candidate for stabilization of disturbed sites and erosion control. Under irrigated conditions Ephraim will develop rhizomes during the establishment year. Under dryland conditions rhizome production is site dependent. In piñon-juniper and sagebrush-grass sites exceeding 14 inches of mean annual rainfall short rhizomes commonly develop by the third growing season.

Ephraim has established in rainfall areas as low as 8 inches annual precipitation, but provides the best stands with good forage production in areas with more than 10 inches of annual precipitation. Forage production is comparable to 'Fairway' crested wheatgrass. In arid sites, Ephraim is not as productive as standard crested wheatgrass, but it is adapted to a broader range of conditions than standard crested wheatgrass.

Insect and Disease Problems: When in pure stands, Ephraim is susceptible to the black grass bug, *Labops hesperius*.

Environmental Considerations: Since Ephraim is an introduced plant from Europe, it is not an appropriate component in native plant community restoration. This release is from a species that was introduced to the United States in the late 1800's. Ephraim represents an incremental improvement in performance within a well documented species. Ephraim spreads very little via natural seed distribution. It is not considered a weedy or invasive species but can spread into adjoining vegetative communities under ideal environmental conditions. There are no known negative impacts on wild or domestic animals.

Area of Adaptation: Ephraim is well adapted to the sagebrush-grass, piñon-juniper and mountain brush communities of the Intermountain West. It performs best with 10 to 14 inches annual precipitation. Crested wheatgrass is generally not recommended above 7000 feet elevation, however Ephraim and other Fairway type crested wheatgrasses can be used up to 9000 feet elevation.

Soil Adaptation: Ephraim is adapted to a wide range of soils including disturbed sites and mine spoils. However, it is not well adapted to silty sites with a low moisture intake or to extremely stony sites. It has a moderate tolerance to saline and sodic conditions.

Planting and Harvesting: Ephraim should be seeded with a drill to a depth of ¼ to ½ inch

into a firm, weed-free seedbed. The full seeding rate is 5 pounds Pure Live Seed (PLS) per acre. When used as a component of a seed mix, adjust to the percent of mix desired. For seed production Ephraim should be seeded in 36 inch rows at a rate of 1.6 pounds PLS per acre to allow mechanical weed control and to maintain rows. Harvesting seed is best accomplished by swathing, followed by combining of the windrows. Seed is generally harvested in early August. Seed yields range from 200 pounds per acre (dryland) to 650 pounds per acre (irrigated).

Seed Maintenance: Breeder and Foundation seed is maintained at:

USDA-NRCS, Aberdeen PMC
P.O. Box 296
1691A S. 2700 W.
Aberdeen, ID 83210
Phone: (208) 397-4133

Foundation seed is available through the University of Idaho Foundation Seed Program and Utah Crop Improvement Association and Soil Conservation Districts in Idaho, Utah and Nevada. Certified seed shall be limited to not more than two generations from Foundation seed (Registered and Certified).

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