USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

Richfield Selection Firecracker penstemon

Penstemon eatonii A. Gray

A Conservation Plant Release by USDA NRCS Aberdeen Plant Materials Center, Aberdeen, Idaho

Richfield firecracker penstemon is a Pre-Variety Selected Class conservation plant released in 1994.

Richfield Selection firecracker penstemon (*Penstemon eatonii*) is a Selected Class Germplasm release of a native collection from near Richfield, Utah. Richfield was selected by the Aberdeen Plant Materials Center for its beauty, hardiness, seed production, natural range of adaptability and minimal stratification needs and was released in cooperation with the University of Idaho Agricultural Experiment Station in 1994.

Description

Richfield is an erect, short-lived perennial, cool season, forb. It has a fibrous root system and the stems are often decumbent or reclining. The leaves are large and slightly pubescent. The flowers are in racemes on 24 to 36 inch tall upright stems. Firecracker penstemon has bright red tubular flowers, blooming in mid-summer through early fall.

Source

Seed was collected approximately 14 miles southeast of Richfield, Sevier County, Utah in August, 1974. The collection site is approximately 6,600 feet elevation on an upland gravelly loam in a 12 to 14 inch annual precipitation zone. Plants growing in association include sagebrush, globe mallow and Indian ricegrass.

Richfield was selected from a collection of 119 penstemon accessions assembled and evaluated at the Aberdeen Plant Materials Center from 1981 to 1985 including 15 firecracker penstemon accessions. The Richfield Selection was selected for its beauty, hardiness, seed production and natural range of adaptability. Richfield had the best stand establishment, longest survival, and the greatest promise for use throughout its range of adaptation.

Conservation Uses

Firecracker penstemon is chiefly used as a forb component for restoration and wildlife enhancement projects. It is not noted for having value as forage for livestock and forage use is limited by big game. Its showy flowers attract pollinators and other insects which provide a food source for birds and other animals. The fibrous root system and wide canopy cover make it a good plant for low-water use landscaping, roadsides, and other ornamental plantings.

Firecracker penstemon was used by Native Americans for the treatment of: spider bites, stomach troubles, to reduce bleeding, backache, snakebite, as a veterinary aid, and for healing of burns.

Area of Adaptation and Use

The range of adaptation for Richfield penstemon includes the sagebrush, juniper, and ponderosa pine zones at 3,300 to 8,000 feet elevation in 10 to 16 inch annual rainfall areas. Firecracker penstemon can survive in full sunlight, but may not tolerate hot, dry areas. It can survive cold winter temperatures found in the northern portion of its range if the snow is deep enough to cover the plant. It does not grow well in areas with poor drainage. It is found on shallow rocky, loams, sandy loams, gravelly loams, well-drained to moderately well-drained soils. It is adapted to USDA Plant Hardiness Zones 4a to 8b and pH ranges of 6.6 (slightly acidic) to 8.5 (alkaline).

Establishment and Management for Conservation Plantings

Firecracker penstemon seed requires a cool, moist period (stratification) to germinate. Because of the seed stratification requirement, firecracker penstemon should be seeded in late fall with a drill or broadcast planted and then pressed to a depth of ⅛ to ¼ inch into a firm seedbed. Good seed to soil contact is important for germination and establishment. The full seeding rate is 3 pounds Pure Live Seed (PLS) per acre. When used as a component of a seed mix, adjust to the percent of mix desired.

Mulching, irrigation and weed control benefit stand establishment. Some planted seed may not germinate until the second growing season. Full flowering should not be expected until the second growing season.

Weed control is required during establishment. Because penstemon is a broadleaf plant, the use of broadleaf type herbicides is not recommended. Mowing the stand when weeds begin to bloom will reduce weed seed development. Grasshoppers and other insects may damage new stands and pesticides may be needed for control.

Richfield firecracker penstemon should be used as a minor component of seed mixtures. Management strategies should be based on the key species in the established plant community. Grazing should be deferred on seeded lands for at least two growing seasons to allow for full stand establishment. Firecracker penstemon is susceptible to soil-borne fusarium and rhizoctonia root rot which can be severe in poorly drained loam and clay textured soils.

Ecological Considerations

Firecracker penstemon is a native plant species in western North America and has no known negative impacts on wild or domestic animals. Richfield is not considered a weedy or invasive species but can spread to adjoining vegetative communities under ideal conditions. It co-exists with other native species and adds biodiversity to plant communities.

Seed and Plant Production

Fields for seed production can be established from direct seeding or from transplanting greenhouse grown containerized stock. Direct seeding should take place in late fall to allow for natural stratification of the seed. Richfield firecracker penstemon should be seeded in 30-36 inch rows at a rate of 1.3 pounds PLS per acre (target 30 pure live seeds per linear foot of drill row) to allow for mechanical weed control. The use of weed barrier fabric is an alternative to allow closer spacing, reduce weeds and conserve soil moisture. Plant spacing of 18 inches provides for maximum growth and seed yield when using weed barrier fabric.

Transplants grown in a greenhouse can be established by seeding into cones or flats in winter for natural stratification or by stratifying the seed for 8 to 12 weeks in cold and moist conditions prior to planting seed. Allow seedlings to grow in the greenhouse for 8-12 weeks before transplanting to the field. Transplants can also be made from dividing the base of older plants.

Seed harvest can be accomplished by hand or by mechanical means. Seed is mature when capsules are dry and seed is hard and dark in color. Flowering is indeterminate with mature capsules and flowers present at harvest. Harvest should occur when the majority of seed capsules begin to dry and open. Plants may be swathed ahead of combining to allow more uniform ripening and drying. Estimated seed yield is about 100 pounds per acre. Seed will maintain viability under cool and dry storage conditions for about 7-8 years with a gradual decline in viability over time. Seed production peaks at about 3 years and then plants start to die due to the short-lived nature of the species. Pollinators can enhance seed production and seed yield. Recent studies suggest that generalist bees (*Apis*, *Anthophora*) consistently generated larger seed yields of firecracker penstemon with seed yields approaching 275 pounds per acre by the placement of beehives near the field.

Availability

For conservation use: Certified seed is available from commercial seed vendors.

For seed or plant increase: Generation 0 (G0) and Generation 1 (G2) seed is maintained at the Aberdeen PMC. G2 seed is available through the University of Idaho Foundation Seed Program and the Utah Crop Improvement Association. Growers may produce one generation each of G2 and G3 seed.

For more information, contact:
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Citation

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